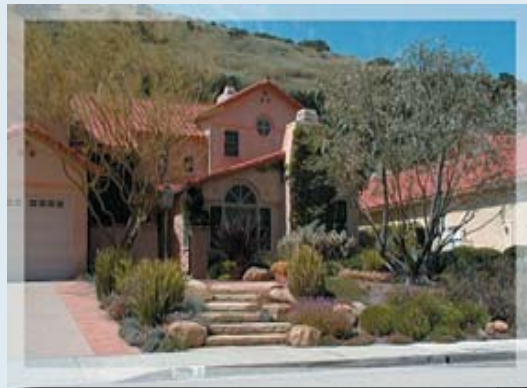




Urban Water Management Plan 2005

LVMWD Report
No. 2340.0

November 2005



P S O M A S

Urban Water
Management
Plan

URBAN WATER MANAGEMENT PLAN 2005



Las Virgenes Municipal
Water District

LVMWD REPORT No. 2340.00

November 8, 2005

PSOMAS

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
Acronyms and Abbreviations	ACR - i
1 Introduction	
1.1 Purpose and UWMP Summary	1-1
1.2 UWMP Update Preparation	1-1
1.3 LVMWD Water Service Area	1-3
1.4 LVMWD Water Service Facilities.....	1-10
2 Water Sources and Supplies	
2.1 Water Sources	2-1
2.1.1 Imported Water	2-1
2.1.2 Recycled Water	2-2
2.1.3 Groundwater	2-2
2.1.4 Surface Water	2-3
2.2 Water Supplies	2-4
2.2.1 Imported Water	2-4
2.2.2 Recycled Water	2-5
2.2.3 Groundwater	2-5
3 Water Quality	
3.1 Water Quality of Existing Sources	3-1
3.1.1 Imported Water Quality	3-1
3.2 Water Quality Effect on Water Management Strategies and Supply Reliability	3-5
4 Water Reliability Planning	
4.1 Reliability of Water Supplies for LVMWD	4-1
4.1.1 Regional Agencies and Water Reliability	4-1
4.2 Demands and Supplies Comparison	4-10
4.3 Vulnerability of Supply for Seasonal or Climatic Storage	4-23
4.4 Planned Water Supply Projects and Program to Meet Projected Water Use.....	4-23
4.4.1 LVMWD Projects	4-23
4.4.2 Regional Agency Projects.....	4-27
4.4.3 Triunfo Sanitation District Projects.....	4-33
4.5 Transfer or Exchange Opportunities.....	4-33
4.6 Opportunities for Desalinated Water	4-34
5 Water Use Provisions	
5.1 Past, Current and Projected Water use Among Sectors	5-1

6	Water Demand Management Measures	6-1
6.1	Introduction.....	6-1
6.2	Determination of DMM Implementation.....	6-1
6.3	Demand Management Measures (BMPs).....	6-1
7	Water Shortage Contingency Plan	
7.1	Introduction.....	7-1
7.2	Urban Water Shortage Contingency Analysis.....	7-2
7.2.1	Stages of Action.....	7-2
7.2.2	Estimate of Minimum Supply for the Next Three Years.....	7-5
7.2.3	Catastrophic Supply Interruption Plan.....	7-6
7.2.4	Prohibitions, Penalties, and Consumption Reduction Methods.....	7-8
7.2.5	Revenue Impacts of Reduced Sales During Drought Shortages	7-10
7.2.6	Water Shortage Contingency Resolution/Ordinance.....	7-11
7.2.7	Mechanisms to Determine Actual Reductions in Water Use.....	7-12
8	Water Recycling	
8.1	Recycled Water in Southern California.....	8-1
8.2	Coordination of Recycled Water in LVMWD Service Area.....	8-1
8.3	Wastewater Collection and Treatment in LVMWD Service Area.....	8-1
8.4	Recycled Water Planning.....	8-6
8.4.1	Potential Uses of Recycled Water.....	8-8
8.4.2	Projected Recycled Water Use.....	8-8
8.4.3	2000 Projection Comparison to 2005 Actual.....	8-10
8.4.4	Encouraging Recycled Water Use.....	8-10
8.4.5	Optimizing Recycled Water Use.....	8-11

TABLES

<u>Table No.</u>		<u>Page</u>
Table 1.3.1	District Service Area Climate.....	1-6
Table 1.3.2	Population – Current and Projected.....	1-6
Table 2.1.4-1	Las Virgenes Reservoir Data.....	2-3
Table 2.2-1	Current and Projected Water Supply.....	2-4
Table 2.2.1-1	Imported Water Connections.....	2-4
Table 2.2.3-1	Westlake Wells – Construction Detail.....	2-5
Table 2.2.3-2	Historical Pumping From Westlake Wells.....	2-6
Table 2.2.3-3	Projected Groundwater Pumping.....	2-6
Table 4.1.1-1	SWP Table A Deliveries from the Delta.....	4-4

Table 4.2-1	MWD Regional Imported Water Supply Reliability Projection for Average and Single Dry Years	4-11
Table 4.2-2	MWD Regional Imported Water Supply Reliability Projection for Average and Multiple Dry Years.....	4-13
Table 4.2-3	LVMWD Historical Demands for the Period 2000-2005	4-14
Table 4.2-4	Comparison Between MWD Supply Availability and LVMWD Demand During an Average Year	4-15
Table 4.2-5	LVMWD Current and Projected Water Supply and Demand for a Normal Water Year.....	4-16
Table 4.2-6	LVMWD Current and Projected Water Supply and Demand for a Single Dry Year	4-17
Table 4.2-7	LVMWD Current and Projected Water Supply and Demand for Multiple Dry Years 2006-2010.....	4-18
Table 4.2-8	LVMWD Current and Projected Water Supply and Demand for Multiple Dry Years 2011-2015.....	4-19
Table 4.2-9	LVMWD Current and Projected Water Supply and Demand for Multiple Dry Years 2016-2020.....	4-20
Table 4.2-10	LVMWD Current and Projected Water Supply and Demand for Multiple Dry Years 2020-2025.....	4-21
Table 4.2-11	LVMWD Current and Projected Water Supply and Demand for Multiple Dry Years 2026-2030.....	4-22
Table 4.4.2-1	Metropolitan Integrated Resources Plan Update Resources Status .	4-28
Table 4.5-1	Transfer and Exchange Opportunities.....	4-33
Table 5.1-1	Water Use by Sector – Past, Current and Projected	5-1
Table 5.1-2	Water Services Connections – Past, Current and Projected.....	5-1
Table 7.2.1-1	3-Year Minimum Supply Under Worst-Case Supply Projections.....	7-6
Table 7.2.4-1	LVMWD Drought Management Plan Water Conservation Tiers	7-9
Table 7.2.4-2	LVMWD Drought Management Plan Conservation Rates by Tier - Drought	7-9
Table 7.2.4-3	LVMWD Drought Management Plan Rate Increase	7-10
Table 7.2.5-1	Estimated Revenue Impacts of Drought.....	7-11
Table 7.2.6-1	LVMWD Ordinances for Water Shortage Measures.....	7-11
Table 8.3-1	LVMWD Wastewater Collection and Treatment	8-5
Table 8.3-2	Disposal of Wastewater (Non-Recycled).....	8-6
Table 8.4.2-1	Potential Recycled Water Projects	8-9
Table 8.4.3-1	Projected Future Use of Recycled Water in LVMWD	8-9

FIGURES

<u>Figure No.</u>		<u>Page</u>
Figure 1.1	Las Virgenes MWD District Boundaries	1-5
Figure 1.2	LVMWD Service Area – 2005 Population Density by Census Blocks .	1-7
Figure 1.3	LVMWD Service Area – 2030 Population Density by Census Blocks .	1-8
Figure 1.4	LVMWD Service Area – Change in Population Density from 2005 to 2030.....	1-9

APPENDICES

Appendix A	Urban Water Management Planning Act of 1983, as amended 2005
Appendix B	Department of Water Resources UWMP “Review for Completeness” Form
Appendix C	Notice of Public Hearing and Resolution for UWMP Adoption
Appendix D	References
Appendix E	CUWCC - LVMWD Conservation BMP Activity Reports for 2001-2002 and 2003-2004, Activity Reports and Coverage Reports
Appendix F	Draft Ordinance– Water Waste Prohibition and Resolution
Appendix G	LVMWD Drought Management Plan

ACRONYMS and ABBREVIATIONS

AB	Assembly Bill
AF	Acre Feet
AFY	Acre Feet per Year
BGS	Below Ground Surface
BMP	Best Management Practice
BOD	Biochemical Oxygen Demand
CALSIM	California Water Allocation and Reservoir Operations Model
CFS	Cubic Feet Per Second
CMWD	Calleguas Municipal Water District
CRA	Colorado River Aqueduct
CUWCC	California Urban Water Conservation Council
CVP	Central Valley Project
CVWD	Coachella Valley Water District
DBP	Disinfection Byproducts
DE	Diatomaceous Earth
DHS	Department of Health Services
DMM	Demand Management Measure
DWCV	Desert Water Agency/Coachella Valley Water District
DWR	Department of Water Resources
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
ETo	Evapotranspiration
GIS	Geographic Information System
gpm	gallons per minute
gpcd	Gallons Per Capita Per Day
HAA	Haloacetic Acid
HCF	Hundred Cubic Feet
IAWP	Interim Agricultural Water Program
I/I	Inflow and Infiltration
IID	Imperial Irrigation District
IRP	Integrated Resources Plan
LRP	MWD Local Resources Program
LV1	Las Virgenes MWD West Valley MWD Feeder No. 1 Connection
LV2	Las Virgenes MWD Calabasas MWD Feeder Connection
LV3	Las Virgenes MWD West Valley MWD Feeder No. 2 Connection
LVMWD	Las Virgenes Municipal Water District
MAF	Million Acre Feet
MARS	Member Agency Response System

MCL	Maximum Contaminant Level
MDD	Maximum Daily Demand
MG	Million Gallons
MGD	Million Gallons per Day
MG/L	Milligrams per liter
MOU	Memorandum of Understanding
MTBE	Methyl Tertiary Butyl Ether
MWD	Metropolitan Water District of Southern California
NA	Not Available
NDMA	N-Nitrosodimethylamine
NPDES	National Pollution Discharge Elimination System
NTU	Nephelometric Turbidity Units
QSA	Quantification Settlement Agreement
RUWMP	Regional Urban Water Management Plan
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCAG	Southern California Association of Governments
SCCWRRS	Southern California Comprehensive Water Reclamation and Reuse Study
SEA	Significant Ecological Area
SWP	State Water Project
SWRCB	State Water Resources Control Board
TAF	Thousand Acre Feet
TWRF	Tapia Water Reclamation Facility
TDS	Total Dissolved Solids
THM	Trihalomethane
TSD	Triunfo Sanitation District
ULFT	Ultra Low Flush Toilet
USBR	United States Bureau of Reclamation
UWMP	Urban Water Management Plan
VCPWA	Ventura County Public Works Agency
WARN	California Water Agencies Response Network
WSDM	Water Surplus and Drought Management

SECTION 1 INTRODUCTION

1.1 PURPOSE AND UWMP SUMMARY

An Urban Water Management Plan (UWMP) is prepared by a water purveyor to ensure the appropriate level of reliability in water service sufficient to meet the needs of its various categories of customers during normal, dry, or multiple dry years. The California Urban Water Management Planning Act of 1983 (Act), as amended, requires urban water suppliers to develop an UWMP every five years in the years ending in zero and five.

The legislature declared that the waters of the state are a limited and renewable resource subject to ever increasing demands; that the conservation and efficient use of urban water supplies are of statewide concern; that successful implementation of plans is best accomplished at the local level; that conservation and efficient use of water shall be actively pursued to protect both the people of the state and their water resources; that conservation and efficient use of urban water supplies shall be a guiding criterion in public decisions; and that urban water suppliers shall be required to develop water management plans to achieve conservation and efficient use.

Las Virgenes Municipal Water District's (LVMWD) 2005 UWMP has been prepared in compliance with the requirements of the Act, as amended to 2005 (Appendix A)¹, and includes the following:

- Water District Service Area
- Water District Facilities
- Water Sources and Supplies
- Water Quality Information
- Water Reliability Planning
- Water Use Provisions
- Water Demand Management Measures
- Water Shortage Contingency Plan
- Water Recycling

1.2 UWMP UPDATE PREPARATION

The 2005 UWMP revises the 2000 UWMP prepared by LVMWD and incorporates changes enacted by legislation, including SB 610 (2001), AB 901 (2001), SB 672 (2001), SB 1348 (2002), SB 1384 (2002), SB 1518 (2002), AB 105 (2004), and SB 318 (2004). Additionally, the UWMP incorporates water use efficiency efforts that LVMWD has

¹California Water Code, Division 6, Part 2.6; §10610, et. seq. Established by Assembly Bill 797 (1983).

implemented pursuant to the Memorandum of Understanding Regarding Urban Water Conservation in California (MOU).²

The sections in this UWMP correspond to the outline of the Act, specifically Article 2, Contents of Plans, Sections 10631, 10632, and 10633. The sequence used to present the required information, however, differs slightly in order to present the material in a manner reflecting the unique characteristics of LVMWD. The Department of Water Resources Review for Completeness Form has been completed, which identified the locations of Act requirements in this plan and is included as Appendix B.

2005 UWMP Adoption

The Final Draft 2005 UWMP was presented to the LVMWD Board of Directors as an information item on October 11, 2005. The 2005 UWMP was then adopted by resolution of the Las Virgenes Municipal Water District Board of Directors on November 8, 2005 following a public hearing. The UWMP was submitted to the California Department of Water Resources, the California State Library, the County of Los Angeles, and other appropriate agencies, within 30 days of Board approval. Copies of the notice of public hearing and the Resolution of UWMP Adoption are included in Appendix C. Previous versions of LVMWD's UWMP were adopted in January 1991, May 1996, and December 2000.

Agency Coordination and Public Participation

A notice of preparation for the 2005 UWMP Update was prepared and sent to the cities of Calabasas, Westlake Village, Agoura Hills, Hidden Hills, Thousand Oaks, and Malibu; the Los Angeles County Department of Public Works, City of Los Angeles Department of Water and Power, Calleguas Municipal Water District, and the Metropolitan Water District of Southern California (Metropolitan).

The 2005 UWMP Update was prepared in coordination with LVMWD staff and Metropolitan for imported water and the Triunfo Sanitation District (TSD) for recycled water. LVMWD is a member agency of Metropolitan and is an active participant in implementing the Metropolitan Integrated Resources Plan (IRP) and the development of Metropolitan's Regional 2005 UWMP. The emphasis of the IRP is development of local resources and is consistent with the principles developed in the IRP process. LVMWD's 2005 UWMP Update is in coordination with Metropolitan's IRP and Regional 2005 UWMP. References that were utilized as supplemental information are included within Appendix D.

²The MOU was adopted in September 1991 by numerous water suppliers, public advocacy organizations and other interested groups. It created the California Urban Water Conservation Council and established the Best Management Practices (BMPs) for urban water conservation, recently refined to 14 BMPs.

LVMWD provides for public participation in all of its water and wastewater management activities, including development of the 2005 UWMP Update. Public forums are held every two weeks at the beginning and end of regular meetings of the Board of Directors to give the public an opportunity to voice their concerns, opinions, and ideas in water matters that are of interest.

Additionally, LVMWD is involved in numerous local committees and councils related to water quality issues and watershed protection measures, such as the Malibu Creek Advisory Council, the North Santa Monica Bay Watershed Implementation Task Force, and others, which all serve as coordinating agencies for water planning.

Further, Metropolitan held multiple UWMP information meetings for stakeholders and the public throughout its service area during the months of June and July 2005. On August 24, 2005, Metropolitan held an additional Public Information Meeting at the Southern California Water Dialogue monthly forum. The Southern California Water Dialogue participants meet voluntarily to explore water-related issues of vital interest to the Southern California region. The Dialogue serves as a clearinghouse and advocate for projects, activities, and processes that will improve the quality and reliability of Southern California water supply and benefit the California Bay-Delta Authority.

1.3 LVMWD WATER SERVICE AREA

Background

Chumash indigenous Americans were the first known inhabitants of Southern California as far back as 20,000 years ago. The Spaniards arrived in the early 18th Century and established missions to educate the Chumash in European ways and convert them to Christianity. The old Chumash Trail became El Camino Real, running through the heart of the Las Virgenes area on its way to the Mission San Francisco. Today, Highway 101 approximates the route of that road. King Phillip V granted the 17,000-acre El Rancho de Nuestra Reina de Las Virgenes to a Niguel Ortega. This parcel and a portion of Rancho El Conejo made up the northwest portion of the area that later became the Las Virgenes Municipal Water District.

The arrival in 1913 of Owens Valley water to the San Fernando Valley to the east brought large population surges to the region. In addition, recreational and movie-making activities became prevalent and the residents' concern about water shortage mounted. In 1955, the Las Virgenes Water Committee was formed to seek out a permanent source of water for the Las Virgenes area. The goal was to achieve annexation to the Metropolitan Water District of Southern California (Metropolitan). In a policy statement drafted on August 9, 1957, the Committee resolved to form the Las Virgenes Municipal Water District (LVMWD) and to cooperate with the Calleguas Municipal Water District (CMWD) to annex to Metropolitan. Joining with CMWD was a key factor by providing the necessary and adequate cumulative assessed valuation and tax base. In February 1958 a measure to annex was approved by 64% of the 1,009 total voters and the first Board of Directors was elected.

Two years later, LVMWD completed construction of the primary pipeline to Las Virgenes. It was then that LVMWD began laying pipe for local distribution. In July 1963, the first drop of water was pumped to the Agoura Fire Station on Cornell Road. The Las Virgenes Reservoir was completed in Westlake Village and filled by 1974 to assure emergency drinking water and off-season storage.

Also in 1963, the Triunfo Sanitation District formed just across the Ventura County line, citing "for our water to be put to maximum beneficial use". The next year, an agreement was signed with Triunfo Sanitation District, to jointly treat wastewater of the two bordering areas. Construction began on Tapia Wastewater Treatment Plant in Malibu Canyon with operation beginning in 1965 at 0.5 million gallons per day (MGD) capacity, growing to 16.0 MGD by 1993 to meet the needs and demands of approved land-use plans and projects resulting in a growing population.

Recycled water from the Tapia Water Reclamation Facility (TWRP) was applied to local landscapes in 1972, providing a national example in water reuse. This set the stage for LVMWD's current significant recycled water system evidenced by multiple honors and award. Additionally, LVMWD was recognized in 1996 for becoming the first agency in California to reuse 100 percent of recycled water produced over the summer months.

Location

Today, Las Virgenes Municipal Water District provides water, sanitation, and recycled water services to a population of over 71,000 across a 122-square mile area (74,640 acres) in western Los Angeles County including Los Angeles/Ventura County boundary on the west and the north to the City of Los Angeles on the east. The service area includes the incorporated cities of Agoura Hills, Calabasas, Hidden Hills and Westlake Village as well as unincorporated portions of Los Angeles County. Figure 1.1 shows LVMWD's service area boundaries.

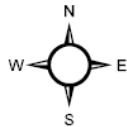
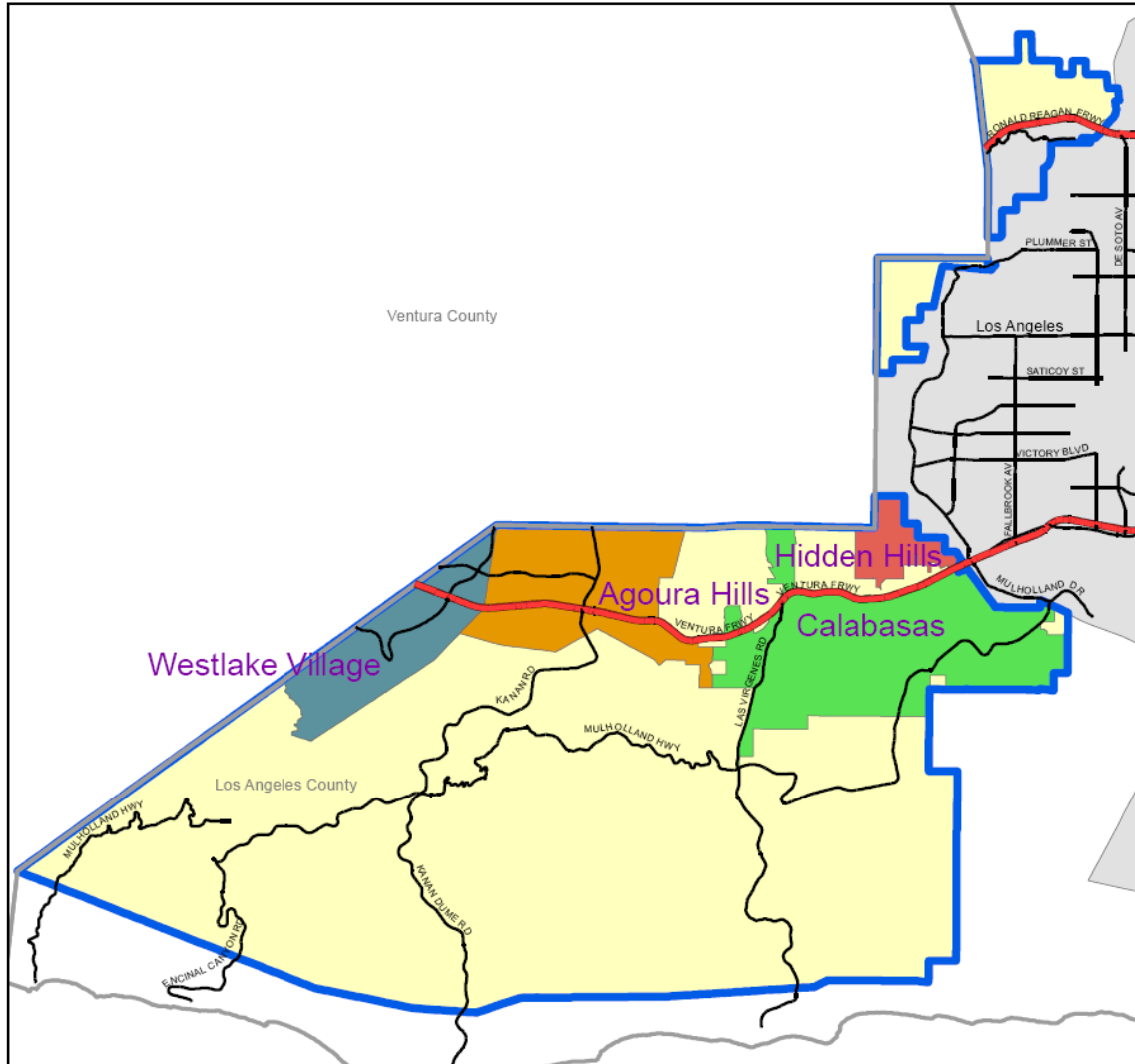
A large portion of the service area is undeveloped land, held in public ownership that will not require water service (35 to 40 percent of the total area is state and national parklands or other open space), while the remaining portion is primarily with mixed residential, commercial, industrial, and agricultural sectors. However, agricultural uses consist of less than one percent of the total service area.

Climate Characteristics

LVMWD's service area climate is a semi-arid environment with mild winters, warm summers and moderate rainfall, consistent with coastal Southern California. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or dry hot Santa Ana winds. Evapotranspiration (ET_o) averages a total of 46.6 inches. The average annual temperature is 62 degrees Fahrenheit. Precipitation is typically 10-12 inches, occurring mostly between November and April. Table 1-3.1 shows the monthly average high and low temperatures and monthly average rainfall in the LVMWD service area.

Figure 1.1
Las Virgenes Municipal Water District Boundary

Las Virgenes Municipal Water District Service Area



Legend	
Roads	Cities within District
TYPE	Name
Freeway	Agoura Hills
Major Roads	Calabasas
County Boundaries	Hidden Hills
District Service Area	Westlake Village
	City of Los Angeles
	Unincorporated

**Table 1.3-1
District Service Area Climate**

	Avg. High Temperature	Avg. Low Temperature	Avg. Precipitation
January	68°	38°	3.3
February	71°	40°	3.3
March	72°	42°	2.9
April	77°	44°	1.0
May	81°	48°	0.3
June	87°	54°	0.0
July	95°	57°	0.0
August	95°	58°	0.3
September	91°	55°	0.3
October	84°	48°	0.5
November	74°	44°	2.5
December	68°	38°	2.1
Total Rainfall			16.5

Source: [on-line] <http://countrystudies.us/united-states/weather/>

Demographics

The District had a demographic study prepared in 1996, *Las Virgenes Municipal Water District Population Growth, Residential Development and Employment Activity*, by Bauer Environmental Services. The study addressed current growth patterns, and concluded that growth patterns would be significantly less than what had been previously anticipated for the late 1980's and early 1990's. The development pattern had been predominately commercial/office along the freeway corridor with some modest residential development.

The 1999 LVMWD Master Plan updated the population projection from the 1989 Master Plan for the service area. Projections within the 1999 Master Plan concur with the 1996 Study that growth patterns would be significantly less. Current and future population projections have been prepared based on an analysis of the 2000 U.S. Census Tract information and Southern California Association of Governments (SCAG) projections. That analysis yield the following projected information shown in Table 1.3-2.

**Table 1.3-2
Population – Current and Projected**

	2005	2010	2015	2020	2025	2030
Service Area Population	71,175	75,625	78,875	82,250	85,675	88,752

Figures 1.2, 1.3 and 1.4 graphically depict the density (by census block) of the 2005 and projected 2030 population as well as the areas which are anticipated to experience the greatest growth.

Figure 1.2
LVMWD Service Area – 2005 Population Density by Census Blocks

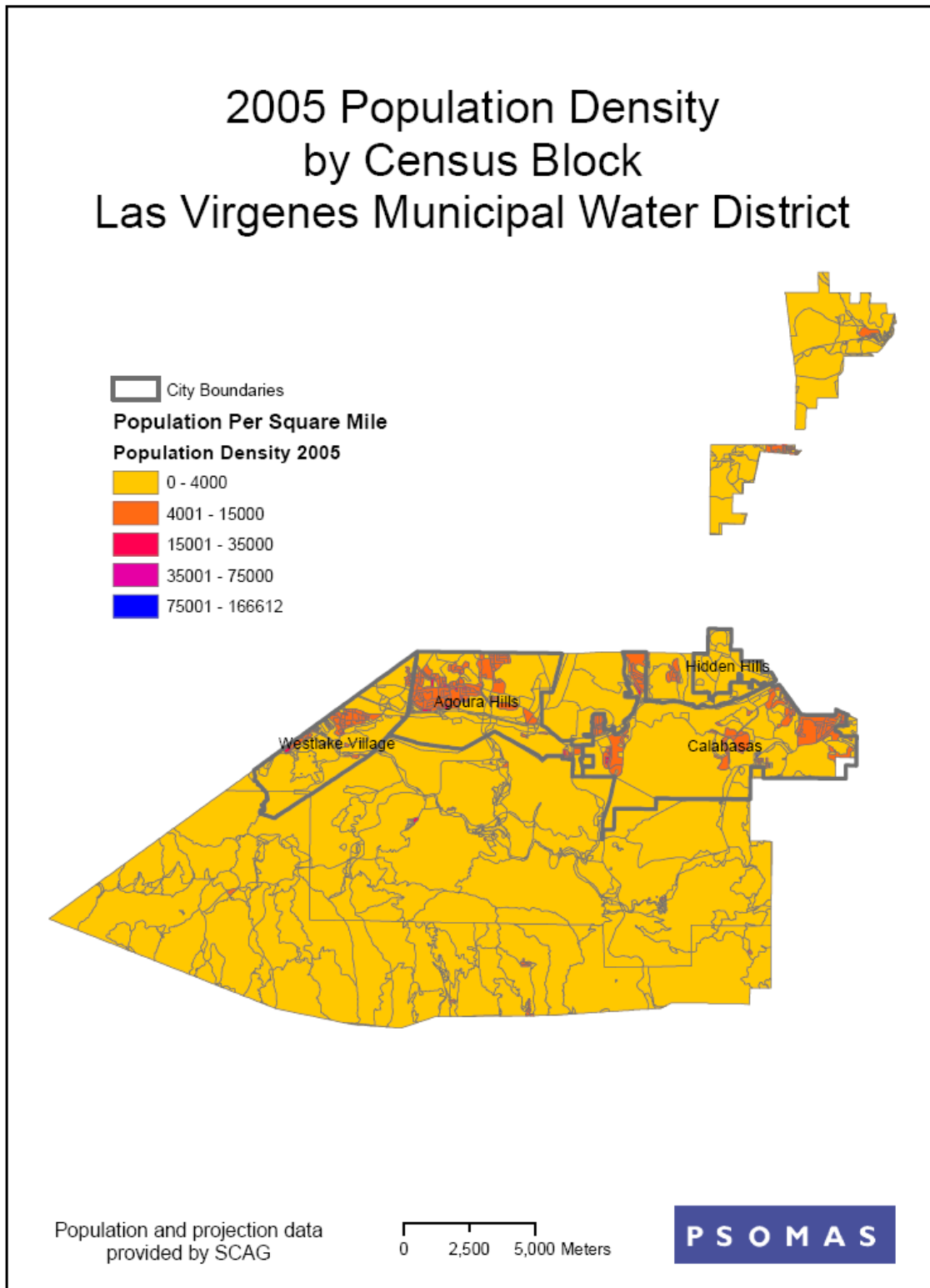


Figure 1.3
LVMWD Service Area – 2030 Population Density by Census Blocks

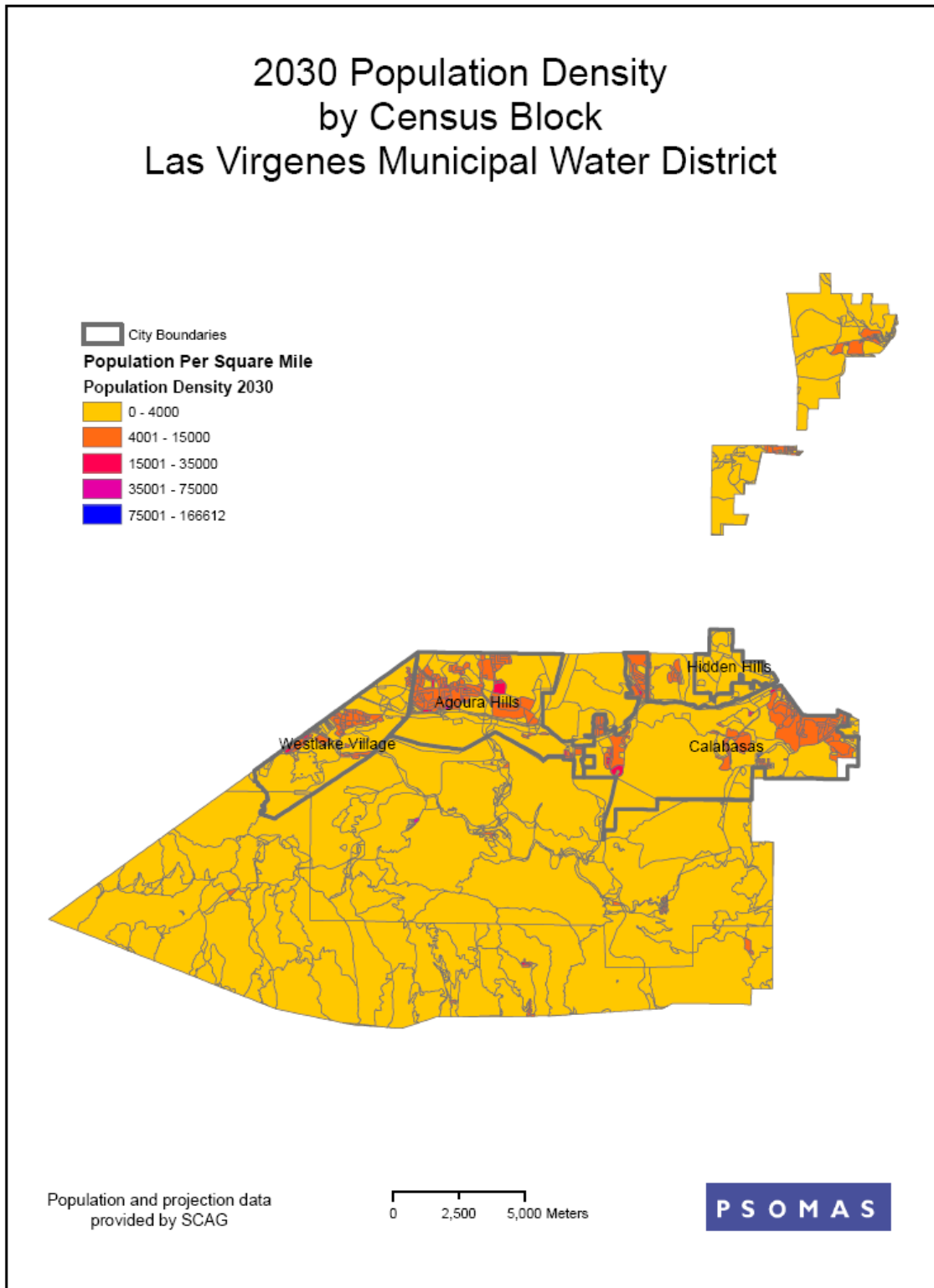
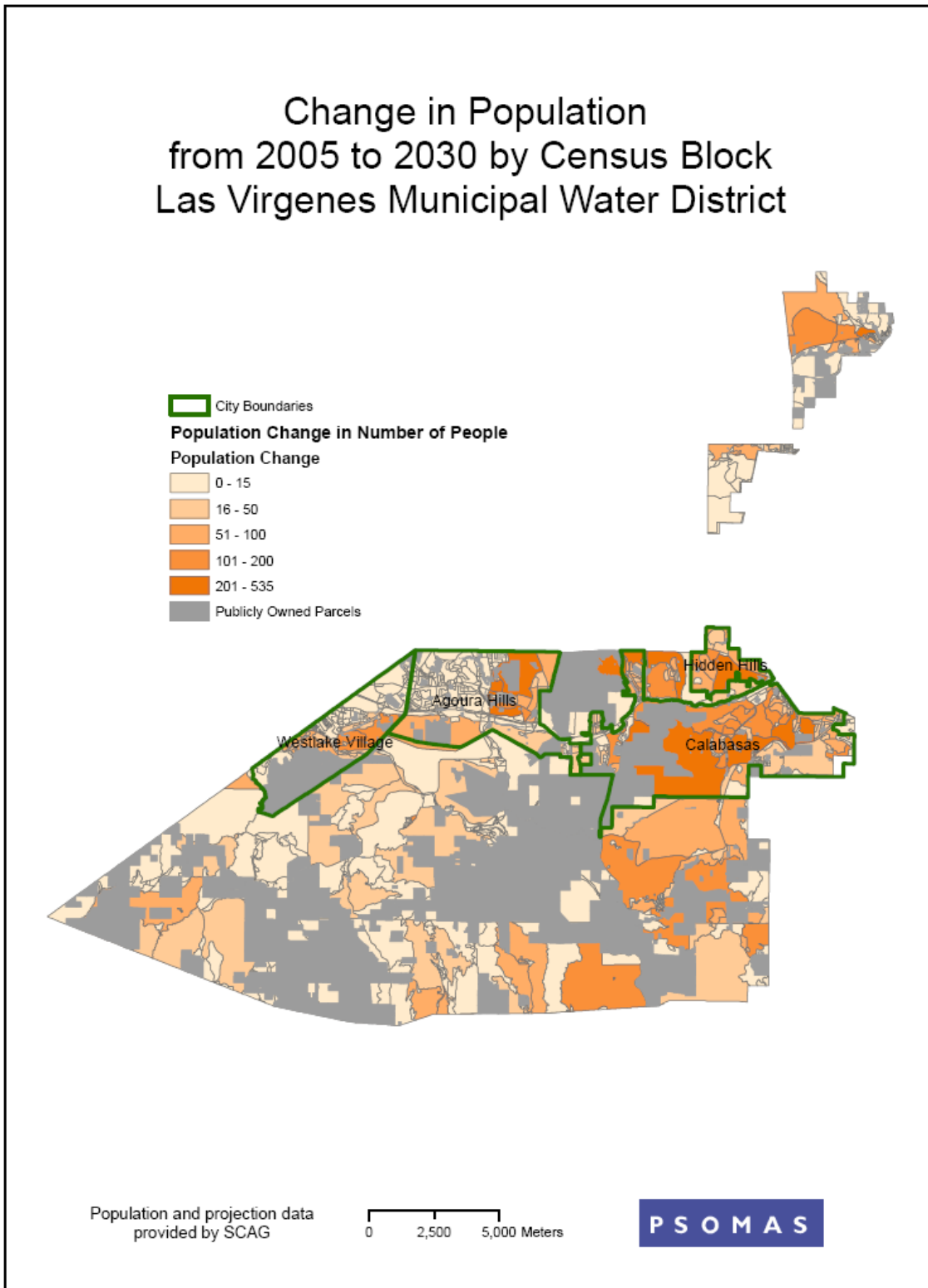


Figure 1.4
LVMWD Service Area – Change in Population Density from 2005 to 2030



1.4 LVMWD WATER SERVICE FACILITIES

Water System Pressure Zones and Facilities

LVMWD operates a 15 MGD potable water filtration plant (Westlake Filtration Plant), a 9,600 acre-feet (AF) open storage reservoir (Las Virgenes Reservoir), 25 storage tanks, 24 pump stations, and about 339 miles of water mains. LVMWD maintains numerous pressure zones due to the mountainous topography of its service area. However, for billing purposes, the District is divided into five pressure zones.

LVMWD provides potable water to its service area through wholesale purchases from Metropolitan, which imports water from the State Water Project (SWP) and the Colorado River. LVMWD receives imported water on its eastern side and then distributes it to the west, along the 101 Freeway corridor through a series of main transmission lines, pumps, and tanks. Subordinate pump stations and tanks are used to create individual pressure zones to serve areas at different elevations from the basic gradient.

LVMWD also provides recycled water to its service area from the TWRP, which is jointly owned and operated by LVMWD and Triunfo Sanitation District (TSD). With a total capacity of 16.1 MGD, recycled water from the TWRP is mostly used for landscape irrigation and is heavily utilized during the peak irrigation season. The recycled water is distributed through a distribution system of 62 miles of water lines, 3 storage tanks, 3 reservoirs, and 4 pump stations. A more detailed discussion of Recycled water is included within Section 8, Water Recycling.

In addition, LVMWD and TSD operate the Rancho Las Virgenes Composting Facility (Rancho Las Virgenes).

Las Virgenes Reservoir

The Las Virgenes Reservoir is located in Los Angeles County in the hills of the City of Westlake Village just south of Westlake Lake. The Las Virgenes Reservoir capacity is nearly 9,600 AF (3 billion gallons) and covers 160 acres. LVMWD owns nearly 360 acres of watershed land surrounding the reservoir to ensure water quality protection by restricting access and development.

The reservoir is created by two earthen dams built on bedrock foundation. The large (main) dam is 160 feet high, 2,000 feet long, 20 feet wide at top, and 750 feet wide at bottom. The small (saddle) dam is 50 feet long, 20 feet wide at top, and 425 feet wide at bottom. The inlet/outlet tower is a single concrete structure with five inlet/outlet valves set at varying depths. These valves allow the plant operator to draw water from varying levels in the reservoir.

The reservoir provides LVMWD with up to six months of water supply (at winter demand levels) for the entire District service area in the event of an emergency or planned service interruption by Metropolitan. Since LVMWD's only source of potable water is from Metropolitan, a local storage facility is critical. The reservoir also increases the District's ability to meet peak summer water demand by creating a second supply at the west end of the District's service area.

To prevent water in the reservoir from becoming stagnant, air is bubbled into it from a compressor. The aeration process mixes the naturally occurring layers of water, which can negatively impact water quality. Since water in the reservoir is open to the environment, regulations require that it be filtered and disinfected before serving to customers. This is accomplished at the Westlake Filtration Plant. Water in the reservoir consistently meets or exceeds all State and Federal drinking water quality standards.

Westlake Filtration Plant

The Westlake Filtration Plant was completed in 1990 to meet tightening regulations for water quality. It receives water from the Las Virgenes Reservoir and is located adjacent to the reservoir. The water is treated by 10 filtration units using diatomaceous earth (DE) as a filter media. The 20,000-square foot filtration plant has a capacity to filter and disinfect 15 MGD through a completely automated process, although it can also be manually operated when needed. The filtered water is disinfected with chloramines before it is pumped into the distribution pipelines.

The Westlake Filtration Plant is normally operated in the summer months to meet peak demands; when there are planned maintenance shutdowns by Metropolitan; or in the event of emergencies. In the event of any of these, the plant is placed in standby mode and can be placed on-line within hours. While in operation, the plant is closely monitored by a complex automated system and staffed by certified operators to ensure continuous and consistent water quality and supply.

Tapia Water Reclamation Facility (TWRP)

The TWRP is operated under a joint venture partnership of LVMWD and TSD. TWRP treats local wastewater for use as high quality, tertiary treated recycled water. TWRP's recycled water assists in the beneficial use of limited water resources and reduces the local dependence on imported water.

Built in 1965, TWRP is located on Malibu Canyon Road five miles south of the Ventura Freeway at the Las Virgenes/Malibu Canyon exit. It was constructed at the low-point in the Malibu Creek watershed to allow wastewater from throughout the watershed to flow by gravity to the treatment facility, reducing the need for pumps, infrastructure, and additional energy use.

TWRF began operations in 1965 with 0.5 MGD capacity. In 1967, TWRF expanded to 2 MGD capacity. In approximately 1976, TWRF expands again to 6.8 MGD capacity and publishes the Las Virgenes Area Wide Plan that described an environmentally sound approach to wastewater treatment handling and reuse projects. In 1982, TWRF expands to 8 MGD capacity and a “maximum beneficial reuse” approach to resource management is adopted. The approach required an aggressive effort to build a recycled water distribution system to utilize tertiary treated water, and process sludge waste into reusable fertilizer. In 1984, the first phase of tertiary treatment is added by building eight anthracite filters. In 1988, TWRF received the federal recognition as the U.S. Environmental Protection Agency’s National Award for Outstanding Operations and Maintenance, indicating that the Tapia Facility is the finest for its size and type in all the U.S.

Finally, in 1994, TWRF received its last expansion to its current capacity of 16.1 MGD. TWRF currently treats an average daily flow of 9.5 MGD. TWRF maintains six aeration tanks, 12 filters for tertiary treatment, and an on-site, State-certified water quality laboratory. Testing ensures the recycled water leaving the facility meets all State and Federal health and safety requirements. The laboratory also monitors water quality in Malibu Creek as part of the District’s commitment to watershed stewardship.

TWRF has been honored with numerous awards, including a National Award of Excellence from US Environmental Protection Agency; Statewide Plant of the Year; Los Angeles Area "Plant of the Year" (seven times); Association of California Water Agencies Environmental Achievement Award; and the National Environmental Awards Council Outstanding Operations, Maintenance and Total Reuse.

Rancho Las Virgenes Composting Facility

The Rancho Las Virgenes Composting Facility is also operated under a joint venture partnership of LVMWD and TSD. The Composting Facility provides an environmentally sensitive way to recycle biosolids removed during wastewater treatment at the TWRF, and is considered one of the most advanced, automated biosolids composting facilities in the world.

The Composting Facility is located at the junction of Las Virgenes Road and Lost Hills Road in the City of Calabasas. It began operation in November 1994 as the first in-vessel composting facility in Los Angeles County.

The Composting Facility is capable of handling up to 119,000 gallons of biosolids per day, and currently processes approximately 70,000 gallons per day. Approximately 11,000 cubic yards of compost is produced annually. The Composting Facility houses two anaerobic digesters, two horizontal solid-bowl centrifuges, one-half acre biofilter to scrub air emissions, mixing and composting facilities (“Reactor Building”), compost curing building, and an operations building.

SECTION 2 WATER SOURCES AND SUPPLIES

2.1 WATER SOURCES

LVMWD has four sources of water supply:

1. Imported treated, potable water from the Metropolitan Water District of Southern California (Metropolitan)
2. Recycled water from the Tapia Water Recycling Facility (TWRP)
3. Groundwater from Russell Valley Basin (currently used only to supplement the recycled water system)
4. Surface water runoff to Las Virgenes Reservoir

Located in the Santa Monica Mountains, covering nearly 75,000 acres, LVMWD has very limited natural water resources. LVMWD's potable water is provided by the Metropolitan. However, LVMWD has developed and integrated its water resources to provide recycled water for increased water reliability and conservation. This has included aggressive use of recycled water, some use of groundwater to augment recycled water supplies, and storing water during non peak hours for use during the peak demand periods. LVMWD has optimized these limited water resources to supply the water demand for continued growth of the community.

2.1.1 Imported Water

Metropolitan was organized in 1928 by thirteen Southern California cities. Collectively, these charter members recognized the limited water supplies available within the region, and realized that continued prosperity and economic development of Southern California depended upon the acquisition and careful management of an adequate supplemental water supply. This foresight made the continued development of Southern California possible. Metropolitan acquires water from northern California via the State Water Project and from the Colorado River to supply water to most of Southern California. As a wholesaler, Metropolitan has no retail customers, and distributes treated and untreated water directly to its 26 member agencies, including LVMWD.

Metropolitan water imported from Northern California through the State Water Project (SWP) is stored at Castaic Lake on the western side of the Metropolitan service area. Metropolitan has completed the construction of the Diamond Valley Lake Reservoir in Hemet, California; an 800,000 AF capacity reservoir for regional seasonal and emergency storage for SWP and Colorado River water. The reservoir began storing water in November 1999 and reached the sustained water level by early 2002. Currently, LVMWD receives only SWP water from the northern California supply system originating from the Sacramento-San Joaquin Bay-Delta that is delivered to the service area by Metropolitan.

LVMWD also receives approximately 150 AFY of treated water from the City of Simi Valley and the Ventura County Waterworks District. LVMWD has contract agreements to purchase surplus water when available from both agencies. The inter-tie connections with

these agencies provide potable water to two small areas in the hills west of the San Fernando Valley. LVMWD is currently planning on connecting these customers to the rest of the LVMWD distribution system. Although the water is transferred from the City of Simi Valley and Ventura County Waterworks District, the water is from Metropolitan.

2.1.2 Recycled Water

Recycled water is produced at the TWRP. Recycled water now comprises about 20 percent of LVMWD's total water use on an annual basis. Most of this recycled water is consumed in the summer when irrigation demands are high. Therefore, recycled water is a major source of water for LVMWD and will continue to be a vital source into the future. LVMWD's recycled water program is more fully described in Section 8.

2.1.3 Groundwater

Groundwater underlying LVMWD's service area is of poor quality and is not currently used for the potable water supply system. However, it is used to augment supplies for the recycled water system. Currently, LVMWD operates two wells in the Russell Valley groundwater basin; Westlake Well 1 and Westlake Well 2. Both wells pump water from the Russell Valley groundwater basin with a maximum projected yield of 400 AFY.

Russell Valley Basin

The groundwater basin occupies a geographic area called the Russell Valley. This groundwater system is a relatively small alluvial basin bounded by semi-permeable rocks of the Santa Monica Mountains. Triunfo Creek drains the valley into Malibu Creek. The basin underlies a surface area of about 3,100 acres or five square miles.

Water bearing formations include Holocene age alluvium that averages about 35 to 55 feet thick and groundwater is unconfined. Recharge is predominantly from percolation of rainfall and from irrigation runoff. It is not known how much groundwater is currently in storage. It is estimated that the aquifer may have a total storage capacity of about 11,000 acre-feet (AF).³

Another water bearing formation underlies the alluvium to great depths and is comprised of volcanic rocks and older Tertiary sedimentary rocks. This formation is called the Conejo Formation and can be as thick as 2,000 feet in some areas. The fractured volcanic rocks can have high porosity and produce well yields from 200 to 400 gpm. The two Westlake Wells are screened in this formation. Storage capacity of this volcanic system is not clearly understood and estimates range from 30,000 to 80,000 AF.

According to California's Groundwater Bulletin 118, groundwater quality is generally sodium bicarbonate or calcium bicarbonate, but also may have areas with a calcium-magnesium sulfate nature (DWR 1959). Total dissolved solids (TDS) content usually

³ DWR, California's Groundwater Bulletin 118, 2004.

ranges from 800 to 1,200 milligrams per liter (mg/l). TDS content may extend as high as 2,800 mg/l in some areas. Sulfate content averages 300 mg/l in most wells and is probably due to the volcanic basalt that constitutes the basement rock of the aquifer.

Groundwater Level Trends

Groundwater levels in the basin have been lower in the past than they are currently. In the past and into the mid 1970's more groundwater was being pumped by private and public users. Once LVMWD improved the water supply systems in the service area and neighboring systems came on line, this allowed imported water to dominate local supply. These actions caused groundwater pumping to sharply decline. Current groundwater levels indicate the basin is not in overdraft and that groundwater levels have risen over the past 20 or 30 years due to declining groundwater pumping.

The Russell Valley groundwater basin is not adjudicated and based on the Department of Water Resources' official departmental bulletins, California's Groundwater Bulletin 118 Updated 2003 and Bulletin 160, The California Water Plan Update 2005, the Russell Valley groundwater basin is not specifically identified as a basin in an overdraft condition. The California Water Plan Update, however, does state that groundwater overdraft is a challenge for the South Coast Hydrologic Region, which includes the Russell Valley groundwater basin. Due to the reasons identified earlier, the Russell Valley groundwater basin is not in an overdraft condition.

2.1.4 Surface Water

There are no significant surface water sources in the service area. The Las Virgenes Reservoir (owned and operation by LVMWD) serves as a balancing and emergency storage reservoir with imported water withdrawn and replenished as needed. While the reservoir's watershed area does not supply a significant source of water in most years, it provides runoff sufficient to offset evaporative losses. In wet years, significant inventories can be realized.

The main storage reservoir is the 9,600 AF Las Virgenes Reservoir. This reservoir provides water for meeting summer demands and emergency storage. Las Virgenes Reservoir's characteristics are outlined in Table 2.1.4-1.

**Table 2.1.4-1
Las Virgenes Reservoir Data**

Las Virgenes Reservoir	Water Surface Elevation	Storage (AF)	Refill Volume (AF)
High Water Level	1,048 ft	9,500	N/A
Typical Year Minimum	1,032 ft	6,500	3,000
Normal Operation Minimum	1,002 ft	3,600	5,900
Minimum Level for Emergencies	950 ft	600	8,900

2.2 WATER SUPPLIES

Until 1970, all water demands within LVMWD were met with potable water purchased from Metropolitan. After 1970, recycled water production became a minor portion of total deliveries, although it expanded rapidly during the relatively steep growth phase between 1985 and 1990. Most of this recycled water is consumed in the summer when irrigation demands are high. Finally, a small amount of groundwater and imported water is used to augment supplies for the recycled water system. Current and projected water supplies from imported water, recycled water, and groundwater are shown in Table 2.2-1 and described in subsequent sections.

**Table 2.2-1
Current and Projected Water Supply (AFY)**

Water Sources	2005	2010	2015	2020	2025	2030
Imported – Metropolitan ¹	21,837	31,090	31,400	34,520	33,820	32,920
Recycled	4,587	5,260	5,490	5,730	5,970	6,180
Groundwater	240	240	240	240	240	240
Total Water Supply	26,664	36,590	37,130	40,490	40,030	39,340

1) Includes water purchased from the City of Simi Valley and Ventura County Waterworks District. Also includes imported water that meets recycled water demands during peak irrigation times when quantities of recycled water are insufficient.

2.2.1 Imported Water

All potable water used within LVMWD is imported and purchased from Metropolitan. As a member agency of Metropolitan, LVMWD enjoys good quality water conveyed via the State Water Project from Northern California. The imported water is treated at the Joseph Jensen Filtration Plant (Jensen Filtration Plant) in Granada Hills before the water is delivered to LVMWD.

LVMWD maintains three connections to the Metropolitan system. The characteristics of these connections are shown in Table 2.2.1-1.

**Table 2.2.1-1
Imported Water Connections**

Designation	Metropolitan Feeder	Design Capacity (cfs)	Current Capacity (cfs)
LV1	West Valley Feeder No. 1	24	24
LV2	Calabastas Feeder	75	38
LV3	West Valley Feeder No. 2	4	4

Source: Integrated Master Plan for Potable and Recycled Water Systems, LVMWD, 2000.

2.2.2 Recycled Water

LVMWD participates in a recycled water program and uses the water supplies available to water greenbelts, parkways, golf courses, and other landscape areas that may otherwise use valuable potable water for irrigation. This recycled water is treated at the TWRP and serves users including the Calabasas Golf Course and Calabasas High School, Calabasas Landfill, LVMWD Sludge Farm and Composting Facility, Pepperdine University, and a number of smaller users. During peak irrigation times, LVMWD augments recycled water supplies with groundwater and imported water. On average, 150 AFY of imported water is utilized within the recycled water distribution system. LVMWD’s recycled water program is more fully described in Section 8.

2.2.3 Groundwater

Groundwater supply is used to augment recycled water supplies when peak demands can not be met with recycled water supplies. LVMWD currently operates two wells, each having a nominal capacity of 400 gpm. The wells have a combined capacity of up to 1.15 MGD. These wells are used to produce groundwater from the Russell Valley Groundwater Basin for supplemental supplies into the recycled water system. Further discussion of recycled water is contained in Section 8.

The wells were initially drilled and constructed by the TSD in the early 1990s. The wells range in depth from 685 to over 900 feet in depth and are screened from 200 feet below ground surface (bgs). Table 2.2.3-1 shows the construction details of the two wells.

**Table 2.2.3-1
 Westlake Wells – Construction Detail**

Well Name	Total Well Depth (feet)	Well Diameter (inches)	Date Completed	Drilling Method	Top Perforation (feet bgs)	Bottom Perforation (feet bgs)	Seal Depth (feet bgs)	Capacity gpm
Westlake 1	917	16	1992	Mud Rotary	429	917	58	400
Westlake 2	685	18	1992	Mud Rotary	200	685	105	400

Historical Pumping

Table 2.2.3-2 below shows the pumping amounts for the last five years by LVMWD.

**Table 2.2.3-2
Historical Production from Westlake Wells (AF)**

Month	Year				
	2000	2001	2002	2003	2004
Jan	--	--	--	0.1	--
Feb	--	--	--	--	--
Mar	--	--	--	--	--
Apr	--	--	--	--	9.2
May	--	1.2	4.3	--	91.5
Jun	56.8	16.0	36.4	--	42.8
Jul	58.0	58.3	108.8	11.8	54.9
Aug	67.6	58.7	100.7	55.7	80.4
Sep	59.1	--	98.6	9.9	61.3
Oct	--	--	5.2	8.9	15.8
Nov	--	--	--	--	--
Dec	--	--	--	--	--
Amount Totals	241.5	134.2	354	86.4	355.9

Groundwater pumping projections for the 25-year planning period are shown in Table 2.2.3-3. Pumping Projections are based on the average of the last 5 years of pumped data. Actual pumping amounts will vary year to year since the wells are only used to augment recycled water supply.

**Table 2.2.3-3
Projected Groundwater Pumping (AFY)**

Well	2005	2010	2015	2020	2025	2030
Westlake Well 1	120	120	120	120	120	120
Westlake Well 2	120	120	120	120	120	120
Total Pumping	240	240	240	240	240	240

SECTION 3 WATER QUALITY

3.1 WATER QUALITY OF EXISTING SOURCES

Currently all LVMWD's imported water and projected imported water are from the SWP component of Metropolitan's supply system. This water is treated at the Jensen Filtration Plant, which is one of five filtration plants in the Metropolitan system. The plant sits high in the foothills of the Santa Susana Mountains at the northwest end of the San Fernando Valley. Its 1,290-foot elevation enables the plant to distribute to points within the valley, to Ventura County and south to West Los Angeles, Santa Monica, and the Palos Verdes Peninsula.

The water filtered through this plant originates in Northern California's mountains, rivers and streams and flows through the Sacramento-San Joaquin Delta before entering the State Water Project's 444-mile California Aqueduct. The Jensen Filtration Plant is the only Metropolitan facility that does not treat water that comes from the Colorado River and through Metropolitan's 242-mile Colorado River Aqueduct.

As required by the Safe Drinking Water Act, which was reauthorized in 1996, LVMWD provides annual Water Quality Reports to its customers; also known as Consumer Confidence Reports. This mandate is governed by the Environmental Protection Agency (EPA) and the California Department of Health Services (DHS) to inform customers of their drinking water quality. In accordance with the Safe Drinking Water Act, LVMWD monitors over 100 compounds in its water supply and in years past, the water delivered to LVMWD meets the standards required by the state and federal regulatory agencies.⁴ As mentioned earlier, LVMWD's source of potable water is from imported water supplies.

3.1.1 Imported Water Quality

LVMWD receives imported water through Metropolitan, which receives raw water from Northern California through the SWP and the Colorado River Aqueduct (CRA). Metropolitan water is treated in accordance with potable standards at filtration plants located throughout Southern California. Metropolitan tests and treats its water for microbial, organic, inorganic, and radioactive contaminants as well as pesticides and herbicides.

Protection of Metropolitan's water system continues to be a top priority. In coordination with its 26 member public agencies, Metropolitan added new security measures in 2001 and continues to upgrade and refine procedures. Changes have included an increase in the number of water quality tests conducted each year (more than 300,000) as well as contingency plans that coordinate with the Homeland Security Office's multicolored

⁴ Las Virgenes Municipal Water District 2005 Water Quality Report

tiered risk alert system.⁵ Metropolitan also has one of the most advanced laboratories in the country where water quality staff performs tests, collects data, reviews results, prepares reports, and researches other treatment technologies. Although not required, Metropolitan monitors and samples elements that are not regulated but have captured scientific and/or public interest. Metropolitan has tested for chemicals such as perchlorate, arsenic, methyl tertiary butyl ether (MTBE), and chromium VI among others.

In Metropolitan's Integrated Resources Plan (IRP) Update, water quality was identified as a possible risk to Metropolitan's future water supply reliability. Existing supplies could be threatened in the future because of contamination, more stringent water quality regulations, or the discovery of an unknown contaminant. Water quality of imported water could directly impact the amount of water supplies available to LVMWD.

Metropolitan's 2005 UWMP Update includes the following examples:

- If a groundwater basin becomes contaminated and cannot be used, more water will be required from other sources.
- Imported water from the Colorado River must be blended (mixed) with lower salinity water from the SWP. Higher salinity levels in the Colorado River would increase the proportion of SWP supplies required.
- High total dissolved solids (TDS) in water supplies leads to high TDS in wastewater, which increases the cost of recycled water.
- If diminished water quality causes a need for membrane treatment, the process typically results in losses of up to 15 percent of the water processed.
- Degradation of imported water supply quality could limit the use of local groundwater basins for storage.
- Changes in drinking water quality standards such as arsenic, radon, or perchlorate could increase demand on imported water supplies.

Because of the concerns identified above, Metropolitan has identified those water quality issues that are most concerning and have identified necessary water management strategies to minimize the impact on water supplies. Water quality concerns with Metropolitan's water supplies and the approaches taken to ensure acceptable water quality are discussed in the following sections.

Salinity

Water from the Colorado River Aqueduct has the highest level of salinity of all Metropolitan's sources of supply, averaging 650 mg/L during normal water years.⁶ Several actions have been taken on the state and federal level to control the salinity with

⁵ Metropolitan's website, www.mwdh2o.com/mwdh2o/pages/yourwater/2005_report/protect_02.html

⁶ Metropolitan Water District of Southern California, Regional UWMP, 2005

the river such as the Colorado River Basin Salinity Control Act in 1974 and formation of the Colorado River Basin Salinity Control Forum. In 1975, water quality standards and a plan for controlling salinity were approved by the Environmental Protection Agency.

In contrast, water from the SWP is significantly lower in total dissolved solids, averaging 250 mg/L. Because of the lower salinity, Metropolitan blends SWP water with Colorado River water to reduce the salinity in the water delivered to its customers. The Metropolitan's board has adopted a salinity objective of 500 mg/L for blended imported water as defined in Metropolitan's Salinity Management Action Plan. Metropolitan estimates that the objective can be met in seven out of ten years. In the other three years, hydrologic conditions would result in increased salinity and reduced volume of SWP supplies.

In an effort to address the concerns over salinity, Metropolitan secured Proposition 13 funding for two water quality programs:

- 1) Water Quality Exchange Partnership – the funding is being used to develop new infrastructure to optimize water management capabilities between the agricultural users of the eastern San Joaquin Valley and urban users of Southern California. Installing infrastructure will provide opportunities for Metropolitan to exchange SWP water for higher quality water. Because of tidal influences from the San Francisco Bay, bromide is a water quality issue for the SWP. Also, agricultural drainage presents a potential problem in the Delta which is manifested in the form of total organic carbon. These issues are discussed in detail below.
- 2) The Desalination Research and Innovation Partnership – the funding is being used to develop cost-effective advanced water treatment technologies for the desalination of Colorado River water, brackish groundwater, municipal wastewater, and agricultural drainage water.

Perchlorate in Colorado River

Perchlorate is a contaminant of concern and is known to have adverse effects on the thyroid. Perchlorate has been detected at low levels in the Colorado River water supply. Perchlorate is difficult to remove from water supplies with conventional water treatment. Successful treatment technologies include nanofiltration, reverse osmosis, biological treatment, and fluidized bed bioreactor treatment. Metropolitan continues to monitor perchlorate contamination of the Colorado River as well as research various treatment options. In 2002, Metropolitan adopted a Perchlorate Action Plan which defined the following nine objectives:

- 1) expand monitoring and reporting programs
- 2) assess the impact of perchlorate on local groundwater supplies
- 3) continue tracking health effects studies
- 4) continue tracking remediation efforts in the Las Vegas Wash
- 5) initiate modeling of perchlorate levels in the Colorado River
- 6) investigate the need for additional resource management strategies

- 7) pursue legislative and regulatory options for cleanup activities and regulatory standards
- 8) include information on perchlorate into outreach activities
- 9) provide periodic updates to Metropolitan's board and member agencies

Disinfection by-products formed by disinfectants reacting with bromide and total organic carbon in SWP water

SWP water supplies contain levels of total organic carbon and bromide that are a concern to Metropolitan to maintain safe drinking water supplies. When water is disinfected at treatment plants certain chemical reactions can occur with these impurities that can form Disinfection Byproducts (DBP). DBPs in turn can result in the formation of Trihalomethanes (THMs), Haloacetic Acids (HAAs) and other DBPs. THMs and HAAs have been found to cause cancer in laboratory animals. Inherent in any through-Delta water movement is the high organic and bromide loading imposed on the water from agricultural runoff and salt water intrusion. This poses significant treatment challenges to the receiving end users, like Metropolitan, to avoid problems with DBPs and the formation of THMs. It is imperative that the quality of SWP water delivered to Metropolitan be maintained at the highest levels possible.

In order to control the total organic carbon and bromide concentrations in Metropolitan's water supply, SWP water is blended with Colorado River water. The blending of the two water sources benefits in two ways: reduction in disinfection byproducts and reduction in salinity (as discussed earlier). Because of the recent drought conditions on the Colorado River, water supplies have been reduced which impacts the blending operations at the various filtration plants. As a result, Metropolitan's Board of Directors authorized the use of ozone as the primary disinfectant at all five Metropolitan treatment plants in July 2003. Previously, only the Henry J. Mills and Jensen Filtration Plants had been approved for this treatment. These two plants were chosen for the use of ozone in order to meet new disinfection byproducts regulations. In July 2005, Metropolitan initiated the use of ozone at its Jensen Filtration Plant, the major source of water for the District. Ozonation at the Jensen Filtration Plant is slated for 2005 completion.

Methyl Tertiary Butyl Ether (MTBE) in local surface reservoirs

The California Department of Health Services (DHS) has adopted a primary maximum contaminant level (MCL) of 13 ug/L for MTBE. MTBE is an oxygenate found in gasoline. Metropolitan monitors MTBE levels at Diamond Valley Lake and Lake Skinner. The reservoirs also have boat requirements such as MTBE-free fuel to aid in the protection of imported water supplies. MTBE concentrations have been below the MCL.

N-nitrosodimethylamine (NDMA)

N-nitrosodimethylamine (NDMA) is an emerging contaminant that may have an impact on the water supply. Although Metropolitan's water supplies are non-detect for NDMA, there is a concern that chlorine and monochloramine can react with organic nitrogen precursors to form NDMA.

Water Quality Programs

Metropolitan supports and is involved in many programs that address water quality concerns related to both the SWP and Colorado River supplies. Some of the programs and activities include:

- CALFED Program – This program coordinates several SWP water feasibility studies and projects. These include:
 1. A feasibility study on water quality improvement in the California Aqueduct.
 2. The conclusion of feasibility studies and demonstration projects under the Southern California-San Joaquin Regional Water Quality Exchange Project.⁷ This exchange project was discussed earlier as a mean to convey higher quality water to Metropolitan.
 3. DWR’s Municipal Water Quality Investigations Program and the Sacramento River Watershed Program. Both programs address water quality problems in the Bay-Delta and Sacramento River watershed.
- Delta Improvement Package – Metropolitan in conjunction with DWR and US Geologic Survey have completed modeling efforts of the Delta to determine if levee modifications at Franks Tract would reduce ocean salinity concentrations in water exported from the Delta. Currently, tidal flows trap high saline water in the track. By constructing levee breach openings and flow control structures, it is believed saline intrusion can be reduced. This would significantly reduce total dissolved solids and bromide concentrations in water from the Delta.
- Source Water Protection – In 2001, Metropolitan completed a Watershed Sanitary Survey as required by DHS to examine possible sources of drinking water contamination and identify mitigation measures that can be taken to protect the water at the source. DHS requires the survey to be completed every five years. Metropolitan also completed a Source Water Assessment (December 2002) to evaluate the vulnerability of water sources to contamination. Water from the Colorado River is considered to be most vulnerable to contamination by recreation, urban/storm water runoff, increasing urbanization in the watershed, wastewater, and past industrial practices. Water supplies from SWP are most vulnerable to urban/storm-water runoff, wildlife, agriculture, recreation, and wastewater.⁸

⁷ Metropolitan Water District of Southern California, Regional UWMP, 2005

⁸ Metropolitan Water District of Southern California, Regional UWMP, 2005

3.2 WATER QUALITY EFFECT ON WATER MANAGEMENT STRATEGIES AND SUPPLY RELIABILITY

The previous section summarized the general water quality issues of Metropolitan's imported water supplies. The same water quality concerns apply to LVMWD's water. LVMWD has taken steps to ensure an adequate and reliable water supply for their service area. LVMWD continues to support the Calfed Program and the efforts to improve water quality and the environmental health of the Delta. LVMWD has a state certified laboratory that processes as many as 3,000 tests a month for over 100 constituents.⁹ In response to possible terrorist attacks on water supplies throughout the country, LVMWD has strengthened security measures system wide. Water served to customers is tested twice, once by Metropolitan and again by LVMWD prior to delivery.

Similar to Metropolitan, LVMWD has also prepared an assessment of LVMWD's drinking water in December 2002 since one of LVMWD's primary concerns is water quality. The assessment was titled Watershed Sanitary Survey and must be completed every 5 years. The results of that study provided LVMWD with information regarding the vulnerability of their water supplies.

LVMWD has not experienced any significant water quality problems in the past and does not anticipate any significant changes in the future. In the near future, EPA's Stage 2 regulation of the disinfection byproducts rule will be in effect. Stage 1 was implemented in 2002 and lowered the total THM maximum annual average concentration level in water supplies; Stage 2 will further lower the THM concentration level. LVMWD's water supplies meet the requirements of Stage 1 and will be required to meet Stage 2 levels when they become finalized.

LVMWD does not anticipate any changes in its available water supplies due to water quality issues in large part because of the mitigation actions undertaken by Metropolitan and LVMWD as described earlier.

⁹ LVMWD website, www.lvmwd.dst.ca.us/your/your3watertreatment.html

SECTION 4 WATER RELIABILITY PLANNING

4.1 RELIABILITY OF WATER SUPPLIES FOR LAS VIRGENES MUNICIPAL WATER DISTRICT

The Las Virgenes Municipal Water District, all Southern California communities, and water agencies are facing increasing challenges in their role as stewards of water resources in the region. The region faces a growing gap between its water requirements and its firm water supplies. Increased environmental regulations and the collaborative competition for water from outside the region have resulted in reduced supplies of imported water. Continued population and economic growth increase water demand within the region, putting an even larger burden on local supplies.

The reliability of the District's water supply is currently dependent on the reliability of its imported water supplies, which are managed and delivered by Metropolitan. The following sections will discuss Metropolitan and the Regional Water Quality Control Board, their roles in water supply reliability, and the near and long-term efforts they are involved with to ensure future reliability of water supplies to the District and the region as a whole.

4.1.1 Regional Agencies and Water Reliability

Metropolitan Water District of Southern California (Metropolitan)

Metropolitan's primary goal is to provide reliable water supplies to meet the water needs of its service area at the lowest possible cost. The reliability of Metropolitan's water supply has been threatened as existing imported water supplies from the Colorado River and SWP face increasing challenges. Despite these challenges, Metropolitan continues to develop and encourage projects and programs to ensure reliability now and into the future. One such project is Metropolitan's recently completed Diamond Valley Lake in Hemet, California; an 800,000 AF capacity reservoir for regional seasonal and emergency storage for SWP and Colorado River water. The reservoir began storing water in November 1999 and reached the sustained water level by early 2002.¹⁰

Colorado River Aqueduct (CRA)

Pursuant to the 1964 U.S. Supreme Court decree, Metropolitan's dependable supply of Colorado River water was limited to 550,000 AFY assuming no surplus or unused Arizona and Nevada entitlement was available and California agricultural agencies use all of their contractual entitlement. Historically, Metropolitan has also possessed a priority for an additional 662,000 AFY depending upon availability of surplus water. In addition, Metropolitan maintains agreements for storage, exchanges, and transfers within the service area of Imperial Irrigation District that provide water to Metropolitan.¹¹

¹⁰ Metropolitan Water District of Southern California, Regional UWMP, 2005

¹¹ Metropolitan Water District of Southern California. Integrated Water Resources Plan. 2003 Update. May 2004.

Water supplies from the Colorado River have been and continue to be a topic of negotiation and intense debate. The 1964 Court Decree required the state of California to limit its annual use to 4.4 million acre-feet (MAF) basic annual apportionment of Colorado River water plus any available surplus. To keep California at 4.4 MAF, Metropolitan reduced its level of diversions in years when no surplus is available.

In 1999, the Colorado River Board developed “California’s Colorado River Water Use Plan,” also known as the “California Plan” and the “4.4 Plan”, which was endorsed by all seven Colorado River Basin states and the U.S. Department of the Interior. This plan developed the framework that specifies how California will transition and live within its basic apportionment of 4.4 MAF of Colorado River water.

The U.S. Bureau of Reclamation implemented Interim Surplus Guidelines to assist California’s transition to the Plan. Seven priorities for use of the waters of the Colorado River within the State of California were established. Metropolitan would only be able to exercise its fourth priority right to 550,000 AF annually, instead of the maximum aqueduct capacity of 1.3 MAF. Priorities 1 through 3 cannot exceed 3.85 MAF annually. Together, Priorities 1 through 4 total California’s 4.4 MAF apportionment.

In October 2003, the Quantification Settlement Agreement (QSA), a critical component of the California’s Colorado River Water Use Plan and for purposes of Section 5(B) of the Interim Surplus Guidelines, was authorized defining Colorado River water deliveries, delivery of Priority 3(a) and 6(a) Colorado River water, and transfer and other water delivery commitments, thus facilitating the transfer of water from agricultural agencies to urban uses. The QSA is a landmark agreement, signed by the four California Colorado River water use agencies and the U.S. Secretary of the Interior, which will guide reasonable and fair use of the Colorado River by California through the year 2037.

Metropolitan’s Integrated Water Resources Plan 2003 Update, recognizes that the QSA supports Metropolitan’s development plans for CRA deliveries, and demonstrates the reliability benefits as a result of the QSA and existing supply enhancement programs.

State Water Project (SWP)

The reliability of the SWP impacts Metropolitan’s member agencies’ ability to plan for future growth and supply. DWR’s Bulletin 132-03, December 2004, provides certain SWP reliability information, and in 2002, the DWR Bay-Delta Office prepared a report specifically addressing the reliability of the SWP.¹² This report, *The State Water Project Delivery Reliability Report*, provides information on the reliability of the SWP to deliver water to its contractors assuming historical precipitation patterns. The following SWP reliability information is included in these reports.

On an annual basis, each of the 29 SWP contractors including Metropolitan request an amount of SWP water based on their anticipated yearly demand. In most cases, Metropolitan’s requested supply is equivalent to its full Table A Amount; currently at

¹² Department of Water Resources, State Water Project Delivery Reliability Report. 2002.

1,911,500 AFY. After receiving the requests, DWR assesses the amount of water supply available based on precipitation, snow pack on Northern California watersheds, volume of water in storage, projected carry over storage, and Sacramento-San Joaquin Bay Delta regulatory requirements. For example, the SWP annual delivery of water to contractors has ranged from 552,600 AFY in 1991 to 3.5 MAF in 2000. Due to the uncertainty in water supply, contractors are not typically guaranteed their full Table A Amount, but instead a percentage of that amount based on the available supply.

Typically, around December of each year, DWR provides the contractors with their first estimate of allocation for the following year. Due to the variability in water supply for any given year, it is important to understand the reliability of the SWP to supply a specific amount of water each year to the contractors. As hydrologic and water conditions develop throughout the year, DWR revises the allocations.

On January 1, 2005, SWP supplies are projected to meet 60 percent of most SWP contractor's Table A Amounts. This allocation was increased to 70 percent on April 1, 2005. However, the allocation was again revised with the May 25, 2005 Notice to State Water Project Contractors. The Notice informed that DWR is preparing an update to the SWP Reliability Report issued in 2003, which is expected to be complete by the end of 2005. In order to assist agencies to prepare their 2005 UWMP Updates, DWR provided relevant sections from the working draft of the 2005 Reliability Report and recommended the results of studies 6 and 7 since they contain the most current information for assumed demands. The results of studies 6 and 7 show average deliveries of 69 percent of full Table A under current conditions and 77 percent under future conditions. The more recent studies also show a minimum delivery of 4 and 5 percent, current and future years respectively, compared to 20 percent for the 2003 report. These amounts are shown in Table 4.1.1-1 on the following page compared to the earlier CALSIM modeling as discussed below.

DWR analyzed the SWP's reliability using the California Water Allocation and Reservoir Operations Model (CALSIM II model) in their Reliability Report. The CALSIM II model was developed by DWR and the U.S. Bureau of Reclamation (USBR) to simulate operations of the SWP and the Central Valley Project (CVP). The CALSIM II model is used to estimate water deliveries to both SWP and CVP users under various assumptions such as hydrologic conditions, land use, regulations, and facility configurations. Documentation for CALSIM II, including assumptions, can be found on the DWR Web site at <http://modeling.water.ca.gov>.

One of the key assumptions of the CALSIM II model is that past weather patterns will repeat themselves in the future. The model uses a monthly time step to calculate available water supply based on historical rainfall data from 73 years of records (1922 – 1994). The model scenarios used in the preparation of the Reliability Report also assumed that regulatory requirements and facilities would not change in the future. DWR considered this assumption conservative since additional facilities such as reservoirs may be implemented in the future to specifically increase the SWP's reliability.

The CALSIM II model was used to complete three benchmark studies dated May 17, 2002 for the Reliability Report. The benchmark studies evaluated the water supply and demand at the 2001 condition and at the 2021 condition. In 2001, SWP water demand was estimated to vary from 3.0 to 4.1 MAF per year depending on the weather conditions (wet or dry years). SWP water demands in 2021 were estimated to range from 3.3 to 4.1 MAF per year. DWR prepared two benchmark studies for the 2021 condition. The first study assumed that SWP water demands would depend on weather conditions, whereas the second study assumed the contractor's water demand would be their maximum Table A Amount; 4.1 MAF per year regardless of weather. Table 4.1.1-1 shows the results, which demonstrate that SWP deliveries, on average, can meet 75 percent of the maximum Table A Amount.

Table 4.1.1-1
SWP Table A Deliveries from the Delta
Percent of Total Table A Amount of 4.133 MAF
(MAF)

Study	Average	Maximum	Minimum
2001 Study	2.962 (72%)	3.845 (93%)	0.804 (19%)
2021 Study A ^[1]	3.083 (75%)	4.133 (100%)	0.830 (20%)
2021 Study B ^[2]	3.130 (76%)	4.133 (100%)	0.830 (20%)
Revised-Demand Today ^[3]	2.818 (69%)	3.848 (94%)	0.159 (4%)
Revised-Demand Future ^[4]	3.178 (77%)	4.133 (100%)	0.187 (5%)

Source: Department of Water Resources, Excerpts from Working Draft of 2005 SWP Delivery Reliability Report – Attachment 1, May 25, 2005

^[1] Assumes demands depend on weather conditions.

^[2] Assumes demands at maximum Table A amount.

^[3] Revises demands to current conditions.

^[4] Revises demands at levels of use projected to occur by 2025.

The Monterey Agreement states that contractors will be allocated part of the total available project supply in proportion to their Table A Amount. The Monterey Agreement changed SWP water allocation rules by specifying that, during drought years, project supplies will be allocated proportionately based on the maximum contractual Table A Amount. Water is allocated to urban and agricultural purposes on a proportional basis, deleting a previous initial supply reduction to agricultural contractors. The agreement further defines and permits permanent sales of SWP Table A Amounts and provides for transfer of up to 130,000 AF of annual Table A Amounts from agricultural use to municipal use. The Agreement also allows SWP contractors to store water in another agency's reservoir or groundwater basin, facilitates the implementation of water

transfers and provides a mechanism for using SWP facilities to transport non-project water for SWP water contractors. The Agreement provides greater flexibility for SWP contractors to use their share of storage in SWP reservoirs.

Report on Metropolitan’s Water Supplies: Blueprint for Water Reliability

Metropolitan released a *Report on Metropolitan’s Water Supplies, A Blueprint for Water Reliability* on March 25, 2003, to provide updated information on Metropolitan’s projected supply and demand for incorporation into Water Verification and Water Supply Assessments for compliance with SB 221 and SB 610, respectively. These bills implement requirements to connect land use to a sufficient water supply before a development can be approved. The Metropolitan report addresses water supply reliability issues and states Metropolitan’s roles and responsibilities, which include the following: (1) implementing water management programs that support the development of cost-effective local resources; (2) securing additional imported supplies as necessary through programs that increase the availability of water delivered through the Colorado River Aqueduct and the SWP; (3) providing the infrastructure needed to integrate imported and local sources; (4) establishing a comprehensive management plan dealing with periodic surplus and shortage conditions; and (5) developing a rate structure that strengthens Metropolitan’s financial capabilities to implement water supply programs and make infrastructure improvements.

The report details that Metropolitan’s regional water demand projections are 6 percent to 16 percent *higher*, depending on which 5-year projection period and 11 percent for Year 2025, than the aggregated projections of Metropolitan’s member agencies. As stated in the Report, “this difference indicated that Metropolitan supplies would provide a level of ‘margin of safety’ or flexibility to accommodate delays in local resources development or adjustments in development plans.”¹³ Additionally, the report concludes that “current practices allow Metropolitan to bring water supplies on-line at least ten years in advance of demand with a very high degree of reliability.” More particularly, Metropolitan documented sufficient currently available supplies to meet 100 percent of member agencies’ supplemental water demands for 20 years under Average and Wet Year conditions, for 15 years under Multiple Dry Year conditions (with 8 to 26 percent reserve capacity), and for 15 years under Single Dry Year conditions (with 8-25 percent reserve capacity). With the addition of supplies under development, Metropolitan will be able to meet 100 percent of its agencies’ supplemental water needs under all supply and demand conditions through 2030 with 20-25 percent reserve capacity.¹⁴

The Report also identifies the ways Metropolitan is managing changes in Southern California’s water supplies, including reduced Colorado River deliveries and water quality constraints. In addition, opportunities for additional supplies are currently being implemented in the following ways:

¹³ Metropolitan Water District of Southern California. Report on Metropolitan Water Supplies, A Blueprint for Water Reliability, p. 9. March 25, 2003.

¹⁴ Metropolitan Water District of Southern California. Report on Metropolitan Water Supplies, A Blueprint for Water Reliability, p. 24-25. March 25, 2003.

- 1) Full Diamond Valley Lake: The Lake is now fully operational with an increased conveyance capacity for refill system storage.
- 2) Re-Operation of Storage and Transfer Programs: In 2003, Metropolitan developed additional storage and transfer capabilities and completed filling local resources to achieve full storage accounts in operational reservoirs and banking/transfer programs.
- 3) Enhanced Conservation Programs: A new campaign is designed to encourage more efficient outdoor water use and promote innovative conservation measures.
- 4) Development of Additional Local Resources: There are promising opportunities identified to develop seawater desalination and expand the Local Resources Program.

In addition to the *Report on Metropolitan's Water Supplies, A Blueprint for Water Reliability*, MWD's September 2005 Draft Regional Urban Water Management Plan (RUWMP) demand and supply analysis also projects surpluses (of regional supplies compared with regional demands) ranging from 5 percent to 35 percent in all years and all drought scenarios through 2030.¹⁵

As demand forecasts are refined, supply goals are also refined. Metropolitan has consistently supplied over 50 percent of water supplies to the Southern California region. To continue to accomplish this, Metropolitan continues to approve new and innovative projects and programs to ensure reliability. For example, in August 2001, Metropolitan took action to move forward initiatives to bolster future supplies by supporting seawater desalination projects, increased commercial conservation efforts, improve water quality by decreasing salinity in supplies from the State Water Project and the Colorado River, increased underground storage and retrieval facilities, adopted principles for establishing cooperative programs, and endorsed legislation that would further water reliability. Some of these projects are further described in Section 4.4.

Integrated Water Resources Plan (IRP)

To address Metropolitan's reliability challenges, Metropolitan and its member agencies developed an Integrated Water Resources Plan (IRP) in 1996. The overall objective of the IRP process is the selection and implementation of a Preferred Resource Mix (or strategy) consisting of complementary investments in local water resources, imported supplies and demand-side management that meet the region's desired reliability goal in a cost-effective and environmentally sound manner. The 1996 IRP was reviewed as part of Metropolitan's strategic plan and rate refinement to guide the development and implementation of revised Metropolitan water management programs through the year 2005.

¹⁵ Tables II-7, 8 and 9 of MWD's September 2005 Draft Regional Urban Water Management Plan

The IRP 2003 Update was approved and released July 13, 2004, and includes various projects and programs that contribute to the reliability of Metropolitan's imported water supplies. The IRP Update concluded that the resource targets from the 1996 IRP, factored in with changed conditions, will continue to provide for 100 percent reliability through 2025.

While the IRP 2003 Update includes goals for a variety of resource targets, it identified the most significant programs as conservation and local supply development among the Preferred Resource Mix. The IRP details the Local Resources Program (LRP) and the Seawater Desalination Program as a means to increase reliability of local supplies. Metropolitan initiated the LRP to promote the development of water recycling projects that reduced demand for imported water and improved regional water supply reliability in 1982. In 1991, the Groundwater Recovery Program was implemented to similarly promote the recovery of local degraded groundwater supplies. In 1995, both programs were combined into the LRP. Currently, the LRP, including both recycling and groundwater recovery, has invested over \$121 million and partnered with member agencies on 53 recycled water projects and 22 groundwater recovery projects generating 251,000 AF of local supply in 2002.¹⁶

The IRP 2003 Update states that Metropolitan's regional production target is 500,000 AF by 2020 for its LRP. Metropolitan's current projection of regional implementation of recycling, groundwater recovery, and seawater desalination resource targets exceeds the 1996 IRP goals. Although in FY 2002, recycling and groundwater recovery programs narrowly missed their target, the region is expected to meet its 2010 and 2020 targets. Meeting the targets will require the region to produce 159,000 AF of additional local project and/or seawater desalination supply by 2010 and 249,000 AF by 2020. Overall, the region has developed about 50 percent of the 1996 IRP local resources target for 2020.

Metropolitan continues to encourage development of local water resource projects through offering financial incentives through the LRP to its member agencies. These anticipated water supply benefits are incorporated into the forecasts of demand on Metropolitan.

In addition to the LRP, Metropolitan also provides financial and technical assistance for implementing water conservation Best Management Practices, as well as a significant investment in regional and local water conservation programs. Metropolitan was also responsible for distributing \$45 million in funds from Proposition 13 funding for development of conjunctive management programs in Southern California.

¹⁶ Metropolitan Water District of Southern California. Integrated Water Resources Plan, 2003 Update. May 2004.

Regional Water Quality Control Board – Los Angeles Region 4

Background

The State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (Regional Boards) are responsible for the protection and, where possible, the enhancement of the quality of California's waters. The SWRCB sets statewide policy, and together with Regional Boards, implements state and federal laws and regulations. Each of the nine Regional Boards adopts a Water Quality Control Plan or Basin Plan, which recognizes and reflects regional differences in existing water quality, the beneficial uses of the region's ground and surface waters, and local water quality conditions and problems.¹⁷

In 1975, the Los Angeles Regional Water Quality Control Board (RWQCB) adopted a single Water Quality Control Plan (Basin Plan) for the Los Angeles Region, which comprised of the Santa Clara and Los Angeles River Basin Plans. The two Basin Plans were amended in 1978, 1990, and 1991 and are superseded by the single Basin Plan. For planning purposes, the single Basin Plan divides the region into major surface watersheds and groundwater basins, such as the Malibu Creek Watershed. The Los Angeles Region has also designated sixty Significant Ecological Areas (SEAs) within the County in their general plan. The Las Virgenes area and the Malibu Canyon and Lagoon area, which supports two important plant communities, are identified as SEAs.

The RWQCB updated the Basin Plan to address issues that evolved over time due to increasing populations and changing water demands in the region. The document covers the Santa Clara and Los Angeles River Basin and in May 2001, the RWQCB adopted the ranking of high priorities and the complete list of priorities for the period 2001-2004.

The Basin Plan is more than a collection of water quality goals and policies, descriptions of conditions, and discussions of solutions. It is also the basis for the RWQCB's regulatory programs. The Basin Plan establishes water quality standards for all the ground and surface waters of the region. Water quality problems in the region are listed in the Basin Plan, along with these causes, if known. For water bodies with quality below the recommended levels necessary for beneficial uses, plans for improving water quality are included. Legal basis and authority for the RWQCB reflects, incorporates, and implements applicable portions of a number of national and statewide water quality plans and policies, including the California Water Code (Porter-Cologne Water Quality Control Act) and the Clean Water Act. The RWQCB also regulates water discharges to minimize their effects on the region's ground and surface water quality. Permits are issued by the RWQCB under a number of these programs and authorities.

¹⁷ Los Angeles Regional Water Quality Control Board. Region 4 Water Quality Control Plan (Los Angeles Region). January 1995.

Key Regional Issues

Water quality degradation due to excess nutrients, sediment, and bacteria from nonpoint source discharges are believed to be the greatest threats to rivers and streams within the Los Angeles Region. The increase in uncontrolled pollutants from nonpoint source discharges can be associated with the rapid population growth in the region. Major surface waters of the Los Angeles Region flow from head waters in pristine mountain areas, through urbanized foothill and valley areas, high density residential and industrial coastal areas, and terminate at highly utilized recreational beaches and harbors. The urbanized, high density and highly utilized areas contribute to the surface water quality concerns of the region.

Surface water and groundwater within the region have proven to be insufficient in supporting the increasing demand. In order to meet the demand, the region has become dependent on imported water from other areas to meet about 50% of fresh water demands. The Region's dependence on imported water has affected the Malibu Creek Watershed. Increased flows, from imported waters needed to support the growing population, and channelization of several tributaries to Malibu Creek have caused an imbalance in the natural flow regime in the watershed leading to excess nutrients, sediment, and bacteria in the rivers and streams within the region.

Water Resources and Water Quality Management

The RWQCB plans to implement more watershed-based projects in the future to address water quality and/or water supply issues. The purpose of comprehensive watershed level management is to establish a more effectively approach in protecting and restoring beneficial uses water by dividing the region into several watersheds. The Los Angeles Region has been divided into six watershed management areas for planning purposes. This will increase the coordination of planning, monitoring, assessment, permitting, and enforcement elements of the various surface and groundwater programs with activities/jurisdiction in each watershed. Several projects utilizing the watershed approach have already proven to be successful, such as the Malibu Creek Watershed Study.

Substantial resources have also been allocated by the RWQCB for the investigation of polluted waters and enforcement of corrective actions needed to restore water quality. The RWQCB has established the specific remediation programs which include:

- Underground Storage Tanks
- Well Investigations
- Spills, Leaks, Investigations and Cleanups
- Aboveground Petroleum Storage Tanks
- U.S. Department of Defense and Department of Energy Sites
- Resource Conservation and Recovery Act
- Toxic Pits Cleanup Act
- Bay Protection and Toxic Cleanup

Some of these activities bear directly on the implementation of the Basin Plan, while others may lead to future Basin Plan amendments to incorporate appropriate changes, such as revised regulatory strategies for various dischargers. These investigations and the implementation of appropriate physical solutions are an essential and integral part of the effort to restore and maintain water quality in the region.

4.2 DEMANDS AND SUPPLIES COMPARISON

Metropolitan Water District Supplies and Demands

As previously noted, LVMWD is a member agency of Metropolitan. Metropolitan's regional water supply and demand projections are of great importance to LVMWD, given the District's 100 percent reliance on Metropolitan for meeting all its potable water demands. In its September 2005 draft RUWMP report, Metropolitan has chosen the year 1977 as the single driest year since 1922 and the years 1990-1992 as the multiple driest years over that same period. These years have been chosen because they represent the timing of the least amount of available water resources from the SWP, a major source of Metropolitan's supply.

Over the 20 year period beginning in 2010 and ending in 2030, Metropolitan projects a 0.5 percent decrease in available supply during an average year, a 4.5 percent increase during a single dry year, and a 3.8 percent increase during the third year of the multiple dry year period. The increased available supplies during drought year scenarios are primarily due to increased contract allotments of in-basin storage as well as a number of supplies under development.

In its draft report, Metropolitan also projects an increase in member agency demands. Specifically, they project a 10.2 percent increase over the same 20-year period in the average demand, an 8.5 percent increase during the single dry year scenario, and an 8.9 percent increase during the multiple dry year scenario. However, in all cases, the projected regional increase in demands by member agencies are offset by available surpluses in the Metropolitan supply.

Table 4.2-1 summarizes Metropolitan's current imported supply availability projections for average and single dry years over the 20-year period beginning in 2010 and ending in 2030. Based on these projections, Metropolitan will be able to meet all of its projected single dry year service area demands through the year 2030.

**Table 4.2-1
MWD Regional Imported Water Supply Reliability Projections
for Average and Single Dry Years¹⁸
(AFY)**

Row	Region Wide Projections	2010	2015	2020	2025	2030
Supply Information						
A	Projected Supply During an Average Year ^[1]	2,668,000	2,600,000	2,654,000	2,654,000	2,654,000
B	Projected Supply During a Single Dry Year ^[1]	2,842,000	3,033,000	3,002,000	2,970,000	2,970,000
C = B/A	Projected Supply During a Single Dry Year as a % of Average Supply	106.5	116.7	113.1	111.9	111.9
Demand Information						
D	Projected Demand During an Average Year	2,040,000	2,053,000	1,989,000	2,115,000	2,249,000
E	Projected Demand During a Single Dry Year	2,293,000	2,301,000	2,234,000	2,363,000	2,489,000
F = E/D	Projected Demand During a Single Dry Year as a % of Average Demand	112.4	112.0	112.3	111.7	110.7
Surplus Information						
G = A-D	Projected Surplus During an Average Year	628,000	547,000	665,000	539,000	405,000
H = B-E	Projected Surplus During a Single Dry Year	549,000	732,000	768,000	607,000	481,000
Additional Supply Information						
I = A/D	Projected Supply During an Average Year as a % of Demand During an Average Year	130.8	126.6	133.4	125.5	118.0
J = A/E	Projected Supply During an Average Year as a % of Demand During a Single Dry Year	116.3	113.0	118.8	112.3	106.6
K = B/E	Projected Supply During a Single Dry Year as a % of Single Dry Year Demand (including surplus)	123.9	131.8	134.3	125.6	119.3

^[1] Projected supplies include current supplies and supplies under development, but are limited by MWD's 1.25 MAF allotment to Colorado River Water; data obtained from MWD September 2005 Draft Regional UWMP supply/demand projections

¹⁸ Based on MWD's September 2005 Draft RUWMP

Table 4.2-2 summarizes Metropolitan's current imported supply availability projections over the 20-year period beginning in 2010 and ending in 2030 for average and multiple dry year scenarios. When reviewing Table 4.2-2, it is important to note that Metropolitan is projecting a surplus of supply for all multiple dry year scenarios through 2030.

The findings in this plan were derived based upon Metropolitan's September 2005 draft RUWMP. These figures can be interpolated to project Metropolitan's ability to meet a specified demand expressed in terms of a percentage of average demand and supply availability. When viewed on a regional basis, some member agency demands will exceed these averages, while others will fall below the stated averages. However, when viewed from the regional perspective, it is reasonable to assume that these averages will apply to all local water purveyors.

Although a less conservative assumption might suggest surplus water supplies not used by agencies experiencing low or no growth may be freed up for use by those water purveyors experiencing more growth, this is not borne out by the overall Metropolitan supply and demand picture. In fact, Metropolitan is projecting a 19.4 percent increase in total demand (including local supplies) over its entire service area between 2005 and 2030 (4,115,700 AFY to 4,914,000 AFY)¹⁹ compared with a 20.9 percent increase in population over the same period of (18,233,700 to 22,053,200)²⁰. In other words, Metropolitan's projected increase in demand roughly parallels its projected increase in population. Given the higher projected population growth in LVMWD's service area (24.7 percent; refer to Section 1), it is reasonable to assume that the District will also experience a higher demand than that projected by Metropolitan for its overall service area. This finding suggests that some of the projected Metropolitan surpluses may be utilized to meet LVMWD's increased demands.

¹⁹ Table A.1-5 from MWD September 2005 Draft RUWMP

²⁰ Table A.1-2 from MWD September 2005 Draft RUWMP

**Table 4.2-2
MWD Regional Imported Water Supply Reliability Projections
for Average and Multiple Dry Years²¹
(AFY)**

Row	Region Wide Projections	2010	2015	2020	2025	2030
Supply Information						
A	Projected Supply During an Average Year ^[1]	2,668,000	2,600,000	2,654,000	2,654,000	2,654,000
B	Projected Supply During Year 3 of a Multiple Dry Year Period*	2,619,000	2,776,600	2,741,000	2,719,000	2,719,000
C = B/A	Projected Supply During Year 3 of a Multiple Dry Year as a % of Average Supply	98.2	106.8	103.3	102.4	102.4
Demand Information						
D	Projected Demand During an Average Year	2,040,000	2,053,000	1,989,000	2,115,000	2,249,000
E	Projected Demand During Year 3 of a Multiple Dry Year Period ^[2]	2,376,000	2,389,000	2,317,000	2,454,000	2,587,000
F = E/D	Projected Demand During Year 3 of a Multiple Dry Year Period as a % of Average Demand	116.5	116.4	116.5	116.0	115.0
Surplus Information						
G = A-D	Projected Surplus During an Average Year	549,000	732,000	768,000	607,000	481,000
H = B-E	Projected Surplus During Year 3 of a Multiple Dry Year Period	243,000	377,000	424,000	265,000	132,000
Additional Supply Information						
I = A/D	Projected Supply During an Average Year as a % of Demand During an Average Year	130.8	126.6	133.4	125.5	118.0
J = A/E	Projected Supply During an Average Year as a % of Demand During Year 3 of a Multiple Dry Year	112.3	108.8	114.5	108.1	102.6
K = B/E	Projected Supply During a Multiple Dry Year as a % of Multiple Dry Year Demand (including surplus)	110.2	116.2	118.3	110.7	105.1

^[1] Projected supplies include current supplies and supplies under development, but are limited by MWD's 1.25 MAF allotment to Colorado River Water; data obtained from MWD September 2005 Draft RUWMP supply/demand projections

^[2] MWD only projects demands for year 3 of a multiple dry year period

²¹ Based on MWD September 2005 Draft RUWMP

Las Virgenes Municipal Water District Supplies and Demands

To develop a reasonable foundation from which to project future LVMWD potable and reclaimed water demands, historical water deliveries over the past six years were reviewed and analyzed. That data is summarized in Tables 4.2-3. The tables reveal a total demand of 26,424 AFY in 2005 and an average total demand of 27,337 AFY over this six-year period. The potable water demand in 2005 was 22,382 AFY which equates to 20.0 MGD or a per capita potable usage factor of 281 gallons (using the 2005 population developed in Section 1.3 of this report).

Future water demand projections for all potable water usage are based on SCAG population projections for the area. SCAG projections are compiled using Census Tract data from 2000 United States Census. Recycled water demands (4,587 AF in the 2004/05 Fiscal Year) have been estimated to increase to a normal year peak demand of 6,180 AFY in 2030.

**Table 4.2-3
LVMWD Historical Demands for the Period 2000-2005**

Water Deliveries in AFY	2000	2001	2002	2003	2004	2005	Average
Potable Deliveries (Demand)	22,505	21,480	22,584	21,549	24,331	21,837	22,382
Recycled Deliveries (Demand)	4,948	4,698	4,863	4,847	5,788	4,587	4,955
Total Demand in AFY	27,453	26,178	27,447	26,396	30,119	26,424	27,337

It is also of interest to note at this point that the water usage trends over the period 2001 through 2004 are consistent with similar usage data in other Southern California locales. 2001 is generally viewed as a fairly normal rainfall year in Southern California, while 2002 was very dry (only about 4.5 inches compared to an average rainfall of about 15 inches) and 2003 and 2004 were also below normal. Assuming 2001 to be the base year, demands experienced during the following three years were 104.8 percent, 100.8 percent and 115.1 percent of the 2001 demand. As noted, this trend of higher usage in year 1, followed by a drop in usage in year 2 and an increase in year 3 is consistent with other Southern California water agency demands during this same four year period.

Table 4.2-4 compares Metropolitan's projected supplies through the year 2030 with LVMWD's projected increase in demands during an average year. As previously shown, demands in LVMWD are anticipated to increase by 24.7 percent over the next 25 years. However, Metropolitan's average supply during that same period is projected to remain relatively constant (see Table 4.2-1), meaning that as demands grow, Metropolitan will have an increasingly difficult time meeting those demands. This could eventually pose a problem for LVMWD, given the District's reliance on imported water supply for meeting 100 percent of its potable water supply.

**Table 4.2-4
Comparison Between MWD Supply Availability and
LVMWD Demand During an Average Year**

Row	Projection	2010	2015	2020	2025	2030
A	LVMWD Projected Increase in Demand During an Average Year as a % of 2005 Average Demand ^[1]	106.2	110.8	115.6	120.4	124.7
B	MWD Projected Increase in Regional Supply Availability During an Average Year as a % of 2005 Average Year ^[2]	104.9	102.2	104.4	104.4	104.4
C (from Row I, Table 4.2-1)	MWD Projected Regional Supply During an Average Year as a % of Demand During an Average Year ^[3]	130.8	126.6	133.4	125.5	118.0
D = (C-A)	Percentage Difference Between Growth in MWD Supply Availability (including surplus supply) During an Average Year Compared with Growth in LVMWD Demand During an Average Year	24.6	15.8	17.8	5.1	(6.7)

^[1] LVMWD projected increase in demand is based on SCAG and US Census population data and projections

^[2] MWD did not include any supply projections for 2005 in its final draft RUWMP supply/demand tables released in September 2005. The 2005 supply projection released in May 2005 (2,542,800 AFY) is therefore used as a base year for calculating the increase in supply availability in future years as compared with 2005 average year supply.

^[3] Values extracted from Table 4.2-1

Tables 4.2-5 through 4.2-11 compare current and projected water supplies and demands in normal, single dry year, and multiple dry year scenarios. The results displayed in these tables indicate that all demands in average, single dry, and multiple dry years can be met by LVMWD through 2030.

**Table 4.2-5
Las Virgenes Municipal Water District
Projected Water Supply and Demand**

Normal Water Year
(AFY – All projections rounded to nearest ten AF)

Water Sources	2010	2015	2020	2025	2030
Supply	Normal Water Years				
Projected Supply During an Average Year as a % of Demand During an Average Year	130.8	126.6	133.4	125.5	118.0
Imported ^[1]	31,090	31,400	34,520	33,820	32,920
Local (Groundwater) ^[2]	240	240	240	240	240
Recycled ^[3]	5,260	5,490	5,730	5,970	6,180
Total Supply	36,590	37,130	40,490	40,030	39,340
% of normal year ^[4]	100.0	100.0	100.0	100.0	100.0
Demand					
Imported ^[1]	23,770	24,800	25,880	26,950	27,900
Local (Groundwater) ^[2]	240	240	240	240	240
Recycled ^[3]	5,260	5,490	5,730	5,970	6,180
Total Demand	29,270	30,530	31,850	33,160	34,320
% of Year 2005 ^[5]	110.7	115.5	120.5	125.5	129.9
Supply/ Demand Difference	7,320	6,600	8,640	6,870	5,020
Difference as % of Supply	20.0	17.8	21.3	17.1	12.8
Difference as % of Demand	25.0	21.6	27.1	20.7	14.6

^[1] Imported water supply = (average potable water deliveries over the period 2000-2005 (22,382 AF)) x (Projected Supply During an Average Year as a % of Demand During an Average Year); Imported demand = (average potable water deliveries over the period 2000-2005 (22,382 AF)) x (increase in demand reflected in Table 4.2-4, Row A)

^[2] Groundwater is used only to supplement recycled water system; 240 AFY estimate provided by LVMWD staff

^[3] Recycled water is based on the average recycled water deliveries over the period 2000-2005 (4,955 AF); recycled water demand increase is based on Table 4.2-3, Row A projections, but is consistent with LVMWD staff projection of a maximum demand of 6,500 AFY by 2030

^[4] Base year for normal water year is assumed to be equal to the average total delivery (potable water + recycled water) over the period 2000-2005 (27,337 AF) escalated at the rate of increase reflected in Table 4.2-3, Row A

^[5] Year 2005 Water Deliveries = 26,424 AF

**Table 4.2-6
Las Virgenes Municipal Water District
Projected Water Supply and Demand**

Single Dry Water Year
(AFY – All projections rounded to nearest 10 AF)

Water Sources	2010	2015	2020	2025	2030
Supply	Single Dry Years				
Projected MWD Supply During an Average Year as a % of Demand During a Single Dry Year ^[1]	116.3	113.0	118.8	112.3	106.6
Projected MWD Supply Available as a % of Single Dry Year Demand ^[2]	123.9	131.8	134.3	125.6	119.3
Imported ^[3]	29,450	32,690	34,750	33,850	33,280
Local (Groundwater) ^[4]	240	240	240	240	240
Recycled ^[5]	5,910	6,150	6,430	6,660	6,840
Total Supply	35,600	39,080	41,420	40,750	40,360
Normal Year Supply ^[6]	36,590	37,130	40,490	40,030	39,340
% of Normal Year	97.3	105.3	102.3	101.8	102.6
Demand					
Imported ^[3]	26,720	27,780	29,060	30,100	30,890
Local (Groundwater) ^[4]	240	240	240	240	240
Recycled ^[5]	5,910	6,150	6,430	6,660	6,840
Total Demand	32,870	34,170	35,730	37,000	37,970
Normal Year Demand ^[6]	29,270	30,530	31,850	33,160	34,320
% of normal year demand	112.3	111.9	112.2	111.6	110.6
% of Year 2005 Demand (26,424 AF)	124.4	129.3	135.2	140.0	143.7
Supply/ Demand Difference	2,730	4,910	5,690	3,750	2,390
Difference as % of Supply	7.7	12.6	13.7	9.2	5.9
Difference as % of Demand	8.3	14.3	15.9	10.1	6.3

^[1] From Table 4.2-1, Row J

^[2] From Table 4.2-1, Row K (includes MWD surplus supplies)

^[3] Available Imported supply is estimated to equal MWD's September Final Draft RUWMP projected available supplies including surplus supplies = (normal year import) x (MWD projected supply as a % of the single dry year demand); Imported demand = (normal year demand) x (escalation factor from Table 4.2-1, Row F)

^[4] Groundwater is used only to supplement the recycled water system; groundwater supply is estimated to remain constant at 240 AFY

^[5] Recycled supplies are assumed to be available in quantities capable of meeting demands; recycled demands are assumed to escalate at the same rate as potable water demands projected by MWD, Row F) = (normal year demand) x (escalation factor from Table 4.2-1, Row F)

^[6] Normal year supplies and demands and taken from Table 4.2-5

Table 4.2-7
Las Virgenes Municipal Water District
Projected Water Supply and Demand
Multiple Dry Water Years 2006-2010
(AFY – All projections rounded to nearest 10 AF)

Water Sources	2006	2007	2008	2009	2010
Supply	Normal Years		Dry Years		
Projected Supply During a Multiple Dry Year as a % of Average Supply ^[1]			98.2	98.2	98.2
Imported ^[2]	29,500	30,000	30,530	30,530	30,530
Local (Groundwater) ^[3]	240	240	240	240	240
Recycled ^[4]	5,020	5,080	6,130	6,130	6,130
Total Supply	34,760	35,320	36,900	36,900	36,900
Normal Year Supply ^[5]	34,760	35,320	35,780	36,190	36,590
% of Normal Year	100.0	100.0	103.1	102.0	99.2
Demand					
MWD Projected Multiple Dry Year Demand as % of Normal Year ^[6]			116.5	116.5	116.5
Imported ^[2]	22,660	22,940	27,690	27,690	27,690
Local (Groundwater) ^[3]	240	240	240	240	240
Recycled ^[4]	5,020	5,080	6,130	6,130	6,130
Total Demand	27,920	28,260	34,060	34,060	34,060
Normal Year Demand ^[7]	27,920	28,260	28,600	28,940	29,270
% of Normal Year	100.0	100.0	119.0	117.6	116.4
% of Year 2005 (26,424 AF)	105.7	106.9	128.9	128.9	128.9
Supply/ Demand Difference	6,840	7,060	2,840	2,840	2,840
Difference as % of Supply	19.7	20.0	7.7	7.7	7.7
Difference as % of Demand	24.5	25.0	8.3	8.3	8.3

[1] From Table 4.2-2, Row C

[2] Imported supply = (imported supply from Table 4.2-5) x (escalation factor from Table 4.2-2, Row C);
Imported demand = (imported demand from Table 4.2-5) x (escalation factor from Table 4.2-2, Row F)

[3] Groundwater is used only to supplement the recycled water system; groundwater supply is estimated to remain constant at 240 AFY

[4] Recycled supplies are assumed to be available in quantities capable of meeting demands

[5] Interpolated from Table 4.2-5

[6] From Table 4.2-2, Row F; In its September 2005 Draft UWMP Multiple Dry Year Projections, MWD only projected figures demands for Year 3, therefore Years 1 and 2 are assumed to equal Year 3

[7] Interpolated from Table 4.2-5 and average year demand for period 2000-2005 from Table 4.2-3

Table 4.2-8
Las Virgenes Municipal Water District
Projected Water Supply and Demand
Multiple Dry Water Years 2011-2015
(AFY – All projections rounded to nearest 10 AF)

Water Sources	2011	2012	2013	2014	2015
Supply	Normal Years		Dry Years		
Projected Supply During a Multiple Dry Year as a % of Average Supply ^[1]			106.8	106.8	106.8
Imported ^[2]	31,150	31,210	33,540	33,540	33,540
Local (Groundwater) ^[3]	240	240	240	240	240
Recycled ^[4]	5,310	5,350	6,390	6,390	6,390
Total Supply	36,700	36,800	40,170	40,170	40,170
Normal Year Supply ^[5]	36,700	36,800	36,910	37,020	37,130
% of Normal Year	100.0	100.0	108.8	108.5	108.2
Demand					
MWD Projected Multiple Dry Year Demand as % of Normal Year ^[6]			116.4	116.4	116.4
Imported ^[2]	23,980	24,180	28,870	28,870	28,870
Local (Groundwater) ^[3]	240	240	240	240	240
Recycled ^[4]	5,310	5,350	6,390	6,390	6,390
Total Demand	29,530	29,770	35,500	35,500	35,500
Normal Year Demand ^[5]	29,530	29,770	30,020	30,270	30,530
% of Normal Year	100.0	100.0	118.3	117.3	116.3
% of Year 2005 (26,424 AF)	111.8	112.7	134.4	134.4	134.4
Supply/ Demand Difference	7,170	7,030	4,670	4,670	4,670
Difference as % of Supply	19.5	19.1	11.6	11.6	11.6
Difference as % of Demand	24.3	23.6	13.2	13.2	13.2

[1] From Table 4.2-2, Row C

[2] Imported supply = (imported supply from Table 4.2-5) x (escalation factor from Table 4.2-2, Row C);

Imported demand = (imported demand from Table 4.2-5) x (escalation factor from Table 4.2-2, Row F)

[3] Groundwater is used only to supplement the recycled water system; groundwater supply is estimated to remain constant at 240 AFY

[4] Recycled supplies are assumed to be available in quantities capable of meeting demands

[5] Interpolated from Table 4.2-5

[6] From Table 4.2-2, Row F; In its September 2005 Draft UWMP Multiple Dry Year Projections, MWD only projected figures demands for Year 3, therefore Years 1 and 2 are assumed to equal Year 3

[7] Interpolated from Table 4.2-5 and average year demand for period 2000-2005 from Table 4.2-3

Table 4.2-9
Las Virgenes Municipal Water District
Projected Water Supply and Demand
Multiple Dry Water Years 2016-2020
(AFY – All projections rounded to nearest 10 AF)

Water Sources	2016	2017	2018	2019	2020
Supply	Normal Years		Dry Years		
Projected Supply During a Multiple Dry Year as a % of Average Supply ^[1]			103.3	103.3	103.3
Imported ^[2]	32,020	32,640	35,660	35,660	35,660
Local (Groundwater) ^[3]	240	240	240	240	240
Recycled ^[4]	5,540	5,590	6,680	6,680	6,680
Total Supply	37,800	38,470	42,580	42,580	42,580
Normal Year Supply ^[5]	37,800	38,470	39,150	39,820	40,490
% of Normal Year	100.0	100.0	108.8	106.9	105.2
Demand					
MWD Projected Multiple Dry Year Demand as % of Normal Year ^[6]			116.5	116.5	116.5
Imported ^[2]	30,790	31,050	30,150	30,150	30,150
Local (Groundwater) ^[3]	240	240	240	240	240
Recycled ^[4]	5,540	5,590	6,680	6,680	6,680
Total Demand	36,570	36,880	37,070	37,070	37,070
Normal Year Demand ^[7]	30,790	31,060	31,320	31,590	31,850
% of Normal Year	118.8	118.7	118.4	117.3	116.4
% of Year 2005 (26,424 AF)	138.3	139.6	140.3	140.3	140.3
Supply/ Demand Difference	1,230	1,590	5,510	5,510	5,510
Difference as % of Supply	3.3	4.1	12.9	12.9	12.9
Difference as % of Demand	3.4	4.3	14.9	14.9	14.9

^[1] From Table 4.2-2, Row C

^[2] Imported supply = (imported supply from Table 4.2-5) x (escalation factor from Table 4.2-2, Row C);
Imported demand = (imported demand from Table 4.2-5) x (escalation factor from Table 4.2-2, Row F)

^[3] Groundwater is used only to supplement the recycled water system; groundwater supply is estimated to remain constant at 240 AFY

^[4] Recycled supplies are assumed to be available in quantities capable of meeting demands

^[5] Interpolated from Table 4.2-5

^[6] From Table 4.2-2, Row F; In its September 2005 Draft UWMP Multiple Dry Year Projections, MWD only projected figures demands for Year 3, therefore Years 1 and 2 are assumed to equal Year 3

^[7] Interpolated from Table 4.2-5 and average year demand for period 2000-2005 from Table 4.2-3

Table 4.2-10
Las Virgenes Municipal Water District
Projected Water Supply and Demand
Multiple Dry Water Years 2021-2025
(AFY – All projections rounded to nearest 10 AF)

Water Sources	2021	2022	2023	2024	2025
Supply	Normal Years		Dry Years		
Projected Supply During a Multiple Dry Year as a % of Average Supply ^[1]			102.4	102.4	102.4
Imported ^[2]	34,380	34,240	34,630	34,630	34,630
Local (Groundwater) ^[3]	240	240	240	240	240
Recycled ^[4]	5,780	5,830	6,930	6,930	6,930
Total Supply	40,400	40,310	41,800	41,800	41,800
Normal Year Supply ^[5]	40,400	40,310	40,210	40,120	40,030
% of Normal Year	100.0	100.0	104.0	104.2	104.4
Demand					
MWD Projected Multiple Dry Year Demand as % of Normal Year ^[6]			116.0	116.0	116.0
Imported ^[2]	26,090	26,310	31,260	31,260	31,260
Local (Groundwater) ^[3]	240	240	240	240	240
Recycled ^[4]	5,780	5,830	6,930	6,930	6,930
Total Demand	32,110	32,380	38,430	38,430	38,430
Normal Year Demand ^[7]	32,110	32,370	32,640	32,900	33,160
% of Normal Year	100.0	100.0	117.7	116.8	115.9
% of Year 2005 (26,424 AF)	121.5	122.5	145.4	145.4	145.4
Supply/ Demand Difference	8,290	7,930	3,370	3,370	3,370
Difference as % of Supply	20.5	19.7	8.1	8.1	8.1
Difference as % of Demand	25.8	24.5	8.8	8.8	8.8

^[1] From Table 4.2-2, Row C

^[2] Imported supply = (imported supply from Table 4.2-5) x (escalation factor from Table 4.2-2, Row C);

Imported demand = (imported demand from Table 4.2-5) x (escalation factor from Table 4.2-2, Row F)

^[3] Groundwater is used only to supplement the recycled water system; groundwater supply is estimated to remain constant at 240 AFY

^[4] Recycled supplies are assumed to be available in quantities capable of meeting demands

^[5] Interpolated from Table 4.2-5

^[6] From Table 4.2-2, Row F; In its September 2005 Draft UWMP Multiple Dry Year Projections, MWD only projected figures demands for Year 3, therefore Years 1 and 2 are assumed to equal Year 3

^[7] Interpolated from Table 4.2-5 and average year demand for period 2000-2005 from Table 4.2-3

Table 4.2-11
Las Virgenes Municipal Water District
Projected Water Supply and Demand
Multiple Dry Water Years 2026-2030
(AFY – All projections rounded to nearest 10 AF)

Water Sources	2026	2027	2028	2029	2030
Supply	Normal Years		Dry Years		
Projected Supply During a Multiple Dry Year as a % of Average Supply ^[1]			102.4	102.4	102.4
Imported ^[2]	33,640	33,460	33,710	33,710	33,710
Local (Groundwater) ^[3]	240	240	240	240	240
Recycled ^[4]	6,010	6,050	7,110	7,110	7,110
Total Supply	39,890	39,750	41,060	41,060	41,060
Normal Year Supply ^[5]	39,890	39,750	39,610	39,470	39,340
% of Normal Year	100.0	100.0	103.7	104.0	104.4
Demand					
MWD Projected Multiple Dry Year Demand as % of Normal Year ^[6]			115.0	115.0	115.0
Imported ^[2]	27,140	27,330	32,090	32,090	32,090
Local (Groundwater) ^[3]	240	240	240	240	240
Recycled ^[4]	6,010	6,050	7,110	7,110	7,110
Total Demand	33,390	33,620	39,440	39,440	39,440
Normal Year Demand ^[7]	33,390	33,620	33,860	34,090	34,320
% of Normal Year	100.0	100.0	116.5	115.7	114.9
% of Year 2005 (26,424 AF)	126.4	127.2	149.3	149.3	149.3
Supply/ Demand Difference	6,500	6,130	1,620	1,620	1,620
Difference as % of Supply	16.3	15.4	3.9	3.9	3.9
Difference as % of Demand	19.5	18.2	4.1	4.1	4.1

^[1] From Table 4.2-2, Row C

^[2] Imported supply = (imported supply from Table 4.2-5) x (escalation factor from Table 4.2-2, Row C);
Imported demand = (imported demand from Table 4.2-5) x (escalation factor from Table 4.2-2, Row F)

^[3] Groundwater is used only to supplement the recycled water system; groundwater supply is estimated to remain constant at 240 AFY

^[4] Recycled supplies are assumed to be available in quantities capable of meeting demands

^[5] Interpolated from Table 4.2-5

^[6] From Table 4.2-2, Row F; In its September 2005 Draft UWMP Multiple Dry Year Projections, MWD only projected figures demands for Year 3, therefore Years 1 and 2 are assumed to equal Year 3

^[7] Interpolated from Table 4.2-5 and average year demand for period 2000-2005 from Table 4.2-3

4.3 VULNERABILITY OF SUPPLY FOR SEASONAL OR CLIMATIC SHORTAGE

As introduced in Section 1, LVMWD's service area is in a semi-arid environment. LVMWD must depend on imported water supplies since natural precipitation is limited and groundwater is not considered a source of supply. Climatological data in California has been recorded since the year 1858. During the 20th century, California has experienced three periods of severe drought: 1928-34, 1976-77 and 1987-91. The year 1977 is considered to be the driest year of record in the Four Rivers Basin by the DWR. These rivers flow into the San Francisco Bay Delta and are the source of water for the SWP. Southern California and, in particular, Los Angeles County sustained few adverse impacts from the 1976-77 drought, but the 1987-91 drought created considerably more concern for Southern California and Los Angeles County.

As a result, LVMWD is vulnerable to water shortages due to its climatic environment and seasonally hot summer months. While the data shown in Tables 4.2.1.-1 through 4.2.1-7 identifies water availability during single and multiple dry year scenarios, response to a future drought would follow the water use efficiency mandates of the Metropolitan Water Surplus and Drought Management (WSDM) Plan, along with implementation of the appropriate stage of LVMWD's Drought Management Plan. These programs are more specifically discussed in Section 7.

4.4 PLANNED WATER SUPPLY PROJECTS AND PROGRAMS TO MEET PROJECTED WATER USE

4.4.1 Las Virgenes Municipal Water District Projects

LVMWD completed an Integrated Master Plan for Potable Water System for LVMWD and Recycled Water System for the Joint Venture of LVWMD and TSD (Master Plan) in May 2000 that examined existing facilities and their ability to adequately and reliably meet water demands. The Master Plan identified a number of projects that would assist LVMWD in meeting future demands. From the recommended projects, LVMWD determined which projects to include in their Potable Water and Sewer Capacity Fee Report. Some of the projects identified would improve LVMWD's water supply reliability while others are replacement/improvement projects that enhance the operations of LVMWD's facilities.

Potable Water Projects

Pipelines

A number of pipeline improvements are recommended in the Master Plan and included in the Capacity Fee Report. The pipeline improvements will increase the hydraulic capacity to meet rising demands and improve operations. The pipeline projects identified in the Capacity Fee Report are described below:

- The East – West Transmission pipeline which would be parallel to the existing 30-inch pipeline along the 101 Freeway corridor. This project includes a 42-inch pipeline between the Calabasas Tank and Liberty Canyon Road and a 30-inch pipeline between Liberty Canyon Road to the Cornell Pump Station. This project is recommended to move water from east to west within LVMWD as well as increase the capacity of the system to divert additional supplies from Metropolitan.
- The parallel Pipe in Las Virgenes Road is a 16” pipeline that would provide water to facilities in the southern end of LVMWD.
- The 20” pipeline in Reyes Adobe Road would improve flow and provide supplemental water to the recycled water system near Morrison Tank.
- The following pipelines would improve flow and pressures within the system:
 1. 14” and 16” pipelines from LV2 to Park Granada
 2. 20” and 36” pipeline within Kanan Road
 3. 10” pipe in Mulholland Road

LVMWD currently has 66 CFS of capacity from the three supply turnouts from Metropolitan. The capacities of the turnouts are summarized in Section 2 of this UWMP. LV2 is the significant contributor to LVMWD’s supply. The planned capacity from the three supply turnouts, however, is 106 CFS.²² Although the turnouts are equipped for the planned capacity, the downstream piping is not sized adequately and therefore only has 66 CFS of capacity. Once the improvements are made to LVMWD’s backbone piping system that are recommended in the Master Plan and described in this section, the restriction on capacity will be removed. Thus, LVMWD could take advantage of the full capacity of LV2. This will provide an additional 46 CFS of capacity to the system. The timeframe for these improvements are included in the Master Plan and span over 20 years. The increase in yield is not new water, but instead provides LVMWD the ability to move more water around more effectively. LVMWD could divert additional supplies from Metropolitan in the future if needed.

By incorporating pipeline improvements, LVMWD would also be able to utilize the Las Virgenes Reservoir more efficiently. Las Virgenes Reservoir has a capacity of 9,600 AF. LVMWD’s policy is to withdraw around 2,500 AF from the reservoir to supplement Metropolitan supplies throughout the year. This amount represents the current re-fill operating target based on transmission pipeline capacity serving the reservoir. The remaining capacity of the reservoir is reserved for emergencies and drought risks. If the Las Virgenes Reservoir could be refilled in a timely manner, the Master Plan recognizes the potential for the reservoir to accommodate up to 6,000 AF of storage water per year. This additional water, however, is not a new source of supply since LVMWD still purchases the water from Metropolitan.

²² Boyle Engineering Corporation, Integrated Master Plan for Potable Water System for Las Virgenes MWD and Recycled Water System for the Joint Venture of LVWMD and TSD, May 2000. p7-3

Pump Stations and Storage

Other projects proposed by LVMWD include additional storage and pump station capacity. These upgrade projects are located throughout LVMWD, are identified in the Capacity Fee Report, and summarized below:

- The twin Lakes Pump Station Intertie Project enables LVMWD to pump water from Las Virgenes Reservoir to the Twin Lakes area in an emergency.
- The Woosley Canyon Pump Station would provide water to the area that used to be provided with water from Ventura County Waterworks District and City of Simi Valley. With the construction of this pump station, LVMWD will no longer need to execute their water supply contracts with these agencies for potable water.
- The Jed Smith/Mountain Gate Pumping Expansion and Pipeline Upgrades will improve water supply. The new 0.6 MG reservoir will ensure delivery of water during power outages.
- The Mulwood Pump Station Suction Piping Upgrade and Subsystem Upgrades will improve the existing pump station performance.
- The McCoy Pump Station Expansion Phase II Project will increase water supply.
- The Warner Pump Station and Cold Canyon Pump Station Upgrade will install new pumps to serve growing demand.
- The Seminole/Latigo Pump Station and Reservoir will provide water to future developments. The proposed reservoir is 2.95 MG.

Miscellaneous Projects for Potable Water

LVMWD is also proposing to connect LV1 to Metropolitan's West Valley Feeder No. 2 instead of No. 1. This connection will provide greater pressure to the system. Another project identified in the Capacity Fee Report is the expansion of the Westlake Filtration Plant. Two new filter beds are proposed to expand the disinfection capabilities of the plant.

Supplemental Water

The Master Plan also discusses how potable water is used to supplement the recycled water system to meet peak demands and summarizes the facilities and quantities of water required. Currently, LVMWD adds potable water to the recycled water system at three locations: Cordillera Tank (1,200 gpm), Morrison Tank (2,000 gpm), and Reservoir 2 (2,100 gpm) because there are times when there is not sufficient supplies of recycled water to meet customer demands. According to the Master Plan, LVMWD could add another 1,000 gpm into Reservoir 2.

Recycled Water Projects

Since recycled water is used throughout LVMWD, improvements and future projects will offset the amount of potable water needed in the future. The projects identified in the Master Plan and Capacity Fee Report are listed below. The increase in recycled water delivered to LVMWD is discussed in Section 8.

Pipelines

The Master Plan and Capacity Fee Study also identified recycled water pipeline projects to move recycled water throughout the service area and to minimize the use of potable water. These projects include:

- The 24" pipeline in Mulholland Blvd to the TWRF.
- The Malibu Golf Course Recycled Water Main Extension Project.
- The Thousand Oaks Blvd Recycled Water Expansion Project.
- The Morrison/Mountain Gate Recycled Water Pipeline Project.
- The recycled water extension to the Riding Stable.
- Miscellaneous water pipeline projects to serve future developments throughout the service area.

Pump Station and Storage

Other projects proposed by the Joint Venture for recycled water include additional storage and pump stations. These projects will maximize the use of recycled water and minimize the use of potable water for supplemental supplies. The projects are summarized below:

- Construct Recycled Water Pump Station #2 on the eastern side of LVMWD.
- Construct Recycled Water Pump Station #2 on the western side of LVMWD to move recycled water more efficiently to the west.
- Construct Reservoir 2C. The 1.0 MG reservoir will improve water quality and provide flexibility in cleaning other tanks.
- Construct a new booster pump station west of Kanan Rd to increase pressure to the west.

Projects Being Studied

LVMWD is studying additional sources of water supply to prepare for potential future water shortages due to drought, earthquake, or other emergencies. Below are some of the possibilities being studied.

- Calleguas Municipal Water District (CMWD) Intertie: CMWD is also a member of Metropolitan and preliminary discussions with CMWD indicate that CMWD may have up to 20 CFS of additional capacity during the winter. The possible intertie would be located on the west side of LVMWD and greatly improve LVMWD's ability to refill Westlake Reservoir. With supply from the CMWD intertie, LVMWD can refill the Westlake Reservoir with 5,000 to 5,800 AF of water over a four-month period. The range is based on the amount of other improvements made within LVMWD. The connection also provides an alternative supply of water for emergency purposes to CMWD.
- Treatment and use of groundwater supplies: Existing groundwater is relatively high in iron and manganese, giving rise to staining and other aesthetic problems. Treatment and use of this resource to augment recycled water already occurs within LVMWD. An increased use of groundwater for recycled water is under consideration.
- Augmentation of Las Virgenes Reservoir with highly treated recycled water including ultra-filtration or reverse osmosis: This possibility has not been extensively studied. Regulatory acceptance and public acceptance of such augmentation are believed to be on the rise. Fiscal constraints, however, may limit this option.

4.4.2 Regional Agency Projects

Since LVMWD purchases most of its water from Metropolitan, the projects implemented by Metropolitan to secure their water supplies have a direct effect on LVMWD. In addition, TSD planned projects and programs for recycled water will also impact LVMWD.

Metropolitan Water District of Southern California (Metropolitan) Projects

Metropolitan is implementing water supply alternative strategies for the region and on behalf of their member agencies to insure available water in the future. Some of the strategies identified in Metropolitan's 2005 UWMP include:

- Conservation
- Water recycling and groundwater recovery
- Storage and groundwater management programs within the Southern California region
- Storage programs related to the State Water Project and the Colorado River
- Other water supply management programs outside of the region

Metropolitan has made investments in conservation, water recycling, storage, and supply that are all part of Metropolitan's long-term water management strategy. Metropolitan's approach to a long-term water management strategy was to develop an IRP that depended on many sources of supply. Metropolitan's implementation approach for achieving the goals of the Integrated Resource Plan Update is summarized in Table 4.4.2-1.

A comprehensive description of Metropolitan's implementation approach is contained in their 2003 report on Metropolitan water supplies "A Blueprint for Water Reliability" as well as their 2005 Regional Urban Water Management Plan. A brief description of the various programs implemented by Metropolitan is also included following Table 4.4.2-1.

**Table 4.4.2-1
Metropolitan Integrated Resource Plan Update Resources Status**

Target	Programs and Status
<ul style="list-style-type: none"> • Conservation 	<p>Current</p> <ul style="list-style-type: none"> - Conservation Credits Program - Residential; Non-residential Landscape Water Use Efficiency; Commercial, Industrial, and Institutional Programs - Grant Programs <p>In Development or Identified</p> <ul style="list-style-type: none"> - Innovative Conservation Program
<ul style="list-style-type: none"> • Recycling • GW Recovery • Desalination 	<p>Current</p> <ul style="list-style-type: none"> - LRP Program <p>In Development or Identified</p> <ul style="list-style-type: none"> - Additional LRP Requests for Proposals - Seawater Desalination Program - Innovative Supply Program
<ul style="list-style-type: none"> • In Region Dry-Year Surface Water Storage 	<p>Current</p> <ul style="list-style-type: none"> - Diamond Valley Reservoir, Lake Mathews, Lake Skinner - SWP Terminal Reservoirs (Monterey Agreement)
<ul style="list-style-type: none"> • In Region Groundwater Conjunctive Use 	<p>Current</p> <ul style="list-style-type: none"> - North Las Posas (Eastern Ventura County) - Cyclic Storage - Replenishment Deliveries - Proposition 13 Programs (short listed) <p>In Development or Identified</p> <ul style="list-style-type: none"> - Raymond Basin GSP - Proposition 13 Programs (wait listed) - Expanding existing programs - New groundwater storage programs
<ul style="list-style-type: none"> • SWP 	<p>Current</p> <ul style="list-style-type: none"> - SWP Deliveries - San Luis Carryover Storage (Monterey Agreement) - SWP Call Back with DWCV Table A transfer <p>In Development or Identified</p> <ul style="list-style-type: none"> - Sacramento Valley Water Management Agreement - CALFED Delta Improvement Program (Phase 8 Agreement)

Target	Programs and Status
<ul style="list-style-type: none"> • Colorado River Aqueduct 	<p>Current</p> <ul style="list-style-type: none"> - Base Apportionment - IID/Metropolitan Conservation Program - Coachella and All American Canal Lining Programs - Palo Verde Irrigation District Land Management Program <p>In Development or Identified</p> <ul style="list-style-type: none"> - Lower Coachella Storage Program - Chuckwalla Storage Program - Hayfield Storage Program - Storage in Lake Mead
<ul style="list-style-type: none"> • CVP/SWP Storage and Transfers • Spot Transfers and Options 	<p>Current</p> <ul style="list-style-type: none"> - Arvin Edison Program - Semitropic Program - San Bernardino Valley MWD Program - Kern Delta Program <p>In Development or Identified</p> <ul style="list-style-type: none"> - Mojave Storage Program - Other Central Valley Transfer Programs

Conservation Target

Metropolitan’s conservation policies and practices are shaped by Metropolitan’s Integrated Resource Plan and the California Urban Water Conservation Council *Memorandum of Understanding Regarding Water Conservation in California*.

Recycled Water, Groundwater Recovery, and Desalination Target

Metropolitan supports the use of alternative water supplies such as recycled water and degraded groundwater when there is a regional benefit to offset imported water supplies. Currently 355 thousand acre-feet (TAF) of recycled water is permitted for use within Metropolitan service area. Metropolitan estimates that an additional 480 TAF per year of new recycled water could be developed and used by 2025 with an additional 130 TAF per year by 2050. Approximately 30 percent of the recycled water use within Metropolitan’s service area is for groundwater replenishment and seawater barriers. In the future it is anticipated that up to 90 percent of all water used for seawater barriers will be recycled water.

Metropolitan recognizes the importance of member agencies developing local supplies and has implemented several programs to provide financial assistance. Metropolitan’s incentive programs include:

- **Competitive Local Resources Program:** Supports the development of cost-effective water recycling and groundwater recovery projects that reduce demands for imported supplies.
- **Seawater Desalination Program:** Supports the development of seawater desalination within MWD’s service area.

- Innovative Supply Program: Encourages investigations into alternative approaches to increasing the region's water supply.

According to Metropolitan's 2005 UWMP, 13 projects were selected in 2004 for implementation under the Competitive Local Resources Program. Two of the projects are within LVMWD's service area: 1) Thousand Oaks Blvd. Recycled Water Distribution Extension, and 2) Decker Canyon Recycled Water Distribution Extension to serve the Malibu Golf Course projects. These projects are estimated to provide an additional 525 AF of recycled water per year to the area. Under the Innovative Supply Program, Metropolitan selected 10 projects for grant funding. Proposals included harvesting storm runoff, onsite recycling, and desalination. The project findings will be presented to member agencies in 2006.

Regional Groundwater Conjunctive Use Target

Other programs within Metropolitan to maximize water supplies include storage and groundwater management programs. The IRP Update identified the need for dry-year storage within surface water reservoirs and the need for groundwater storage. In 2002, Diamond Valley Lake reached its full storage capacity of 800,000 AF. Approximately 400,000 AF are dedicated for dry-year storage. Metropolitan has developed a number of local programs to increase storage in the groundwater basins. The programs include:

- North Las Posas – In 1995, Metropolitan and CMWD developed facilities for groundwater storage and extraction from the North Las Posas Basin. Metropolitan has the right to store up to 210,000 AF of water. The wellfields are expected to be fully operational in 2007 with Phases I and II already complete. It is expected that the North Las Posas program will yield 47,000 AF of groundwater from the basin each year.
- Proposition 13 Projects – In 2000, DWR selected Metropolitan to receive financial funding to help fund the Southern California Water Supply Reliability Projects Program. The program coordinates eight conjunctive use projects with a total storage capacity of 195 TAF and a dry-year yield of 65 TAF per year.
- Raymond Basin – In January 2000, Metropolitan entered into agreements with the City of Pasadena and Foothill Municipal Water District to implement a groundwater storage program that is anticipated to yield 22 TAF per year by 2010.
- Other Programs – Metropolitan intends to expand the conjunctive use programs to add another 80 TAF to groundwater storage. Other basins in the area are being evaluated for possible conjunctive use projects.

State Water Project Target

The major actions Metropolitan is completing to improve SWP reliability include the following:

- Delta Improvements Package – The actions outlined in this package are related to water project operations in the Delta. The actions are designed to allow the SWP to operate the Banks Pumping Plant in the Delta at 8,500 CFS. Currently, Banks Pumping Plant operates at 6,680 CFS. Metropolitan anticipates that increase diversion from the Delta will result in an increase of 130 TAF per year will be available for groundwater and surface water storage.
- Phase 8 Settlement – This agreement includes various recommended water supply projects that meet demand and water quality objectives within the Sacramento Valley. The various conjunctive use projects will yield approximately 185 TAF per year in the Sacramento Valley of which approximately 55 TAF would be available to Metropolitan through its SWP allocation.
- Monterey Amendment – The Monterey Amendment enables Metropolitan to use a portion of the San Luis Reservoir’s capacity for carryover storage. This will increase SWP delivery to Metropolitan by 93 to 285 TAF depending on supply conditions.
- SWP Terminal Storage – Metropolitan has water rights for storage at Lake Perris and Castaic Lake. The storage provides Metropolitan with options for managing SWP deliveries and store up to 73 to 219 TAF of carryover water.
- Desert Water Agency/Coachella Valley Water District (DWCV) SWP Table A Transfer – This transfer to DWCV includes 100 TAF of Metropolitan SWP Table A amount in exchange for other rights such as its full carryover amounts in San Luis and full use of flexible storage in Castaic and Perris Reservoirs. It is anticipated that the call-back provision of the entitlement transfer can provide between 5 and 26 TAF of water depending on the water year.
- Desert Water Agency/Coachella Valley Water District (DWCV) Advance Delivery Program – Under this program Metropolitan delivers Colorado River water to the DWCV in exchange for their SWP Contract Table A allocations. Metropolitan can expect increases in SWP Table A deliveries of 6 to 18 TAF depending on the water year.

Central Valley Project Target

Metropolitan also receives imported water from the Colorado River Aqueduct. Metropolitan, Imperial Irrigation District (IID) and Coachella Valley Water District (CVWD) executed the Quantification Settlement Agreement (QSA) in October 2003. The QSA established the baseline water use for each agency and facilitated the transfer agricultural water to urban uses. A number of programs have been identified to assist Metropolitan meet their target goal of 1.2 MAF per year from the Colorado River Aqueduct. These programs include:

- IID/Metropolitan Conservation Program – The program originally provided funding from Metropolitan to implement water efficiency improvements within IID. Metropolitan in turn would reserve the right to divert the water conserved by those investments. Execution of the QSA extended the term of the program to 2078 and guaranteed Metropolitan at least 80 TAF per year.
- Coachella and All-American Canal Lining Project – The Coachella Canal Lining Project is scheduled to be completed in January 2007 and is expected to conserve 26,000 AFY. The All-American Canal Lining Project is scheduled to be completed in 2008 and is expected to conserve 67,700 AF per year. The conserved water will be made available in Lake Havasu for diversion from Metropolitan. In exchange, Metropolitan will supply a like amount to the San Luis Rey Settlement Parties and San Diego County Water Authority.
- IID/San Diego County Water Authority Transfer – IID has agreed to implement a conservation program and transfer water to San Diego County Water Authority. The transfer began in 2003 with 10 TAF and will increase yearly until 2023 where the transfer will be 200 TAF annually. Water will be conserved through land fallowing and irrigation efficiency measures. Metropolitan will supply the water conserved to San Diego County Water Authority in exchange for a like amount out of Lake Havasu.
- Palo Verde Land Management and Crop Rotation Program – This program offers financial incentives to farmers within Palo Verde Irrigation District to not irrigate a portion of their land. A maximum of 29 percent of lands within Palo Verde Irrigation District can be fallowed in any year. The water conserved will be available to Metropolitan with a maximum of 111 TAF per year expected.
- Hayfield Groundwater Storage Program – Metropolitan will divert Colorado River water and store it in the Hayfield Groundwater Basin in east Riverside County. Currently there is 73 TAF of water in storage. Metropolitan expects the program to eventually develop a storage capacity of approximately 500 TAF.
- Chuckwalla Groundwater Storage Program – Metropolitan proposes to store water when available in the Upper Chuckwalla Groundwater Basin for future delivery to Metropolitan.
- Lower Coachella Valley Groundwater Storage Program – Metropolitan, CVWD, and the Desert Water Agency are investigating the feasibility of a conjunctive use program in the Lower Coachella Groundwater Basin. The basin has the potential to store 500 TAF of groundwater for Metropolitan.
- Salton Sea Restoration Transfer – A transfer of up to 1.6 MAF would be conserved by IID and made available to Metropolitan. The proceeds from the DWR transfer would be placed in the Salton Sea Restoration Fund.
- Lake Mead Storage – Metropolitan is exploring options for storing water in Lake Mead.

CVP/SWP Storage and Transfers Target

Metropolitan has focused on voluntary short and long-term transfer and storage programs with CVP and other SWP contractors. Currently, Metropolitan has enough transfer and storage programs to meet their 2010 target goal of 300 TAF. Metropolitan has four CVP/SWP transfer and storage programs in place for a total of 317,000 AF of dry-year supply. Metropolitan is also pursuing a new storage program with Mojave Water Agency and continues to pursue Central Valley water transfers on an as-needed basis. The operational programs include:

- Semitropic – 107,000 AF dry-year supply
- Arvin-Edison – 90,000 AF dry-year supply
- San Bernardino Valley Municipal Water District – 70,000 AF dry-year supply
- Kern Delta Water District – 50,000 AF dry-year supply
- Mojave Storage Program – 35,000 AF dry-year supply
- Central Valley Transfer Program – 160,000 AF dry-year supply

4.4.3 Triunfo Sanitation District (TSD) Projects

The Joint Venture Agreement of LVMWD and TSD owns and operates the TWRP and supplies the Joint Venture service areas with tertiary treated recycled water. The Joint Venture is committed to providing high quality recycled water primarily for use in irrigation landscaped areas, such as at golf courses, schools, parks, medians, businesses, and common green areas not irrigated by individual householders. The Joint Venture provides recycled water service directly to customers within LVMWD.

The Joint Venture Recycled System Master Plan goes into much more depth about the system and details current and future planned efforts to extend supplies and ensure supply reliability. The Joint Venture uses a modern hydraulic modeling software system that is used extensively for planning purposes. By adding peaking and demand factors based on previous and projected patterns, additional Average Day Demands were identified for near-term future and buildout future scenarios. In order to supply recycled water (and potable water supplement if needed) to meet all of the identified maximum daily demand (MDD), over 60 separate scenarios were considered and evaluated. Based on these findings in order to meet these increasing demands and extend this supply of non-imported water several alternatives are being explored. They include the following:

- Increasing existing storage that is currently inadequate to meet summer demands.
- Construct seasonal storage facilities.
- Meet buildout future demand scenarios by upgrading and expanding existing facilities including projects such as:
 - Install larger piping in strategic areas
 - Install booster pumps in strategic areas
 - Construct more supplemental facilities using potable sources

Because the Joint Venture has over 30 years of experience with recycled water operations it is expected that recycled water will continue to grow as a reliable supply source within LVMWD. Additional information on water recycling is included in Section 8.

4.5 TRANSFER OR EXCHANGE OPPORTUNITIES

Currently, LVMWD purchases potable water from the City of Simi Valley and Ventura County Waterworks District to serve a small area within the district. Approximately 150 AFY is purchased on average. This transfer of water, however, will not continue once the Woosley Canyon Pump Station is constructed.

In Section 4.4, it is mentioned that LVMWD is in discussion with CMWD to complete an intertie project on the west side of LVMWD. This project would potentially bring 20 CFS of additional capacity to LVMWD during the winter to refill Las Virgenes Reservoir. If implemented, the intertie project would bring additional water to LVMWD and offset the need to purchase Metropolitan water in the summer months. Table 4.5-1 summarizes the opportunity for LVMWD if the intertie project with CMWD is implemented.

**Table 4.5-1
Transfer and Exchange Opportunities
(AFY)**

Source Transfer Agency	Transfer or Exchange	Short Term	Proposed Quantities	Long Term	Proposed Quantities
Calleguas Municipal Water District	Transfer	--	--	X	Up to 20 cfs during the winter

4.6 OPPORTUNITIES FOR DESALINATED WATER

Desalination is viewed as a way to develop a local, reliable source of water that assists agencies to reduce their demand on imported water, reduce groundwater overdraft, and in some cases make unusable groundwater available for municipal uses. Currently, there are no identified projects within LVMWD for desalination of seawater or impaired groundwater. However, from a regional perspective, desalination projects within the region indirectly benefit LVMWD.

Department of Water Resources Desalination Task Force

Assembly Bill 2717 called for DWR to establish a Desalination Task Force to evaluate the following: 1) Potential opportunities for desalination of seawater and brackish water in California, 2) Impediments to using desalination technology, and 3) The role of the State in furthering the use of desalination.²³ In October 2003, the task force, comprised of

²³ DWR, California Water Plan Update 2005, Volume 2 – Resource Management Strategies

27 organizations, provided a list of recommendations related to the following issues: general, energy, environment, planning, and permitting.

Metropolitan's Seawater Desalination Program

In August 2001, Metropolitan launched its Seawater Desalination Program. The program objectives were to provide financial and technical support for the development of cost-effective seawater desalination projects that will contribute to greater water supply reliability. In 2004, Metropolitan adopted an IRP Plan Update that includes a target of 150,000 AFY for seawater desalination projects to meet future demands. A call for proposals, under the Seawater Desalination Program, produced five projects by member agencies including the Los Angeles Department of Water and Power, Long Beach Water Department, Municipal Water District of Orange County, San Diego County Water Authority, and West Basin Municipal Water District. Collectively, the projects could produce approximately 126,000 AFY. This additional source of water supply would provide greater water reliability for Southern California residents.

Metropolitan has also provided funding to five member agencies to research specific aspects of seawater desalination. The agencies are reviewing and assessing treatment technologies, pretreatment alternatives, and brine disposal, permitting, and regulatory approvals associated with delivery of desalinated seawater to the local distribution system.²⁴ Metropolitan continues to work with its member agencies to develop local projects, inform decision makers about the role of desalinated sea water on future supplies, and secure funding from various state and federal programs.

Department of Water Resources Proposition 50 Funding

In January 2005, DWR received 42 eligible applications requesting \$71.3 million from funds available through Proposition 50. Proposition 50, the Water Quality, Supply and Safe Drinking Water Projects, Coastal Wetlands Purchase and Protection Act was passed by voters in 2002. Projects eligible for the program include construction projects, research and development, feasibility studies, pilot projects, and demonstration programs. Local agencies, water districts, academic and research institution will be able to use the funds in the development of new water supplies through brackish water and seawater desalination.

DWR is recommending funding for 25 of the 43 projects with the available \$25 million under the current desalination grant cycle. With this funding recommendation, 54 percent of the fund will support brackish water desalination related projects and 46 percent will support ocean desalination related projects. The projects recommended for funding include facilities in Marin, Alameda, and San Bernardino counties. Pilot projects in Long Beach, Santa Cruz, San Diego, and Los Angeles are among those that will receive grants under the proposed funding plan. Research and development activities at the Lawrence Livermore National Laboratory and the University of California, Los Angeles are included in the recommendations, as are feasibility studies by agencies in the Bay Area, Monterey, and Riverside County.

²⁴ Metropolitan Water District of Southern California, Regional UWMP, 2005

This page intentionally left blank.

**SECTION 5
WATER USE PROVISIONS**

5.1 PAST, CURRENT AND PROJECTED WATER USE AMONG SECTORS

Since 2000, new connections are being added at a rate of approximately 100 per year. Combined with new plumbing efficiency standards, landscape guidelines, and other water use efficiency programs, water demand projections are shown to increase by approximately 24 percent through the year 2030. Unaccounted for water losses are currently estimated at approximately five percent of total production.

Table 5.1-1 shows past, current and projected water use by sector through 2030. The projections in the table are based on a detailed review of over 102,000 billing records from the years 2000 through 2005. The water use is projected using a percentage of use by sector in accordance with the findings of that analysis.

**Table 5.1-1
Water Use by Sector – Past, Current and Projected
AFY**

Water Use Sector	2000	2005	2010	2015	2020	2025	2030
Single Family Residential	16,716	16,575	18,483	19,643	20,453	21,446	22,333
Multi Family Residential	1,603	1,380	1,480	1,500	1,525	1,552	1,575
Commercial & Industrial	1,964	1,700	1,875	1,925	1,970	2,020	2,060
Landscape	1,054	1,060	1,060	1,060	1,060	1,060	1,060
Agricultural	NA	195	195	195	195	195	195
Recycled & Non-Domestic	5,437	4,587	5,260	5,490	5,730	5,970	6,180
Detector Check	NA	32	32	32	32	32	32
Temporary/Other	410	885	885	885	885	885	885
Total Demand Subtotal	27,184	26,414	29,270	30,730	31,850	33,160	34,320
Unaccounted for System Losses ^[1]	1,298	1,320	1,500	1,555	1,615	1,670	1,720
Total Water Use	28,482	27,734	30,770	32,285	33,465	34,830	36,040

^[1] Estimated at 4% for 2000, and 5% for 2005 through 2030

Table 5.1-2 shows past, current and projected number of water service customers by sector through 2030.

**Table 5.1-2
Water Service Connections by Sector – Past, Current and Projected**

Water Use Sector	2000	2005	2010	2015	2020	2025	2030
Single Family Residential	17,512	17,728	20,000	21,000	22,000	23,000	24,000
Multi Family Residential	529	554	590	600	610	620	630
Commercial	658	676	740	760	780	800	820
Irrigation	240	247	247	247	247	247	247
Detector Check	NA	336	336	336	336	336	336
Temporary/Other	354	177	177	150	130	115	100
Agriculture	23	34	34	34	34	34	34
Recycled & Non-Domestic	561	572	580	588	596	602	615
Total Connections	19,877	20,324	22,704	23,715	24,733	25,754	26,782

SECTION 6 WATER DEMAND MANAGEMENT MEASURES

6.1 INTRODUCTION

LVMWD recognizes water use efficiency as an integral component of current and future water strategy for its service area. Through the California Urban Water Conservation Council's (CUWCC) Memorandum of Understanding Regarding Urban Water Conservation in California (MOU), 14 Best Management Practices (BMPs) have been established. LVMWD is signatory to the MOU and actively implements the BMPs through policies, programs, rules, regulations and ordinances, and the use of devices, equipment and facilities that provide a significant reduction in water demand.

6.2 DETERMINATION OF DMM IMPLEMENTATION

As signatory to the MOU, LVMWD has committed to a good faith effort in implementing the 14 cost-effective BMPs. "Implementation" means achieving and maintaining the staffing, funding, and in general, the priority levels necessary to achieve the level of activity called for in each BMP's definition, and to satisfy the commitment by the signatories to use good faith efforts to optimize savings from implementing BMPs as described in the MOU. BMPs are to be implemented at a level of effort projected to achieve at least the coverages specified in each BMP's definition, and in accordance with each BMP's implementation schedule.

The 14 BMPs include technologies and methodologies that have been sufficiently documented in multiple demonstration projects that result in more efficient water use and conservation. Many of the BMPs are implemented by LVMWD in coordination with Metropolitan and their regional conservation programs.

LVMWD's BMP Activity Report is a comprehensive document that shows implementation of each BMP and provides a determination of implementation from LVMWD's 2000 UWMP. LVMWD has maintained complete compliance with all the BMPs to date, as shown in the Annual Reports for 2001-2002 and 2003-2004, the Coverage Reports, and BMP Activity Reports provided in Appendix E. The Coverage Reports indicate that LVMWD is on track for meeting BMP coverage in its service area according to the MOU.

6.3 DEMAND MANAGEMENT MEASURES

The CUWCC has established best management practices (consistent with Demand Management Measures) described in the MOU. The 14 BMPs include:

1. Water survey programs for single-family residential and multifamily residential customers
2. Residential plumbing retrofit

3. System water audits, leak detection, and repair
4. Metering with commodity rates for all new connections and retrofit of existing connections
5. Large landscape conservation programs and incentives
6. High-efficiency washing machine rebate programs
7. Public information programs
8. School education programs
9. Conservation programs for commercial, industrial, and institutional accounts
10. Wholesale agency programs
11. Conservation pricing
12. Water conservation coordinator
13. Water waste prohibition
14. Residential ultra-low-flush toilet replacement programs

LVMWD continues to implement the 14 BMPs, as demonstrated by the completed BMP Activity Reports, Coverage Reports, and Annual Reports included in Appendix E. Collectively, these reports demonstrate the commitment to actively implement the BMPs in order to reduce overall water demand and assist in water reliability for the region.

SECTION 7 WATER SHORTAGE CONTINGENCY PLAN

7.1 INTRODUCTION

One dry year does not constitute a drought in California, but does serve as a reminder of the need to plan for droughts. California's extensive system of water supply infrastructure, its reservoirs, groundwater basins, and inter-regional conveyance facilities, mitigates the effect of short-term dry periods. Defining when a drought begins is a function of drought impacts to water users. Drought is a gradual phenomenon. Although droughts are sometimes characterized as emergencies, they differ from typical emergency events. Droughts occur slowly, over a multiyear period. Drought impacts increase with the length of a drought, as carry-over supplies in reservoirs are depleted and water levels in groundwater basins decline.

In 2003, LVMWD adopted a Drought Management Plan to ensure appropriate and equitable allocation of water during times of relative scarcity. The District's Board of Directors reviewed the Drought Management Plan (LVMWD Report No. 2225.00) dated November 26, 2002, in favor of amending Ordinance No. 11-86-161 to implement the Drought Management Plan. A copy of the draft Ordinance (No. 04-03-241) is attached in Appendix F.

The Drought Management Plan, shown in Appendix G, implements several policy principles, including the following:

1. Focus on rate structure and appropriate water use practices as needed to accomplish goals, rather than financial penalties and/or shut-offs
2. Customers who meet goals do not pay more for their water
3. Conservation levels relate to the Metropolitan WSDM Plan and rate structures
4. No restrictions on new development
5. An appeal process is available for those that have already conserved
6. Appropriate use of District water storage facilities (Las Virgenes Reservoir)
7. Logical procedures that make sense to customers and that relate clearly and directly to conservation targets

In order to meet short-term water demand deficiencies, and short- or long-term drought requirements, LVMWD follows Metropolitan's adopted Water Surplus and Drought Management Plan (WSDM Plan) and supplements the WSDM Plan with the rates set forth in the LVMWD's Drought Management Plan. The WSDM Plan guides the management of regional water supplies to achieve the reliability goals of Southern California's Integrated Water Resource Plan.

7.2 URBAN WATER SHORTAGE CONTINGENCY ANALYSIS

7.2.1 Stages of Action

In order to meet short-term water demand deficiencies and short- or long-term drought requirements, LVMWD will implement its own water shortage plan (Drought Management Plan), as described in Section 7.1, in response and coordination with Metropolitan's WSDM Plan.

Metropolitan WSDM Plan

In 1999, Metropolitan in conjunction with its member agencies developed the Water Surplus and Drought Management (WSDM) Plan. This plan addresses both surplus and shortage contingencies.

The WSDM plan will guide management of regional water supplies to achieve the reliability goals of Southern California's Integrated Resource Plan. The IRP sought to meet long-term supply and reliability goals for future water supply planning. The WSDM Plan guiding principle is to minimize adverse impacts of water shortage and ensure regional reliability. From this guiding principle come the following supporting principles:

- Encourage efficient water use and economical local resource programs.
- Coordinate operations with member agencies to make as much surplus water as possible available for use in dry years.
- Pursue innovative transfers and banking programs to secure more imported water for use in dry years.
- Increase public awareness about water supply issues.

The WSDM Plan guides the operations of water resources (local resources, Colorado River, State Water Project, and regional storage) to ensure regional reliability. It identifies the expected sequence of resource management actions Metropolitan will take during surpluses and shortages of water to minimize the probability of severe shortages that require curtailment of full-service demands. Mandatory allocations are avoided to the extent practicable, however, in the event of an extreme shortage an allocation plan will be adopted in accordance with the principles of the WSDM Plan.

The WSDM Plan distinguishes between *Surpluses*, *Shortages*, *Severe Shortages*, and *Extreme Shortages*. Within the WSDM Plan, these terms have specific meaning relating to Metropolitan's capability to deliver water to LVMWD.

Surplus: Metropolitan can meet full-service and interruptible program demands, and it can deliver water to local and regional storage.

Shortage: Metropolitan can meet full-service demands and partially meet or fully meet interruptible demands, using stored water or water transfers as necessary.

Severe Shortage: Metropolitan can meet full-service demands only by using stored water, transfers, and possibly calling for extraordinary conservation. In a Severe Shortage, Metropolitan may have to curtail Interim Agricultural Water Program (IAWP) deliveries in accordance with IAWP.

Extreme Shortage: Metropolitan must allocate available supply to full-service customers.

The WSDM Plan also defines five surplus management stages and seven shortage management stages to guide resource management activities. Each year, Metropolitan will consider the level of supplies available and the existing levels of water in storage to determine the appropriate management stage for that year. Each stage is associated with specific resource management actions designed to: 1) avoid an Extreme Shortage to the maximum extent possible; and 2) minimize adverse impacts to retail customers should an “Extreme Shortage” occur. The current sequencing outline in the WSDM Plan reflects anticipated responses based on detailed modeling of Metropolitan’s existing and expected resource mix. This sequencing may change as the resource mix evolves.

Shortage Actions by Shortage Stage

When Metropolitan must make net withdrawals from storage, it is considered to be in a shortage condition. However, under most of these stages, it is still able to meet all end-use demands for water. The following summaries describe water management actions to be taken under each of the seven shortage stages.

Shortage Stages

Shortage Stage 1. Metropolitan may make withdrawals from Diamond Valley Lake.

Shortage Stage 2. Metropolitan will continue Shortage Stage 1 actions and may draw from out-of-region groundwater storage.

Shortage Stage 3. Metropolitan will continue Shortage Stage 2 actions and may curtail or temporarily suspend deliveries to Long Term Seasonal and Replenishment Programs in accordance with their discounted rates.

Shortage Stage 4. Metropolitan will continue Shortage Stage 3 actions and may draw from conjunctive use groundwater storage (such as the North Las Posas program) and the SWP terminal reservoirs.

Severe Shortage

Shortage Stage 5. Metropolitan will continue Shortage Stage 4 actions. Metropolitan’s Board of Directors may call for extraordinary conservation through a coordinated outreach effort and may curtail IAWP deliveries in accordance with their discounted rates. In the event of a call for extraordinary conservation, Metropolitan’s

Drought Program Officer will coordinate public information activities with member agencies and monitor the effectiveness of ongoing conservation programs. The Drought Program Officer will implement monthly reporting on conservation program activities and progress and will provide quarterly estimates of conservation water savings.

Shortage Stage 6. Metropolitan will continue Shortage Stage 5 actions and may exercise any and all water supply option contracts and/or buy water on the open market either for consumptive use or for delivery to regional storage facilities for use during the shortage.

Extreme Shortage

Shortage Stage 7. Metropolitan will discontinue deliveries to regional storage facilities, except on a regulatory or seasonal basis, continue extraordinary conservation efforts, and develop a plan to allocate available supply fairly and efficiently to full-service customers. The allocation plan will be based on the Board-adopted principles for allocation listed previously. Metropolitan intends to enforce these allocations using rate surcharges. Under the current WSDM Plan, the surcharges will be set at a minimum of \$175 per AF for any deliveries exceeding a member agency's allotment. *Any deliveries exceeding 102% of the allotment will be assessed a surcharge equal to three times Metropolitan's full-service rate.*

The overriding goal of the WSDM Plan is to never reach Shortage Stage 7, an Extreme Shortage. Given present resources, Metropolitan fully expects to achieve this goal over the next ten years.

Reliability Modeling

Using a technique known as "sequentially indexed Monte Carlo simulation," Metropolitan undertook an extensive analysis of system reservoirs, forecasted demands, and probable hydrologic conditions to estimate the likelihood of reaching each Shortage Stage through 2010. The results of this analysis demonstrated the benefits of coordinated management of regional supply and storage resources. Expected occurrence of a Severe Shortage is four percent or less in most years and never exceeds six percent; equating to an expected shortage occurring once every 17 to 25 years. An Extreme Shortage was avoided in every simulation run.

Metropolitan also tested the WSDM Plan by analyzing its ability to meet forecasted demands given a repeat of the two most severe California droughts in recent history. Hydrologic conditions for the years 1923–34 and 1980–91 were used in combination with demographic projections to generate two hypothetical supply and demand forecasts for the period 1999–2010. Metropolitan then simulated operation to determine the extent of regional shortage, if any. The results again indicate 100 percent reliability for full-service demands through the forecast period.

Allocation of Supply for M&I Demands

The equitable allocation of supplies is addressed by the Implementation Goals for the WSDM Plan, with the first goal being to “avoid mandatory import water allocations to the extent practicable.” The reliability modeling for the WSDM Plan discussed above results in 100 percent reliability for full-service demands through the year 2010. However, the second fundamental goal of the WSDM Plan is to “equitably allocate imported water on the basis of agencies’ needs.” Factors for consideration in establishing the equitable allocation include retail and economic impacts, recycled water production, conservation levels, growth, local supply production, and participation and investment in Metropolitan’s system and programs. In the event of an extreme shortage, an allocation plan will be adopted in accordance with the principles of the WSDM Plan.

In an effort to avoid allocation, import water reliability is planned through the Southern California IRP and the WSDM Plan. The IRP presents a comprehensive water resource strategy to provide the region with a reliable and affordable water supply for the next 25 years. The WSDM Plan will guide management of regional water supplies to achieve the reliability goals of the IRP.

Additional efforts to ensure water supplies in times of drought include sufficient water storage programs. One of the most effective forms of storage in a highly dry and arid climate is conjunctive use wherein water is stored underground during wet periods and pumped out during dry and drought periods. Conjunctive use has been identified in the IRP as a necessary component of regional planning. LVMWD and Metropolitan implement and support programs to support the goals of the IRP and the WSDM Plan and to make every effort to avoid allocation of water supplies in times of shortage.

7.2.2 Estimate of Minimum Supply for Next Three Years

Metropolitan modeling, as discussed above, results in 100 percent reliability for full-service demands through the year 2030. The Metropolitan 2005 Regional UWMP demonstrates Metropolitan’s demand/supply balance in multiple dry years, single dry year, and average year, as shown in Section 4.2, Table 4.2-7.

Under the worst-case supply scenario, shortages would then be managed through LVMWD’s Drought Management Plan. LVMWD anticipates the ability to meet water demand through the next three years based on the driest historic three years as shown in Table 7.2.2-1. The table shows the minimum supplies under this scenario, assuming that a major drought emergency occurs in the current year, 2005.

The key factor in this analysis is the level of LVMWD’s Las Virgenes Reservoir at the start of a drought. LVMWD would provide water from the reservoir to make up any difference between customers’ collective conservation and the conservation targets effective under the MWD WSDM plan and rate structure. For example, Las Virgenes Reservoir water would be used to offset the difference between an 8 percent reduction achieved by District customers and a 10 percent reduction required under the WSDM

plan. Use of reservoir water in this way delays the onset of more restrictive tiers and/or higher rates under Policy Principle 1, and also preserves any District credits under the WSDM plan for the District's previous investments in water conservation and recycling. In the event the Las Virgenes Reservoir would not completely negate the need for customer reductions, rate adjustments would occur.

**Table 7.2.2-1
3-Year Minimum Supply Under Worst-Case Supply Projections
(AFY)**

Source	Current (normal)	2006	2007	2008
Imported Water	25,911	30,530	30,530	30,530
Recycled Water	6,058	6,130	6,130	6,130
Westlake Reservoir	0	0	0	0
Water Transfers	0	0	0	0
Agricultural Water	233	233	233	233
Total Available Water	32,202	36,893	36,893	36,893
% Shortage	0%	0%	0%	0%

7.2.3 Catastrophic Supply Interruption Plan

Water Shortage Emergency Response

A water shortage emergency could be a catastrophic event such as result of drought, failures of transmission facilities, a regional power outage, earthquake, flooding, supply contamination from chemical spills, or other adverse conditions.

LVMWD maintains and exercises a comprehensive Emergency Management Program for such emergencies. As necessary, LVMWD will operate the Las Virgenes Reservoir to offset reduction in supply from Metropolitan as a result of drought. This use will take into account the need to retain reserves for fire protection, temporary interruption in deliveries from Metropolitan, and other essential operational needs.

During a disaster, LVMWD will work cooperatively with Metropolitan through their Member Agency Response System (MARS) to facilitate the flow of information and requests for mutual-aid within Metropolitan's 5,100-square mile service area.

LVMWD's Water Shortage Response – Drought and Emergencies (Ordinance 04-03-241) identifies specific steps that LVMWD will accomplish in the time of an emergency, including the following:

1. The general manager shall recommend activation of one or more elements of this article whenever the water supplies of the district have a reasonable prospect for being inadequate to meet the needs of customers. The recommendation shall be

presented to the board in the form of a written report, which includes the reasons for the recommendation. The board shall consider the report at a duly noticed public hearing.

2. After the public hearing, the board may adjust tiers and rates to provide customers with a financial incentive to conserve water. The volume of water available within each tier under normal weather shall be reduced, and billing rates increased, in proportion to the conservation goals presented in Table 7.2.4-3 (in the District Ordinance).
3. The board may prohibit wasteful practice and implement conservation measures during a water shortage, including restrictions on the following:
 1. Irrigation
 2. Exterior Washing
 3. Ornamental or Recreational Uses
 4. Serving Water at Restaurants Without Request
4. The board may impose restrictions in addition to the financial incentives and conservation measures.
5. A customer may request relief from mandatory conservation practices by filing a written appeal with the general manager.
6. The general manager may grant relief in case of hardship if all feasible means of conserving water have been exercised, including but not limited to: retrofitting non-ultra low flush toilets (ULFTs) with ULFTs; installation of low-flow showerheads; water audit by the district and compliance with staff recommendations and no observable runoff.
7. The decision of the general manager may be appealed by a five-member water shortage committee appointed by the board. The committee shall review the general manager's decisions and approve or deny the petition based on the circumstances of each case. Decisions of the committee shall be final.

Additional emergency services in the State of California include the Master Mutual Aid Agreement, California Water Agencies Response Network (WARN) and Plan Bulldozer. The Master Mutual Aid Agreement includes all public agencies that have signed the agreement and is planned out of the California Office of Emergency Services. The WARN includes all public agencies that have signed the agreement to WARN and provides mutual aid assistance. It is managed by a State Steering Committee. Plan Bulldozer provides mutual aid for construction equipment to any public agency for the initial time of disaster when danger to life and property exists.

7.2.4 Prohibitions, Penalties, and Consumption Reduction Methods

In the occurrence of a drought, LVMWD will select needed conservation practices in response to the drought condition and use appropriate public outreach to encourage all customers to reduce their water consumption. Such practices include irrigation scheduling, exterior washing prohibition, and ornamental or recreational use prohibitions, as outlined in the Drought Management Plan (Appendix G).

Irrigation Practices

1. Irrigation scheduling: Landscape irrigation with potable or recycled water shall be allowed only between the hours of 8 p.m. and 6 a.m. when controlled by an automatic irrigation controller/timer.
2. Scheduled irrigation days: LVMWD may limit irrigation to scheduled days only, to conserve water supplies.
3. Hand watering only: LVMWD may limit irrigation to hand watering to avoid area-wide watering of large turf areas.
4. Landscape irrigation with potable or recycled water is permitted without restriction when performed with a manually operated irrigation system.
5. Irrigation runoff: Substantial irrigation runoff is prohibited.

Conservation measures 1 through 3 do not apply to drip irrigation systems or areas of new plantings until they are established and can survive without daytime irrigation.

Exterior Washing Practices

1. Washing of buildings, facilities, equipment or mobile equipment such as vehicles, is prohibited except where a hand-held hose equipped with a positive shut-off nozzle is used.
2. Water shall not be used to wash down sidewalks, driveways, parking areas, tennis courts, patios or other paved areas except to alleviate immediate fire, sanitation or health hazards.

Ornamental or Recreational Uses

Filling or refilling swimming pools, decorative ponds and fountains is prohibited.

Restaurants

Restaurants shall serve water only upon customer request.

Leaks

Leaks must be repaired as soon as discovered and shall not be allowed to continue for more than 48 hours.

Penalties for Unreasonable Use and/or Wastage

In the event of unreasonable use or waste, the District reserves the right to impose penalties in addition to the financial incentives described below, including the right to install flow restrictors or shut-off supply. Penalties will be imposed through LVMWD’s water rates.

Water rates in LVMWD’s service area incorporate an “inverted tier” structure to encourage efficient water use. Under this system, the unit cost of water (\$/HCF) increase in proportion to the volume used according to the thresholds and current prices shown in Table 7.2.4-1.

**Table 7.2.4-1
LVMWD Drought Management Plan Water Conservation Tiers**

	Conservation Tiers			
	Tier 1	Tier 2	Tier 3	Tier 4
	First 12 units	Next 12 units	Next 91 units	Over 115 units
Zone 1	\$1.18	\$1.31	\$1.91	\$2.48
Zone 2	\$1.49	\$1.62	\$2.22	\$2.79
Zone 3	\$1.70	\$1.83	\$2.43	\$3.00
Zone 4	\$2.10	\$2.23	\$2.83	\$3.40
Zone 5	\$3.03	\$3.16	\$3.76	\$4.33

In the event that LVMWD experiences a drought, volumes of water available under each tier in Table 7.2.4-1 will be reduced in proportion to the conservation goal, which depends on the severity of the drought. Table 7.2.4-2 shows the revised conservation tiers that could be applied during droughts of varying severity (corresponding with water conservation goals of 10, 15, and 20 percent). Tier 1 volume does not include a reduction in water since it totals the minimal water necessary for drinking, health, and hygiene; thereby considered normal use.

**Table 7.2.4-2
LVMWD Drought Management Plan Conservation Rates By Tier – Drought**

Conservation Goal (% reduction in demand according to severity of drought)	Drought Conservation Rate Structure (percent reduction in units per billing tier for Tiers 2-4)			
	Tier 1	Tier 2	Tier 3	Tier 4
Normal 0%	First 12 units	Next 12 units	Next 91 units	Over 115 units
10%	First 12 units	Next 11 units	Next 82 units	Over 105 units
15%	First 12 units	Next 10 units	Next 77 units	Over 99 units
20%	First 12 units	Next 10 units	Next 73 units	Over 95 units

In addition to tier reductions, unit water prices would need to be increased. Two alternative rate increase options are shown in Table 7.2.4-3. Beyond providing financial incentives, tier rate charges help insure that revenue during drought is sufficient to operate district facilities despite reduced sales. The following section discusses revenue impacts in further detail.

**Table 7.2.4-3
LVMWD Drought Management Plan Conservation Rate Increase
(Alternatives)**

Conservation Goal (% reduction in demand according to severity of drought)	Reduction in Tiers 2-4 (percent reduction in volume allocation according to severity of drought)	Rate Increase (%)	
		Alternative 1	Alternative 2
10%	10%	0%	3%
15%	15%	5%	5%
20%	20%	10%	7%

Table 7.2.4-3 reflects water conservation or consumption reduction to 20%. This percentage is primarily reached through water rate increases. Therefore, in the circumstance where consumption must be reduced by 50%, the method of increasing rates will continue to be applied as necessary to reach the reduction goal.

7.2.5 Analysis of Revenue Impacts of Reduced Sales During Shortages

Actions and Conditions that Impact Revenues and Expenditures

LVMWD's Drought Management Plan primarily focuses on rate structure and appropriate water use practices, as opposed to financial penalties and/or shut-offs to address times of drought. Financial incentives through tiered pricing serves as the backbone for demand reduction measures in severe shortages. The Drought Management Plan strategically provides the District with the option to increase rates for the lowest level of declared drought or to reserve rate increases for more severe droughts. In addition, any particular tier or rate changes approved by the Board prior to or at the outset of the drought can be adjusted as needed over time without altering the policy principles behind them. The Plan allows flexibility to react to variables, including extent of customer conservation, MWD rate increases, and the state of the district finances, as outlined below.

Rate Adjustment to Overcome Revenue Impacts

The increased water unit costs associated with the decreased allocation in each tier and rate increases will offset losses in revenue due to decreased usage. However, it is anticipated that a prolonged drought would cause a portion of the revenue deficit to require application of district revenue stabilization funds, as shown in Table 7.2.5-1.

LVMWD’s overall philosophy for addressing revenue impacts of droughts is that those who do not conserve pay more. As a result, the Drought Management Plan will impact water bills by requiring customers who conserve to pay less, and the differential water bill versus those who do not conserve increases proportionately with the severity of the drought.

**Table 7.2.5-1
Estimated Revenue Impacts of Drought**

Conservation Goal	Reduction in Tiers 2-4	Alternative 1		Alternative 2	
		Rate Change	Revenue Net Loss	Rate Change	Revenue Net Loss
10%	10%	0%	\$585,000	3%	\$299,000
15%	15%	5%	\$398,000	5%	\$398,000
20%	20%	10%	\$264,000	7%	\$620,000

7.2.6 Water Shortage Contingency Resolution/Ordinance

LVMWD Board of Directors reviewed the Drought Management Plan (LVMWD Report No. 2225.00) dated November 26, 2002, in favor of amending Ordinance No. 11-86-161 to implement the Drought Management Plan. A copy of the draft Ordinance is attached in Appendix F. A copy of the Drought Management Plan is included under Appendix G.

In addition to the Drought Management Plan, several of LVMWD’s other Water Conservation Ordinances affect the water shortage emergency and mandatory restrictions that are implemented as appropriate. Table 7.2.6-1 presents the Ordinances that serve as the authorizing documentation for water shortage measure implementation.

**Table 7.2.6-1
LVMWD Ordinances for Water Shortage Measures**

Reference Number	Major Thrust of Legislation
Article 4 of Las Virgenes Code	Water Conservation, water recycling
3-89-173	Fixtures in new buildings
3-90-178	ULFT rebates
3-92-199	Conservation dividends, water allocation
3-92-200	Conservation dividends, water allocation

Reference Number	Major Thrust of Legislation
3-92-201	Emergency water conservation regulations
3-93-204	Efficient irrigation practices , use of recycled water
9-93-211	Brine discharges, water softener ban to protect quality of recycled water

7.2.7 Mechanisms to Determine Actual Reductions in Water Use

Under normal conditions, potable water production figures are recorded daily. Weekly and monthly reports are prepared and monitored. This data will be used to measure the effectiveness of any water shortage contingency stage that may be implemented.

As stages of water shortage are declared by Metropolitan, LVMWD will follow implementation of those stages and continue to monitor water demand levels. It is not until Shortage Stage 5 that Metropolitan may call for extraordinary conservation. During this stage, Metropolitan's Drought Program Officer will coordinate public information activities and monitor the effectiveness of ongoing conservation programs. Monthly reporting on estimated conservation water savings will be provided.

SECTION 8 WATER RECYCLING

8.1 RECYCLED WATER IN SOUTHERN CALIFORNIA

The Southern California region, from Ventura to San Diego, discharges over 1 billion gallons (1.1 million AFY) of treated wastewater to the ocean each day. This is considered a reliable and drought-proof water source and could greatly reduce the areas' and District's reliance on imported water. As technological improvements continue to reduce treatment costs and as public perception and acceptance continue to improve, numerous reuse opportunities should develop. Recycled water is a critical part of the California water picture because of the strong drought potential and as technology continues to improve, demand continues to increase for its use.

8.2 COORDINATION OF RECYCLED WATER IN LVMWD SERVICE AREA

LVMWD and TSD operating as the Joint Venture in 1972, entered into an operational commitment to recycle and beneficially reuse recycled water produced at TWRF for use primarily as irrigation. The Joint Venture provides wholesale recycled water service directly to LVMWD and TSD. LVMWD then provides retail recycled water service to customers within its service area. TSD and neighboring CMWD provide retail service to customers in Ventura County. The Joint Venture is a leader in supplying high quality, tertiary-treated, recycled water. LVMWD is one of the first major purveyors to aggressively develop a recycled water system in the greater Los Angeles area. Further, the percentage of recycled water used within LVMWD is among the highest in the state.

8.3 WASTEWATER COLLECTION AND TREATMENT IN LVMWD SERVICE AREA

LVMWD and its Joint Venture Agreement partner, TSD, established the TWRF in the mid-1960's. Wastewater management for the portion of Los Angeles County in the LVMWD service area is provided by LVMWD. TSD serves the southeast portion of Ventura County tributary to the Malibu Creek watershed.

The initial capacity of the TWRF plant was relatively small (0.5 MGD). Four subsequent expansions have brought the plant to its current capacity of 16 MGD. In addition, the district operates 56 miles of trunk sewer lines, a state of the art bio-solid handling facility, and the TWRF laboratory.

The supply for the recycled water system in the Joint Venture service area is the tertiary treated wastewater from the TWRF. The TWRF is located on Malibu Canyon Road adjacent to Malibu Creek.

If summer irrigation demands are high, the recycled water supply is supplemented by groundwater pumped from the Westlake Wells and transported to TWRF via the existing

sewer system. Also, potable water can be added at several selected locations in the distribution system. Currently summer demands are such that occasionally supplemental water is needed for the system to operate. The amount of supplemental water required has varied greatly over the past years. With growth in the service area the amount of available recycled water has increased. Likewise, the amount of recycled water demand has generally increased but has fluctuated with weather patterns.

The average daily flows to TWRP vary somewhat seasonally. Flows are generally highest in the wintertime after rain, which results in inflow and infiltration (I/I) to the wastewater lines. Infiltration is the result of water entering pipelines due to a high water table or due to interflow in the ground; the latter is storm water, which enters the ground and flows through the soils. Infiltration tends to increase wastewater flows throughout the winter period with some variation. Inflow is a result of storm water entering manhole lids or from other surface features. It peaks with rain, but decreases shortly after rainfall.

Historically, the average daily wastewater flows are approximately 93 gallons per capita per day to TWRP.²⁵ The relative consistency of wastewater flows is remarkable when compared to water demand as both the population and flows increased.

Sewer Systems

Triunfo Sanitation District (TSD)

TSD was organized November 12, 1963 as a special district to provide sanitation services for the southeastern portion of Ventura County. In 1964, TSD partnered with LVMWD in a Joint Exercise of Powers Agreement to construct, operate, maintain and provide for a regional sewerage system to serve the area within two distinct boundaries. LVMWD covers approximately 150 square miles and services a population of about 80,000. LVMWD provides sewerage services and wastewater treatment, potable water and treats and sells recycled water.

TSD produces and resells recycled water, a byproduct of wastewater treatment. Recycled water from the TWRP in Malibu Canyon is used to irrigate golf courses, green belts, school grounds, parks, homeowner associations and street landscaping.

The following summarizes the TSD facilities and services:

- » Wastewater Collection, Treatment & Disposal
 - 255 miles of collection system pipeline including:
 - pump stations
 - 1 mile of force mains
 - 1/2 mile of pressure mains
 - 16.1 million gallon per day total treatment plant capacity

²⁵ Boyle Engineering Corporation, Recycled Water System Master Plan for LVMWD and TSD Joint Venture, February 1999.

- » Potable & Recycled Water Distribution
 - potable water storage tanks (5.6 million gallon capacity)
 - 41.03 miles of potable water distribution system pipeline delivering 82.72 million gallons per month of potable water
 - 36.47 million gallons per month recycled water
 - miles of recycled water distribution system pipeline

City of Los Angeles Department of Public Works Bureau of Sanitation Wastewater Services

The City of Los Angeles Department of Public Works Bureau of Sanitation Wastewater Services operates and maintains the largest wastewater collection system in the nation. The system covers a 600 square mile service area and is comprised of more than 6,500 miles of sewer pipelines and four wastewater treatment and water reclamation plants that can process over 550 million gallons of flow each day citywide. The wastewater system serves over four million people in Los Angeles and 29 cities, communities and agencies that contract for this public works service.

LVMWD has a connection to the City of Los Angeles system at a point in the collection system referred to as U-2. Diversion of flows to the City of Los Angeles has been limited. To relieve TSD of pressures for expansion of the TWRP, some plans consider diversion of up to 2 MGD at U-2 to the City of Los Angeles collection and treatment facilities.

Wastewater Collection and Treatment

Tapia Water Reclamation Facility (TWRP)

TWRP serves residents living across 120 square miles of southeastern Ventura and western Los Angeles counties. Current flows to TWRP averages 9 MG of wastewater every day. TWRP is capable of treating up to 16 MGD.

The wastewater treatment process at TWRP duplicates and accelerates natural biological methods of cleaning wastewater. Advanced filtration and disinfection processes assure that the treated water meets the stringent water reuse standards and is environmentally safe for wildlife and vegetation.

TWRP received the US Environmental Protection Agency's 1998 "Award of Excellence." TWRP was also named "Plant of the Year" by the California Water Pollution Control Associations and the Association of California Water Agencies awarded TWRP its "Clair A. Hill Award" in 1990 and 1995.

Wastewater treatment at the TWRP includes a large number of process units and ancillary sub-units. The major processes are as follows:

- a. Headworks – screening, grit removal and influent pumping
- b. Primary treatment – Sedimentation (removes 60% suspended solids, 30% of biological oxygen demand (BOD), and most floatables)

- c. Secondary treatment – Activated sludge (biological process removes remaining suspended solids and BOD)
- d. Tertiary treatment – Filtration (anthracite and gravel) removes remaining traces of suspended solid resulting in an effluent with average turbidity of 0.5 nephelometric turbidity units (NTU)
- e. Disinfection/Dechlorination
- f. Effluent pumping
- g. Aerobic Sludge Digestion (seasonal)
- h. Anaerobic digestion and dewatering
- i. Bio-solids composting

Malibu Creek Discharge

In November 1997, the Regional Water Quality Control Board (RWQCB) Los Angeles Region included a requirement in the National Pollution Discharge Elimination System (NPDES) discharge permit for TWRP to eliminate discharges to Malibu Creek during the periods of May 1 to October 1 of each year. Subsequently, revisions to the NPDES permit extended the prohibition period to seven months (April 15 – November 15). Alternatives to creek discharges were identified, and LVMWD implemented numerous other methods to eliminate all discharges during the prohibition period. LVMWD continues to promote additional beneficial use of recycled water and extensions to the distribution system to provide recycled water to additional customers reducing the discharges to Malibu Creek.

LVMWD has been recognized for its efforts to provide environmental stewardship of Malibu Creek. LVMWD is keenly aware of the special area it serves, and works beyond water-service activities to contribute to stewardship of the Malibu Creek Watershed. As a member of the Malibu Creek Watershed Council, the LVMWD Conservation team works closely with others who share an interest in the watershed. Most activities focus on sustaining this sensitive natural environment. The Conservation team oversees the BMPs (best management practices) of California's Efficient Urban Water Use Plan, which prescribes activities for water conservation, stewardship, and regulatory compliance. In addition, LVMWD has sponsored extensive scientific research in the watershed, particularly related to potential impacts of water and wastewater operations.

Through conservation and recycling activities, this team contributes toward customers' efforts to find a balance between local water use, available resources and the exceptional natural surroundings that continue to draw people to this area.

On average each year, 60 percent of TWRP's water product is recycled for irrigation. Over the hot, dry summer months, all of TWRP's water is sold. During cool or wet periods, however, recycled water supply can exceed demand. When demand for water is reduced, excess production from TWRP is released into Malibu Creek. LVMWD conducted a scientific study designed to determine methods and feasibility of eliminated discharges during the wet season. LVMWD used a team of technical experts and

scientific specialists comprised of professionals in the areas of hydrogeology, geotechnology, aquatic biology, economics, engineering, environmental documentation, and public involvement. The goal of the study was to explore and evaluate alternatives to TWRP discharging into Malibu Creek, looking at the broad range of potential environmental, social and regulatory impacts of each alternative. The Final Environmental Impact Report (EIR) for the Creek Discharge Avoidance Study (Study) was published December 23, 1999. The Study has identified many alternative solutions and has provided sufficient detail for Joint Venture staff to draft an overall plan spanning from 2000 to 2050. Such a plan will allow the Joint Venture to achieve the best long-term balance between local and global environmental benefits while providing reliable customer service at a reasonable price.

Solutions LVMWD has implemented include:

- Extending the recycled water line to where the recycled water system can be used to discharge recycled water into the Los Angeles River, if necessary during the prohibition period.
- Installing temporary spray fields on large private properties, providing those properties with free irrigation in late April and early November.
- Offering recycled water customers lower cost water from April 15 to May 30 and October 1 to November 15.

Table 8.3-1 shows LVMWD’s quantity of wastewater collection in its service area and the volume of that collection that meets recycled water standards.

**Table 8.3-1
 Wastewater Collection and Treatment
 (AFY)**

Type of Wastewater	2000	2005	2010	2015	2020	2025	2030
Wastewater collected and treated in service area	6,680	7,435	8,190	8,900	9,620	10,335	11,050
Volume that meets recycled water standard	4,000	4,460	4,914	5,340	5,770	6,200	6,600

Source: 1999 Recycled Water Master Plan; assumes a constant 60% of LVMWD water is treated to recycled standard

Table 8.3-2 shows disposal of wastewater by quantity and method.

**Table 8.3-2
Disposal of Wastewater (Non-Recycled)
(AFY)**

Method of Disposal	Treatment Level	2005	2010	2015	2020	2025	2030
Discharge to Malibu Creek	Tertiary	0	0	0	0	0	0
Discharge to LA Sewer	Raw	470	500	500	500	500	500
Land Spraying	Advanced Secondary	300	300	300	300	300	300
Discharge to LA River Basin	Advanced Secondary	275	275	275	275	275	275
Total		1,045	1,075	1,075	1,075	1,075	1,075

Source: Kennedy/Jenks Consultants, Technical Memo regarding Tapia Effluent Alternatives Study dated February 28, 2005

8.4 LVMWD RECYCLED WATER PLANNING

LVMWD continues to plan for expansions of the recycled water system to meet future demands. In 1999, LVMWD prepared the Potable and Recycled Water System Master Plan. The goals and objectives of the Master Plan Report were to do the following:

- Provide a complete "fresh look" at master planning.
- Integrate the master plans for Potable and Recycled Water systems into one report.
- Cover the planning period to the year 2020, utilizing the current general plans of the cities and Los Angeles County.
- Model the Potable and Recycled water system, including pipelines four inches and larger, pumping stations, storage reservoirs, and pressure-reducing stations. The model will indicate specific large users and will account for other users on a combined basis by area. (Valves, service connections, pipelines smaller than 4 inches, and meters are not included).
- Provide a dynamic hydraulic simulation model that reflects the system that can be run on District computers and can be used for daily operational decisions by District staff.
- Use the digital mapping system purchased by LVMWD so that the hydraulic model can be incorporated into a new LVMWD geographic information system (GIS).
- Evaluate infrastructure improvements to meet expansion of the system to new customers and to address replacement needs.

- Tie infrastructure improvement and associated costs to identify "trigger points" such as demand, percent of capacity or similar measurable parameters so that funding can be scheduled accordingly.

Based on the modeling and alternative evaluations reported in the Master Plan recommended improvements were proposed. The recommendations bring together and combine the best features of the various alternatives and provide a logical and flexible plan of action.

The recommended plan is based on the following assumptions:

- 1) Recycled water to meet peak demands and resulting from seasonal storage will not be available in the foreseeable future.
- 2) Facilities are sized to meet MDD conditions.
- 3) Supplemental water will be provided by LVMWD and TSD by their respective pro-rata shares of contribution of wastewater to TWRP.

The recommended plans have also been developed with the following objectives in mind:

- 1) Continue to serve all existing customers with equal or enhanced level of service.
- 2) Add new customers within LVMWD's service area along existing mains.
- 3) Add new customers within the LVMWD service area along new main extensions where generally feasible.
- 4) Provide all customers with high quality recycled water within the LVMWD service area.
- 5) Provide distribution system to maximize use of recycled water within the LVMWD service area.
- 6) Use potable water only as necessary to (a) make up for shortages of TWRP supply or (b) temporarily facilitate phasing of long range improvements.
- 7) Provide facilities that may be adapted to transport some surplus recycled water (not needed for regular customers) to places for disposal.

The recommended improvement plan was outlined in the Master Plan and consists of four major categories as follows:

- Recommended Improvements for the Las Virgenes Valley and Western System
- Recommended Improvement Alternatives for the Eastern and Northern Systems
- Recommended Improvements for New Customers
- Recommended Replacement Facilities

The probable costs of all improvements are estimated to be in the range of \$14.7 to \$18.7 million depending on the projects selected. The recommended program has the potential approximately \$4,200 to \$5,300 per AFY in terms of capital costs.

The Master Plan took into account aspects that were not yet fully defined during this planning project. The aspects were not fully defined because they involved other parties and were inherently not known at the time. It was not clear at that time how much and where potable water supplement would be made in Ventura County areas and which agency was responsible for the supplement.

8.4.1 Potential Uses of Recycled Water

LVMWD's assessment of future recycled water system included evaluation of the distribution system to serve projected future demands. This included alternatives from over 60 options evaluated with computer model runs. This analysis served as the basis for recommendations to the recycled water system and identifying key issues.

There is an expected overall shortage of recycled water of over 6,000 gpm (8.6 MGD) during maximum demand months. This short fall represents about 40 percent of the total projected demand of 21 MGD. Several projects have been proposed to mitigate some of this shortfall and LVMWD is pursuing those which are feasible.

LVMWD has completed two studies which evaluate additional potential recycled water customers. In January 2003, the "Thousand Oaks Boulevard Recycled Water Service Study" was completed. This study identified a potential demand of 192 AFY for customers near Lakeview Canyon Drive (north of Hwy 101). In August 2004, LVMWD completed a study titled, "Recycled Water Use on Residential Properties", which investigated the potential to provide recycled water for irrigation of single-family residential users. The study concluded that there are no regulations which preclude such use and recommends further studies on market assessment and feasibility.

One of the largest potential users of recycled water within LVMWD is the Malibu Golf Course. State grants were awarded to LVMWD in 2003 and 2004 for feasibility studies and construction. Plans and specifications were prepared for a recycled water pump stations and pipeline to the golf course. The project has not been constructed due to funding limitations, however, LVMWD is pursuing outside funding opportunities to implement the project. This project is anticipated to have a steady demand of 300 AFY and be constructed in 2008.

8.4.2 Projected Recycled Water Use

The historic objective of LVMWD has been the substitution of recycled water for imported potable water for irrigation. The goal is "total beneficial use for recycled water." LVMWD has aggressively pursued this goal and has been hampered by the availability of seasonal storage for winter flows for use in the high-demand seasons. Nearly all users of recycled water from TWRP are landscape irrigation customers and peak summer demand is currently supplemented by groundwater.

Table 8.4.2-1 shows a list of projects included in LVMWD's Potable Water/Recycled Water Integrated Master Plan and adjusted for revisions to the demographic data as included in the Potable Water and Sewer Capacity Fee report dated September 2003. Completion of these projects will improve the reliability and expand the use of recycled water. These projects were also listed in Section 4.

**Table 8.4.2-1
Potential Recycled Water Projects
(AFY)**

Job number	Project Title	Total Project Cost (\$m)
DL22	LV & West: Booster PS west of Kanan Rd	\$ 1.100
10100	Track 35596 - District Participation in RW Pipe	\$ 0.113
10176	Malibu Golf Course RW Main Extension	\$ 4.690
10179	Thousand Oaks Blvd. RW Expansion	\$ 0.500
80013	RWPS #2 Construction - Western System	\$ 1.480
80014	Reservoir 2C Construction (1mg tank)	\$ 1.010
80016	RWPS #2 Construction - Eastern System	\$ 1.470
80094	Morrison/Mountain Gate RW Permanent Pipeline	\$ 0.330
80125	24" Parallel RW Pipeline, Mulholland to TWRP	\$ 2.430
80520	Misc. Recycled Water Extension Projects (CDAS)	\$ 0.750
80523	Developer Reimbursement/Recycled Water Main Program	\$ 0.400
80534	Recycled Water Extension to Riding Stable	\$ 0.025
DL23	LV & West: Distribution Pipeline Expansions	\$ 1.500
DL24	Eastern: Distribution Pipeline Expansions	\$ 1.500
	Total	\$ 17.298

Currently, LVMWD contributes approximately 5.5 MGD to the TWRP. All of which is treated to comply with recycled standards and is fully used for irrigation of landscapes and will continue to be used for this purpose as LVMWD continues to grow and develop recycled water uses such as the Malibu Golf Course Project. Table 8.4.2-2 projects the amount of recycled water used within LVMWD for landscape irrigation through 2030.

**Table 8.4.3-1
Projected Future Use of Recycled Water in LVMWD
(AFY)**

	2005	2010	2015	2020	2025	2030
Recycled Water	4,587	5,260	5,490	5,730	5,970	6,180

8.4.3 2000 Projection Comparison to 2005 Actual Recycled Water Use

LVMWD's recycled water system has been expanded both by District-funded projects and developer-funded projects. Developers are required to fund and construct recycled water extensions to serve their development and are entitled to a maximum of 50 percent of the Conservation Fund Fees paid to LVMWD as reimbursement for constructing recycled water facilities.

LVMWD has carefully planned and implemented expansions to the recycled water system. LVMWD's 2000 UWMP did not project recycled water demands for the year 2005 and therefore a comparison is not made.

8.4.4 Encouraging Recycled Water Use

Recent studies of water recycling opportunities within Southern California provide a context for promoting the development of water recycling plans. It is recognized that broad public acceptance of recycled water requires public education and involvement.

Public Education

In the Santa Monica mountains, water conservation is particularly important - not only to assure sufficient supplies, but to limit the impact of imported water on the native ecological system. Nearly a decade ago, LVMWD created a team dedicated to water conservation and the team has had a big impact on water savings through conservation and reuse.

Taking Learning to Conserve to the Customer

LVMWD embraces a philosophy that water conservation happens mostly on an individual basis. Thus, the Conservation team spends much of their time with customers, one-on-one. LVMWD offers the following water conservation programs, which, in many cases, includes education on recycled water use:

- Free Water-Use Surveys: a LVMWD representative visits the customer's property to assess the efficiency of your irrigation system and scheduling, and looks for water-saving opportunities indoors. Most people are amazed at how much less water can be used, while maintaining a healthy, attractive landscape.
- LVMWD Conservation program includes free landscaping workshops that cover irrigation practices, modern hardware, and techniques for creating water wise landscapes. Separate sessions are provided for homeowners and landscaping professionals.
- Publications with tips and techniques on wise water use including Irrigation Schedulers with step-by-step directions for fine-tuning home irrigation for maximum effect are available. The publications are provided by the LVMWD Conservation team at community events or available at LVMWD office.

- Small local weather stations sited by LVMWD provide microclimate data to help property owners adjust their irrigation to match plant water consumption. Residents can get weekly updates by telephone.
- Water-efficient plumbing is a primary conservation measure. The LVMWD water conservation team provides rebates to customers who replace high volume flush fixtures with new, low-flow models. The program has covered more than 8,000 toilets in 10 years – for estimated water savings of more than 40 million gallons each year.

Financial Incentives

The implementation of recycled water projects involves a substantial upfront capital investment for planning studies, environmental impact reports, engineering design, and construction before there is any recycled water to market. For some water agencies, these capital costs exceed the short-term expense of purchasing additional imported water supplies from MWD even though a regional analysis in the Southern California Comprehensive Water Reclamation and Reuse Study²⁶ (SCCWRRS) shows that net benefits are far greater than direct costs.

Funding sources are available through federal, state and regional programs to provide significant financial incentives for local agencies to develop and use recycled water. These funding sources include the United States Bureau of Reclamation (USBR), California water bonds, and Metropolitan's Local Resources Program. These funding opportunities may be sought by LVMWD or possibly more appropriately by other regional agencies. LVMWD will continue to support seeking funding for regional water recycling projects and programs.

LVMWD's Recycled Water Code specifies that LVMWD encourage the use of recycled water by providing reduced rates for the delivery of recycled water. LVMWD will build recycled water facilities to serve potential recycled water customers if the cost is less than \$5,500/AF/year of usage. In addition, LVMWD has reimbursement programs for developers and existing customers that wish to extend a recycled water system to serve their property.

8.4.5 Optimizing Recycled Water Use

The historic goal of LVMWD has been the substitution of recycled water for imported potable water in irrigation. This goal is aggressively pursued and is being achieved. The major limitation of seasonal storage for winter flows is the major hurdle. During the peak demand season, the demand for reclaimed water exceeds the production of reclaimed

²⁶ In 1993, DWR with the USBR and seven southern California water agencies, including Metropolitan, undertook a study to evaluate the feasibility of a regional water reclamation plan. The SCCWRRS was a six-year effort to identify regional reclamation systems, and promote efficient use of total water resources by increasing the use of recycled water and identifying opportunities for and constraints to maximizing water reuse.

water. Since the 2000 UWMP, LVMWD identified and completed several projects which improved the availability and quality of reclaimed water, but unless winter storage issues are addressed full use of the reclaimed water is not likely to be achieved using outdoor irrigation only. LVMWD has evaluated major programs such as expanding the recycled water transmission line to reach more customers and to increase storage; the projects identified to pursue each goal are evaluated as part of the LVMWD Recycled Water System Master Plan. Projects which are most feasible have been pursued.

LVMWD is a charter member of the Water Reuse Association of California. LVMWD has been represented on the Board of Directors and on its various committees, working positively to advance the mission of the Association to increase water recycling in the state through legislation, reform of regulation, public outreach and education, and publications.

LVMWD continues to be a leader in the use of recycled water. LVMWD has evaluated the potential uses as allowed under current authority, such as, residential landscape irrigation, toilet flushing in commercial and institutional buildings and groundwater recharge. LVMWD is also linked strategically to engage the public and legislature to expand the acceptance of recycled water for indirect and direct potable reuse in the future. LVMWD has an integrated approach using incentives, providing an economical and high quality recycled water product and shaping of public opinion to overcome the barriers for optimizing the use of recycled water.

APPENDIX A

***CALIFORNIA URBAN WATER MANAGEMENT
PLANNING ACT OF 1983 AS AMENDED TO 2005***

Established: AB 797, Klehs, 1983

Amended: AB 2661, Klehs, 1990

AB 11X, Filante, 1991

AB 1869, Speier, 1991

AB 892, Frazee, 1993

SB 1017, McCorquodale, 1994

AB 2853, Cortese, 1994

AB 1845, Cortese, 1995

SB 1011, Polanco, 1995

AB 2552, Bates, 2000

SB 553, Kelley, 2000

SB 610, Costa, 2001

AB 901, Daucher, 2001

SB 672, Machado, 2001

SB 1348, Brulte, 2002

SB 1384, Costa, 2002

SB 1518, Torlakson, 2002

AB 105, Wiggins, 2004

SB 318, Alpert, 2004

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

CHAPTER 1. GENERAL DECLARATION AND POLICY

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

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

(1) The waters of the state are a limited and renewable resource subject to ever-increasing demands.

(2) The conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level.

(3) A long-term, reliable supply of water is essential to protect the productivity of California's businesses and economic climate.

(4) As part of its long-range planning activities, every urban water supplier should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry water years.

(5) Public health issues have been raised over a number of contaminants that have been identified in certain local and imported water supplies.

- (6) Implementing effective water management strategies, including groundwater storage projects and recycled water projects, may require specific water quality and salinity targets for meeting groundwater basins water quality objectives and promoting beneficial use of recycled water.
 - (7) Water quality regulations are becoming an increasingly important factor in water agencies' selection of raw water sources, treatment alternatives, and modifications to existing treatment facilities.
 - (8) Changes in drinking water quality standards may also impact the usefulness of water supplies and may ultimately impact supply reliability.
 - (9) The quality of source supplies can have a significant impact on water management strategies and supply reliability.
- (b) This part is intended to provide assistance to water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies to meet existing and future demands for water.

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

- (a) The management of urban water demands and efficient use of water shall be actively pursued to protect both the people of the state and their water resources.
- (b) The management of urban water demands and efficient use of urban water supplies shall be a guiding criterion in public decisions.
- (c) Urban water suppliers shall be required to develop water management plans to actively pursue the efficient use of available supplies.

CHAPTER 2. DEFINITIONS

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

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

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

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

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

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

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

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

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

CHAPTER 3. URBAN WATER MANAGEMENT PLANS

Article 1. General Provisions

10620.

(a) Every urban water supplier shall prepare and adopt an urban water management plan in the manner set forth in Article 3 (commencing with Section 10640).

(b) Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.

(c) An urban water supplier indirectly providing water shall not include planning elements in its water management plan as provided in Article 2 (commencing with Section 10630) that would be applicable to urban water suppliers or public agencies directly providing water, or to their customers, without the consent of those suppliers or public agencies.

(d)

(1) An urban water supplier may satisfy the requirements of this part by participation in areawide, regional, watershed, or basinwide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use.

(2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

(e) The urban water supplier may prepare the plan with its own staff, by contract, or in cooperation with other governmental agencies.

(f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

10621.

(a) Each urban water supplier shall update its plan at least once every five years on or before December 31, in years ending in five and zero.

(b) Every urban water supplier required to prepare a plan pursuant to this part shall notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.

(c) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).

Article 2. Contents of Plans

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

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

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

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

existing or planned source of water available to the supplier, all of the following information shall be included in the plan:

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

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

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

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

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

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

(1) An average water year.

(2) A single dry water year.

(3) Multiple dry water years.

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

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

(e)

(1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in

subdivision (a), and projected water use, identifying the uses among water use sectors including, but not necessarily limited to, all of the following uses:

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

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

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

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

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

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

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

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

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

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

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

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

(j) Urban water suppliers that are members of the California Urban Water Conservation Council and submit annual reports to that council in accordance with the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated September 1991, may submit the annual reports identifying water demand management measures currently being implemented, or scheduled for implementation, to satisfy the requirements of subdivisions (f) and (g).

(k) Urban water suppliers that rely upon a wholesale agency for a source of water, shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20

years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c), including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

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

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

- (a) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.
- (b) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.
- (c) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.
- (d) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.
- (e) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.
- (f) Penalties or charges for excessive use, where applicable.
- (g) An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and

expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

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

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

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

(a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

(b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

(c) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.

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

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

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

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

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

Article 2.5 Water Service Reliability

10635.

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

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

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

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

Article 3. Adoption and Implementation of Plans

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

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

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

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

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

10644.

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

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

10645. Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

CHAPTER 4. MISCELLANEOUS PROVISIONS

10650. Any actions or proceedings to attack, review, set aside, void, or annul the acts or decisions of an urban water supplier on the grounds of noncompliance with this part shall be commenced as follows:

(a) An action or proceeding alleging failure to adopt a plan shall be commenced within 18 months after that adoption is required by this part.

(b) Any action or proceeding alleging that a plan, or action taken pursuant to the plan, does not comply with this part shall be commenced within 90 days after filing of the plan or amendment thereto pursuant to Section 10644 or the taking of that action.

10651. In any action or proceeding to attack, review, set aside, void, or annul a plan, or an action taken pursuant to the plan by an urban water supplier on the grounds of noncompliance with this part, the inquiry shall extend only to whether there was a prejudicial abuse of discretion. Abuse of discretion is established if the supplier has not proceeded in a manner required by law or if the action by the water supplier is not supported by substantial evidence.

10652. The California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) does not apply to the preparation and adoption of plans pursuant to this part or to the implementation of actions taken pursuant to Section 10632. Nothing in this part shall be interpreted as exempting from the California Environmental Quality Act any project that would significantly affect water supplies for fish and wildlife, or any project for

implementation of the plan, other than projects implementing Section 10632, or any project for expanded or additional water supplies.

10653. The adoption of a plan shall satisfy any requirements of state law, regulation, or order, including those of the State Water Resources Control Board and the Public Utilities Commission, for the preparation of water management plans or conservation plans; provided, that if the State Water Resources Control Board or the Public Utilities Commission requires additional information concerning water conservation to implement its existing authority, nothing in this part shall be deemed to limit the board or the commission in obtaining that information. The requirements of this part shall be satisfied by any urban water demand management plan prepared to meet federal laws or regulations after the effective date of this part, and which substantially meets the requirements of this part, or by any existing urban water management plan which includes the contents of a plan required under this part.

10654. An urban water supplier may recover in its rates the costs incurred in preparing its plan and implementing the reasonable water conservation measures included in the plan. Any best water management practice that is included in the plan that is identified in the "Memorandum of Understanding Regarding Urban Water Conservation in California" is deemed to be reasonable for the purposes of this section.

10655. If any provision of this part or the application thereof to any person or circumstances is held invalid, that invalidity shall not affect other provisions or applications of this part which can be given effect without the invalid provision or application thereof, and to this end the provisions of this part are severable.

10656. An urban water supplier that does not prepare, adopt, and submit its urban water management plan to the department in accordance with this part, is ineligible to receive funding pursuant to Division 24 (commencing with Section 78500) or Division 26 (commencing with Section 79000), or receive drought assistance from the state until the urban water management plan is submitted pursuant to this article.

10657.

(a) The department shall take into consideration whether the urban water supplier has submitted an updated urban water management plan that is consistent with Section 10631, as amended by the act that adds this section, in determining whether the urban water supplier is eligible for funds made available pursuant to any program administered by the department.

(b) This section shall remain in effect only until January 1, 2006, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2006, deletes or extends that date.

APPENDIX B

***DWR 2005 URBAN WATER MANAGEMENT PLAN
“REVIEW FOR COMPLETENESS” FORM***

2005 Urban Water Management Plan "Review for Completeness" Form
For DWR Review Staff Use

Coordination with Appropriate Agencies (Water Code § 10620 (d)(1)(2))

- Yes
 Participated in area, regional, watershed or basin wide plan
 Name of plan 2005 UWMP Lead Agency Las Virgenes MWD Sec 1, p.1-2 Reference & Page Number
 Describe the coordination of the plan preparation and anticipated benefits. Sec 1, p.1-2 Reference & Page Number

Table 1 Coordination with Appropriate Agencies							
Check at least one box on each row	Participated in developing the plan	Commented on the draft	Attended public meetings	Was contacted for assistance	Was sent a copy of the draft plan	Was sent a notice of intention to adopt	Not Involved / No Information
Las Virgenes MWD Staff	X	X	X	X	X	X	
Metropolitan Water District of Southern California				X		X	
Triunfo Sanitation District				X		X	

Describe resource maximization / import minimization plan (Water Code §10620 (f))

- Describe how water management tools / options maximize resources & minimize need to import water Sec 2, p.2-1 Reference & Page Number

Plan Updated in Years Ending in Five and Zero (Water Code § 10621(a))

- Date updated and adopted plan received 11/22/2005 (enter date) Sec 1, p.1-2 Reference & Page Number

City and County Notification and Participation (Water Code § 10621(b))

- Notify any city or county within service area of UWMP of plan review & revision Sec 1, p.1-2 Reference & Page Number
 Consult and obtain comments from cities and counties within service area Sec 1, p.1-2 Reference & Page Number

Service Area Information Water Code § 10631 (a)

- Include current and projected population Sec 1, p.1-6 Reference & Page Number
 Population projections were based on data from state, regional or local agency Sec 1, p.1-6 Reference & Page Number

Table 2 Population - Current and Projected						
	2005	2010	2015	2020	2025	2030 - opt
Service Area Population	71,175	75,625	78,875	82,250	85,675	88,752

- | | | | |
|-------------------------------------|---|----------------------|-------------------------|
| <input checked="" type="checkbox"/> | Describe climate characteristics that affect water management | <u>Sec 1, p.1-4</u> | Reference & Page Number |
| <input checked="" type="checkbox"/> | Describe other demographic factors affecting water management | <u>Section 1,1-4</u> | Reference & Page Number |

Table 3 Climate						
	January	February	March	April	May	June
Standard Average ETo						
Average Rainfall - inches	3.3	3.3	2.9	1.0	0.3	0.0
Avg (High) Temperature	68	71	72	77	81	87

Table 3 (continued) Climate							
	July	August	September	October	November	December	Annual
Average ETo							46.6
Average Rainfall - inches	0.0	0.3	0.3	0.5	2.5	2.1	16.5
Avg (High) Temperature	95	95	91	84	74	68	80.25

Water Sources

(Water Code § 10631 (b))

- | | | | |
|-------------------------------------|--|---------------------|-------------------------|
| <input checked="" type="checkbox"/> | Identify existing and planned water supply sources | <u>Sec 2, p.2-1</u> | Reference & Page Number |
| <input checked="" type="checkbox"/> | Provide current water supply quantities | <u>Sec 2, p.2-4</u> | Reference & Page Number |
| <input checked="" type="checkbox"/> | Provide planned water supply quantities | <u>Sec 2, p.2-4</u> | Reference & Page Number |

Table 4 Current and Planned Water Supplies - AFY						
Water Supply Sources	2005	2010	2015	2020	2025	2030 - opt
Water purchased from:						
Metropolitan Water District of Southern California - Imported	21,837	31,090	31,400	34,520	33,820	32,920
Russel Valley Basin- Groundwater	240	240	240	240	240	240
Tapia Water Recycling Facility- Recycled	4,587	5,260	5,490	5,730	5,970	6,180
Total	26,664	36,590	37,130	40,490	40,030	39,340

If Groundwater identified as existing or planned source

(Water Code §10631 (b)(1-4))

<input type="checkbox"/>	Has management plan	_____	Reference & Page Number
<input type="checkbox"/>	Attached management plan (b)(1)	_____	Reference & Page Number
<input checked="" type="checkbox"/>	Description of basin(s) (b)(2)	<u>Sec 2, p.2-2</u>	Reference & Page Number
<input type="checkbox"/>	Basin is adjudicated	_____	Reference & Page Number
<input type="checkbox"/>	If adjudicated, attached order or decree (b)(2)	_____	Reference & Page Number
<input type="checkbox"/>	Quantified amount of legal pumping right (b)(2)	_____	Reference & Page Number

Table 5 Groundwater Pumping Rights - AF Year	
Basin Name	Pumping Right - AFY
Total	0

<input type="checkbox"/>	DWR identified, or projected to be, in overdraft (b)(2)	_____	Reference & Page Number
<input type="checkbox"/>	Plan to eliminate overdraft (b)(2)	_____	Reference & Page Number
<input checked="" type="checkbox"/>	Analysis of location, amount & sufficiency, last five years (b)(3)	<u>Sec 2, p.2-6</u>	Reference & Page Number
<input checked="" type="checkbox"/>	Analysis of location & amount projected, 20 years (b)(4)	<u>Sec 2, p.2-6</u>	Reference & Page Number

Table 6 Amount of Groundwater pumped - AFY					
Basin Name (s)	2000	2001	2002	2003	2004
Russell Valley Basin	241.5	134.2	354.0	86.4	355.9
% of Total Water Supply	0.9%	0.5%	1.3%	0.3%	1.2%

Table 7 Amount of Groundwater projected to be pumped - AFY					
Basin Name(s)	2010	2015	2020	2025	2030 - opt
Westlake Well1	120	120	120	120	120
Westlake Well 2	120	120	120	120	120
	0.3%	0.3%	0.3%	0.3%	0.3%

Reliability of Supply

(Water Code §10631 (c) (1-3))

Describes the reliability of the water supply and vulnerability to seasonal or climatic shortage

Sec 4,4-1,23 Reference & Page Number

Table 8 Supply Reliability - AF Year					
Average / Normal Water Year	Single Dry Water Year	Multiple Dry Water Years			
		Year 1	Year 2	Year 3	Year 4
	2010	2012	2013	2014	2015
	35,600	36,800	40,170	40,170	40,170
Normal Year	36,700	36,800	36,910	37,020	37,130
% of Normal	97.0%	100.0%	108.8%	108.5%	108.2%

Table 9 Basis of Water Year Data			
Water Year Type	Year	Source name	Source name
Average Water Year		LVMWD	
Single-Dry Water Year	1977	MWD of SC	
Multiple-Dry Water Years	1990-92	MWD of SC	

Sec 4, p.4-14 Reference & Page Number

Sec 4, p.4-9 Reference & Page Number

Sec 4, p.4-9 Reference & Page Number

Water Sources Not Available on a Consistent Basis

(Water Code §10631 (c))

- Describe the reliability of the water supply due to seasonal or climatic shortages Sec 4, p.4-23 Reference & Page Number
- Describe the vulnerability of the water supply to seasonal or climatic shortages Sec 4, p.4-23 Reference & Page Number
- No unreliable sources Sec 4, p.4-23 Reference & Page Number

Table 10 Factors resulting in inconsistency of supply				
Name of supply	Legal	Environmental	Water Quality	Climatic

- Describe plans to supplement or replace inconsistent sources with alternative sources or DMMs _____ Reference & Page Number
- No inconsistent sources Sec 4, p.4-1 Reference & Page Number

Transfer or Exchange Opportunities

(Water Code §10631 (d))

- Describe short term and long term exchange or transfer opportunities Sec 4, p.4-33 Reference & Page Number
- No transfer opportunities _____ Reference & Page Number

Table11 Transfer and Exchange Opportunities - AF Year					
Transfer Agency	Transfer or Exchange	Short term	Proposed Quantities	Long term	Proposed Quantities
Calleguas Municipal Water District	Transfer			X	Up to 20 cfs during the winter
Total			0		0

Water Use Provisions

(Water Code §10631 (e)(1)(2))

X	Quantify past water use by sector	Sec 5, p.5-1	Reference & Page Number
X	Quantify current water use by sector	Sec 5, p.5-1	Reference & Page Number
X	Project future water use by sector	Sec 5, p.5-1	Reference & Page Number

TABLE 12 - Past, Current and Projected Water Deliveries						
	2000		2005		2010	
	metered		metered		metered	
Water Use Sectors	# of accounts	Deliveries AFY	# of accounts	Deliveries AFY	# of accounts	Deliveries AFY
Single family	17,512	16,716	17,728	16,575	20,000	18,483
Multi-family	529	1,603	554	1,380	590	1,480
Commercial/Industrial	658	1,964	676	1,700	740	1,875
Landscape	240	1,054	247	1,060	247	1,060
Agriculture	23	N/A	34	195	34	195
Recycled & Non-Domestic	561	5,437	572	4,587	580	5,260
Detector Check	n/a	N/A	336	32	336	32
Temporary/Other	354	410	177	885	177	885
Total	19,877	27,184	20,324	26,414	22,704	29,270

TABLE12 (continued) - Past, Current and Projected Water Deliveries								
	2015		2020		2025		2030 - opt	
	metered		metered		metered		metered	
Water Use Sectors	# of accounts	Deliveries AFY	# of accounts	Deliveries AFY	# of accounts	Deliveries AFY	# of accounts	Deliveries AFY
Single family	21,000	19,643	22,000	20,453	23,000	21,446	24,000	22,333
Multi-family	600	1,500	610	1,525	620	1,552	630	1,575
Commercial/Industrial	760	1,925	780	1,970	800	2,020	820	2,060
Landscape	247	1,060	247	1,060	247	1,060	247	1,060
Agriculture	34	195	34	195	34	195	34	195
Recycled & Non-Domestic	588	5,490	596	5,730	602	5,970	615	6,180
Detector Check	336	32	336	32	336	32	336	32
Temporary/Other	150	885	130	885	115	885	100	885
Total	23,715	30,730	24,733	31,850	25,754	33,160	26,782	34,320

- Identify and quantify sales to other agencies
- No sales to other agencies

Reference & Page Number
Sec 5, p.5-1 Reference & Page Number

Table 13 Sales to Other Agencies - AF Year							
Water Distributed	2000	2005	2010	2015	2020	2025	2030 - opt
name of agency	0	0	0	0	0	0	0
name of agency							
name of agency							
Total	0	0	0	0	0	0	0

- Identify and quantify additional water uses

Reference & Page Number

Table 14 Additional Water Uses and Losses - AF Year							
Water Use	2000	2005	2010	2015	2020	2025	2030 - opt
Total	0	0	0	0	0	0	0

Any recycled water was included in table 12 should not be included in table 14.

Table 15 Total Water Use - AF Year							
Water Use	2000	2005	2010	2015	2020	2025	2030 - opt
Total of Tables 12, 13, 14	27,184	26,414	29,270	30,730	31,850	33,160	34,320

2005 Urban Water Management Plan "Review of DMMs for Completeness" Form (Water Code §10631 (f))

(Water Code §10631 (f) & (g), the 2005 Urban Water Management Plan "Review of DMMs for Completeness" Form is found on Sheet 2

Planned Water Supply Projects and Programs, including non-implemented DMMs

(Water Code §10631 (g))

- No non-implemented / not scheduled DMMs Sec 6, p.6-1 Reference & Page Number
- Cost-Benefit includes economic and non-economic factors (environmental, social, health, customer impact, and technological factors) Reference & Page Number
- Cost-Benefit analysis includes total benefits and total costs Reference & Page Number
- Identifies funding available for Projects with higher per-unit-cost than DMMs Reference & Page Number
- Identifies Suppliers' legal authority to implement DMMs, efforts to implement the measures and efforts to identify cost share partners Sec 6, p.6-1 Reference & Page Number

Table 16 Evaluation of unit cost of water resulting from non-implemented / non-scheduled DMMs and planned water supply project and programs	
Non-implemented & Not Scheduled DMM / Planned Water Supply Projects (Name)	Per-AF Cost (\$)

Planned Water Supply Projects and Programs

(Water Code §10631 (h))

- No future water supply projects or programs
- Detailed description of expected future supply projects & programs Sec 4, p.4-23+ Reference & Page Number
- Timeline for each proposed project Sec 4, p.4-23+ Reference & Page Number
- Quantification of each projects normal yield (AFY) Sec 4, p.4-23+ Reference & Page Number
- Quantification of each projects single dry-year yield (AFY) Reference & Page Number
- Quantification of each projects multiple dry-year yield (AFY) Reference & Page Number

Table 17 Future Water Supply Projects							
Project Name	Projected Start Date	Projected Completion Date	Normal-year AF to agency	Single-dry year yield AF	Multiple-Dry-Year 1 AF	Multiple-Dry-Year 2 AF	Multiple-Dry-Year 3 AF
Potable Water Projects							
Recycled Water Projects							

Opportunities for development of desalinated water**(Water Code §10631 (i))**

- Describes opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply Sec 4, p.4-34 Reference & Page Number
- No opportunities for development of desalinated water _____ Reference & Page Number

Table 18 Opportunities for desalinated water	
Sources of Water	Check if yes
Ocean Water (by Metropolitan)	X
Brackish ocean water	
Brackish groundwater	

District is a CUWCC signatory**(Water Code § 10631 (j))**

Urban suppliers that are California Urban Water Conservation Council members may submit the annual reports identifying water demand management measures currently being implemented, or scheduled for implementation, to satisfy the requirements of subdivisions (f) and (g). The supplier's CUWCC Best Management Practices Report should be attached to the UWMP.

- Agency is a CUWCC member Sec 6, p.6-1 Reference & Page Number
- 2003-04 annual updates are attached to plan Sec 6, p.6-1 Reference & Page Number
- Both annual updates are considered completed by CUWCC website Sec 6, p.6-1 Reference & Page Number

If Supplier receives or projects receiving water from a wholesale supplier**(Water Code §10631 (k))**

- Yes
- Agency receives, or projects receiving, wholesale water Sec 2, p. 2-4 Reference & Page Number
- Agency provided written demand projections to wholesaler, 20 years Sec 2, p. 2-4 Reference & Page Number

Table 19 Agency demand projections provided to wholesale suppliers - AFY					
Wholesaler	2010	2015	2020	2025	2030 - opt
Metropolitan WD of So Calif	23,770	24,800	25,880	26,950	27,900
(name 2)					
(name 3)					

- Wholesaler provided written water availability projections, by source, to agency, 20 years Sec 4, p. 4-11 Reference & Page Number (if agency served by more than one wholesaler, duplicate this table and provide the source availability for each wholesaler)

Table 20					
Wholesaler identified & quantified (in total) the existing and planned sources of water- AFY					
Wholesaler sources	2010	2015	2020	2025	2030 - opt
Metropolitan WD of So Calif	31,090	31,400	34,520	33,820	32,920
(source 2)					
(source 3)					

- Reliability of wholesale supply provided in writing by wholesale agency Sec 4, p.4-11 Reference & Page Number (if agency served by more than one wholesaler, duplicate this table and provide the source availability for each wholesaler)

Table 21					
Wholesale Supply Reliability (2010)- % of normal AFY					
Wholesaler sources	Multiple Dry Water Years				
	Single Dry	Year 1	Year 2	Year 3 (only)	Year 4
Metropolitan WD of So Calif	106.5%			98.2%	
(source 2)					
(source 3)					

Table 22				
Factors resulting in inconsistency of wholesaler's supply				
Name of supply	Legal	Environment	Water Quality	Climatic

Water Shortage Contingency Plan Section (Water Code § 10632)
Stages of Action (Water Code § 10632 (a))

- Provide stages of action Sec 7, p.7-2 Reference & Page Number
- Provide the water supply conditions for each stage Sec 7, p.7-3 Reference & Page Number
- Includes plan for 50 percent supply shortage Sec 7, p.7-10 Reference & Page Number

Table 23 Water Supply Shortage Stages and Conditions RATIONING STAGES		
Stage No. (MWD WSDM)	Water Supply Conditions	% Shortage
Shortage Stage 1	Withdrawals from Diamond Valley Lake	
Shortage Stage 2	Continue with Stage 1 & out of region groundwater storage	
Shortage Stage 3	Continue with Stage 2, Long Term Seasonal & Replenishment Programs	
Shortage Stage 4	Continue with Stage 3, gdwtr. Storage, SWP terminal reservoirs	
Shortage Stage 5	Continue with Stage 4, monthly reports on conservation program	
Shortage Stage 6	Continue with Stage 5, water supply option contracts	
Shortage Stage 7	Metropolitan discontinues deliveries to regional storage facilities.	

Three-Year Minimum Water Supply

(Water Code §10632 (b))

- Identifies driest 3-year period
- Minimum water supply available by source for the next three years

Sec 4, p. 4-9 Reference & Page Number
Section 7,7-6 Reference & Page Number

Table 24 Three-Year Estimated Minimum Water Supply - AF Year				
source**	Normal	2006	2007	2008
Imported Water - MWD	25,911	30,530	30,530	30,530
Recycled Water	6,058	6,130	6,130	6,130
Westlake Reservoir	0	0	0	0
Water Transfers	0	0	0	0
Ag Water	233	233	233	233
Total	32,202	36,893	36,893	36,893

*Note: If reporting after 2005, please change the column headers (Year 1, 2, & 3) to the appropriate years

Preparation for catastrophic water supply interruption

(Water Code §10632 (c))

- Provided catastrophic supply interruption plan

Sec 7, p.7-6 Reference & Page Number

Table 25 Preparation Actions for a Catastrophe	
Possible Catastrophe	Check if Discussed
Regional power outage	X
Earthquake	X

Prohibitions

(Water Code § 10632 (d))

- List the mandatory prohibitions against specific water use practices during water shortages Sec 7, p.7-8 Reference & Page Number Appendix G

Table 26	
Mandatory Prohibitions	
Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
Irrigation scheduling on specified times	LVMWD determination in the event of a drought
Hand watering only	LVMWD determination in the event of a drought
Landscape irrigation with potable or recycled water	LVMWD determination in the event of a drought
Substantial irrigation runoff	LVMWD determination in the event of a drought
Washing of buildings, facilities, vehicles	LVMWD determination in the event of a drought
Using potable water for street, driveway washing	LVMWD determination in the event of a drought
Refilling swimming pools, ponds, spa, fountains	LVMWD determination in the event of a drought
Restaurant water service unless requested	LVMWD determination in the event of a drought
All water leaks must be repaired immediately	LVMWD determination in the event of a drought

Consumption Reduction Methods

(Water Code § 10632 (e))

- List the consumption reduction methods the water supplier will use to reduce water use in the most restrictive stages with up to a 50% reduction. Sec 7, p.7-9 Reference & Page Number

Table 27	
Consumption Reduction Methods	
Consumption Reduction Methods Drought Conservation Rate Structure	Projected Reduction (%)
Under all Four Tiers:	
1: First 12 units, 2: Next 12 units, 3: Next 91 units, 4: Over 115 units	0
1: First 12 units, 2: Next 11 units, 3: Next 82 units, 4: Over 105 units	10
1: First 12 units, 2: Next 10 units, 3: Next 77 units, 4: Over 99 units	15
1: First 12 units, 2: Next 10 units, 3: Next 73 units, 4: Over 95 units	20

Penalties

(Water Code § 10632 (f))

- List excessive use penalties or charges for excessive use

Sec 7, p.7-9 Reference & Page Number

Table 28 Penalties and Charges				
Penalties or Charges (LVMWD Uses "Inverted Tier" Structure)				
	Tier 1	Tier 2	Tier 3	Tier 4
	First 12 units	Next 12 units	Next 91 units	Over 115 units
Zone 1	\$1.18	\$1.31	\$1.91	\$2.48
Zone 2	\$1.49	\$1.62	\$2.22	\$2.79
Zone 3	\$1.70	\$1.83	\$2.43	\$3.00
Zone 4	\$2.10	\$2.23	\$2.83	\$3.40
Zone 5	\$3.03	\$3.16	\$3.76	\$4.33

Revenue and Expenditure Impacts

(Water Code § 10632 (g))

- Describe how actions and conditions impact revenues
- Describe how actions and conditions impact expenditures
- Describe measures to overcome the revenue and expenditure impacts

Sec 7, p.7-10 Reference & Page Number

Sec 7, p.7-10 Reference & Page Number

Sec 7, p.7-10 Reference & Page Number

Table 29 Proposed measures to overcome revenue impacts	
Names of measures	Check if Discussed
Rate adjustment	X
Development of reserves	

Table 30 Proposed measures to overcome expenditure impacts	
Names of measures	Check if Discussed
Drought Management Plan	X

Water Shortage Contingency Ordinance/Resolution

(Water Code § 10632 (h))

Attach a copy of the draft water shortage contingency resolution or ordinance.

Sec 7, p.7-11 Reference & Page Number

Reduction Measuring Mechanism

(Water Code § 10632 (i))

Provided mechanisms for determining actual reductions

Sec 7, p.7-12 Reference & Page Number

Table 31 Water Use Monitoring Mechanisms	
Mechanisms for determining actual reductions	Type data expected (pop-up?)
Daily/Weekly/Monthly Reports	Estimated water savings
Drought Program Officer activities	Monitored effectiveness

Recycling Plan Agency Coordination

Water Code § 10633

Describe the coordination of the recycling plan preparation information to the extent available Sec 8, p.8-1 Reference & Page Number

Table 32 Participating agencies	
	participated
Water agencies	
Wastewater agencies	TSD
Groundwater agencies	
Planning Agencies	

Wastewater System Description

(Water Code § 10633 (a))

- Describe the wastewater collection and treatment systems in the supplier's service area Sec 8, p.8-1 Reference & Page Number
- Quantify the volume of wastewater collected and treated Sec 8, p.8-5 Reference & Page Number

Table 33							
Wastewater Collection and Treatment - AF Year							
Type of Wastewater	2000	2005	2010	2015	2020	2025	2030 - opt
Wastewater collected & treated in service area	6,680	7,435	8,190	8,900	9,620	10,335	11,050
Volume that meets recycled water standard	4,000	4,460	4,914	5,340	5,770	6,200	6,600

Wastewater Disposal and Recycled Water Uses

(Water Code § 10633 (a - d))

- Describes methods of wastewater disposal Sec 8, p.8-6 Reference & Page Number
- Describe the current type, place and use of recycled water Sec 8,p. 8-6 Reference & Page Number
- None _____ Reference & Page Number
- Describe and quantify potential uses of recycled water Sec 8, p.8-8 Reference & Page Number

Table 34							
Disposal of wastewater (non-recycled) AF Year							
Method of disposal	Treatment Level	2005	2010	2015	2020	2025	2030 - opt
Discharge to Malibu Creek	Tertiary	0	0	0	0	0	0
Discharge to LA Sewer	Raw	470	500	500	500	500	500
Land Spraying	Advanced Secondary	300	300	300	300	300	300
Discharge to LA River Basin	Advanced Secondary	275	275	275	275	275	275
Total		1,045	1,075	1,075	1,075	1,075	1,075

Table 35 Recycled Water Uses - Actual and Potential (AFY)							
User type	Treatment Level	2005	2010	2015	2020	2025	2030 - opt
Landscape	Tertiary	4,587	5,260	5,490	5,730	5,970	6,180
Total		4,587	5,260	5,490	5,730	5,970	6,180

Determination of technical and economic feasibility of serving the potential uses Sec 8, p.8-8/11 Reference & Page Number

Projected Uses of Recycled Water

(Water Code § 10633 (e))

Projected use of recycled water, 20 years Sec. 8,8-9-10 Reference & Page Number

Table 36 Projected Future Use of Recycled Water in Service Area - AF Year					
	2010	2015	2020	2025	2030 - opt
Projected use of Recycled Water	5,260	5,490	5,730	5,970	6,180

Compare UWMP 2000 projections with UWMP 2005 actual (§ 10633 (e)) Reference & Page Number

None Sec 8, p. 8-10 Reference & Page Number

Table 37 Recycled Water Uses - 2000 Projection compared with 2005 actual - AFY		
User type	2000 Projection for 2005	2005 actual use
Agriculture		
Landscape		
Wildlife Habitat		
Wetlands		
Industrial		
Groundwater Recharge		
Other (user type)		
Other (user type)		
Total	0	0

Plan to Optimize Use of Recycled Water

(Water Code § 10633 (f))

- Describe actions that might be taken to encourage recycled water uses Sec 8, p.8-10 Reference & Page Number
- Describe projected results of these actions in terms of acre-feet of recycled water used per year _____ Reference & Page Number

Table 38 Methods to Encourage Recycled Water Use					
Actions	AF of use projected to result from this action				
	2010	2015	2020	2025	2030 - opt
Financial incentives					
Public Education					
Total	0	0	0	0	0

- Provide a recycled water use optimization plan which includes actions to facilitate the use of recycled water (dual distribution systems, promote recirculating uses) Sec 8, p. 8-11 Reference & Page Number

Water quality impacts on availability of supply

(Water Code §10634)

- Discusses water quality impacts (by source) upon water management strategies and supply reliability Sec 3, p. 3-5 Reference & Page Number
- No water quality impacts projected _____

Table 39 Current & projected water supply changes due to water quality - percentage						
water source	2005	2010	2015	2020	2025	2030 - opt

Supply and Demand Comparison to 20 Years

(Water Code § 10635 (a))

Compare the projected normal water supply to projected normal water use over the next 20 years, in 5-year increments.

Sec 4, p. 4-16 Reference & Page Number

Table 40					
Projected Normal Water Supply - AF Year					
(from table 4)	2010	2015	2020	2025	2030 - opt
Supply	36,590	37,130	40,490	40,030	39,340
% of year 2005	100.0%	100.0%	100.0%	100.0%	100.0%

Table 41					
Projected Normal Water Demand - AF Year					
(from table 15)	2010	2015	2020	2025	2030 - opt
Demand	29,270	30,730	31,850	33,160	34,320
% of year 2005	110.7%	115.5%	120.5%	125.5%	129.9%

Table 42					
Projected Supply and Demand Comparison - AF Year					
	2010	2015	2020	2025	2030 - opt
Supply totals	36,590	37,130	40,490	40,030	39,340
Demand totals	29,270	30,730	31,850	33,160	34,320
Difference	7,320	6,400	8,640	6,870	5,020
Difference as % of Supply	20.0%	17.2%	21.3%	17.2%	12.8%
Difference as % of Demand	25.0%	20.8%	27.1%	20.7%	14.6%

Supply and Demand Comparison: Single-dry Year Scenario

(Water Code § 10635 (a))

- Compare the projected single-dry year water supply to projected single-dry year water use over the next 20 years, in 5-year increments. Sec 4, p. 4-17 Reference & Page Number

Table 43					
Projected single dry year Water Supply - AF Year					
	2010	2015	2020	2025	2030 - opt
Supply	35,600	39,080	41,420	40,750	40,360
% of projected normal	97.3%	105.3%	102.3%	101.8%	102.6%

Table 44					
Projected single dry year Water Demand - AF Year					
	2010	2015	2020	2025	2030 - opt
Demand	32,870	34,170	35,730	37,000	37,970
% of projected normal	112.3%	111.9%	112.2%	111.6%	110.6%

Table 45					
Projected single dry year Supply and Demand Comparison - AF Year					
	2010	2015	2020	2025	2030 - opt
Supply totals	35,600	39,080	41,420	40,750	40,360
Demand totals	32,870	34,170	35,730	37,000	37,970
Difference	2,730	4,910	5,690	3,750	2,390
Difference as % of Supply	7.7%	12.6%	13.7%	9.2%	5.9%
Difference as % of Demand	8.3%	14.4%	15.9%	10.1%	6.3%

Supply and Demand Comparison: Multiple-dry Year Scenario

(Water Code § 10635 (a))

- Project a multiple-dry year period (as identified in Table 9) occurring between 2006-2010 and compare projected supply and demand during those years Sec 4, p. 4-18 Reference & Page Number

Table 46					
Projected supply during multiple dry year period ending in 2010 - AF Year					
	2006	2007	2008	2009	2010
Supply	34,760	35,320	36,900	36,900	36,900
% of projected normal	100.0%	100.0%	103.1%	102.0%	99.2%

Table 47					
Projected demand multiple dry year period ending in 2010 - AFY					
	2006	2007	2008	2009	2010
Demand	27,920	28,260	34,060	34,060	34,060
% of projected normal	100.0%	100.0%	119.0%	117.6%	116.4%

Table 48					
Projected Supply and Demand Comparison during multiple dry year period ending in 2010- AF Year					
	2006	2007	2008	2009	2010
Supply totals	34,760	35,320	36,900	36,900	36,900
Demand totals	27,920	28,260	34,060	34,060	34,060
Difference	6,840	7,060	2,840	2,840	2,840
Difference as % of Supply	19.7%	20.0%	7.7%	7.7%	7.7%
Diff as % of Demand	24.5%	25.0%	8.3%	8.3%	8.3%

X

Project a multiple-dry year period (as identified in Table 9) occurring between 2011-2015 Sec 4, p. 4-19 Reference & Page Number and compare projected supply and demand during those years

Table 49					
Projected supply during multiple dry year period ending in 2015 - AF Year					
	2011	2012	2013	2014	2015
Supply	36,700	36,800	40,170	40,170	40,170
% of projected normal	100.0%	100.0%	108.8%	108.5%	108.2%

Table 50					
Projected demand multiple dry year period ending in 2015 - AFY					
	2011	2012	2013	2014	2015
Demand	29,530	29,770	35,500	35,500	35,500
% of projected normal	100.0%	100.0%	118.3%	117.3%	116.3%

Table 51					
Projected Supply and Demand Comparison during multiple dry year period ending in 2015- AF Year					
	2011	2012	2013	2014	2015
Supply totals	36,700	36,800	40,170	40,170	40,170
Demand totals	29,530	29,770	35,500	35,500	35,500
Difference	7,170	7,030	4,670	4,670	4,670
Difference as % of Supply	19.5%	19.1%	11.6%	11.6%	11.6%
Diff as % of Demand	24.3%	23.6%	13.2%	13.2%	13.2%

X

Project a multiple-dry year period (as identified in Table 9) occurring between 2016-2020 and compare projected supply and demand during those years Sec 4, p. 4-19 Reference & Page Number

Table 52					
Projected supply during multiple dry year period ending in 2020 - AF Year					
	2016	2017	2018	2019	2020
Supply	37,800	38,470	42,580	42,580	42,580
% of projected normal	100.0%	100.0%	108.8%	106.9%	105.2%

Table 53					
Projected demand multiple dry year period ending in 2020 - AFY					
	2016	2017	2018	2019	2020
Demand	36,570	36,880	37,070	37,070	37,070
% of projected normal	118.8%	118.7%	118.4%	117.3%	116.4%

Table 54					
Projected Supply and Demand Comparison during multiple dry year period ending in 2020- AF Year					
	2016	2017	2018	2019	2020
Supply totals	37,800	38,470	42,580	42,580	42,580
Demand totals	36,570	36,880	37,070	37,070	37,070
Difference	1,230	1,590	5,510	5,510	5,510
Difference as % of Supply	3.3%	4.1%	12.9%	12.9%	12.9%
Diff as % of Demand	3.4%	4.3%	14.9%	14.9%	14.9%

Project a multiple-dry year period (as identified in Table 9) occurring between 2021-2025 Sec 4, p.4-21 Reference & Page Number and compare projected supply and demand during those years

Table 55					
Projected supply during multiple dry year period ending in 2025 - AF Year					
	2021	2022	2023	2024	2025
Supply	40,400	40,310	41,800	41,800	41,800
% of projected normal	100.0%	100.0%	104.0%	104.2%	104.4%

Table 56					
Projected demand multiple dry year period ending in 2025 - AFY					
	2021	2022	2023	2024	2025
Demand	32,110	32,380	38,430	38,430	38,430
% of projected normal	100.0%	100.0%	117.7%	116.8%	115.9%

Table 57					
Projected Supply and Demand Comparison during multiple dry year period ending in 2025- AF Year					
	2021	2022	2023	2024	2025
Supply totals	40,400	40,310	41,800	41,800	41,800
Demand totals	32,110	32,380	38,430	38,430	38,430
Difference	8,290	7,930	3,370	3,370	3,370
Difference as % of Supply	20.5%	19.7%	8.1%	8.1%	8.1%
Diff as % of Demand	25.8%	24.5%	8.8%	8.8%	8.8%

Provision of Water Service Reliability section to cities/counties within service area (Water Code § 10635(b))

Provided Water Service Reliability section of UWMP to cities and counties within which it provides water supplies within 60 days of UWMP submission to DWR Sec 1, p.1-2 Reference & Page Number

Does the Plan Include Public Participation and Plan Adoption (Water Code § 10642)

<input checked="" type="checkbox"/>	Attach a copy of adoption resolution	<u>Sec 1, p.1-2; Appendix C</u>	Reference & Page Number
<input checked="" type="checkbox"/>	Encourage involvement of social, cultural & economic community groups	<u>Sec 1, p.1-2</u>	Reference & Page Number
<input checked="" type="checkbox"/>	Plan available for public inspection	<u>Sec 1, p.1-2</u>	Reference & Page Number
<input checked="" type="checkbox"/>	Provide proof of public hearing	<u>Sec 1, p.1-2; Appendix C</u>	Reference & Page Number
<input checked="" type="checkbox"/>	Provided meeting notice to local governments		Reference & Page Number

Review of implementation of 2000 UWMP (Water Code § 10643)

<input checked="" type="checkbox"/>	Reviewed implementation plan and schedule of 2000 UWMP	<u>Sec 6, p. 6-1</u>	Reference & Page Number
<input checked="" type="checkbox"/>	Implemented in accordance with the schedule set forth in plan	<u>Sec 6, p. 6-1</u>	Reference & Page Number
<input type="checkbox"/>	2000 UWMP not required		Reference & Page Number

Provision of 2005 UWMP to local governments (Water Code § 10644 (a))

Provide 2005 UWMP to DWR, and cities and counties within 30 days of adoption Sec 1, p.1-2 Reference & Page Number

Does the plan or correspondence accompanying it show where it is available for public review (Water Code § 10645)

Does UWMP or corresp accompanying it show where available for public review Back Cover Reference & Page Number

This page intentionally left blank.

APPENDIX C

***NOTICE OF PUBLIC HEARING and
RESOLUTION FOR PLAN ADOPTION***

PROOF OF PUBLICATION AFFIDAVIT
(2015.5 C.C.P.)

STATE OF CALIFORNIA,
County of Los Angeles,

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above-entitled matter. I am the principal clerk of the printer of the

Daily News

a newspaper of general circulation, printed and published 7 times weekly in the Cities of Los Angeles, Burbank & San Fernando, County of Los Angeles, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Los Angeles, State of California, under the date of May 26, 1983, Case Number Adjudication #C349217; that the notice, of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

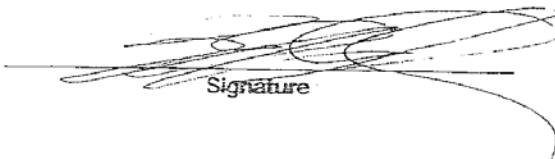
October 21

all in the year 20 05

I certify (or declare) under penalty of perjury that the forgoing is true and correct.

Dated at Woodland Hills,

California, this 21st day of Oct, 20 05


Signature

Proof of Publication of

Notice of Hearing

(DAILY NEWS)
NOTICE OF HEARING TO ADOPT
SIRHAN WATER MANAGEMENT PLAN
PLEASE TAKE NOTICE that on 10/20
of 2005 at 10:00 AM in the City of Los Angeles,
County of Los Angeles, California, the Board of Directors
of the District will conduct a public
hearing to consider the following:
Adoption of the District's Sirhan Water
Management Plan.
Persons interested may appear and
present oral testimony and comments
concerning the proposal on the aforesaid
date and time at the office of the
District at least 3 days prior to the
hearing. The Board's Directors will
accept such oral or written presentation
by providing their observations in the
minutes of the plan.
Dated this 17th day of October, 2005.
BY ORDER OF THE BOARD OF
DIRECTORS OF LAS VIRGENES
MUNICIPAL WATER SERVICE
Charles Country, President
Dr. John R. Harty
John R. Mandy, Deputy Secretary
Board of Directors
Public: October 21, 2005

RESOLUTION 11-05-2342

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE LAS VIRGENES MUNICIPAL WATER DISTRICT ADOPTING THE URBAN WATER MANAGEMENT PLAN PURSUANT TO CALIFORNIA WATER CODE 10610 TO 10657

WHEREAS, the waters of the state are a limited and renewable resource subject to ever-increasing demands, and

WHEREAS, the conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level; and

WHEREAS, a long-term, reliable supply of water is essential and urban water management plans are required to actively pursue the efficient use of available supplies; and

WHEREAS, Las Virgenes Municipal Water District has completed an update to its 2000 Urban Water Management Plan (2005 Plan) pursuant to the requirements of the Urban Water Management Planning Act of 1983; and

WHEREAS, the 2005 Plan is a general information document and complements the Metropolitan Water District of Southern California regional Plan; and

WHEREAS, the purpose of the 2005 Plan is to provide a local perspective and analysis of the current and alternative water conservation activities of the District; and

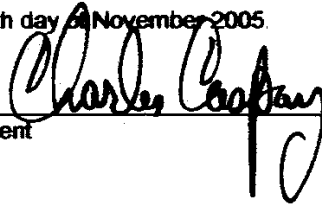
WHEREAS, the 2005 Plan also addresses the effects and measures of coping with short-term and chronic water shortages within the District boundaries; and

WHEREAS, the 2005 Plan will be periodically updated, no less than every five years in the years ending in zero and five, to reflect changes in water supply trends and conservation policies within the boundaries of the District.

NOW THEREFORE, BE IT RESOLVED that the Board of Directors of Las Virgenes Municipal Water District acknowledges the essential nature of a long-term reliable water supply within its boundaries as described herein, and adopts the 2005 Plan and will implement same.

PASSED, APPROVED AND ADOPTED this 8th day of November 2005.

President



ATTEST:

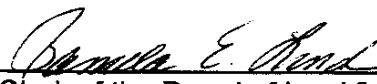
Secretary

(SEAL)

STATE OF CALIFORNIA)
) SS.
COUNTY OF LOS ANGELES)

I Pamela E. Lind, Clerk of the Board of Directors of Las Virgenes Municipal Water District, DO HEREBY CERTIFY the above and foregoing is a full, true and correct copy of Resolution No. 10-05-2342 of said Board, and the same has not been amended or repealed.

DATED: November 9, 2005



Clerk of the Board of Las Virgenes Municipal
Water District and of the Board of Directors
thereof

(SEAL)

This page intentionally left blank.

APPENDIX D

REFERENCES



Las Virgenes Municipal Water District

2005 Urban Water Management Plan

REFERENCES

- Assembly Bill 797, *California Water Code Division 6 Part 2.6 Urban Water Management Planning*, 1983, as amended to 2005
- Boyle Engineering, *Potable Water System Master Plan for Las Virgenes Municipal Water District*, December 1999
- Boyle Engineering, *Integrated Master Plan for Potable Water System for Las Virgenes Municipal Water District and Recycled Water System for the Joint Venture of Las Virgenes Municipal Water District and Triunfo Sanitation District (TSD)*, May 2000
- Boyle Engineering, *Recycled Water System Master Plan for Las Virgenes Municipal Water District and Triunfo Sanitation District Joint Venture*, February 1999
- Department of Water Resources, *California Water Plan Update 2005, Volume 2 – Resource Management Strategies*, 2005
- Department of Water Resources, *California’s Groundwater Bulletin 118*, 2004
- Department of Water Resources, *State Water Project Delivery Reliability Report*, 2002
- Metropolitan Water District of Southern California, *Annual Water Quality Report for 2005*,
www.mwdh2o.com/mwdh2o/pages/yourwater/2005_report/protect_02.html, 2005
- Metropolitan Water District of Southern California, *2005 Regional Urban Water Management Plan*, Draft September 2005
- Metropolitan Water District of Southern California, *Integrated Water Resources Plan 2003 Update*, May 2004
- Metropolitan Water District of Southern California, *Report on Metropolitan Water Supplies, A Blueprint for Water Reliability*, p. 9, 24-25, March 25, 2003
- Las Virgenes Municipal Water District, *Drought Management Plan*, August 16, 2002
- Las Virgenes Municipal Water District, [On-line]
www.lvmwd.dst.ca.us/you/your3watertreatment.html
- Las Virgenes Municipal Water District, *Las Virgenes Municipal Water District 2004 Water Quality Report*, 2005
- Los Angeles Regional Water Quality Control Board, *Region 4 Quality Control Plan (Los Angeles Region)*, January 1995

APPENDIX E

CUWCC – LVMWD CONSERVATION BMP ACTIVITY REPORTS (Annual Reports) for 2001 – 2002 and 2003 – 2004, and COVERAGE REPORTS

Water Supply & Reuse

Reporting Unit:
Las Virgenes Municipal Water District

Year:
2004

Water Supply Source Information

Supply Source Name	Quantity (AF) Supplied	Supply Type
Metropolitan Water District of Southern California	24887	Imported
Ventura County	145.5	Imported
City of Simi Valley	25.6	Imported
Las Virgenes Municipal Water District	5788	Recycled

Total AF: 30846.1

Accounts & Water Use

Reporting Unit Name:
Las Virgenes Municipal Water District

Submitted to CUWCC
12/01/2004

Year:
2004

A. Service Area Population Information:

1. Total service area population 69134

B. Number of Accounts and Water Deliveries (AF)

Type	Metered		Unmetered	
	No. of Accounts	Water Deliveries (AF)	No. of Accounts	Water Deliveries (AF)
1. Single-Family	17624	17765	0	0
2. Multi-Family	529	1644	0	0
3. Commercial	654	1921	0	0
4. Industrial	0	0	0	0
5. Institutional	0	0	0	0
6. Dedicated Irrigation	260	1191	0	0
7. Recycled Water	574	4777	0	0
8. Other	380	539	0	0
9. Unaccounted	NA	3009	NA	0
Total	20021	30846	0	0

Metered

Unmetered

BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit: **Las Virgenes Municipal Water District** BMP Form Status: **100% Complete** Year: **2004**

A. Implementation

- | | |
|--|------------|
| 1. Based on your signed MOU date, 09/01/1991, your Agency STRATEGY DUE DATE is: | 08/31/1993 |
| 2. Has your agency developed and implemented a targeting/marketing strategy for SINGLE-FAMILY residential water use surveys? | yes |
| a. If YES, when was it implemented? | 1/1/1991 |
| 3. Has your agency developed and implemented a targeting/marketing strategy for MULTI-FAMILY residential water use surveys? | yes |
| a. If YES, when was it implemented? | 1/1/1991 |

B. Water Survey Data

Survey Counts:	Single Family Accounts	Multi-Family Units
1. Number of surveys offered:	75	102
2. Number of surveys completed:	21	1205
Indoor Survey:		
3. Check for leaks, including toilets, faucets and meter checks	yes	yes
4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary	no	yes
5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as necessary; replace leaking toilet flapper, as necessary	yes	yes
Outdoor Survey:		
6. Check irrigation system and timers	yes	yes
7. Review or develop customer irrigation schedule	yes	yes
8. Measure landscaped area (Recommended but not required for surveys)	yes	yes
9. Measure total irrigable area (Recommended but not required for surveys)	yes	yes
10. Which measurement method is typically used (Recommended but not required for surveys)	Odometer Wheel	
11. Were customers provided with information packets that included evaluation results and water savings recommendations?	yes	no

12. Have the number of surveys offered and completed, survey results, and survey costs been tracked? yes yes

a. If yes, in what form are surveys tracked? database

b. Describe how your agency tracks this information.
 Agency retains water auditor data collection forms, calculated water budgets and customer correspondence. Budget related information is databased.

C. Water Survey Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	28848	44324
2. Actual Expenditures	13781	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

BMP 02: Residential Plumbing Retrofit

Reporting Unit:
**Las Virgenes Municipal Water
District**

BMP Form Status:
100% Complete

Year:
2004

A. Implementation

1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts? no

a. If YES, list local jurisdictions in your service area and code or ordinance in each:

While there is no explicit enforcement mechanism, In march of 1989, the LVMWD board of directors adopted a water conservation ordinance #3-89-173 which stated that all new shower heads within the district must flow at a rate less than 2.5 gallons per minute at 80 psi.

2. Has your agency satisfied the 75% saturation requirement for single-family housing units? no

3. Estimated percent of single-family households with low-flow showerheads: 32%

4. Has your agency satisfied the 75% saturation requirement for multi-family housing units? yes

5. Estimated percent of multi-family households with low-flow showerheads: 75%

6. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research.

The 2.5 gpm fixture saturation levels were determined by taking the pre-1989 housing stock (14,085 single and 6,805 multi-family dwellings) and multiplying them by a the average number of showerheads found in that setting as determined by the AWWARF North American End Use Study. For the single-family sector, we combined the figures for the average number of "shower only" bathrooms and "tub/shower" bathrooms. These figures: 1.25 and 1.56, respectively, combine to suggest an average of 2.81 showerheads per dwelling. For the multi-family setting we assumed that 75% of all dwellings would have just one shower fixture, and 25% of all dwellings would have two. This resulted in an average of 1.25 showerheads per dwelling. Base housing stock (pre-1992) was determined to be 14,086 single-family dwellings and 6,805 multi-family dwellings. By the end of fiscal year 00-01, we had distributed over 24,500 showerheads, but we assume an installation rate of less than 100%. Installation rates for programs in our area that were carried out by the Metropolitan Water District of Southern California (MWD) were estimated by MWD. Installation rates for programs carried out by Las Virgenes are estimated at 70% prior to 1998, and 100% from that point on. The change in installation rate is based on the perception that the combination of normal to surplus rainfall and "by customer request only" distribution programs has resulted in people only taking showerheads when they plan to install them. The resulting number of showerheads installed through the end of FY 03-04 is 19,212. We assumed that because owners of multi-family complexes have a greater financial incentive to install low flow showerheads, without much consideration for shower quality, it is safe to

assume a 75% installation rate. This results in an estimated installation of 6,380 low flow showerheads in the multi-family sector. The remaining 12,832 fixtures are then credited to the single family sector, resulting in a calculated saturation rate of 32%.

B. Low-Flow Device Distribution Information

1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices? yes

a. If YES, when did your agency begin implementing this strategy? 1/1/1990

b. Describe your targeting/ marketing strategy.
Advertising in newspapers, on District bills, voice mail on District phone system, District newsletter, and special events held throughout the year.

Low-Flow Devices Distributed/ Installed	SF Accounts	MF Units
2. Number of low-flow showerheads distributed:	29	572
3. Number of toilet-displacement devices distributed:	0	0
4. Number of toilet flappers distributed:	0	0
5. Number of faucet aerators distributed:	0	750
6. Does your agency track the distribution and cost of low-flow devices?		yes

a. If YES, in what format are low-flow devices tracked? Spreadsheet

b. If yes, describe your tracking and distribution system :
Tracking begins as a manual tally which is transferred to an Excel spreadsheet. Distribution is made in response to requests from customers visiting District headquarters, requests to Water Efficiency Survey Staff, and to staff at special events.

C. Low-Flow Device Distribution Expenditures

	This Year	Next Year
1. Budgeted Expenditures	1000	1000
2. Actual Expenditures	2250	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? yes

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

LVMWD staff understands the goal of BMP2 to be the lowering of shower fixture flow rates to the 2.5 gpm level as a means of conserving water. Knowing that the 2.5 gpm rate is measured at 80 psi, and realizing that house pressures are regulated to below 80 psi to protect the interior fixtures, staff believes that these lower pressures result in a lower showerhead flow rate. To investigate this theory, staff reviewed the American Water Works Association Research Foundation's North American Residential End Use Study, a study in which Las Virgenes participated during 1997 and 1998. The study population, randomly selected, consisted of 100 homes, 94 of which were built prior to 1992. The study confirms the idea that showerheads within the Las Virgenes service area flow at less than 2.5 gpm. The finding, shown in Table 5.6, is that the average flow rate for showerheads in this area is 2.19 gpm. In this case, the "At least As Effective As" variant is the use of lower pressures to accomplish the stated goal of conserving water by reducing shower flow rates below 2.5 gpm rather than changing fixtures.

E. Comments

B.2.--MFR showerhead breakdown: Town and Country = 50, Lake Lindero = 58, Archstone Calabasas = 450, unknown addresses handed out over the counter = 14. B.5.--750 aerators to Archstone Calabasas.

BMP 03: System Water Audits, Leak Detection and Repair

Reporting Unit: **Las Virgenes Municipal Water District** BMP Form Status: **100% Complete** Year: **2004**

A. Implementation

- | | |
|--|---------|
| 1. Has your agency completed a pre-screening system audit for this reporting year? | yes |
| 2. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production: | |
| a. Determine metered sales (AF) | 27837 |
| b. Determine other system verifiable uses (AF) | 2.1 |
| c. Determine total supply into the system (AF) | 30848.1 |
| d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required. | 0.90 |
| 3. Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production? | yes |
| 4. Did your agency complete a full-scale audit during this report year? | no |
| 5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit? | yes |
| 6. Does your agency operate a system leak detection program? | yes |
| a. If yes, describe the leak detection program:
Visual inspection of distribution routes. Comparison of supply to sales.
Helicopter survey of 8.1 miles of pipeline traversing rugged terrain. | |

B. Survey Data

- | | |
|--|--------|
| 1. Total number of miles of distribution system line. | 401.48 |
| 2. Number of miles of distribution system line surveyed. | 401.48 |

C. System Audit / Leak Detection Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	45000	45000
2. Actual Expenditures	45000	

D. "At Least As Effective As"

- | | |
|--|----|
| 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | No |
| a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as." | |

E. Comments

BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing

Reporting Unit: **Las Virgenes Municipal Water District** BMP Form Status: **100% Complete** Year: **2004**

A. Implementation

- 1. Does your agency require meters for all new connections and bill by volume-of-use? yes
- 2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use? no
 - a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed?
 - b. Describe the program:
Las Virgenes MWD has no unmetered connections.
- 3. Number of previously unmetered accounts fitted with meters during report year. 0

B. Feasibility Study

- 1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? yes
 - a. If YES, when was the feasibility study conducted? 1/1/1991 (mm/dd/yy)
 - b. Describe the feasibility study:
During the 1970's, LVMWD determined that the conversion of existing commercial landscape irrigation from potable to recycled water use was cost effective and would be aggressively pursued.
- 2. Number of CII accounts with mixed-use meters. 337
- 3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period. 0

C. Meter Retrofit Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

- 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No
 - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

BMP 05: Large Landscape Conservation Programs and Incentives

Reporting Unit:
**Las Virgenes Municipal
 Water District**

BMP Form Status:
100% Complete

Year:
2004

A. Water Use Budgets

- | | |
|--|-----|
| 1. Number of Dedicated Irrigation Meter Accounts: | 811 |
| 2. Number of Dedicated Irrigation Meter Accounts with Water Budgets: | 87 |
| 3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF): | 0 |
| 4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF): | 0 |
| 5. Does your agency provide water use notices to accounts with budgets each billing cycle? | yes |

B. Landscape Surveys

- | | |
|--|----------|
| 1. Has your agency developed a marketing / targeting strategy for landscape surveys? | yes |
| a. If YES, when did your agency begin implementing this strategy? | 1/1/1990 |
| b. Description of marketing / targeting strategy:
Customer request. | |
| 2. Number of Surveys Offered. | 50 |
| 3. Number of Surveys Completed. | 17 |
| 4. Indicate which of the following Landscape Elements are part of your survey: | |
| a. Irrigation System Check | yes |
| b. Distribution Uniformity Analysis | yes |
| c. Review / Develop Irrigation Schedules | yes |
| d. Measure Landscape Area | yes |
| e. Measure Total Irrigable Area | yes |
| f. Provide Customer Report / Information | yes |
| 5. Do you track survey offers and results? | yes |
| 6. Does your agency provide follow-up surveys for previously completed surveys? | yes |
| a. If YES, describe below:
Upon customer request. | |

C. Other BMP 5 Actions

- | | |
|---|-----|
| 1. An agency can provide mixed-use accounts with ETo-based landscape budgets in lieu of a large landscape survey program. Does your agency provide mixed-use accounts with landscape budgets? | yes |
| 2. Number of CII mixed-use accounts with landscape budgets. | 104 |
| 3. Do you offer landscape irrigation training? | yes |
| 4. Does your agency offer financial incentives to improve landscape water use efficiency? | no |

Type of Financial Incentive:	Budget (Dollars/ Year)	Number Awarded to Customers	Total Amount Awarded
a. Rebates	0	0	0
b. Loans	0	0	0
c. Grants	0	0	0

5. Do you provide landscape water use efficiency information to new customers and customers changing services?

yes

a. If YES, describe below:

New account information packages include a variety of brochures on water efficient plantings and irrigation.

6. Do you have irrigated landscaping at your facilities?

yes

a. If yes, is it water-efficient?

yes

b. If yes, does it have dedicated irrigation metering?

yes

7. Do you provide customer notices at the start of the irrigation season?

yes

8. Do you provide customer notices at the end of the irrigation season?

yes

D. Landscape Conservation Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	2964	3383
2. Actual Expenditures	8189	

E. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?

yes

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

In the 1970's Las Virgenes Municipal Water District (LVMWD) realized the value of total beneficial reuse of all resources. Ever since, LVMWD has aggressively pursued the development of a reclaimed water market. By requiring all non-residential landscaping located along the district's reclaimed water distribution main lines to be designed or converted to utilize reclaimed water for landscape irrigation, LVMWD now serves 574 of the 811 dedicated irrigation accounts within our service area with reclaimed water. This year, that equated to 4777 acre-feet of water out of a total of 5968 acre-feet (80%) consumed.

F. Comments

BMP 06: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:
Las Virgenes Municipal Water District

BMP Form Status:
100% Complete

Year:
2004

A. Implementation

- | | |
|---|-----|
| 1. Do any energy service providers or waste water utilities in your service area offer rebates for high-efficiency washers? | no |
| a. If YES, describe the offerings and incentives as well as who the energy/waste water utility provider is. | |
| 2. Does your agency offer rebates for high-efficiency washers? | yes |
| 3. What is the level of the rebate? | 100 |
| 4. Number of rebates awarded. | 275 |

B. Rebate Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	18347	23784
2. Actual Expenditures	69299	

C. "At Least As Effective As"

- | | |
|--|----|
| 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | no |
| a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as." | |

D. Comments

The rebate dollars were decreased after the beginning of the fiscal year, from \$300 to \$100, after completion of our enhanced incentive program for customers purchasing HECWs with a water factor of 9.5 or better.

BMP 07: Public Information Programs

Reporting Unit:

Las Virgenes Municipal Water District

BMP Form Status:

100% Complete

Year:

2004

A. Implementation

1. Does your agency maintain an active public information program to promote and educate customers about water conservation? yes

a. If YES, describe the program and how it's organized.

Las Virgenes Municipal Water District maintains an intensive outreach commitment to customers regarding water conservation benefits and practices. In cooperation with Metropolitan Water District of Southern California, LVMWD hosted two water education tours, one of the Colorado River Aqueduct and one Diamond Valley Lake Tour. Exposure to the complexities of water delivery and the grand scope of the infrastructure and efforts to provide local residents safe and reliable water make strong impressions on the value of water as a resource and the importance of conservation. In addition to ongoing tours available of district facilities, specialized tours were provided to leadership from local cities and local environmental groups and their volunteers. The district continued its outreach through traditional media, including newsletter ads, portions of the Water Quality Report dedicated to conservation messages, on-hold messages for incoming calls, publications, web information, presence at events, and presentations to local groups. Efforts continue to refine these programs to maximize their impact. In celebration of water awareness month, books and resource materials were provided to local libraries. Public awareness of these resources was expanded through book presentations scheduled at local City Council meetings, all of which are carried on public access TV. In addition, posters in public and school libraries displayed throughout the month depicted new materials and promoted the program. Also, the district web site, www.lvmwd.com, now carries a comprehensive listing of all materials provided to local libraries. The third phase of the water awareness demonstration garden at the local community center was completed with the production of an information brochure and guide booklet. We added more plant species to our California Friendly plant booklet, with information and photos from the ongoing newsletter column; and prepared a community compost brochure. These accompany other water conservation information included in displays and are provided to all new customers as part of their welcome packets when service is initiated. Conservation messages are further distributed in conjunction with a local weekly paper, which has agreed to carry articles prepared by the district. The District continued point of purchase advertising in conjunction with a rebate program for High Efficiency Washers. Water Awareness baskets provided as auction items and prizes at silent auctions, chamber and civic events, and other venues offer yet another opportunity to promote conservation awareness and practices. With contents targeted to each specific event, these baskets include garden tools, seeds and bulbs for drought tolerant plantings, books on water-wise and xeriscape gardening, and children's books about conservation.

2. Indicate which and how many of the following activities are included in your public information program.

Public Information Program Activity	Yes/No	Number of Events
a. Paid Advertising	yes	11
b. Public Service Announcement	no	0
c. Bill Inserts / Newsletters / Brochures	yes	6
d. Bill showing water usage in comparison to previous year's usage	yes	
e. Demonstration Gardens	yes	0
f. Special Events, Media Events	yes	11
g. Speaker's Bureau	yes	14
h. Program to coordinate with other government agencies, industry and public interest groups and media	yes	

B. Conservation Information Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	66183	73712
2. Actual Expenditures	39689	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No
 - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

2.e.--Production of a new Demonstration Garden Brochure.

BMP 08: School Education Programs

Reporting Unit:
**Las Virgenes Municipal Water
 District**

BMP Form Status:
100% Complete

Year:
2004

A. Implementation

1. Has your agency implemented a school information program to promote water conservation? yes

2. Please provide information on your school programs (by grade level):

Grade	Are grade-appropriate materials distributed?	No. of class presentations	No. of students reached	No. of teachers' workshops
Grades K-3rd	yes	162	4380	0
Grades 4th-6th	yes	40	3058	0
Grades 7th-8th	yes	0	0	1
High School	yes	1	30	1

3. Did your Agency's materials meet state education framework requirements? yes

4. When did your Agency begin implementing this program? 5/1/1991

B. School Education Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	28958	31438
2. Actual Expenditures	20253	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

BMP 09: Conservation Programs for CII Accounts

Reporting Unit:
Las Virgenes Municipal Water District

BMP Form Status:
100% Complete

Year:
2004

A. Implementation

- | | |
|--|-----|
| 1. Has your agency identified and ranked COMMERCIAL customers according to use? | yes |
| 2. Has your agency identified and ranked INDUSTRIAL customers according to use? | yes |
| 3. Has your agency identified and ranked INSTITUTIONAL customers according to use? | yes |

Option A: CII Water Use Survey and Customer Incentives Program

- | | |
|---|-----|
| 4. Is your agency operating a CII water use survey and customer incentives program for the purpose of complying with BMP 9 under this option? | yes |
|---|-----|

CII Surveys	Commercial Accounts	Industrial Accounts	Institutional Accounts
a. Number of New Surveys Offered	0	0	0
b. Number of New Surveys Completed	4	0	0
c. Number of Site Follow-ups of Previous Surveys (within 1 yr)	0	0	0
d. Number of Phone Follow-ups of Previous Surveys (within 1 yr)	0	0	0

CII Survey Components	Commercial Accounts	Industrial Accounts	Institutional Accounts
e. Site Visit	yes	yes	yes
f. Evaluation of all water-using apparatus and processes	yes	yes	yes
g. Customer report identifying recommended efficiency measures, paybacks and agency incentives	yes	yes	yes

Agency CII Customer Incentives	Budget (\$/Year)	No. Awarded to Customers	Total \$ Amount Awarded
h. Rebates	0	97	5170
i. Loans	0	0	0
j. Grants	0	0	0
k. Others	0	0	0

Option B: CII Conservation Program Targets

5. Does your agency track CII program interventions and water savings for the purpose of complying with BMP 9 under this option?	no
6. Does your agency document and maintain records on how savings were realized and the method of calculation for estimated savings?	no
7. Estimated annual savings (AF/yr) from site-verified actions taken by agency since 1991.	1.54
8. Estimated annual savings (AF/yr) from non-site-verified actions taken by agency since 1991.	13.89

B. Conservation Program Expenditures for CII Accounts

	This Year	Next Year
1. Budgeted Expenditures	6250	5413
2. Actual Expenditures	11651	

C. "At Least As Effective As"

- | | |
|---|----|
| 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | No |
| <p>a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."</p> | |

D. Comments

Surveys conducted upon customer request. B.2. LVMWD = \$4641, Save Water - Save a Buck = \$7,010.50.

BMP 09a: CII ULFT Water Savings

Reporting Unit:
Las Virgenes Municipal Water District

BMP Form Status:
100% Complete

Year:
2004

1. Did your agency implement a CII ULFT replacement program in the reporting year? Yes
If No, please explain why on Line B. 10.

A. Targeting and Marketing

1. What basis does your agency use to target customers for participation in this program? Check all that apply. CII Sector or subsector
CII ULFT Study subsector
targeting

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

We found CII sectors and sub sectors most effective because we were able to version our marketing efforts appropriately.

2. How does your agency advertise this program? Check all that apply.

Newsletter
Web page
Direct letter
Bill insert
Newspapers
Trade publications
Other print media
Trade shows and events
Telemarketing

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

For the purposes of this program, Trade Allies have proven to be the most effective overall marketing tool, as well as the most effective per dollar expended. Trade Allies include plumbers, distributors, retail home improvement stores and product manufacturers.

B. Implementation

1. Does your agency keep and maintain customer participant information? (Read the Help information for a complete list of all the information for this BMP.) Yes
2. Would your agency be willing to share this information if the CUWCC did a study to evaluate the program on behalf of your agency? Yes
3. What is the total number of customer accounts participating in the program during the last year ? 3

CII Subsector	Number of Toilets Replaced			
	Standard Gravity Tank	Air Assisted	Valve Floor Mount	Valve Wall Mount
4.				
a. Offices	3	0	0	0
b. Retail / Wholesale	0	0	0	0
c. Hotels	0	0	0	0
d. Health	29	0	0	0
e. Industrial	0	0	0	0
f. Schools: K to 12	0	0	0	0
g. Eating	0	0	0	0
h. Government	0	0	0	0
i. Churches	0	0	0	0
j. Other	0	0	0	0
5. Program design.				Rebate or voucher
6. Does your agency use outside services to implement this program?				Yes
a. If yes, check all that apply.				Consultant
7. Participant tracking and follow-up.				Site Visit Telephone
8. Based on your program experience, please rank on a scale of 1 to 5, with 1 being the least frequent cause and 5 being the most frequent cause, the following reasons why customers refused to participate in the program.				
a. Disruption to business				1
b. Inadequate payback				3
c. Inadequate ULFT performance				2
d. Lack of funding				5
e. American's with Disabilities Act				0
f. Permitting				0
g. Other. Please describe in B. 9.				

9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other issues affecting program implementation or effectiveness.

Customers are generally more willing to participate in the program if the cost of the retrofit is in balance with the amount of the rebate, and the projected water savings is significant. Resistance occurs if the out-of-pocket expense for the retrofit is too costly and the rebate amount is too low.

10. Please provide a general assessment of the program for this reporting year. Did your program achieve its objectives? Were your targeting and marketing approaches effective? Were program costs in line with expectations and budgeting?

Either Metropolitan or its Agencies to provide this response.

C. Conservation Program Expenditures for CII ULFT

1. CII ULFT Program: Annual Budget & Expenditure Data

	Budgeted	Actual Expenditure
a. Labor	0	0
b. Materials	0	0
c. Marketing & Advertising	0	0
d. Administration & Overhead	0	0
e. Outside Services	0	0
f. Total	0	0

2. CII ULFT Program: Annual Cost Sharing

a. Wholesale agency contribution	1920
b. State agency contribution	0
c. Federal agency contribution	0
d. Other contribution	0
e. Total	1920

D. Comments

BMP 11: Conservation Pricing

Reporting Unit:
Las Virgenes Municipal Water District

BMP Form Status:
100% Complete

Year:
2004

A. Implementation

Rate Structure Data Volumetric Rates for Water Service by Customer Class

1. Residential

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Non-volumetric Flat Rate
c. Total Revenue from Volumetric Rates	\$16420195
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$8164396

2. Commercial

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Non-volumetric Flat Rate
c. Total Revenue from Volumetric Rates	\$3432635
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$915000

3. Industrial

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Non-volumetric Flat Rate
c. Total Revenue from Volumetric Rates	\$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$0

4. Institutional / Government

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Non-volumetric Flat Rate
c. Total Revenue from Volumetric Rates	\$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$0

5. Irrigation

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	\$5700534
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$41028

6. Other

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	\$896200
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$74640

B. Conservation Pricing Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

5. Irrigation figures include all potable and recycled water services. 6. "Other" includes fire services and temporary meters using either potable or recycled water.

BMP 12: Conservation Coordinator

Reporting Unit:
**Las Virgenes Municipal Water
District**

BMP Form Status:
100% Complete

Year:
2004

A. Implementation

1. Does your Agency have a conservation coordinator? yes
2. Is this a full-time position? no
3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program ? no
4. Partner agency's name: n/a
5. If your agency supplies the conservation coordinator:
 - a. What percent is this conservation coordinator's position? 30%
 - b. Coordinator's Name Scott W. Harris
 - c. Coordinator's Title Water Conservation, Reuse and Cross Connection Control Supervisor
 - d. Coordinator's Experience and Number of Years 13 years in water conservation programs
 - e. Date Coordinator's position was created (mm/dd/yyyy) 9/1/1990
6. Number of conservation staff, including Conservation Coordinator. 3

B. Conservation Staff Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	469561	670188
2. Actual Expenditures	588940	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no
 - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

BMP 13: Water Waste Prohibition

Reporting Unit: **Las Virgenes Municipal Water District** BMP Form Status: **100% Complete** Year: **2004**

A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area? yes

a. If YES, describe the ordinance:

WASTE OF WATER PROHIBITED: No customer shall knowingly permit waste or leaks of water. Where water is wastefully or negligently used on the customer's premises, the District may discontinue the service, if such conditions are not corrected within five days after the General Manager gives the customer written notice thereof. WATER CONSERVATION: It is the desire of 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, town-houses, 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 minimize run-off from the irrigated areas.

2. Is a copy of the most current ordinance(s) on file with CUWCC? yes

a. List local jurisdictions in your service area in the first text box and water waste ordinance citations in each jurisdiction in the second text box:

LVMWD and Los Angeles County	Ordinance 11-86-161, Section 3-4.203. Ordinance 1-88-168, Section 4-4.205.
------------------------------	--

B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

- | | |
|--|-----|
| a. Gutter flooding | yes |
| b. Single-pass cooling systems for new connections | yes |
| c. Non-recirculating systems in all new conveyor or car wash systems | yes |
| d. Non-recirculating systems in all new commercial laundry systems | yes |
| e. Non-recirculating systems in all new decorative fountains | yes |
| f. Other, please name | no |

2. Describe measures that prohibit water uses listed above:
See Ordinances.

Water Softeners:

3. Indicate which of the following measures your agency has supported in developing state law:

- a. Allow the sale of more efficient, demand-initiated regenerating DIR models. no
- b. Develop minimum appliance efficiency standards that:
 - i.) Increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used. no
 - ii.) Implement an identified maximum number of gallons discharged per gallon of soft water produced. no
- c. 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 adverse effect on the reclaimed water or groundwater supply. no

4. Does your agency include water softener checks in home water audit programs? no

5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models? no

C. Water Waste Prohibition Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

- 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no
 - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

District does not track water waste expenditures.

BMP 14: Residential ULFT Replacement Programs

Reporting Unit: Las Virgenes Municipal Water District	BMP Form Status: 100% Complete	Year: 2004
---	---	----------------------

A. Implementation

	Single-Family Accounts	Multi- Family Units
1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets?	yes	yes

Number of Toilets Replaced by Agency Program During Report Year

Replacement Method	SF Accounts	MF Units
2. Rebate	276	723
3. Direct Install	0	0
4. CBO Distribution	0	0
5. Other	0	0
Total	276	723

6. Describe your agency's ULFT program for single-family residences.
Rebate \$60 per high flush volume toilet replaced.

7. Describe your agency's ULFT program for multi-family residences.
This fiscal year we were able to secure grant funding that allowed us to add additional monies to our normal rebate level of \$60 per high flush volume toilet replaced. This funding allowed us to rebate up to \$150 per fixture for large apartment and condominium complexes, essentially providing a "no out of pocket costs" program.

8. Is a toilet retrofit on resale ordinance in effect for your service area? no

9. List local jurisdictions in your service area in the left box and ordinance citations in each jurisdiction in the right box:

B. Residential ULFT Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	71244	76907
2. Actual Expenditures	109748	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Water Supply & Reuse

Reporting Unit:
Las Virgenes Municipal Water District

Year:
2003

Water Supply Source Information

Supply Source Name	Quantity (AF) Supplied	Supply Type
Metropolitan Water District of Southern California	21434	Imported
Ventura County	54.6	Imported
City of Simi Valley	25.1	Imported
Las Virgenes Municipal Water District	5093.8	Recycled

Total AF: 26607.5

Accounts & Water Use

Reporting Unit Name:
Las Virgenes Municipal Water District

Submitted to CUWCC
12/01/2004

Year:
2003

A. Service Area Population Information:

- Total service area population 67914

B. Number of Accounts and Water Deliveries (AF)

Type	Metered		Unmetered	
	No. of Accounts	Water Deliveries (AF)	No. of Accounts	Water Deliveries (AF)
1. Single-Family	17193	16067.8	0	0
2. Multi-Family	529	1616.6	0	0
3. Commercial	647	1933.6	0	0
4. Industrial	0	0	0	0
5. Institutional	0	0	0	0
6. Dedicated Irrigation	253	1007.4	0	0
7. Recycled Water	564	4572.8	0	0
8. Other	362	309	0	0
9. Unaccounted	NA	1100.3	NA	0
Total	19548	26607.5	0	0

Metered

Unmetered

BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit: **Las Virgenes Municipal Water District** BMP Form Status: **100% Complete** Year: **2003**

A. Implementation

- | | |
|--|------------|
| 1. Based on your signed MOU date, 09/01/1991, your Agency STRATEGY DUE DATE is: | 08/31/1993 |
| 2. Has your agency developed and implemented a targeting/marketing strategy for SINGLE-FAMILY residential water use surveys? | yes |
| a. If YES, when was it implemented? | 1/1/1991 |
| 3. Has your agency developed and implemented a targeting/marketing strategy for MULTI-FAMILY residential water use surveys? | yes |
| a. If YES, when was it implemented? | 1/1/1991 |

B. Water Survey Data

Survey Counts:	Single Family Accounts	Multi-Family Units
1. Number of surveys offered:	75	102
2. Number of surveys completed:	1	0
Indoor Survey:		
3. Check for leaks, including toilets, faucets and meter checks	yes	yes
4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary	no	no
5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as necessary; replace leaking toilet flapper, as necessary	yes	yes
Outdoor Survey:		
6. Check irrigation system and timers	yes	yes
7. Review or develop customer irrigation schedule	yes	yes
8. Measure landscaped area (Recommended but not required for surveys)	yes	yes
9. Measure total irrigable area (Recommended but not required for surveys)	yes	yes
10. Which measurement method is typically used (Recommended but not required for surveys)	Odometer Wheel	
11. Were customers provided with information packets that included evaluation results and water savings recommendations?	yes	yes

BMP 02: Residential Plumbing Retrofit

Reporting Unit:
**Las Virgenes Municipal Water
District**

BMP Form Status:
100% Complete

Year:
2003

A. Implementation

1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts? no

a. If YES, list local jurisdictions in your service area and code or ordinance in each:

While there is no explicit enforcement mechanism, In march of 1989, the LVMWD board of directors adopted a water conservation ordinance #3-89-173 which stated that all new shower heads within the district must flow at a rate less than 2.5 gallons per minute at 80 psi.

2. Has your agency satisfied the 75% saturation requirement for single-family housing units? no

3. Estimated percent of single-family households with low-flow showerheads: 31%

4. Has your agency satisfied the 75% saturation requirement for multi-family housing units? yes

5. Estimated percent of multi-family households with low-flow showerheads: 75%

6. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research.

The 2.5 gpm fixture saturation levels were determined by taking the pre-1989 housing stock (14,085 single and 6,805 multi-family dwellings) and multiplying them by a the average number of showerheads found in that setting as determined by the AWWARF North American End Use Study. For the single family sector, we combined the figures for the average number of "shower only" bathrooms and "tub/shower" bathrooms. These figures: 1.25 and 1.56, respectively, combine to suggest an average of 2.81 showerheads per dwelling. For the multi-family setting we assumed that 75% of all dwellings would have just one shower fixture, and 25% of all dwellings would have two. This resulted in an average of 1.25 showerheads per dwelling. Base housing stock (pre-1992) was determined to be 14,086 single family dwellings and 6,805 multi-family dwellings. By the end of fiscal year 00-01, we had distributed over 24,500 showerheads, but we assume an installation rate of less than 100%. Installation rates for programs in our area that were carried out by the Metropolitan Water District of Southern California (MWD) were estimated by MWD. Installation rates for programs carried out by Las Virgenes are estimated at 70% prior to 1998, and 100% from that point on. The change in installation rate is based on the perception that the combination of normal to surplus rainfall and "by customer request only" distribution programs has resulted in people only taking showerheads when they plan to install them. The resulting number of showerheads installed through the end of FY 02-03 is 18,611. We assumed that because owners of multi-family complexes have a greater financial incentive to install low flow showerheads, without much consideration for shower quality, it is safe to

assume a 75% installation rate. This results in an estimated installation of 6,380 low flow showerheads in the multi-family sector. The remaining 12,231 fixtures are then credited to the single family sector, allowing us to calculate a 31% saturation rate.

B. Low-Flow Device Distribution Information

1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices? yes

a. If YES, when did your agency begin implementing this strategy? 1/1/1990

b. Describe your targeting/ marketing strategy.
Advertising in newspapers, on District bills, voice mail on District phone system, special events held throughout the year.

Low-Flow Devices Distributed/ Installed	SF Accounts	MF Units
2. Number of low-flow showerheads distributed:	22	11
3. Number of toilet-displacement devices distributed:	0	0
4. Number of toilet flappers distributed:	0	0
5. Number of faucet aerators distributed:	0	0
6. Does your agency track the distribution and cost of low-flow devices?		yes

a. If YES, in what format are low-flow devices tracked? Spreadsheet

b. If yes, describe your tracking and distribution system :
Tracking begins as a manual tally which is transferred to an Excel spreadsheet. Distribution is made in response to requests from customers visiting District headquarters, requests to Water Efficiency Survey Staff, and to staff at special events.

C. Low-Flow Device Distribution Expenditures

	This Year	Next Year
1. Budgeted Expenditures	1000	1000
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? yes

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

LVMWD staff understands the goal of BMP2 to be the lowering of shower fixture flow rates to the 2.5 gpm level as a means of conserving water. Knowing that the 2.5 gpm rate is measured at 80 psi, and realizing that house pressures are regulated to below 80 psi to protect the interior fixtures, staff believes that these lower pressures result in a lower showerhead flow rate. To investigate this theory, staff reviewed the American Water Works Association Research Foundation's North American Residential End Use Study, a study in which Las Virgenes participated during 1997 and 1998. The study population, randomly selected, consisted of 100 homes, 94 of which were built prior to 1992. The study confirms the idea that showerheads within the Las Virgenes service area flow at less than 2.5 gpm. The finding, shown in Table 5.6, is that the average flow rate for showerheads in this area is 2.19 gpm. In this case, the "At least As Effective As" variant is the use of lower service pressures to accomplish the stated goal of conserving water by reducing shower flow rates below 2.5 gpm rather than changing fixtures.

E. Comments

BMP 03: System Water Audits, Leak Detection and Repair

Reporting Unit: **Las Virgenes Municipal Water District** BMP Form Status: **100% Complete** Year: **2003**

A. Implementation

1. Has your agency completed a pre-screening system audit for this reporting year? yes
2. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production:
 - a. Determine metered sales (AF) 25507.2
 - b. Determine other system verifiable uses (AF) 8.16
 - c. Determine total supply into the system (AF) 26607.5
 - d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required. 0.96
3. Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production? yes
4. Did your agency complete a full-scale audit during this report year? no
5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit? yes
6. Does your agency operate a system leak detection program? yes
 - a. If yes, describe the leak detection program:
Visual inspection of distribution routes. Comparison of supply to sales. Helicopter survey of 8.1 miles of pipeline traversing rugged terrain.

B. Survey Data

1. Total number of miles of distribution system line. 396.57
2. Number of miles of distribution system line surveyed. 396.57

C. System Audit / Leak Detection Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	62500	45000
2. Actual Expenditures	45000	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No
 - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing

Reporting Unit: **Las Virgenes Municipal Water District** BMP Form Status: **100% Complete** Year: **2003**

A. Implementation

- | | |
|---|-----|
| 1. Does your agency require meters for all new connections and bill by volume-of-use? | yes |
| 2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use? | no |
| a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed? | |
| b. Describe the program:
Las Virgenes MWD has no unmetered connections. | |
| 3. Number of previously unmetered accounts fitted with meters during report year. | 0 |

B. Feasibility Study

- | | |
|--|----------|
| 1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? | yes |
| a. If YES, when was the feasibility study conducted? (mm/dd/yy) | 1/1/1991 |
| b. Describe the feasibility study:
During the 1970's, LVMWD determined that the conversion of existing commercial landscape irrigation from potable to recycled water use was cost effective and would be aggressively pursued. | |
| 2. Number of CII accounts with mixed-use meters. | 337 |
| 3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period. | 2 |

C. Meter Retrofit Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

- | | |
|--|----|
| 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | No |
| a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as." | |

E. Comments

Two customers converted to recycled water irrigation. One mixed use customer added - new construction, minimal landscape, separate irrigation meter not justified.

BMP 05: Large Landscape Conservation Programs and Incentives

Reporting Unit:
Las Virgenes Municipal Water District

BMP Form Status:
100% Complete

Year:
2003

A. Water Use Budgets

- | | |
|--|-----|
| 1. Number of Dedicated Irrigation Meter Accounts: | 797 |
| 2. Number of Dedicated Irrigation Meter Accounts with Water Budgets: | 70 |
| 3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF): | 0 |
| 4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF): | 0 |
| 5. Does your agency provide water use notices to accounts with budgets each billing cycle? | yes |

B. Landscape Surveys

- | | |
|--|----------|
| 1. Has your agency developed a marketing / targeting strategy for landscape surveys? | yes |
| a. If YES, when did your agency begin implementing this strategy? | 1/1/1990 |
| b. Description of marketing / targeting strategy:
Customer request. | |
| 2. Number of Surveys Offered. | 50 |
| 3. Number of Surveys Completed. | 0 |
| 4. Indicate which of the following Landscape Elements are part of your survey: | |
| a. Irrigation System Check | yes |
| b. Distribution Uniformity Analysis | yes |
| c. Review / Develop Irrigation Schedules | yes |
| d. Measure Landscape Area | yes |
| e. Measure Total Irrigable Area | yes |
| f. Provide Customer Report / Information | yes |
| 5. Do you track survey offers and results? | yes |
| 6. Does your agency provide follow-up surveys for previously completed surveys? | yes |
| a. If YES, describe below:
Upon customer request. | |

C. Other BMP 5 Actions

- | | |
|---|-----|
| 1. An agency can provide mixed-use accounts with ETo-based landscape budgets in lieu of a large landscape survey program. Does your agency provide mixed-use accounts with landscape budgets? | yes |
| 2. Number of CII mixed-use accounts with landscape budgets. | 104 |
| 3. Do you offer landscape irrigation training? | yes |

4. Does your agency offer financial incentives to improve landscape water use efficiency? no

Type of Financial Incentive:	Budget (Dollars/Year)	Number Awarded to Customers	Total Amount Awarded
a. Rebates	0	0	0
b. Loans	0	0	0
c. Grants	0	0	0

5. Do you provide landscape water use efficiency information to new customers and customers changing services? yes

a. If YES, describe below:

New account information packages include a variety of brochures on water efficient plantings and irrigation.

6. Do you have irrigated landscaping at your facilities? yes

a. If yes, is it water-efficient? yes

b. If yes, does it have dedicated irrigation metering? yes

7. Do you provide customer notices at the start of the irrigation season? yes

8. Do you provide customer notices at the end of the irrigation season? yes

D. Landscape Conservation Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	6228	2964
2. Actual Expenditures	5884	

E. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? yes

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

In the 1970's Las Virgenes Municipal Water District (LVMWD) realized the value of total beneficial reuse of all resources. Ever since, LVMWD has aggressively pursued the development of a reclaimed water market. By requiring all non-residential landscaping located along the district's reclaimed water distribution main lines to be designed or converted to utilize reclaimed water for landscape irrigation, LVMWD now serves 564 of the 797 dedicated irrigation accounts within our service area with reclaimed water. This year, that equated to 4572.8 acre-feet of water out of a total of 5580.2 acre-feet (82%).

F. Comments

Budgeted and actual water use have not been quantified.

BMP 06: High-Efficiency Washing Machine Rebate Programs

Reporting Unit: **Las Virgenes Municipal Water District** BMP Form Status: **100% Complete** Year: **2003**

A. Implementation

- | | |
|---|-----|
| 1. Do any energy service providers or waste water utilities in your service area offer rebates for high-efficiency washers? | no |
| a. If YES, describe the offerings and incentives as well as who the energy/waste water utility provider is. | |
| 2. Does your agency offer rebates for high-efficiency washers? | yes |
| 3. What is the level of the rebate? | 300 |
| 4. Number of rebates awarded. | 430 |

B. Rebate Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	14264	18347
2. Actual Expenditures	116188	

C. "At Least As Effective As"

- | | |
|--|----|
| 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | no |
| a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as." | |

D. Comments

The rebate dollars were increased after the beginning of the fiscal year, from \$100 to \$300, for the first 500 customers purchasing a high efficiency clothes washer with a water factor of 9.5 or better.

BMP 07: Public Information Programs

Reporting Unit:

Las Virgenes Municipal Water District

BMP Form Status:

100% Complete

Year:

2003

A. Implementation

1. Does your agency maintain an active public information program to promote and educate customers about water conservation? yes

a. If YES, describe the program and how it's organized.

Las Virgenes Municipal Water District maintains an intensive outreach commitment to customers regarding water conservation benefits and practices. In cooperation with Metropolitan Water District of Southern California, LVMWD hosted two water education tours, one of the Colorado River Aqueduct and another of the State Water Project. Exposure to the complexities of water delivery and the grand scope of the infrastructure and efforts to provide local residents safe and reliable water make strong impressions on the value of water as a resource and the importance of conservation. In addition to ongoing tours available of district facilities, specialized tours were provided to leadership from local cities and local environmental groups and their volunteers. The district continued its outreach through traditional media, including newsletter ads, portions of the Water Quality Report dedicated to conservation messages, on-hold messages for incoming calls, publications, web information, presence at events, and presentations to local groups. Efforts continue to refine these programs to maximize their impact. In celebration of water awareness month, books and resource materials were provided to local libraries. Public awareness of these resources was expanded through book presentations scheduled at local City Council meetings, all of which are carried on public access TV. In addition, posters in public and school libraries displayed throughout the month depicted new materials and promoted the program. Also, the district web site, www.lvmwd.com, now carries a comprehensive listing of all materials provided to local libraries. The second phase of the water awareness demonstration garden at the local community center got under way, with selection and installation of additional attractive water-wise plants. New publications from the district include a booklet of water-wise plants, with information and photos from the ongoing newsletter column; a card telling how to test toilets for leaks and how to estimate water loss from a leaking toilet; an information card explaining, in simple terms, how to use a water meter to test for leaks. These accompany other water conservation information included in displays and are provided to all new customers as part of their welcome packets when service is initiated. Conservation messages are further distributed in conjunction with a local weekly paper, which has agreed to carry articles prepared by the district. The District placed advertising in conjunction with a rebate program for High Efficiency Washers. Water Awareness baskets provided as auction items and prizes at silent auctions, chamber and civic events, and other venues offer yet another opportunity to promote conservation awareness and practices. With contents targeted to each specific event, these baskets include garden tools, seeds and bulbs for drought tolerant plantings, books on water-wise and xeriscape gardening, and children's books about conservation.

2. Indicate which and how many of the following activities are included in your public information program.

Public Information Program Activity	Yes/No	Number of Events
a. Paid Advertising	yes	20
b. Public Service Announcement	no	0
c. Bill Inserts / Newsletters / Brochures	yes	6
d. Bill showing water usage in comparison to previous year's usage	no	
e. Demonstration Gardens	yes	2
f. Special Events, Media Events	yes	10
g. Speaker's Bureau	yes	10
h. Program to coordinate with other government agencies, industry and public interest groups and media	yes	

B. Conservation Information Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	67994	66182
2. Actual Expenditures	41607	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No
 - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

BMP 08: School Education Programs

Reporting Unit:
**Las Virgenes Municipal Water
 District**

BMP Form Status:
100% Complete

Year:
2003

A. Implementation

1. Has your agency implemented a school information program to promote water conservation? yes

2. Please provide information on your school programs (by grade level):

Grade	Are grade-appropriate materials distributed?	No. of class presentations	No. of students reached	No. of teachers' workshops
Grades K-3rd	yes	162	4303	0
Grades 4th-6th	yes	40	2563	1
Grades 7th-8th	no	0	0	0
High School	no	0	0	0

3. Did your Agency's materials meet state education framework requirements? yes

4. When did your Agency begin implementing this program? 5/1/1991

B. School Education Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	12605	28958
2. Actual Expenditures	13899	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

BMP 09: Conservation Programs for CII Accounts

Reporting Unit:
Las Virgenes Municipal Water District

BMP Form Status:
100% Complete

Year:
2003

A. Implementation

- | | |
|--|-----|
| 1. Has your agency identified and ranked COMMERCIAL customers according to use? | yes |
| 2. Has your agency identified and ranked INDUSTRIAL customers according to use? | yes |
| 3. Has your agency identified and ranked INSTITUTIONAL customers according to use? | yes |

Option A: CII Water Use Survey and Customer Incentives Program

- | | |
|---|-----|
| 4. Is your agency operating a CII water use survey and customer incentives program for the purpose of complying with BMP 9 under this option? | yes |
|---|-----|

CII Surveys	Commercial Accounts	Industrial Accounts	Institutional Accounts
a. Number of New Surveys Offered	0	0	0
b. Number of New Surveys Completed	0	0	0
c. Number of Site Follow-ups of Previous Surveys (within 1 yr)	0	0	0
d. Number of Phone Follow-ups of Previous Surveys (within 1 yr)	0	0	0

CII Survey Components	Commercial Accounts	Industrial Accounts	Institutional Accounts
e. Site Visit	yes	yes	yes
f. Evaluation of all water-using apparatus and processes	yes	yes	yes
g. Customer report identifying recommended efficiency measures, paybacks and agency incentives	yes	yes	yes

Agency CII Customer Incentives	Budget (\$/Year)	No. Awarded to Customers	Total \$ Amount Awarded
h. Rebates	0	0	0
i. Loans	0	0	0
j. Grants	0	0	0
k. Others	0	0	0

Option B: CII Conservation Program Targets

- | | |
|---|----|
| 5. Does your agency track CII program interventions and water savings for the purpose of complying with BMP 9 under this option? | no |
| 6. Does your agency document and maintain records on how savings were realized and the method of calculation for estimated savings? | no |
| 7. Estimated annual savings (AF/yr) from site-verified actions taken by agency since 1991. | 0 |
| 8. Estimated annual savings (AF/yr) from non-site-verified actions taken by agency since 1991. | 0 |

B. Conservation Program Expenditures for CII Accounts

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

- | | |
|--|----|
| 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | No |
| a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as." | |

D. Comments

Surveys conducted upon customer request.

BMP 09a: CII ULFT Water Savings

Reporting Unit:
Las Virgenes Municipal Water District

BMP Form Status:
100% Complete

Year:
2003

1. Did your agency implement a CII ULFT replacement program in the reporting year? Yes
If No, please explain why on Line B. 10.

A. Targeting and Marketing

1. What basis does your agency use to target customers for participation in this program? Check all that apply. CII Sector or subsector
CII ULFT Study subsector
targeting

- a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

We found CII sectors and sub sectors most effective because we were able to version our marketing efforts appropriately.

2. How does your agency advertise this program? Check all that apply.

Newsletter
Web page
Direct letter
Bill insert
Newspapers
Trade publications
Other print media
Trade shows and events
Telemarketing

- a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

For the purposes of this program, Trade Allies have proven to be the most effective overall marketing tool, as well as the most effective per dollar expended. Trade Allies include plumbers, distributors, retail home improvement stores and product manufacturers.

B. Implementation

1. Does your agency keep and maintain customer participant information? (Read the Help information for a complete list of all the information for this BMP.) Yes
2. Would your agency be willing to share this information if the CUWCC did a study to evaluate the program on behalf of your agency? Yes
3. What is the total number of customer accounts participating in the program during the last year ? 3

CII Subsector	Number of Toilets Replaced			
	Standard Gravity Tank	Air Assisted	Valve Floor Mount	Valve Wall Mount
4.				
a. Offices	21	0	0	0
b. Retail / Wholesale	3	0	0	0
c. Hotels	0	0	0	0
d. Health	0	0	0	0
e. Industrial	0	0	0	0
f. Schools: K to 12	0	0	0	0
g. Eating	0	0	0	0
h. Government	0	0	0	0
i. Churches	0	0	0	0
j. Other	0	0	0	0
5. Program design.				Rebate or voucher
6. Does your agency use outside services to implement this program?				Yes
a. If yes, check all that apply.				Consultant
7. Participant tracking and follow-up.				Site Visit Telephone
8. Based on your program experience, please rank on a scale of 1 to 5, with 1 being the least frequent cause and 5 being the most frequent cause, the following reasons why customers refused to participate in the program.				
a. Disruption to business				1
b. Inadequate payback				3
c. Inadequate ULFT performance				2
d. Lack of funding				5
e. American's with Disabilities Act				0
f. Permitting				0
g. Other. Please describe in B. 9.				

9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other issues affecting program implementation or effectiveness.

Customers are generally more willing to participate in the program if the cost of the retrofit is in balance with the amount of the rebate, and the projected water savings is significant. Resistance occurs if the out-of-pocket expense for the retrofit is too costly and the rebate amount is too low.

10. Please provide a general assessment of the program for this reporting year. Did your program achieve its objectives? Were your targeting and marketing approaches effective? Were program costs in line with expectations and budgeting?

Either Metropolitan or its Agencies to provide this response.

C. Conservation Program Expenditures for CII ULFT

1. CII ULFT Program: Annual Budget & Expenditure Data

	Budgeted	Actual Expenditure
a. Labor	0	0
b. Materials	0	0
c. Marketing & Advertising	0	0
d. Administration & Overhead	0	0
e. Outside Services	0	0
f. Total	0	0

2. CII ULFT Program: Annual Cost Sharing

a. Wholesale agency contribution	1440
b. State agency contribution	0
c. Federal agency contribution	0
d. Other contribution	0
e. Total	1440

D. Comments

BMP 11: Conservation Pricing

Reporting Unit:
Las Virgenes Municipal Water District

BMP Form Status:
100% Complete

Year:
2003

A. Implementation

Rate Structure Data Volumetric Rates for Water Service by Customer Class

1. Residential

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Non-volumetric Flat Rate
c. Total Revenue from Volumetric Rates	\$15131915
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$7590969

2. Commercial

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Non-volumetric Flat Rate
c. Total Revenue from Volumetric Rates	\$3377476
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$900296

3. Industrial

a. Water Rate Structure	Service Not Provided
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	\$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$0

4. Institutional / Government

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	\$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$0

5. Irrigation

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	\$1387521
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$42741

6. Other

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	\$607491
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$50595

B. Conservation Pricing Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

5. Irrigation figures include all potable and recycled water services. 6. "Other" includes fire system services, and temporary meters using either potable or recycled water.

BMP 12: Conservation Coordinator

Reporting Unit:
Las Virgenes Municipal Water District

BMP Form Status:
100% Complete

Year:
2003

A. Implementation

1. Does your Agency have a conservation coordinator? yes
2. Is this a full-time position? no
3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program ? no
4. Partner agency's name: n/a
5. If your agency supplies the conservation coordinator:
 - a. What percent is this conservation coordinator's position? 30%
 - b. Coordinator's Name Scott W. Harris
 - c. Coordinator's Title Water Conservation and Reuse Supervisor
 - d. Coordinator's Experience and Number of Years 12 years in water conservation programs.
 - e. Date Coordinator's position was created (mm/dd/yyyy) 9/1/1990
6. Number of conservation staff, including Conservation Coordinator. 3

B. Conservation Staff Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	385758	469561
2. Actual Expenditures	381831	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no
 - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

BMP 13: Water Waste Prohibition

Reporting Unit: **Las Virgenes Municipal Water District** BMP Form Status: **100% Complete** Year: **2003**

A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area? yes

a. If YES, describe the ordinance:

WASTE OF WATER PROHIBITED: No customer shall knowingly permit waste or leaks of water. Where water is wastefully or negligently used on the customer's premises, the District may discontinue the service, if such conditions are not corrected within five days after the General Manager gives the customer written notice thereof. WATER CONSERVATION: It is the desire of 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, town-houses, 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 minimize run-off from the irrigated areas.

2. Is a copy of the most current ordinance(s) on file with CUWCC? yes

a. List local jurisdictions in your service area in the first text box and water waste ordinance citations in each jurisdiction in the second text box:

LVMWD and Los Angeles County	Ordinance 11-86-161, Section 3-4.203. Ordinance 1-88-168, Section 4-4.205.
------------------------------	--

B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

- | | |
|--|-----|
| a. Gutter flooding | yes |
| b. Single-pass cooling systems for new connections | yes |
| c. Non-recirculating systems in all new conveyor or car wash systems | yes |
| d. Non-recirculating systems in all new commercial laundry systems | yes |
| e. Non-recirculating systems in all new decorative fountains | yes |
| f. Other, please name | no |

2. Describe measures that prohibit water uses listed above:
See Ordinances.

Water Softeners:

3. Indicate which of the following measures your agency has supported in developing state law:

- a. Allow the sale of more efficient, demand-initiated regenerating DIR models. no
 - b. Develop minimum appliance efficiency standards that:
 - i.) Increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used. no
 - ii.) Implement an identified maximum number of gallons discharged per gallon of soft water produced. no
 - c. 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 adverse effect on the reclaimed water or groundwater supply. no
4. Does your agency include water softener checks in home water audit programs? no
5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models? no

C. Water Waste Prohibition Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

- 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no
 - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

District does not track water waste expenditures.

BMP 14: Residential ULFT Replacement Programs

Reporting Unit:
Las Virgenes Municipal Water District

BMP Form Status:
100% Complete

Year:
2003

A. Implementation

	Single- Family Accounts	Multi- Family Units
1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets?	yes	yes
Number of Toilets Replaced by Agency Program During Report Year		
Replacement Method	SF Accounts	MF Units
2. Rebate	280	35
3. Direct Install	0	0
4. CBO Distribution	0	0
5. Other	0	0
	<hr/>	
Total	280	35

6. Describe your agency's ULFT program for single-family residences.
 Rebate \$60 per high flush volume toilet replaced.

7. Describe your agency's ULFT program for multi-family residences.
 Rebate \$60 per high flush volume toilet replaced.

8. Is a toilet retrofit on resale ordinance in effect for your service area? no

9. List local jurisdictions in your service area in the left box and ordinance citations in each jurisdiction in the right box:

B. Residential ULFT Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	29646	71244
2. Actual Expenditures	25884	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Water Supply & Reuse

Reporting Unit:
Las Virgenes Municipal Water District

Year:
2002

Water Supply Source Information

Supply Source Name	Quantity (AF) Supplied	Supply Type
Metropolitan Water District of Southern California	22955.76	Imported
Ventura County	117.66	Imported
City of Simi Valley	22.02	Imported
Westlake Wells	179.38	Groundwater
Tapia Water Reclamation Facility	4862.92	Recycled

Total AF: 28137.74

Accounts & Water Use

Reporting Unit Name:
Las Virgenes Municipal Water District

Submitted to CUWCC
02/07/2003

Year:
2002

A. Service Area Population Information:

- Total service area population 67050

B. Number of Accounts and Water Deliveries (AF)

Type	Metered		Unmetered	
	No. of Accounts	Water Deliveries (AF)	No. of Accounts	Water Deliveries (AF)
1. Single-Family	17479	16344.1	0	0
2. Multi-Family	529	1604	0	0
3. Commercial	520	1370.5	0	0
4. Industrial	0	0	0	0
5. Institutional	108	430.4	0	0
6. Dedicated Irrigation	230	999.1	0	0
7. Recycled Water	556	4711.9	0	0
8. Other	350	365.7	0	0
9. Unaccounted	NA	0	NA	0
Total	19772	25825.7	0	0

Metered

Unmetered

BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit: **Las Virgenes Municipal Water District** BMP Form Status: **100% Complete** Year: **2002**

A. Implementation

- | | |
|--|------------|
| 1. Based on your signed MOU date, 09/01/1991, your Agency STRATEGY DUE DATE is: | 08/31/1993 |
| 2. Has your agency developed and implemented a targeting/marketing strategy for SINGLE-FAMILY residential water use surveys? | yes |
| a. If YES, when was it implemented? | 1/1/1991 |
| 3. Has your agency developed and implemented a targeting/marketing strategy for MULTI-FAMILY residential water use surveys? | yes |
| a. If YES, when was it implemented? | 1/1/1991 |

B. Water Survey Data

Survey Counts:	Single Family Accounts	Multi-Family Units
1. Number of surveys offered:	75	102
2. Number of surveys completed:	41	0

Indoor Survey:

- | | | |
|---|-----|-----|
| 3. Check for leaks, including toilets, faucets and meter checks | yes | yes |
| 4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary | no | no |
| 5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as necessary; replace leaking toilet flapper, as necessary | yes | yes |

Outdoor Survey:

- | | | |
|---|----------------|-----|
| 6. Check irrigation system and timers | yes | yes |
| 7. Review or develop customer irrigation schedule | yes | yes |
| 8. Measure landscaped area (Recommended but not required for surveys) | yes | yes |
| 9. Measure total irrigable area (Recommended but not required for surveys) | yes | yes |
| 10. Which measurement method is typically used (Recommended but not required for surveys) | Odometer Wheel | |

- | | | |
|--|-----|----------|
| 11. Were customers provided with information packets that included evaluation results and water savings recommendations? | yes | yes |
| 12. Have the number of surveys offered and completed, survey results, and survey costs been tracked? | yes | yes |
| a. If yes, in what form are surveys tracked? | | database |
| b. Describe how your agency tracks this information. | | |
| Agency retains water auditor data collection forms, calculated water budgets and customer correspondence. Budget related information is databased. | | |

C. Water Survey Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	19575	20572
2. Actual Expenditures	1006	

D. "At Least As Effective As"

- | | |
|--|----|
| 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | No |
| a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as." | |

E. Comments

BMP 02: Residential Plumbing Retrofit

Reporting Unit:
**Las Virgenes Municipal Water
District**

BMP Form Status:
100% Complete

Year:
2002

A. Implementation

1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts? no

a. If YES, list local jurisdictions in your service area and code or ordinance in each:

While there is no explicit enforcement mechanism, In march of 1989, the LVMWD board of directors adopted a water conservation ordinance #3-89-173 which stated that all new shower heads within the district must flow at a rate less than 2.5 gallons per minute at 80 psi.

2. Has your agency satisfied the 75% saturation requirement for single-family housing units? no

3. Estimated percent of single-family households with low-flow showerheads: 31%

4. Has your agency satisfied the 75% saturation requirement for multi-family housing units? no

5. Estimated percent of multi-family households with low-flow showerheads: 75%

6. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research.

The 2.5 gpm fixture saturation levels were determined by taking the pre-1989 housing stock (14,085 single and 6,805 multi-family dwellings) and multiplying them by a the average number of showerheads found in that setting as determined by the AWWARF North American End Use Study. For the single family sector, we combined the figures for the average number of "shower only" bathrooms and "tub/shower" bathrooms. These figures: 1.25 and 1.56, respectively, combine to suggest an average of 2.81 showerheads per dwelling. For the multi-family setting we assumed that 75% of all dwellings would have just one shower fixture, and 25% of all dwellings would have two. This resulted in an average of 1.25 showerheads per dwelling. Base housing stock (pre-1992) was determined to be 14,086 single family dwellings and 6,805 multi-family dwellings. By the end of fiscal year 00-01, we had distributed over 24,500 showerheads, but we assume an installation rate less than 100%. Installation rates for programs in our area that were carried out by the Metropolitan Water District of Southern California (MWD) were estimated by MWD. Installation rates for programs carried out by Las Virgenes are estimated at 70% prior to 1998, and 100% from that point on. The change in installation rate is based on the perception that the combination of normal to surplus rainfall and "by customer request only" distribution programs has resulted in people only taking showerheads when they plan to install them. The resulting number of showerheads installed is 18,578. We assumed that because owners of multi-family complexes have a greater financial incentive to install low flow showerheads, without much consideration for shower quality, it is safe to assume a 75% installation

rate. This results in an estimated installation of 6,380 low flow showerheads in the multi-family sector. The remaining 12,198 fixtures are then credited to the single family sector, allowing us to calculate a 31% saturation rate.

B. Low-Flow Device Distribution Information

1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices? yes

a. If YES, when did your agency begin implementing this strategy? 1/1/1990

b. Describe your targeting/ marketing strategy.
Advertising in newspapers, on District bills, voice mail on District phone system, special events held throughout the year.

Low-Flow Devices Distributed/ Installed	SF Accounts	MF Units
2. Number of low-flow showerheads distributed:	17	0
3. Number of toilet-displacement devices distributed:	0	0
4. Number of toilet flappers distributed:	0	0
5. Number of faucet aerators distributed:	0	0
6. Does your agency track the distribution and cost of low-flow devices?		yes

a. If YES, in what format are low-flow devices tracked? Spreadsheet

b. If yes, describe your tracking and distribution system :
Tracking begins as a manual tally which is transferred to an Excel spreadsheet. Distribution is made in response to requests from customers visiting District headquarters, requests to Water Efficiency Survey Staff, and to staff at special events.

C. Low-Flow Device Distribution Expenditures

	This Year	Next Year
1. Budgeted Expenditures	1000	1000
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? yes

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

LVMWD staff understands the goal of BMP2 to be the lowering of shower fixture flow rates to the 2.5 gpm level as a means of conserving water. Knowing that the 2.5 gpm rate is measured at 80 psi, and realizing that house pressures are regulated to below 80 psi to protect the interior fixtures, staff believes that these lower pressures result in a lower showerhead flow rate. To investigate this theory, staff reviewed the American Water Works Association Research Foundation's North American Residential End Use Study, a study in which Las Virgenes participated during 1997 and 1998. The study population, randomly selected, consisted of 100 homes, 94 of which were built prior to 1992. The study confirms the idea that showerheads within the Las Virgenes service area flow at less than 2.5 gpm. The finding, shown in Table 5.6, is that the average flow rate for showerheads in this area is 2.19 gpm. In this case, the "At least As Effective As" variant is the use of lower pressures to accomplish the stated goal of conserving water by reducing shower flow rates below 2.5 gpm rather than changing fixtures.

E. Comments

BMP 03: System Water Audits, Leak Detection and Repair

Reporting Unit: **Las Virgenes Municipal Water District** BMP Form Status: **100% Complete** Year: **2002**

A. Implementation

1. Has your agency completed a pre-screening system audit for this reporting year? yes
2. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production:
 - a. Determine metered sales (AF) 25825.7
 - b. Determine other system verifiable uses (AF) 151.52
 - c. Determine total supply into the system (AF) 28137.74
 - d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required. 0.92
3. Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production? yes
4. Did your agency complete a full-scale audit during this report year? no
5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit? no
6. Does your agency operate a system leak detection program? yes
 - a. If yes, describe the leak detection program:
Visual inspection of distribution routes. Comparison of supply to sales.

B. Survey Data

1. Total number of miles of distribution system line. 395.41
2. Number of miles of distribution system line surveyed. 395.41

C. System Audit / Leak Detection Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	62500	62500
2. Actual Expenditures	45318	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No
 - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing

Reporting Unit: **Las Virgenes Municipal Water District** BMP Form Status: **100% Complete** Year: **2002**

A. Implementation

- | | |
|---|-----|
| 1. Does your agency require meters for all new connections and bill by volume-of-use? | yes |
| 2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use? | no |
| a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed? | |
| b. Describe the program:
Las Virgenes MWD has no unmetered connections. | |
| 3. Number of previously unmetered accounts fitted with meters during report year. | 0 |

B. Feasibility Study

- | | |
|--|----------|
| 1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? | yes |
| a. If YES, when was the feasibility study conducted? (mm/dd/yy) | 1/1/1991 |
| b. Describe the feasibility study:
During the 1970's, LVMWD determined that the conversion of existing commercial landscape irrigation from potable to recycled water use was cost effective and would be aggressively pursued. | |
| 2. Number of CII accounts with mixed-use meters. | 338 |
| 3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period. | 0 |

C. Meter Retrofit Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

- | | |
|--|----|
| 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | No |
| a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as." | |

E. Comments

BMP 05: Large Landscape Conservation Programs and Incentives

Reporting Unit:
**Las Virgenes Municipal
 Water District**

BMP Form Status:
100% Complete

Year:
2002

A. Water Use Budgets

- | | |
|--|-----|
| 1. Number of Dedicated Irrigation Meter Accounts: | 786 |
| 2. Number of Dedicated Irrigation Meter Accounts with Water Budgets: | 67 |
| 3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF): | 0 |
| 4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF): | 0 |
| 5. Does your agency provide water use notices to accounts with budgets each billing cycle? | yes |

B. Landscape Surveys

- | | |
|--|----------|
| 1. Has your agency developed a marketing / targeting strategy for landscape surveys? | yes |
| a. If YES, when did your agency begin implementing this strategy? | 1/1/1990 |
| b. Description of marketing / targeting strategy:
Customer request. | |
| 2. Number of Surveys Offered. | 786 |
| 3. Number of Surveys Completed. | 28 |
| 4. Indicate which of the following Landscape Elements are part of your survey: | |
| a. Irrigation System Check | yes |
| b. Distribution Uniformity Analysis | yes |
| c. Review / Develop Irrigation Schedules | yes |
| d. Measure Landscape Area | yes |
| e. Measure Total Irrigable Area | yes |
| f. Provide Customer Report / Information | yes |
| 5. Do you track survey offers and results? | yes |
| 6. Does your agency provide follow-up surveys for previously completed surveys? | |
| a. If YES, describe below:
Upon customer request. | |

C. Other BMP 5 Actions

- | | |
|---|-----|
| 1. An agency can provide mixed-use accounts with ETo-based landscape budgets in lieu of a large landscape survey program. Does your agency provide mixed-use accounts with landscape budgets? | yes |
| 2. Number of CII mixed-use accounts with landscape budgets. | 106 |
| 3. Do you offer landscape irrigation training? | yes |
| 4. Does your agency offer financial incentives to improve landscape water use efficiency? | no |

Type of Financial Incentive:	Budget (Dollars/ Year)	Number Awarded to Customers	Total Amount Awarded
a. Rebates	0	0	0
b. Loans	0	0	0
c. Grants	0	0	0

5. Do you provide landscape water use efficiency information to new customers and customers changing services?

yes

a. If YES, describe below:

New account information packages include a variety of brochures on water efficient plantings and irrigation.

6. Do you have irrigated landscaping at your facilities?

yes

a. If yes, is it water-efficient?

yes

b. If yes, does it have dedicated irrigation metering?

yes

7. Do you provide customer notices at the start of the irrigation season?

yes

8. Do you provide customer notices at the end of the irrigation season?

yes

D. Landscape Conservation Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

E. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?

yes

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

In the 1970's Las Virgenes Municipal Water District (LVMWD) realized the value of total beneficial reuse of all resources. Ever since, LVMWD has aggressively pursued the development of a reclaimed water market. By requiring all non-residential landscaping located along the district's reclaimed water distribution main lines to be designed or converted to utilize reclaimed water for landscape irrigation, LVMWD now serves 556 of the 786 dedicated irrigation accounts within our service area with reclaimed water. That equates to 4,711.9 acre-feet of water out of a total of 5,711 acre-feet (83%).

F. Comments

BMP 06: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:
Las Virgenes Municipal Water District

BMP Form Status:
100% Complete

Year:
2002

A. Implementation

- | | |
|---|-----|
| 1. Do any energy service providers or waste water utilities in your service area offer rebates for high-efficiency washers? | no |
| a. If YES, describe the offerings and incentives as well as who the energy/waste water utility provider is. | |
| 2. Does your agency offer rebates for high-efficiency washers? | yes |
| 3. What is the level of the rebate? | 100 |
| 4. Number of rebates awarded. | 47 |

B. Rebate Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	14264
2. Actual Expenditures	6030	

C. "At Least As Effective As"

- | | |
|--|----|
| 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | no |
| a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as." | |

D. Comments

BMP 07: Public Information Programs

Reporting Unit:
Las Virgenes Municipal Water District

BMP Form Status:
100% Complete

Year:
2002

A. Implementation

1. Does your agency maintain an active public information program to promote and educate customers about water conservation? yes

a. If YES, describe the program and how it's organized.

Las Virgenes Municipal Water District continued its intensive outreach commitment to customers regarding water conservation benefits and practices. In cooperation with Metropolitan Water District of Southern California, LVMWD hosted two water education tours, one of the Colorado River Aqueduct and another of the State Water Project. Exposure to the complexities of water delivery and the grand scope of the infrastructure and efforts to provide local residents safe and reliable water make strong impressions on the value of water as a resource and the importance of conservation. In addition to ongoing tours available of district facilities, specialized tours were provided to leadership from local cities and local environmental groups and their volunteers. The district continued its outreach through traditional media, including newsletter ads, portions of the Water Quality Report dedicated to conservation messages, on-hold messages for incoming calls, publications, web information, presence at events, and presentations to local groups. Efforts continue to refine these programs to maximize their impact. In celebration of water awareness month, books and resource materials were provided to local libraries. Public awareness of these resources was expanded through book presentations scheduled at local City Council meetings, all of which are carried on public access TV. In addition, posters in public and school libraries displayed throughout the month depicted new materials and promoted the program. Also, the district web site now carries a comprehensive listing of all materials provided to local libraries. The second phase of the water awareness demonstration garden at the local community center got under way, with selection and installation of additional attractive water-wise plants. New publications from the district include a booklet of water-wise plants, with information and photos from the ongoing newsletter column; a card telling how to test toilets for leaks and how to estimate water loss from a leaking toilet; an information card explaining, in simple terms, how to use a water meter to test for leaks. These accompany other water conservation information included in displays and are provided to all new customers as part of their welcome packets when service is initiated. Conservation messages are further distributed in conjunction with a local weekly paper, which has agreed to carry articles prepared by the district. And, placed advertising in conjunction with the district's rebate program for High Efficiency Washers placed greater attention on the many possibilities for conserving water. Water Awareness baskets provided as auction items and prizes at silent auctions, chamber and civic events, and other venues offer yet another opportunity to promote conservation awareness and practices. With contents targeted to each specific event, these baskets include garden tools, seeds and bulbs for drought tolerant plantings, books on water-wise and xeriscape gardening, and children's books about conservation.

2. Indicate which and how many of the following activities are included in your public information program.

Public Information Program Activity	Yes/No	Number of Events
a. Paid Advertising	yes	8
b. Public Service Announcement	yes	16
c. Bill Inserts / Newsletters / Brochures	yes	18
d. Bill showing water usage in comparison to previous year's usage	yes	
e. Demonstration Gardens	yes	1
f. Special Events, Media Events	yes	16
g. Speaker's Bureau	yes	10
h. Program to coordinate with other government agencies, industry and public interest groups and media	yes	

B. Conservation Information Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	270094	316837
2. Actual Expenditures	276563	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No
 - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

BMP 08: School Education Programs

Reporting Unit:
Las Virgenes Municipal Water District

BMP Form Status:
100% Complete

Year:
2002

A. Implementation

1. Has your agency implemented a school information program to promote water conservation? yes

2. Please provide information on your school programs (by grade level):

Grade	Are grade-appropriate materials distributed?	No. of class presentations	No. of students reached	No. of teachers' workshops
Grades K-3rd	yes	18	2900	0
Grades 4th-6th	yes	72	2800	1
Grades 7th-8th	yes	6	150	0
High School	yes	6	150	0

3. Did your Agency's materials meet state education framework requirements? yes

4. When did your Agency begin implementing this program? 5/1/1991

B. School Education Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	34223	25709
2. Actual Expenditures	27787	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

Started implementation in 1978.

D. Comments

BMP 09: Conservation Programs for CII Accounts

Reporting Unit:
Las Virgenes Municipal Water District

BMP Form Status:
100% Complete

Year:
2002

A. Implementation

- | | |
|--|-----|
| 1. Has your agency identified and ranked COMMERCIAL customers according to use? | yes |
| 2. Has your agency identified and ranked INDUSTRIAL customers according to use? | yes |
| 3. Has your agency identified and ranked INSTITUTIONAL customers according to use? | yes |

Option A: CII Water Use Survey and Customer Incentives Program

- | | |
|---|-----|
| 4. Is your agency operating a CII water use survey and customer incentives program for the purpose of complying with BMP 9 under this option? | yes |
|---|-----|

CII Surveys	Commercial Accounts	Industrial Accounts	Institutional Accounts
a. Number of New Surveys Offered	0	0	0
b. Number of New Surveys Completed	2	0	0
c. Number of Site Follow-ups of Previous Surveys (within 1 yr)	0	0	0
d. Number of Phone Follow-ups of Previous Surveys (within 1 yr)	0	0	0

CII Survey Components	Commercial Accounts	Industrial Accounts	Institutional Accounts
e. Site Visit	yes	yes	yes
f. Evaluation of all water-using apparatus and processes	yes	yes	yes
g. Customer report identifying recommended efficiency measures, paybacks and agency incentives	yes	yes	yes

Agency CII Customer Incentives	Budget (\$/Year)	No. Awarded to Customers	Total \$ Amount Awarded
h. Rebates	0	0	0
i. Loans	0	0	0
j. Grants	0	0	0
k. Others	0	0	0

Option B: CII Conservation Program Targets

- | | |
|---|----|
| 5. Does your agency track CII program interventions and water savings for the purpose of complying with BMP 9 under this option? | no |
| 6. Does your agency document and maintain records on how savings were realized and the method of calculation for estimated savings? | no |
| 7. Estimated annual savings (AF/yr) from site-verified actions taken by agency since 1991. | 0 |
| 8. Estimated annual savings (AF/yr) from non-site-verified actions taken by agency since 1991. | 0 |

B. Conservation Program Expenditures for CII Accounts

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	205	

C. "At Least As Effective As"

- | | |
|--|----|
| 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | No |
| a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as." | |

D. Comments

BMP 09a: CII ULFT Water Savings

Reporting Unit:
Las Virgenes Municipal Water District

BMP Form Status:
100% Complete

Year:
2002

1. Did your agency implement a CII ULFT replacement program in the reporting year? Yes
If No, please explain why on Line B. 10.

A. Targeting and Marketing

1. What basis does your agency use to target customers for participation in this program? Check all that apply. CII Sector or subsector
- a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

Unevaluated

2. How does your agency advertise this program? Check all that apply.

Newsletter
Web page

- a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

Unevaluated.

B. Implementation

1. Does your agency keep and maintain customer participant information? (Read the Help information for a complete list of all the information for this BMP.) Yes
2. Would your agency be willing to share this information if the CUWCC did a study to evaluate the program on behalf of your agency? No
3. What is the total number of customer accounts participating in the program during the last year ? 1

CII Subsector	Number of Toilets Replaced			
	Standard Gravity Tank	Air Assisted	Valve Floor Mount	Valve Wall Mount
4.				
a. Offices	0	0	0	0
b. Retail / Wholesale	0	0	0	0
c. Hotels	150	0	0	0
d. Health	0	0	0	0
e. Industrial	0	0	0	0
f. Schools: K to 12	0	0	0	0
g. Eating	0	0	0	0
h. Government	0	0	0	0
i. Churches	0	0	0	0
j. Other	0	0	0	0
5. Program design.				Rebate or voucher
6. Does your agency use outside services to implement this program?				Yes
a. If yes, check all that apply.				Consultant
7. Participant tracking and follow-up.				Site Visit
8. Based on your program experience, please rank on a scale of 1 to 5, with 1 being the least frequent cause and 5 being the most frequent cause, the following reasons why customers refused to participate in the program.				
a. Disruption to business				5
b. Inadequate payback				1
c. Inadequate ULFT performance				5
d. Lack of funding				1
e. American's with Disabilities Act				5
f. Permitting				5
g. Other. Please describe in B. 9.				1

9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other issues affecting program implementation or effectiveness.

Need improved targeting and marketing.

10. Please provide a general assessment of the program for this reporting year. Did your program achieve its objectives? Were your targeting and marketing approaches effective? Were program costs in line with expectations and budgeting?

Improvement in level of participation. Exceeded objectives. Targeting and marketing produced results. Expenditures acceptable.

C. Conservation Program Expenditures for CII ULFT

1. CII ULFT Program: Annual Budget & Expenditure Data

	Budgeted	Actual Expenditure
a. Labor	0	500
b. Materials	0	9000
c. Marketing & Advertising	0	0
d. Administration & Overhead	0	0
e. Outside Services	0	0
f. Total	0	9500

2. CII ULFT Program: Annual Cost Sharing

a. Wholesale agency contribution	9000
b. State agency contribution	0
c. Federal agency contribution	0
d. Other contribution	0
e. Total	9000

D. Comments

Labor expenditure estimated.

BMP 11: Conservation Pricing

Reporting Unit:
Las Virgenes Municipal Water District

BMP Form Status:
100% Complete

Year:
2002

A. Implementation

Rate Structure Data Volumetric Rates for Water Service by Customer Class

1. Residential

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Non-volumetric Flat Rate
c. Total Revenue from Volumetric Rates	\$14949660
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$7724572

2. Commercial

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Non-volumetric Flat Rate
c. Total Revenue from Volumetric Rates	\$1322940
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$1803595

3. Industrial

a. Water Rate Structure	Decreasing Block Seasonal
b. Sewer Rate Structure	Non-volumetric Flat Rate
c. Total Revenue from Volumetric Rates	\$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$0

4. Institutional / Government

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Non-volumetric Flat Rate
c. Total Revenue from Volumetric Rates	\$458040
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$417812

5. Irrigation

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	\$4912334
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$39738

6. Other

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	\$614033
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$30382

B. Conservation Pricing Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Irrigation figures include potable water irrigation only accounts and all recycled water accounts.

BMP 12: Conservation Coordinator

Reporting Unit:
Las Virgenes Municipal Water District

BMP Form Status:
100% Complete

Year:
2002

A. Implementation

1. Does your Agency have a conservation coordinator? yes
2. Is this a full-time position? no
3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program ? no
4. Partner agency's name: n/a
5. If your agency supplies the conservation coordinator:
 - a. What percent is this conservation coordinator's position? 30%
 - b. Coordinator's Name Scott W. Harris
 - c. Coordinator's Title Water Conservation & Reuse Supervisor
 - d. Coordinator's Experience and Number of Years 11 years in water conservation programs
 - e. Date Coordinator's position was created (mm/dd/yyyy) 9/1/1990
6. Number of conservation staff, including Conservation Coordinator. 3

B. Conservation Staff Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	345744	385758
2. Actual Expenditures	237101	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no
 - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

BMP 13: Water Waste Prohibition

Reporting Unit:

Las Virgenes Municipal Water District

BMP Form Status:

100% Complete

Year:

2002

A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area? yes

a. If YES, describe the ordinance:

WASTE OF WATER PROHIBITED: No customer shall knowingly permit waste or leaks of water. Where water is wastefully or negligently used on the customer's premises, the District may discontinue the service, if such conditions are not corrected within five days after the General Manager gives the customer written notice thereof. WATER CONSERVATION: It is the desire of 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, town-houses, 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 minimize run-off from the irrigated areas.

2. Is a copy of the most current ordinance(s) on file with CUWCC? yes

a. List local jurisdictions in your service area in the first text box and water waste ordinance citations in each jurisdiction in the second text box:

LVMWD and Los Angeles
County

Ordinance 11-86-161, Section 3-4.203. Ordinance 1-88-168, Section 4-4.205.

B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

- | | |
|--|-----|
| a. Gutter flooding | yes |
| b. Single-pass cooling systems for new connections | yes |
| c. Non-recirculating systems in all new conveyor or car wash systems | yes |
| d. Non-recirculating systems in all new commercial laundry systems | yes |
| e. Non-recirculating systems in all new decorative fountains | yes |
| f. Other, please name | no |

2. Describe measures that prohibit water uses listed above:
See Ordinances.

Water Softeners:

3. Indicate which of the following measures your agency has supported in developing state law:

- | | |
|--|----|
| a. Allow the sale of more efficient, demand-initiated regenerating DIR models. | no |
|--|----|

- b. Develop minimum appliance efficiency standards that:
 - i.) Increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used. no
 - ii.) Implement an identified maximum number of gallons discharged per gallon of soft water produced. no
- c. 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 adverse effect on the reclaimed water or groundwater supply. no
- 4. Does your agency include water softener checks in home water audit programs? no
- 5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models? no

C. Water Waste Prohibition Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

- 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no
 - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

District does not track water waste expenditures.

BMP 14: Residential ULFT Replacement Programs

Reporting Unit:
Las Virgenes Municipal Water District

BMP Form Status:
100% Complete

Year:
2002

A. Implementation

	Single- Family Accounts	Multi- Family Units
1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets?	yes	yes
Number of Toilets Replaced by Agency Program During Report Year		
Replacement Method	SF Accounts	MF Units
2. Rebate	294	46
3. Direct Install	0	0
4. CBO Distribution	0	0
5. Other	0	0
	<hr/>	
Total	294	46

6. Describe your agency's ULFT program for single-family residences.
 Rebate \$60 per high flush volume toilet replaced

7. Describe your agency's ULFT program for multi-family residences.
 Rebate \$60 per high flush volume toilet replaced

8. Is a toilet retrofit on resale ordinance in effect for your service area? no

9. List local jurisdictions in your service area in the left box and ordinance citations in each jurisdiction in the right box:

B. Residential ULFT Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	28134	29646
2. Actual Expenditures	29207	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Accounts & Water Use

Reporting Unit Name:
**Las Virgenes Municipal Water
 District**

Submitted to CUWCC
02/07/2003

Year:
2001

A. Service Area Population Information:

1. Total service area population 66150

B. Number of Accounts and Water Deliveries (AF)

Type	Metered		Unmetered	
	No. of Accounts	Water Deliveries (AF)	No. of Accounts	Water Deliveries (AF)
1. Single-Family	17167	15517.6	0	0
2. Multi-Family	529	1575	0	0
3. Commercial	508	1349.9	0	0
4. Industrial	0	0	0	0
5. Institutional	106	453.6	0	0
6. Dedicated Irrigation	221	925.9	0	0
7. Recycled Water	531	4408.2	0	0
8. Other	338	298.4	0	0
9. Unaccounted	NA	0	NA	0
Total	19400	24528.6	0	0
		Metered		Unmetered

BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit: **Las Virgenes Municipal Water District** BMP Form Status: **100% Complete** Year: **2001**

A. Implementation

- | | |
|--|------------|
| 1. Based on your signed MOU date, 09/01/1991, your Agency STRATEGY DUE DATE is: | 08/31/1993 |
| 2. Has your agency developed and implemented a targeting/marketing strategy for SINGLE-FAMILY residential water use surveys? | yes |
| a. If YES, when was it implemented? | 1/1/1991 |
| 3. Has your agency developed and implemented a targeting/marketing strategy for MULTI-FAMILY residential water use surveys? | yes |
| a. If YES, when was it implemented? | 1/1/1991 |

B. Water Survey Data

Survey Counts:	Single Family Accounts	Multi-Family Units
1. Number of surveys offered:	75	102
2. Number of surveys completed:	29	0

Indoor Survey:

- | | | |
|---|-----|-----|
| 3. Check for leaks, including toilets, faucets and meter checks | yes | yes |
| 4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary | no | no |
| 5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as necessary; replace leaking toilet flapper, as necessary | yes | yes |

Outdoor Survey:

- | | | |
|--|----------------|-----|
| 6. Check irrigation system and timers | yes | yes |
| 7. Review or develop customer irrigation schedule | yes | yes |
| 8. Measure landscaped area (Recommended but not required for surveys) | yes | yes |
| 9. Measure total irrigable area (Recommended but not required for surveys) | yes | yes |
| 10. Which measurement method is typically used (Recommended but not required for surveys) | Odometer Wheel | |
| 11. Were customers provided with information packets that included evaluation results and water savings recommendations? | yes | yes |

BMP 02: Residential Plumbing Retrofit

Reporting Unit:
**Las Virgenes Municipal Water
District**

BMP Form Status:
100% Complete

Year:
2001

A. Implementation

1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts? no

a. If YES, list local jurisdictions in your service area and code or ordinance in each:

While there is no explicit enforcement mechanism, In march of 1989, the LVMWD board of directors adopted a water conservation ordinance #3-89-173 which stated that all new shower heads within the district must flow at a rate less than 2.5 gallons per minute at 80 psi.

2. Has your agency satisfied the 75% saturation requirement for single-family housing units? no

3. Estimated percent of single-family households with low-flow showerheads: 31%

4. Has your agency satisfied the 75% saturation requirement for multi-family housing units? yes

5. Estimated percent of multi-family households with low-flow showerheads: 75%

6. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research.

The 2.5 gpm fixture saturation levels were determined by taking the pre-1989 housing stock (14,085 single and 6,805 multi-family dwellings) and multiplying them by a the average number of showerheads found in that setting as determined by the AWWARF North American End Use Study. For the single family sector, we combined the figures for the average number of "shower only" bathrooms and "tub/shower" bathrooms. These figures: 1.25 and 1.56, respectively, combine to suggest an average of 2.81 showerheads per dwelling. For the multi-family setting we assumed that 75% of all dwellings would have just one shower fixture, and 25% of all dwellings would have two. This resulted in an average of 1.25 showerheads per dwelling. Base housing stock (pre-1992) was determined to be 14,086 single family dwellings and 6,805 multi-family dwellings. By the end of fiscal year 00-01, we had distributed over 24,500 showerheads. But we assume an installation rate less than 100%. Installation rates for programs in our area that were carried out by the Metropolitan Water District of Southern California (MWD) were estimated by MWD. Installation rates for programs carried out by Las Virgenes are estimated at 70% prior to 1998, and 100% from that point on. The change in installation rate is based on the perception that the combination of normal to surplus rainfall and "by customer request only" distribution programs has resulted in people only taking showerheads when they plan to install them. The resulting number of showerheads installed is 18,561. We assumed that because owners of multi-family complexes have a greater financial incentive to install low flow showerheads, without much consideration for shower quality, it is safe to assume a 75% installation

rate. This results in an estimated installation of 6,380 low flow showerheads in the multi-family sector. The remaining 12,181 fixtures are then credited to the single family sector, allowing us to calculate a 31% saturation rate.

B. Low-Flow Device Distribution Information

1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices? yes

a. If YES, when did your agency begin implementing this strategy? 1/1/1990

b. Describe your targeting/ marketing strategy.
Advertising in newspapers, on District bills, voice mail on District phone system, special events held throughout the year.

Low-Flow Devices Distributed/ Installed	SF Accounts	MF Units
2. Number of low-flow showerheads distributed:	33	0
3. Number of toilet-displacement devices distributed:	0	0
4. Number of toilet flappers distributed:	0	0
5. Number of faucet aerators distributed:	0	0
6. Does your agency track the distribution and cost of low-flow devices?		yes

a. If YES, in what format are low-flow devices tracked? Spreadsheet

b. If yes, describe your tracking and distribution system :
Tracking begins as a manual tally which is transferred to an Excel spreadsheet. Distribution is made in response to requests from customers visiting District headquarters, requests to Water Efficiency Survey Staff, and to staff at special events.

C. Low-Flow Device Distribution Expenditures

	This Year	Next Year
1. Budgeted Expenditures	1000	1000
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? yes

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

LVMWD staff understands the goal of BMP2 to be the lowering of shower fixture flow rates to the 2.5 gpm level as a means of conserving water. Knowing that the 2.5 gpm rate is measured at 80 psi, and realizing that house pressures are regulated to below 80 psi to protect the interior fixtures, staff believes that these lower pressures result in a lower showerhead flow rate. To investigate this theory, staff reviewed the American Water Works Association Research Foundation's North American Residential End Use Study, a study in which Las Virgenes participated during 1997 and 1998. The study population, randomly selected, consisted of 100 homes, 94 of which were built prior to 1992. The study confirms the idea that showerheads within the Las Virgenes service area flow at less than 2.5 gpm. The finding, shown in Table 5.6, is that the average flow rate for showerheads in this area is 2.19 gpm. In this case, the "At least As Effective As" variant is the use of lower pressures to accomplish the stated goal of conserving water by reducing shower flow rates below 2.5 gpm rather than changing fixtures.

E. Comments

BMP 03: System Water Audits, Leak Detection and Repair

Reporting Unit:	BMP Form Status:	Year:
Las Virgenes Municipal Water District	100% Complete	2001

A. Implementation

- | | |
|---|----------|
| 1. Has your agency completed a pre-screening system audit for this reporting year? | yes |
| 2. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production: | |
| a. Determine metered sales (AF) | 24528.6 |
| b. Determine other system verifiable uses (AF) | 558.15 |
| c. Determine total supply into the system (AF) | 26764.83 |
| d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required. | 0.94 |
| 3. Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production? | yes |
| 4. Did your agency complete a full-scale audit during this report year? | no |
| 5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit? | no |
| 6. Does your agency operate a system leak detection program? | yes |
| a. If yes, describe the leak detection program:
Visual inspection of distribution routes. Comparison of water delivered to the system vs. water sales. | |

B. Survey Data

- | | |
|--|--------|
| 1. Total number of miles of distribution system line. | 390.94 |
| 2. Number of miles of distribution system line surveyed. | 390.94 |

C. System Audit / Leak Detection Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	62500	62500
2. Actual Expenditures	52876	

D. "At Least As Effective As"

- | | |
|--|----|
| 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | No |
| a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as." | |

E. Comments

BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing

Reporting Unit: **Las Virgenes Municipal Water District** BMP Form Status: **100% Complete** Year: **2001**

A. Implementation

- | | |
|---|-----|
| 1. Does your agency require meters for all new connections and bill by volume-of-use? | yes |
| 2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use? | no |
| a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed? | |
| b. Describe the program:
Las Virgenes Municipal Water District has no unmetered connections. | |
| 3. Number of previously unmetered accounts fitted with meters during report year. | 0 |

B. Feasibility Study

- | | |
|--|----------|
| 1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? | yes |
| a. If YES, when was the feasibility study conducted? (mm/dd/yy) | 1/1/1991 |
| b. Describe the feasibility study:
During the 1970's, LVMWD determined that the conversion of existing commercial landscape irrigation from potable to recycled water use was cost effective and would be aggressively pursued. | |
| 2. Number of CII accounts with mixed-use meters. | 339 |
| 3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period. | 1 |

C. Meter Retrofit Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

- | | |
|--|----|
| 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | No |
| a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as." | |

E. Comments

BMP 05: Large Landscape Conservation Programs and Incentives

Reporting Unit: **Las Virgenes Municipal Water District** BMP Form Status: **100% Complete** Year: **2001**

A. Water Use Budgets

- | | |
|--|-----|
| 1. Number of Dedicated Irrigation Meter Accounts: | 752 |
| 2. Number of Dedicated Irrigation Meter Accounts with Water Budgets: | 39 |
| 3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF): | 0 |
| 4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF): | 0 |
| 5. Does your agency provide water use notices to accounts with budgets each billing cycle? | yes |

B. Landscape Surveys

- | | |
|--|----------|
| 1. Has your agency developed a marketing / targeting strategy for landscape surveys? | yes |
| a. If YES, when did your agency begin implementing this strategy? | 1/1/1991 |
| b. Description of marketing / targeting strategy:
Customer request | |
| 2. Number of Surveys Offered. | 752 |
| 3. Number of Surveys Completed. | 0 |
| 4. Indicate which of the following Landscape Elements are part of your survey: | |
| a. Irrigation System Check | yes |
| b. Distribution Uniformity Analysis | yes |
| c. Review / Develop Irrigation Schedules | yes |
| d. Measure Landscape Area | yes |
| e. Measure Total Irrigable Area | yes |
| f. Provide Customer Report / Information | yes |
| 5. Do you track survey offers and results? | yes |
| 6. Does your agency provide follow-up surveys for previously completed surveys? | yes |
| a. If YES, describe below:
Upon customer request. | |

C. Other BMP 5 Actions

- | | |
|---|-----|
| 1. An agency can provide mixed-use accounts with ETo-based landscape budgets in lieu of a large landscape survey program. Does your agency provide mixed-use accounts with landscape budgets? | yes |
| 2. Number of CII mixed-use accounts with landscape budgets. | 106 |
| 3. Do you offer landscape irrigation training? | yes |
| 4. Does your agency offer financial incentives to improve landscape water use efficiency? | no |

Type of Financial Incentive:	Budget (Dollars/ Year)	Number Awarded to Customers	Total Amount Awarded
a. Rebates	0	0	0
b. Loans	0	0	0
c. Grants	0	0	0

5. Do you provide landscape water use efficiency information to new customers and customers changing services? yes

a. If YES, describe below:
 New account information packages include a variety of brochures about water efficient planting and irrigation.

6. Do you have irrigated landscaping at your facilities? yes

a. If yes, is it water-efficient? yes

b. If yes, does it have dedicated irrigation metering? yes

7. Do you provide customer notices at the start of the irrigation season? yes

8. Do you provide customer notices at the end of the irrigation season? yes

D. Landscape Conservation Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

E. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? yes

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."
 In the 1970's Las Virgenes Municipal Water District (LVMWD) realized the value of total beneficial reuse of all resources. Ever since, LVMWD has aggressively pursued the development of a reclaimed water market. By requiring all non-residential landscaping located along the district's reclaimed water distribution main lines to be designed or converted to utilize reclaimed water for landscape irrigation, LVMWD now serves 531 of the 752 dedicated irrigation accounts within our service area with reclaimed water. That equates to 4,408.2 acre-feet of water out of a total of 5,334.1 acre-feet (83%).

F. Comments

BMP 06: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:
Las Virgenes Municipal Water District

BMP Form Status:
100% Complete

Year:
2001

A. Implementation

- | | |
|---|----|
| 1. Do any energy service providers or waste water utilities in your service area offer rebates for high-efficiency washers? | no |
| a. If YES, describe the offerings and incentives as well as who the energy/waste water utility provider is. | |
| 2. Does your agency offer rebates for high-efficiency washers? | no |
| 3. What is the level of the rebate? | 0 |
| 4. Number of rebates awarded. | 0 |

B. Rebate Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

- | | |
|--|----|
| 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | no |
| a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as." | |

D. Comments

BMP 07: Public Information Programs

Reporting Unit:

Las Virgenes Municipal Water District

BMP Form Status:

100% Complete

Year:

2001

A. Implementation

1. Does your agency maintain an active public information program to promote and educate customers about water conservation? yes

a. If YES, describe the program and how it's organized.

Las Virgenes Municipal Water District maintained its active outreach strategies to encourage conservation and educate local residents about the many benefits of wise water use. Outreach continues to be pursued through diverse media and mechanisms. Additional outreach staff made possible regular, bi-monthly publication of the district's newsletter, *The Current Flow*. Frequently, newsletter articles focus on water conservation techniques. During this reporting period, the district's water conservation unit was highlighted in a Team Focus article. Regular columns were established focusing on fascinating water facts, to give readers a better perspective on water use and quantities associated with water, and a series on Water Wise Plants. The planting series is consolidated and maintained within the Conservation Section of the district web site.

Conservation information was greatly expanded on the district web site, including publication of the simple irrigation scheduler printed last year.

The district continues to expand its Library Program, which provides publications and media to local school and public libraries, all focused on water history, water policies and politics, conservation, water-wise landscaping, and similar subjects. Continuing to refine outreach efforts, the district incorporates a water awareness challenge in booths at events.

An emulation of the old-fashioned floating duck carnival game attracts players, who answer a simple water awareness question to win a prize.

This participatory element draws people in and gives a sense of achievement in playing the game to win a prize. All prizes have a water awareness theme. Pencils state, Save water. It's the WRITE thing to do. Rulers are imprinted, Make it a RULE to save water. Buckets say, SAVE WATER. Every drop in the bucket counts.

2. Indicate which and how many of the following activities are included in your public information program.

Public Information Program Activity	Yes/No	Number of Events
a. Paid Advertising	yes	2
b. Public Service Announcement	yes	12
c. Bill Inserts / Newsletters / Brochures	yes	20
d. Bill showing water usage in comparison to previous year's usage	yes	
e. Demonstration Gardens	yes	1
f. Special Events, Media Events	yes	11
g. Speaker's Bureau	yes	15
h. Program to coordinate with other government agencies, industry and public interest groups and media	yes	

B. Conservation Information Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	313982	270094
2. Actual Expenditures	174399	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No
 - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

BMP 08: School Education Programs

Reporting Unit:
Las Virgenes Municipal Water District

BMP Form Status:
100% Complete

Year:
2001

A. Implementation

1. Has your agency implemented a school information program to promote water conservation? yes

2. Please provide information on your school programs (by grade level):

Grade	Are grade-appropriate materials distributed?	No. of class presentations	No. of students reached	No. of teachers' workshops
Grades K-3rd	yes	13	815	0
Grades 4th-6th	yes	72	2800	1
Grades 7th-8th	yes	6	1900	0
High School	yes	6	1500	0

3. Did your Agency's materials meet state education framework requirements? yes

4. When did your Agency begin implementing this program? 5/1/1991

B. School Education Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	40769	34223
2. Actual Expenditures	31526	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

Started implementation in 1978.

D. Comments

BMP 09: Conservation Programs for CII Accounts

Reporting Unit:
Las Virgenes Municipal Water District

BMP Form Status:
100% Complete

Year:
2001

A. Implementation

- | | |
|--|-----|
| 1. Has your agency identified and ranked COMMERCIAL customers according to use? | yes |
| 2. Has your agency identified and ranked INDUSTRIAL customers according to use? | yes |
| 3. Has your agency identified and ranked INSTITUTIONAL customers according to use? | yes |

Option A: CII Water Use Survey and Customer Incentives Program

- | | |
|---|-----|
| 4. Is your agency operating a CII water use survey and customer incentives program for the purpose of complying with BMP 9 under this option? | yes |
|---|-----|

CII Surveys	Commercial Accounts	Industrial Accounts	Institutional Accounts
a. Number of New Surveys Offered	3	0	3
b. Number of New Surveys Completed	0	0	0
c. Number of Site Follow-ups of Previous Surveys (within 1 yr)	0	0	0
d. Number of Phone Follow-ups of Previous Surveys (within 1 yr)	0	0	0

CII Survey Components	Commercial Accounts	Industrial Accounts	Institutional Accounts
e. Site Visit	yes	yes	yes
f. Evaluation of all water-using apparatus and processes	yes	yes	yes
g. Customer report identifying recommended efficiency measures, paybacks and agency incentives	yes	yes	yes

Agency CII Customer Incentives	Budget (\$/Year)	No. Awarded to Customers	Total \$ Amount Awarded
h. Rebates	0	0	0
i. Loans	0	0	0
j. Grants	0	0	0
k. Others	0	0	0

Option B: CII Conservation Program Targets

- | | |
|---|----|
| 5. Does your agency track CII program interventions and water savings for the purpose of complying with BMP 9 under this option? | no |
| 6. Does your agency document and maintain records on how savings were realized and the method of calculation for estimated savings? | no |
| 7. Estimated annual savings (AF/yr) from site-verified actions taken by agency since 1991. | 0 |
| 8. Estimated annual savings (AF/yr) from non-site-verified actions taken by agency since 1991. | 0 |

B. Conservation Program Expenditures for CII Accounts

	This Year	Next Year
1. Budgeted Expenditures	4772	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

- | | |
|--|----|
| 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | No |
| a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as." | |

D. Comments

BMP 09a: CII ULFT Water Savings

Reporting Unit:
Las Virgenes Municipal Water District

BMP Form Status: Year:
99% Complete 2001

1. Did your agency implement a CII ULFT replacement program in the reporting year? Yes
If No, please explain why on Line B. 10.

A. Targeting and Marketing

1. What basis does your agency use to target customers for participation in this program? Check all that apply. CII Sector or subsector
that apply.
- a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

Unevaluated.

2. How does your agency advertise this program? Newsletter
Check all that apply. Web page

- a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

Unevaluated.

B. Implementation

1. Does your agency keep and maintain customer participant information? (Read the Help information for a complete list of all the information for this BMP.) Yes
2. Would your agency be willing to share this information if the CUWCC did a study to evaluate the program on behalf of your agency? No
3. What is the total number of customer accounts participating in the program during the last year ? 0

CII Subsector	Number of Toilets Replaced			
	Standard Gravity Tank	Air Assisted	Valve Floor Mount	Valve Wall Mount
4.				
a. Offices	0	0	0	0
b. Retail / Wholesale	0	0	0	0
c. Hotels	0	0	0	0
d. Health	0	0	0	0
e. Industrial	0	0	0	0
f. Schools: K to 12	0	0	0	0
g. Eating	0	0	0	0
h. Government	0	0	0	0
i. Churches	0	0	0	0
j. Other	0	0	0	0

5. Program design. Rebate or voucher

6. Does your agency use outside services to implement this program? No

a. If yes, check all that apply.

7. Participant tracking and follow-up. Site Visit

8. Based on your program experience, please rank on a scale of 1 to 5, with 1 being the least frequent cause and 5 being the most frequent cause, the following reasons why customers refused to participate in the program.

- a. Disruption to business 5
- b. Inadequate payback 1
- c. Inadequate ULFT performance 5
- d. Lack of funding 1
- e. American's with Disabilities Act 5
- f. Permitting 5
- g. Other. Please describe in B. 9. 1

9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other issues affecting program implementation or effectiveness.

Need improved targeting and marketing.

10. Please provide a general assessment of the program for this reporting year. Did your program achieve its objectives? Were your targeting and marketing approaches effective? Were program costs in line with expectations and budgeting?

Unsuccessful. Did not achieve objectives. Need to improve targeting and marketing methods.

C. Conservation Program Expenditures for CII ULFT

1. CII ULFT Program: Annual Budget & Expenditure Data

	Budgeted	Actual Expenditure
a. Labor	125	0
b. Materials	1200	0
c. Marketing & Advertising	0	0
d. Administration & Overhead	200	0
e. Outside Services	0	0
f. Total	1525	0

2. CII ULFT Program: Annual Cost Sharing

a. Wholesale agency contribution	0
b. State agency contribution	0
c. Federal agency contribution	0
d. Other contribution	0
e. Total	0

D. Comments

5. Irrigation

- a. Water Rate Structure Increasing Block
- b. Sewer Rate Structure Service Not Provided
- c. Total Revenue from Volumetric Rates \$4637509
- d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources \$51965

6. Other

- a. Water Rate Structure Increasing Block
- b. Sewer Rate Structure Service Not Provided
- c. Total Revenue from Volumetric Rates \$520199
- d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources \$27987

B. Conservation Pricing Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

- 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Irrigation figures include potable water irrigation only accounts and all recycled water accounts.

BMP 12: Conservation Coordinator

Reporting Unit: **Las Virgenes Municipal Water District** BMP Form Status: **100% Complete** Year: **2001**

A. Implementation

1. Does your Agency have a conservation coordinator? yes
2. Is this a full-time position? no
3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program ? no
4. Partner agency's name: n/a
5. If your agency supplies the conservation coordinator:
 - a. What percent is this conservation coordinator's position? 30%
 - b. Coordinator's Name Scott W. Harris
 - c. Coordinator's Title Water Conservation and Reuse Supervisor
 - d. Coordinator's Experience and Number of Years 10 years in water conservation
 - e. Date Coordinator's position was created (mm/dd/yyyy) 9/1/1990
6. Number of conservation staff, including Conservation Coordinator. 3

B. Conservation Staff Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	252082	345744
2. Actual Expenditures	280638	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no
 - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

BMP 13: Water Waste Prohibition

Reporting Unit: **Las Virgenes Municipal Water District** BMP Form Status: **100% Complete** Year: **2001**

A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area? yes

a. If YES, describe the ordinance:

WASTE OF WATER PROHIBITED: No customer shall knowingly permit waste or leaks of water. Where water is wastefully or negligently used on the customer's premises, the District may discontinue the service, if such conditions are not corrected within five days after the General Manager gives the customer written notice thereof. WATER CONSERVATION: It is the desire of 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, town-houses, 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 minimize run-off from the irrigated areas.

2. Is a copy of the most current ordinance(s) on file with CUWCC? yes

a. List local jurisdictions in your service area in the first text box and water waste ordinance citations in each jurisdiction in the second text box:

LVMWD and Los Angeles County	Ordinance 11-86-161, Section 3-4.203. Ordinance 1-88-168, Section 4-4.205.
------------------------------	--

B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

- | | |
|--|-----|
| a. Gutter flooding | yes |
| b. Single-pass cooling systems for new connections | yes |
| c. Non-recirculating systems in all new conveyor or car wash systems | yes |
| d. Non-recirculating systems in all new commercial laundry systems | yes |
| e. Non-recirculating systems in all new decorative fountains | yes |
| f. Other, please name | no |

2. Describe measures that prohibit water uses listed above:
See Ordinances.

Water Softeners:

3. Indicate which of the following measures your agency has supported in developing state law:

- a. Allow the sale of more efficient, demand-initiated regenerating DIR models. no
 - b. Develop minimum appliance efficiency standards that:
 - i.) Increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used. no
 - ii.) Implement an identified maximum number of gallons discharged per gallon of soft water produced. no
 - c. 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 adverse effect on the reclaimed water or groundwater supply. no
4. Does your agency include water softener checks in home water audit programs? no
5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models? no

C. Water Waste Prohibition Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

- 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no
 - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

District does not track water waste expenditures.

BMP 14: Residential ULFT Replacement Programs

Reporting Unit:
Las Virgenes Municipal Water District

BMP Form Status:
100% Complete

Year:
2001

A. Implementation

	Single-Family Accounts	Multi-Family Units
1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets?	yes	yes

Number of Toilets Replaced by Agency Program During Report Year

Replacement Method	SF Accounts	MF Units
2. Rebate	323	56
3. Direct Install	0	0
4. CBO Distribution	0	0
5. Other	0	0
Total	323	56

6. Describe your agency's ULFT program for single-family residences.
 Rebate \$60 per high flush volume toilet replaced.

7. Describe your agency's ULFT program for multi-family residences.
 Rebate \$60 per high flush volume toilet replaced.

8. Is a toilet retrofit on resale ordinance in effect for your service area? no

9. List local jurisdictions in your service area in the left box and ordinance citations in each jurisdiction in the right box:

B. Residential ULFT Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	43983	28134
2. Actual Expenditures	31079	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

BMP 01 Coverage: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit:
Las Virgenes Municipal Water District

Reporting Period:
03-04

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

A Reporting Unit (RU) must meet three conditions to satisfy strict compliance for BMP 1.

Condition 1: Adopt survey targeting and marketing strategy on time

Condition 2: Offer surveys to 20% of SF accounts and 20% of MF units during report period

Condition 3: Be on track to survey 15% of SF accounts and 15% of MF units within 10 years of implementation start date.

Test for Condition 1

Las Virgenes Municipal Water District to Implement Targeting/Marketing Program by:	1999		
		<u>Single-Family</u>	<u>Multi-Family</u>
Year Las Virgenes Municipal Water District Reported Implementing Targeting/Marketing Program:	307	307	
Las Virgenes Municipal Water District Met Targeting/Marketing Coverage Requirement:	YES	YES	

Test for Condition 2

			<u>Single-Family</u>	<u>Multi-Family</u>
Survey Program to Start by:	1998	Residential Survey Offers (%)	0.90%	2.97%
Reporting Period:	03-04	Survey Offers \geq 20%	NO	NO

Test for Condition 3

	Completed Residential Surveys	
	<u>Single Family</u>	<u>Multi-Family</u>
Total Completed Surveys 1999 - 2004:	136	1,206
Past Credit for Surveys Completed Prior to 1999 (Implementation of Reporting Database):	1,367	660
Total + Credit	1,503	1,866
Residential Accounts in Base Year	16,671	6,862
Las Virgenes Municipal Water District Survey Coverage as % of Base Year Residential Accounts	9.02%	27.19%
Coverage Requirement by Year 7 of Implementation per Exhibit 1	7.90%	7.90%
Las Virgenes Municipal Water District on Schedule to Meet 10-Year Coverage Requirement	YES	YES

BMP 1 COVERAGE STATUS SUMMARY:

Water supplier has not met one or more coverage requirements for this BMP.

BMP 02 Coverage: Residential Plumbing Retrofit

Reporting Unit:
Las Virgenes Municipal Water District
MOU Exhibit 1 Coverage Requirement

Reporting Period:
03-04

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

Yes

An agency must meet one of three conditions to satisfy strict compliance for BMP 2.

Condition 1: The agency has demonstrated that 75% of SF accounts and 75% of MF units constructed prior to 1992 are fitted with low-flow showerheads.

Condition 2: An enforceable ordinance requiring the replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts is in place for the agency's service area.

Condition 3: The agency has distributed or directly installed low-flow showerheads and other low-flow plumbing devices to not less than 10% of single-family accounts and 10% of multi-family units constructed prior to 1992 during the reporting period.

Test for Condition 1

<u>Report Year</u>	<u>Report Period</u>	<u>Single-Family</u>		<u>Multi-Family</u>	
		<u>Reported Saturation</u>	<u>Saturation ≥ 75%?</u>	<u>Reported Saturation</u>	<u>Saturation ≥ 75%?</u>
1999	99-00	91.00%	YES	91.00%	YES
2000	99-00	92.00%	YES	92.00%	YES
2001	01-02	31.00%	NO	75.00%	YES
2002	01-02	31.00%	NO	75.00%	NO
2003	03-04	31.00%	NO	75.00%	YES
2004	03-04	32.00%	NO	75.00%	YES

Test for Condition 2

<u>Report Year</u>	<u>Report Period</u>	<u>Las Virgenes Municipal Water District has ordinance requiring showerhead retrofit?</u>
1999	99-00	NO
2000	99-00	NO
2001	01-02	NO
2002	01-02	NO
2003	03-04	NO
2004	03-04	NO

Test for Condition 3

Reporting Period: 03-04

<u>1992 SF Accounts</u>	<u>Num. Showerheads Distributed to SF Accounts</u>	<u>Single-Family Coverage Ratio</u>	<u>SF Coverage Ratio > 10%</u>
14,086	51	0.4%	NO
<u>1992 MF Accounts</u>	<u>Num. Showerheads Distributed to MF Accounts</u>	<u>Multi-Family Coverage Ratio</u>	<u>MF Coverage Ratio > 10%</u>
6,805	583	8.6%	NO

BMP 2 COVERAGE STATUS SUMMARY:**Water supplier has not met one or more coverage requirements for this BMP.**

BMP 03 Coverage: System Water Audits, Leak Detection and Repair

Reporting Unit:
Las Virgenes Municipal Water District

Reporting Period:
03-04

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet one of two conditions to be in compliance with BMP 3:

Condition 1: Perform a prescreening audit. If the result is equal to or greater than 0.9 nothing more needs be done.

Condition 2: Perform a prescreening audit. If the result is less than 0.9, perform a full audit in accordance with AWWA's Manual of Water Supply Practices, Water Audits, and Leak Detection.

Test for Conditions 1 and 2

<u>Report Year</u>	<u>Report Period</u>	<u>Pre-Screen Completed</u>	<u>Pre-Screen Result</u>	<u>Full Audit Indicated</u>	<u>Full Audit Completed</u>
1999	99-00	YES	95.1%	No	NO
2000	99-00	YES	88.4%	Yes	NO
2001	01-02	YES	93.7%	No	NO
2002	01-02	YES	92.3%	No	NO
2003	03-04	YES	95.9%	No	NO
2004	03-04	YES	90.2%	No	NO

BMP 3 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.

BMP 04 Coverage: Metering with Commodity Rates for all New Connections and Retrofit of Existing

Reporting Unit:
**Las Virgenes Municipal
Water District**

Reporting Period:
03-04

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must be on track to retrofit 100% of its unmetered accounts within 10 years to be in compliance with BMP 4.

Test for Compliance

Total Meter Retrofits Reported through 2004

No. of Unmetered Accounts in Base Year

Meter Retrofit Coverage as % of Base Year Unmetered Accounts

Coverage Requirement by Year 6 of Implementation per Exhibit 1

42.0%

RU on Schedule to meet 10 Year Coverage Requirement

YES

BMP 4 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.

BMP 05 Coverage: Large Landscape Conservation Programs and Incentives

Reporting Unit:
Las Virgenes Municipal Water District

Reporting Period:
03-04

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

Yes

An agency must meet three conditions to comply with BMP 5.

Condition 1: Develop water budgets for 90% of its dedicated landscape meter accounts within four years of the date implementation is to start.

Condition 2: (a) Offer landscape surveys to at least 20% of its CII accounts with mixed use meters each report cycle and be on track to survey at least 15% of its CII accounts with mixed use meters within 10 years of the date implementation is to start OR (b) Implement a dedicated landscape meter retrofit program for CII accounts with mixed use meters or assign landscape budgets to mixed use meters.

Condition 3: Implement and maintain customer incentive program(s) for irrigation equipment retrofits.

Test for Condition 1

<u>Year</u>	<u>Report Period</u>	<u>BMP 5 Implementation Year</u>	<u>No. of Irrigation Meter Accounts</u>	<u>No. of Irrigation Accounts with Budgets</u>	<u>Budget Coverage Ratio</u>	<u>90% Coverage Met by Year 4</u>
1999	99-00	1	723	38	5.3%	NA
2000	99-00	2	735	39	5.3%	NA
2001	01-02	3	752	39	5.2%	NA
2002	01-02	4	786	67	8.5%	No
2003	03-04	5	797	70	8.8%	No
2004	03-04	6	811	87	10.7%	No

Test for Condition 2a (survey offers)

Select Reporting Period:	03-04
Large Landscape Survey Offers as % of Mixed Use Meter CII Accounts	15.9%
Survey Offers Equal or Exceed 20% Coverage Requirement	NO

Test for Condition 2a (surveys completed)

Total Completed Landscape Surveys Reported through	47
Credit for Surveys Completed Prior to Implementation of Reporting Database	25
Total + Credit	72
CII Accounts in Base Year	628
RU Survey Coverage as a % of Base Year CII Accounts	11.5%
Coverage Requirement by Year of Implementation per Exhibit 1	6.3%
RU on Schedule to Meet 10 Year Coverage Requirement	YES

Test for Condition 2b (mixed use budget or meter retrofit program)

<u>Report Year</u>	<u>Report Period</u>	<u>BMP 5 Implementation Year</u>	<u>Agency has mix-use budget program</u>	<u>No. of mixed-use budgets</u>
1999	99-00	1	YES	106
2000	99-00	2	YES	106
2001	01-02	3	YES	106
2002	01-02	4	YES	106
2003	03-04	5	YES	104
2004	03-04	6	YES	104

<u>Report Year</u>	<u>Report Period</u>	<u>BMP 4 Implementation Year</u>	<u>No. of mixed use CII accounts</u>	<u>No. of mixed use CII accounts fitted with irrig. meters</u>
1999	99-00	1	341	1
2000	99-00	2	340	1
2001	01-02	3	339	1
2002	01-02	4	338	
2003	03-04	5	337	2
2004	03-04	6	337	

Test for Condition 3

<u>Report Year</u>	<u>Report Period</u>	<u>BMP 5 Implementation Year</u>	<u>RU offers financial incentives?</u>	<u>No. of Loans</u>	<u>Total Amt. Loans</u>
1999	99-00	1	NO		
2000	99-00	2	NO		
2001	01-02	3	NO		
2002	01-02	4	NO		
2003	03-04	5	NO		
2004	03-04	6	NO		
<u>Report Year</u>	<u>Report Period</u>	<u>No. of Grants</u>	<u>Total Amt. Grants</u>	<u>No. of rebates</u>	<u>Total Amt. Rebates</u>
1999	99-00				
2000	99-00				
2001	01-02				
2002	01-02				
2003	03-04				
2004	03-04				

BMP 5 COVERAGE STATUS SUMMARY:

Water supplier has not met one or more coverage requirements for this BMP.

BMP 06 Coverage: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:
Las Virgenes Municipal Water District

Reporting Period:
03-04

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet one condition to comply with BMP 6.

Condition 1: Offer a cost-effective financial incentive for high-efficiency washers if one or more energy service providers in service area offer financial incentives for high-efficiency washers.

Test for Condition 1

<u>Year</u>	<u>Report Period</u>	<u>BMP 6 Implementation Year</u>	<u>Rebate Offered by ESP?</u>	<u>Rebate Offered by RU?</u>	<u>Rebate Amount</u>
1999	99-00	1	NO	NO	
2000	99-00	2	NO	NO	
2001	01-02	3	NO	NO	
2002	01-02	4	NO	YES	100.00
2003	03-04	5	NO	YES	300.00
2004	03-04	6	NO	YES	100.00

<u>Year</u>	<u>Report Period</u>	<u>BMP 6 Implementation Year</u>	<u>No. Rebates Awarded</u>	<u>Coverage Met?</u>
1999	99-00	1		YES
2000	99-00	2		YES
2001	01-02	3		YES
2002	01-02	4	47	YES
2003	03-04	5	430	YES
2004	03-04	6	275	YES

BMP 6 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.

BMP 07 Coverage: Public Information Programs

Reporting Unit:
Las Virgenes Municipal Water District

Reporting Period:
03-04

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet one condition to comply with BMP 7.

Condition 1: Implement and maintain a public information program consistent with BMP 7's definition.

Test for Condition 1

<u>Year</u>	<u>Report Period</u>	<u>BMP 7 Implementation Year</u>	<u>RU Has Public Information Program?</u>
1999	99-00	2	YES
2000	99-00	3	YES
2001	01-02	4	YES
2002	01-02	5	YES
2003	03-04	6	YES
2004	03-04	7	YES

BMP 7 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.

BMP 08 Coverage: School Education Programs

Reporting Unit:
Las Virgenes Municipal Water District

Reporting Period:
03-04

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet one condition to comply with BMP 8.

Condition 1: Implement and maintain a school education program consistent with BMP 8's definition.

Test for Condition 1

<u>Year</u>	<u>Report Period</u>	<u>BMP 8 Implementation Year</u>	<u>RU Has School Education Program?</u>
1999	99-00	2	YES
2000	99-00	3	YES
2001	01-02	4	YES
2002	01-02	5	YES
2003	03-04	6	YES
2004	03-04	7	YES

BMP 8 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.

BMP 09 Coverage: Conservation Programs for CII Accounts

Reporting Unit:
Las Virgenes Municipal Water District

Reporting Period:
03-04

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet three conditions to comply with BMP 9.

Condition 1: Agency has identified and ranked by use commercial, industrial, and institutional accounts.

Condition 2(a): Agency is on track to survey 10% of commercial accounts, 10% of industrial accounts, and 10% of institutional accounts within 10 years of date implementation to commence.

OR

Condition 2(b): Agency is on track to reduce CII water use by an amount equal to 10% of baseline use within 10 years of date implementation to commence.

OR

Condition 2(c): Agency is on track to meet the combined target as described in Exhibit 1 BMP 9 documentation.

Test for Condition 1

<u>Year</u>	<u>Report Period</u>	<u>BMP 9 Implementation Year</u>	<u>Ranked Com. Use</u>	<u>Ranked Ind. Use</u>	<u>Ranked Inst. Use</u>
1999	99-00	1	YES	YES	YES
2000	99-00	2	YES	YES	YES
2001	01-02	3	YES	YES	YES
2002	01-02	4	YES	YES	YES
2003	03-04	5	YES	YES	YES
2004	03-04	6	YES	YES	YES

Test for Condition 2a

	Commercial	Industrial	Institutional
Total Completed Surveys Reported through 2004	6	0	0
Credit for Surveys Completed Prior to Implementation of Reporting Databases	54		
Total + Credit	60		
CII Accounts in Base Year	540		88
RU Survey Coverage as % of Base Year CII Accounts	11.1%		
Coverage Requirement by Year 6 of Implementation per Exhibit 1	4.2%	4.2%	4.2%
RU on Schedule to Meet 10 Year Coverage Requirement	YES	NO	NO

Test for Condition 2a

<u>Year</u>	<u>Report Period</u>	<u>BMP 9 Implementation Year</u>	<u>Performance Target Savings (AF/yr)</u>	<u>Performance Target Savings Coverage</u>	<u>Performance Target Savings Coverage Requirement</u>	<u>Coverage Requirement Met</u>
1999	99-00	1			0.5%	NO
2000	99-00	2			1.0%	NO
2001	01-02	3			1.7%	NO
2002	01-02	4			2.4%	NO
2003	03-04	5			3.3%	NO
2004	03-04	6	5	0.4%	4.2%	NO

Test for Condition 2c

Total BMP 9 Surveys + Credit	60
BMP 9 Survey Coverage	9.6%
BMP 9 Performance Target Coverage	0.4%
BMP 9 Survey + Performance Target Coverage	9.9%
Combined Coverage Equals or Exceeds Coverage Requirement?	YES

BMP 9 COVERAGE STATUS SUMMARY:
Water supplier is meeting coverage requirements for this BMP.

BMP 11 Coverage: Conservation Pricing

Reporting Unit:
Las Virgenes Municipal Water District

Reporting Period:
03-04

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet one condition to comply with BMP 11.

Agency shall maintain rate structure consistent with BMP 11's definition of conservation pricing. Implementation methods shall be at least as effective as eliminating non-conserving pricing and adopting conserving pricing. For signatories supplying both water and sewer service, this BMP applies to pricing of both water and sewer service. Signatories that supply water but not sewer service shall make good faith efforts to work with sewer agencies so that those sewer agencies adopt conservation pricing for sewer service.

a) Non-conserving pricing provides no incentives to customers to reduce use. Such pricing is characterized by one or more of the following components: rates in which the unit price decreases as the quantity used increases (declining block rates); rates that involve charging customers a fixed amount per billing cycle regardless of the quantity used; pricing in which the typical bill is determined by high fixed charges and low commodity charges.

b) Conservation pricing provides incentives to customers to reduce average or peak use, or both. Such pricing includes: rates designed to recover the cost of providing service; and billing for water and sewer service based on metered water use. Conservation pricing is also characterized by one or more of the following components: rates in which the unit rate is constant regardless of the quantity used (uniform rates) or increases as the quantity used increases (increasing block rates); seasonal rates or excess-use surcharges to reduce peak demands during summer months; rates based upon the long run marginal cost or the cost of adding the next unit of capacity to the system.

Test for Condition 1

<u>Year</u>	<u>Report Period</u>	<u>RU Employed Non Conserving Rate Structure</u>	<u>RU Meets BMP 11 Coverage Requirement</u>
1999	99-00	YES	NO
2000	99-00	YES	NO
2001	01-02	YES	NO
2002	01-02	YES	NO
2003	03-04	YES	NO
2004	03-04	YES	NO

BMP 11 COVERAGE STATUS SUMMARY:

Water supplier has not met one or more coverage requirements for this BMP.

BMP 12 Coverage: Conservation Coordinator

Reporting Unit:
Las Virgenes Municipal Water District

Reporting Period:
03-04

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

Agency shall staff and maintain the position of conservation coordinator and provide support staff as necessary.

Test for Compliance

<u>Report Year</u>	<u>Report Period</u>	<u>Conservation Coordinator Position Staffed?</u>	<u>Total Staff on Team (incl. CC)</u>
1999	99-00	YES	3
2000	99-00	YES	3
2001	01-02	YES	3
2002	01-02	YES	3
2003	03-04	YES	3
2004	03-04	YES	3

BMP 12 COVERAGE STATUS SUMMARY:
Water supplier is meeting coverage requirements for this BMP.

BMP 13 Coverage: Water Waste Prohibition

Reporting Unit:
Las Virgenes Municipal Water District

Reporting Period:
03-04

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

An agency must meet one condition to comply with BMP 13.

Implementation methods shall be enacting and enforcing 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.

Test for Condition 1

Agency or service area prohibits:

<u>Year</u>	<u>Gutter Flooding</u>	<u>Single-Pass Cooling Systems</u>	<u>Single-Pass Car Wash</u>	<u>Single-Pass Laundry</u>	<u>Single-Pass Fountains</u>	<u>Other</u>	<u>RU has ordinance that meets coverage requirement</u>
1999	yes	yes	yes	yes	yes	no	YES
2000	yes	yes	yes	yes	yes	no	YES
2001	yes	yes	yes	yes	yes	no	YES
2002	yes	yes	yes	yes	yes	no	YES
2003	yes	yes	yes	yes	yes	no	YES
2004	yes	yes	yes	yes	yes	no	YES

BMP 13 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.

BMP 14 Coverage: Residential ULFT Replacement Programs

Reporting Unit: **Las Virgenes Municipal Water District**

MOU Exhibit 1 Coverage Requirement

A Reporting Unit (RU) must meet one of the following conditions to be in compliance with BMP 14.

Condition 1: Retrofit-on-resale (ROR) ordinance in effect in service area.

Condition 2: Water savings from toilet replacement programs equal to 90% of Exhibit 6 coverage requirement. An agency with an exemption for BMP 14 is not required to meet one of the above conditions. This report treats an agency with missing base year data required to compute the Exhibit 6 coverage requirement as out of compliance with BMP 14.

Status: Water supplier is meeting coverage requirements for this BMP. as of 2004

<u>Coverage Year</u>	<u>BMP 14 Data Submitted to CUWCC</u>	<u>Exemption Filed with CUWCC</u>	<u>ROR Ordinance in Effect</u>	<u>Exhibit 6 Coverage Req'mt (AF)</u>	<u>Toilet Replacement Program Water Savings* (AF)</u>
1998	Yes			56.91	1062.40
1999	Yes	No	No	162.39	1272.31
2000	Yes	No	No	309.10	1485.16
2001	Yes	No	No	490.61	1700.73
2002	Yes	No	No	701.26	1917.68
2003	Yes	No	No	936.08	2135.03
2004	Yes	No	No	1190.72	2385.89
2005	No	No	No	1461.37	
2006	No	No	No	1744.71	
2007	No	No	No	2037.82	

*NOTE: Program water savings listed are net of the plumbing code. Savings are cumulative (not annual) between 1991 and the given year. Residential ULFT count data from unsubmitted forms are NOT included in the calculation.

BMP 14 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.

BMP 14 Coverage: Residential ULFT Replacement Programs

Reporting Unit: Las Virgenes Municipal Water District

BMP 14 Coverage Calculation Detail: Retrofit on Resale (ROR) Ordinance Water Savings

	Single Family	Multi-Family
1992 Housing Stock		
Average rate of natural replacement (% of remaining stock)	.04	.04
Average rate of housing demolition (% of remaining stock)	.005	.005
Estimated Housing Units with 3.5+ gpf Toilets in 1997	11497.31	5554.39
Average resale rate	.0446	.0902
Average persons per unit		
Average toilets per unit		
Average savings per home (gpd; from Exhibit 6)	45.8	59.3

Single Family Housing Units

Coverage Year	Unretrofitted Houses	Houses Sold	Houses Unsold	Sold and Retrofitted	Sold and Already Retrofitted	Unsold and Retrofitted	Gross ROR Savings (AFY)	Nat'l Replacement Only Savings (AFY)	Net ROR Savings (AFY)
1998	10549.91	510.22	10929.61	510.22		437.18	181.38	156.26	25.12
1999	9680.58	507.66	10874.96	468.17	39.49	401.16	225.98	178.80	47.18
2000	8882.88	505.13	10820.58	429.59	75.53	368.10	266.89	200.44	66.46
2001	8150.91	502.60	10766.48	394.20	108.41	337.77	304.44	221.22	83.22
2002	7479.26	500.09	10712.65	361.71	138.38	309.94	338.89	241.17	97.72
2003	6862.96	497.59	10659.08	331.91	165.68	284.40	370.51	260.33	110.18
2004	6297.43	495.10	10605.79	304.56	190.54	260.96	399.51	278.72	120.79
2005	5778.51	492.62	10552.76	279.46	213.16	239.46	426.13	296.39	129.74
2006	5302.35	490.16	10500.00	256.43	233.73	219.73	450.56	313.35	137.21
2007	4865.43	487.71	10447.50	235.30	252.41	201.62	472.97	329.63	143.33

Multi Family Housing Units

Coverage Year	Unretrofitted Houses	Houses Sold	Houses Unsold	Sold and Retrofitted	Sold and Already Retrofitted	Unsold and Retrofitted	Gross ROR Savings (AFY)	Nat'l Replacement Only Savings (AFY)	Net ROR Savings (AFY)
1998	4854.77	498.50	5028.12	498.50		201.12	129.52	97.74	31.78
1999	4243.27	496.01	5002.98	435.71	60.30	175.79	170.14	111.84	58.30
2000	3708.79	493.53	4977.96	380.83	112.70	153.65	205.63	125.37	80.26
2001	3241.63	491.06	4953.07	332.86	158.20	134.30	236.66	138.37	98.29
2002	2833.32	488.61	4928.31	290.93	197.67	117.38	263.78	150.85	112.92
2003	2476.44	486.16	4903.67	254.29	231.88	102.59	287.48	162.84	124.64
2004	2164.51	483.73	4879.15	222.26	261.47	89.67	308.20	174.34	133.85
2005	1891.87	481.31	4854.75	194.26	287.05	78.38	326.30	185.39	140.91
2006	1653.57	478.91	4830.48	169.79	309.11	68.50	342.13	196.00	146.13
2007	1445.29	476.51	4806.33	148.41	328.11	59.88	355.96	206.19	149.78

BMP 01 Coverage: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit:
Las Virgenes Municipal Water District

Reporting Period:
01-02

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

A Reporting Unit (RU) must meet three conditions to satisfy strict compliance for BMP 1.

Condition 1: Adopt survey targeting and marketing strategy on time

Condition 2: Offer surveys to 20% of SF accounts and 20% of MF units during report period

Condition 3: Be on track to survey 15% of SF accounts and 15% of MF units within 10 years of implementation start date.

Test for Condition 1

Las Virgenes Municipal Water District to Implement Targeting/Marketing Program by:	1999		
		<u>Single-Family</u>	<u>Multi-Family</u>
Year Las Virgenes Municipal Water District Reported Implementing Targeting/Marketing Program:	307	307	
Las Virgenes Municipal Water District Met Targeting/Marketing Coverage Requirement:	NO	NO	

Test for Condition 2

			<u>Single-Family</u>	<u>Multi-Family</u>
Survey Program to Start by:	1998	Residential Survey Offers (%)	0.90%	2.97%
Reporting Period:	01-02	Survey Offers \geq 20%	NO	NO

Test for Condition 3

	Completed Residential Surveys	
	<u>Single Family</u>	<u>Multi-Family</u>
Total Completed Surveys 1999 - 2002:	114	1
Past Credit for Surveys Completed Prior to 1999 (Implementation of Reporting Database):	1,367	660
Total + Credit	1,481	661
Residential Accounts in Base Year	16,671	6,862
Las Virgenes Municipal Water District Survey Coverage as % of Base Year Residential Accounts	8.88%	9.63%
Coverage Requirement by Year 5 of Implementation per Exhibit 1	4.90%	4.90%
Las Virgenes Municipal Water District on Schedule to Meet 10-Year Coverage Requirement	YES	YES

BMP 1 COVERAGE STATUS SUMMARY:

Water supplier has not met one or more coverage requirements for this BMP.

BMP 02 Coverage: Residential Plumbing Retrofit

Reporting Unit:
Las Virgenes Municipal Water District
MOU Exhibit 1 Coverage Requirement

Reporting Period:
01-02

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

Yes

An agency must meet one of three conditions to satisfy strict compliance for BMP 2.

Condition 1: The agency has demonstrated that 75% of SF accounts and 75% of MF units constructed prior to 1992 are fitted with low-flow showerheads.

Condition 2: An enforceable ordinance requiring the replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts is in place for the agency's service area.

Condition 3: The agency has distributed or directly installed low-flow showerheads and other low-flow plumbing devices to not less than 10% of single-family accounts and 10% of multi-family units constructed prior to 1992 during the reporting period.

Test for Condition 1

Report Year	Report Period	<u>Single-Family</u>		<u>Multi-Family</u>	
		<u>Reported Saturation</u>	<u>Saturation ≥ 75%?</u>	<u>Reported Saturation</u>	<u>Saturation ≥ 75%?</u>
1999	99-00	91.00%	YES	91.00%	YES
2000	99-00	92.00%	YES	92.00%	YES
2001	01-02	31.00%	NO	75.00%	YES
2002	01-02	31.00%	NO	75.00%	NO
2003	03-04	31.00%	NO	75.00%	YES
2004	03-04	32.00%	NO	75.00%	YES

Test for Condition 2

<u>Report Year</u>	<u>Report Period</u>	<u>Las Virgenes Municipal Water District has ordinance requiring showerhead retrofit?</u>
1999	99-00	NO
2000	99-00	NO
2001	01-02	NO
2002	01-02	NO
2003	03-04	NO
2004	03-04	NO

Test for Condition 3

Reporting Period: 01-02

<u>1992 SF</u> <u>Accounts</u>	<u>Num. Showerheads Distributed to SF</u> <u>Accounts</u>	<u>Single-Family Coverage</u> <u>Ratio</u>	<u>SF Coverage Ratio ></u> <u>10%</u>
14,086	50	0.4%	NO
<u>1992 MF</u> <u>Accounts</u>	<u>Num. Showerheads Distributed to MF</u> <u>Accounts</u>	<u>Multi-Family Coverage</u> <u>Ratio</u>	<u>MF Coverage Ratio ></u> <u>10%</u>
6,805			NO

BMP 2 COVERAGE STATUS SUMMARY:**Water supplier has not met one or more coverage requirements for this BMP.**

BMP 03 Coverage: System Water Audits, Leak Detection and Repair

Reporting Unit:
Las Virgenes Municipal Water District

Reporting Period:
01-02

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet one of two conditions to be in compliance with BMP 3:

Condition 1: Perform a prescreening audit. If the result is equal to or greater than 0.9 nothing more needs be done.

Condition 2: Perform a prescreening audit. If the result is less than 0.9, perform a full audit in accordance with AWWA's Manual of Water Supply Practices, Water Audits, and Leak Detection.

Test for Conditions 1 and 2

<u>Report Year</u>	<u>Report Period</u>	<u>Pre-Screen Completed</u>	<u>Pre-Screen Result</u>	<u>Full Audit Indicated</u>	<u>Full Audit Completed</u>
1999	99-00	YES	95.1%	No	NO
2000	99-00	YES	88.4%	Yes	NO
2001	01-02	YES	93.7%	No	NO
2002	01-02	YES	92.3%	No	NO
2003	03-04	YES	95.9%	No	NO
2004	03-04	YES	90.2%	No	NO

BMP 3 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.

BMP 04 Coverage: Metering with Commodity Rates for all New Connections and Retrofit of Existing

Reporting Unit:
**Las Virgenes Municipal
Water District**

Reporting Period:
01-02

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must be on track to retrofit 100% of its unmetered accounts within 10 years to be in compliance with BMP 4.

Test for Compliance

Total Meter Retrofits Reported through 2002

No. of Unmetered Accounts in Base Year

Meter Retrofit Coverage as % of Base Year Unmetered Accounts

Coverage Requirement by Year 4 of Implementation per Exhibit 1

24.0%

RU on Schedule to meet 10 Year Coverage Requirement

YES

BMP 4 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.

BMP 05 Coverage: Large Landscape Conservation Programs and Incentives

Reporting Unit:
Las Virgenes Municipal Water District

Reporting Period:
01-02

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

Yes

An agency must meet three conditions to comply with BMP 5.

Condition 1: Develop water budgets for 90% of its dedicated landscape meter accounts within four years of the date implementation is to start.

Condition 2: (a) Offer landscape surveys to at least 20% of its CII accounts with mixed use meters each report cycle and be on track to survey at least 15% of its CII accounts with mixed use meters within 10 years of the date implementation is to start OR (b) Implement a dedicated landscape meter retrofit program for CII accounts with mixed use meters or assign landscape budgets to mixed use meters.

Condition 3: Implement and maintain customer incentive program(s) for irrigation equipment retrofits.

Test for Condition 1

<u>Year</u>	<u>Report Period</u>	<u>BMP 5 Implementation Year</u>	<u>No. of Irrigation Meter Accounts</u>	<u>No. of Irrigation Accounts with Budgets</u>	<u>Budget Coverage Ratio</u>	<u>90% Coverage Met by Year 4</u>
1999	99-00	1	723	38	5.3%	NA
2000	99-00	2	735	39	5.3%	NA
2001	01-02	3	752	39	5.2%	NA
2002	01-02	4	786	67	8.5%	No
2003	03-04	5	797	70	8.8%	No
2004	03-04	6	811	87	10.7%	No

Test for Condition 2a (survey offers)

Select Reporting Period:	01-02
Large Landscape Survey Offers as % of Mixed Use Meter CII Accounts	244.9%
Survey Offers Equal or Exceed 20% Coverage Requirement	YES

Test for Condition 2a (surveys completed)

Total Completed Landscape Surveys Reported through	30
Credit for Surveys Completed Prior to Implementation of Reporting Database	25
Total + Credit	55
CII Accounts in Base Year	628
RU Survey Coverage as a % of Base Year CII Accounts	8.8%
Coverage Requirement by Year of Implementation per Exhibit 1	3.6%
RU on Schedule to Meet 10 Year Coverage Requirement	YES

Test for Condition 2b (mixed use budget or meter retrofit program)

<u>Report Year</u>	<u>Report Period</u>	<u>BMP 5 Implementation Year</u>	<u>Agency has mix-use budget program</u>	<u>No. of mixed-use budgets</u>
1999	99-00	1	YES	106
2000	99-00	2	YES	106
2001	01-02	3	YES	106
2002	01-02	4	YES	106
2003	03-04	5	YES	104
2004	03-04	6	YES	104

<u>Report Year</u>	<u>Report Period</u>	<u>BMP 4 Implementation Year</u>	<u>No. of mixed use CII accounts</u>	<u>No. of mixed use CII accounts fitted with irrig. meters</u>
1999	99-00	1	341	1
2000	99-00	2	340	1
2001	01-02	3	339	1
2002	01-02	4	338	
2003	03-04	5	337	2
2004	03-04	6	337	

Test for Condition 3

<u>Report Year</u>	<u>Report Period</u>	<u>BMP 5 Implementation Year</u>	<u>RU offers financial incentives?</u>	<u>No. of Loans</u>	<u>Total Amt. Loans</u>
1999	99-00	1	NO		
2000	99-00	2	NO		
2001	01-02	3	NO		
2002	01-02	4	NO		
2003	03-04	5	NO		
2004	03-04	6	NO		
<u>Report Year</u>	<u>Report Period</u>	<u>No. of Grants</u>	<u>Total Amt. Grants</u>	<u>No. of rebates</u>	<u>Total Amt. Rebates</u>
1999	99-00				
2000	99-00				
2001	01-02				
2002	01-02				
2003	03-04				
2004	03-04				

BMP 5 COVERAGE STATUS SUMMARY:

Water supplier has not met one or more coverage requirements for this BMP.

BMP 06 Coverage: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:
Las Virgenes Municipal Water District

Reporting Period:
01-02

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet one condition to comply with BMP 6.

Condition 1: Offer a cost-effective financial incentive for high-efficiency washers if one or more energy service providers in service area offer financial incentives for high-efficiency washers.

Test for Condition 1

<u>Year</u>	<u>Report Period</u>	<u>BMP 6 Implementation Year</u>	<u>Rebate Offered by ESP?</u>	<u>Rebate Offered by RU?</u>	<u>Rebate Amount</u>
1999	99-00	1	NO	NO	
2000	99-00	2	NO	NO	
2001	01-02	3	NO	NO	
2002	01-02	4	NO	YES	100.00
2003	03-04	5	NO	YES	300.00
2004	03-04	6	NO	YES	100.00

<u>Year</u>	<u>Report Period</u>	<u>BMP 6 Implementation Year</u>	<u>No. Rebates Awarded</u>	<u>Coverage Met?</u>
1999	99-00	1		YES
2000	99-00	2		YES
2001	01-02	3		YES
2002	01-02	4	47	YES
2003	03-04	5	430	YES
2004	03-04	6	275	YES

BMP 6 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.

BMP 07 Coverage: Public Information Programs

Reporting Unit:
Las Virgenes Municipal Water District

Reporting Period:
01-02

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet one condition to comply with BMP 7.

Condition 1: Implement and maintain a public information program consistent with BMP 7's definition.

Test for Condition 1

<u>Year</u>	<u>Report Period</u>	<u>BMP 7 Implementation Year</u>	<u>RU Has Public Information Program?</u>
1999	99-00	2	YES
2000	99-00	3	YES
2001	01-02	4	YES
2002	01-02	5	YES
2003	03-04	6	YES
2004	03-04	7	YES

BMP 7 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.

BMP 08 Coverage: School Education Programs

Reporting Unit:

Las Virgenes Municipal Water District

Reporting Period:

01-02

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet one condition to comply with BMP 8.

Condition 1: Implement and maintain a school education program consistent with BMP 8's definition.

Test for Condition 1

<u>Year</u>	<u>Report Period</u>	<u>BMP 8 Implementation Year</u>	<u>RU Has School Education Program?</u>
1999	99-00	2	YES
2000	99-00	3	YES
2001	01-02	4	YES
2002	01-02	5	YES
2003	03-04	6	YES
2004	03-04	7	YES

BMP 8 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.

BMP 09 Coverage: Conservation Programs for CII Accounts

Reporting Unit:
Las Virgenes Municipal Water District

Reporting Period:
01-02

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet three conditions to comply with BMP 9.

Condition 1: Agency has identified and ranked by use commercial, industrial, and institutional accounts.

Condition 2(a): Agency is on track to survey 10% of commercial accounts, 10% of industrial accounts, and 10% of institutional accounts within 10 years of date implementation to commence.

OR

Condition 2(b): Agency is on track to reduce CII water use by an amount equal to 10% of baseline use within 10 years of date implementation to commence.

OR

Condition 2(c): Agency is on track to meet the combined target as described in Exhibit 1 BMP 9 documentation.

Test for Condition 1

<u>Year</u>	<u>Report Period</u>	<u>BMP 9 Implementation Year</u>	<u>Ranked Com. Use</u>	<u>Ranked Ind. Use</u>	<u>Ranked Inst. Use</u>
1999	99-00	1	YES	YES	YES
2000	99-00	2	YES	YES	YES
2001	01-02	3	YES	YES	YES
2002	01-02	4	YES	YES	YES
2003	03-04	5	YES	YES	YES
2004	03-04	6	YES	YES	YES

Test for Condition 2a

	Commercial	Industrial	Institutional
Total Completed Surveys Reported through 2002	2	0	0
Credit for Surveys Completed Prior to Implementation of Reporting Databases	54		
Total + Credit	56		
CII Accounts in Base Year	540		88
RU Survey Coverage as % of Base Year CII Accounts	10.4%		
Coverage Requirement by Year 4 of Implementation per Exhibit 1	2.4%	2.4%	2.4%
RU on Schedule to Meet 10 Year Coverage Requirement	YES	NO	NO

Test for Condition 2a

<u>Year</u>	<u>Report Period</u>	<u>BMP 9 Implementation Year</u>	<u>Performance Target Savings (AF/yr)</u>	<u>Performance Target Savings Coverage</u>	<u>Performance Target Savings Coverage Requirement</u>	<u>Coverage Requirement Met</u>
1999	99-00	1			0.5%	NO
2000	99-00	2			1.0%	NO
2001	01-02	3			1.7%	NO
2002	01-02	4			2.4%	NO
2003	03-04	5			3.3%	NO
2004	03-04	6	5	0.4%	4.2%	NO

Test for Condition 2c

Total BMP 9 Surveys + Credit	56
BMP 9 Survey Coverage	8.9%
BMP 9 Performance Target Coverage	
BMP 9 Survey + Performance Target Coverage	8.9%
Combined Coverage Equals or Exceeds Coverage Requirement?	YES

BMP 9 COVERAGE STATUS SUMMARY:
Water supplier is meeting coverage requirements for this BMP.

BMP 11 Coverage: Conservation Pricing

Reporting Unit:
Las Virgenes Municipal Water District

Reporting Period:
01-02

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet one condition to comply with BMP 11.

Agency shall maintain rate structure consistent with BMP 11's definition of conservation pricing. Implementation methods shall be at least as effective as eliminating non-conserving pricing and adopting conserving pricing. For signatories supplying both water and sewer service, this BMP applies to pricing of both water and sewer service. Signatories that supply water but not sewer service shall make good faith efforts to work with sewer agencies so that those sewer agencies adopt conservation pricing for sewer service.

a) Non-conserving pricing provides no incentives to customers to reduce use. Such pricing is characterized by one or more of the following components: rates in which the unit price decreases as the quantity used increases (declining block rates); rates that involve charging customers a fixed amount per billing cycle regardless of the quantity used; pricing in which the typical bill is determined by high fixed charges and low commodity charges.

b) Conservation pricing provides incentives to customers to reduce average or peak use, or both. Such pricing includes: rates designed to recover the cost of providing service; and billing for water and sewer service based on metered water use. Conservation pricing is also characterized by one or more of the following components: rates in which the unit rate is constant regardless of the quantity used (uniform rates) or increases as the quantity used increases (increasing block rates); seasonal rates or excess-use surcharges to reduce peak demands during summer months; rates based upon the long run marginal cost or the cost of adding the next unit of capacity to the system.

Test for Condition 1

<u>Year</u>	<u>Report Period</u>	<u>RU Employed Non Conserving Rate Structure</u>	<u>RU Meets BMP 11 Coverage Requirement</u>
1999	99-00	YES	NO
2000	99-00	YES	NO
2001	01-02	YES	NO
2002	01-02	YES	NO
2003	03-04	YES	NO
2004	03-04	YES	NO

BMP 11 COVERAGE STATUS SUMMARY:

Water supplier has not met one or more coverage requirements for this BMP.

BMP 12 Coverage: Conservation Coordinator

Reporting Unit:
Las Virgenes Municipal Water District

Reporting Period:
01-02

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

Agency shall staff and maintain the position of conservation coordinator and provide support staff as necessary.

Test for Compliance

<u>Report Year</u>	<u>Report Period</u>	<u>Conservation Coordinator Position Staffed?</u>	<u>Total Staff on Team (incl. CC)</u>
1999	99-00	YES	3
2000	99-00	YES	3
2001	01-02	YES	3
2002	01-02	YES	3
2003	03-04	YES	3
2004	03-04	YES	3

BMP 12 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.

BMP 13 Coverage: Water Waste Prohibition

Reporting Unit:
Las Virgenes Municipal Water District

Reporting Period:
01-02

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

An agency must meet one condition to comply with BMP 13.

Implementation methods shall be enacting and enforcing 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.

Test for Condition 1

Agency or service area prohibits:

<u>Year</u>	<u>Gutter Flooding</u>	<u>Single-Pass Cooling Systems</u>	<u>Single- Pass Car Wash</u>	<u>Single- Pass Laundry</u>	<u>Single-Pass Fountains</u>	<u>Other</u>	<u>RU has ordinance that meets coverage requirement</u>
1999	yes	yes	yes	yes	yes	no	YES
2000	yes	yes	yes	yes	yes	no	YES
2001	yes	yes	yes	yes	yes	no	YES
2002	yes	yes	yes	yes	yes	no	YES
2003	yes	yes	yes	yes	yes	no	YES
2004	yes	yes	yes	yes	yes	no	YES

BMP 13 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.

BMP 14 Coverage: Residential ULFT Replacement Programs

Reporting Unit: **Las Virgenes Municipal Water District**

MOU Exhibit 1 Coverage Requirement

A Reporting Unit (RU) must meet one of the following conditions to be in compliance with BMP 14.

Condition 1: Retrofit-on-resale (ROR) ordinance in effect in service area.

Condition 2: Water savings from toilet replacement programs equal to 90% of Exhibit 6 coverage requirement. An agency with an exemption for BMP 14 is not required to meet one of the above conditions. This report treats an agency with missing base year data required to compute the Exhibit 6 coverage requirement as out of compliance with BMP 14.

Status: Water supplier is meeting coverage requirements for this BMP. as of 2004

<u>Coverage Year</u>	<u>BMP 14 Data Submitted to CUWCC</u>	<u>Exemption Filed with CUWCC</u>	<u>ROR Ordinance in Effect</u>	<u>Exhibit 6 Coverage Req'mt (AF)</u>	<u>Toilet Replacement Program Water Savings* (AF)</u>
1998	Yes			56.91	1062.40
1999	Yes	No	No	162.39	1272.31
2000	Yes	No	No	309.10	1485.16
2001	Yes	No	No	490.61	1700.73
2002	Yes	No	No	701.26	1917.68
2003	Yes	No	No	936.08	2135.03
2004	Yes	No	No	1190.72	2385.89
2005	No	No	No	1461.37	
2006	No	No	No	1744.71	
2007	No	No	No	2037.82	

*NOTE: Program water savings listed are net of the plumbing code. Savings are cumulative (not annual) between 1991 and the given year. Residential ULFT count data from unsubmitted forms are NOT included in the calculation.

BMP 14 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.

BMP 14 Coverage: Residential ULFT Replacement Programs

Reporting Unit: Las Virgenes Municipal Water District

BMP 14 Coverage Calculation Detail: Retrofit on Resale (ROR) Ordinance Water Savings

	Single Family	Multi-Family
1992 Housing Stock		
Average rate of natural replacement (% of remaining stock)	.04	.04
Average rate of housing demolition (% of remaining stock)	.005	.005
Estimated Housing Units with 3.5+ gpf Toilets in 1997	11497.31	5554.39
Average resale rate	.0446	.0902
Average persons per unit		
Average toilets per unit		
Average savings per home (gpd; from Exhibit 6)	45.8	59.3

Single Family Housing Units

Coverage Year	Unretrofitted Houses	Houses Sold	Houses Unsold	Sold and Retrofitted	Sold and Already Retrofitted	Unsold and Retrofitted	Gross ROR Savings (AFY)	Nat'l Replacement Only Savings (AFY)	Net ROR Savings (AFY)
1998	10549.91	510.22	10929.61	510.22		437.18	181.38	156.26	25.12
1999	9680.58	507.66	10874.96	468.17	39.49	401.16	225.98	178.80	47.18
2000	8882.88	505.13	10820.58	429.59	75.53	368.10	266.89	200.44	66.46
2001	8150.91	502.60	10766.48	394.20	108.41	337.77	304.44	221.22	83.22
2002	7479.26	500.09	10712.65	361.71	138.38	309.94	338.89	241.17	97.72
2003	6862.96	497.59	10659.08	331.91	165.68	284.40	370.51	260.33	110.18
2004	6297.43	495.10	10605.79	304.56	190.54	260.96	399.51	278.72	120.79
2005	5778.51	492.62	10552.76	279.46	213.16	239.46	426.13	296.39	129.74
2006	5302.35	490.16	10500.00	256.43	233.73	219.73	450.56	313.35	137.21
2007	4865.43	487.71	10447.50	235.30	252.41	201.62	472.97	329.63	143.33

Multi Family Housing Units

Coverage Year	Unretrofitted Houses	Houses Sold	Houses Unsold	Sold and Retrofitted	Sold and Already Retrofitted	Unsold and Retrofitted	Gross ROR Savings (AFY)	Nat'l Replacement Only Savings (AFY)	Net ROR Savings (AFY)
1998	4854.77	498.50	5028.12	498.50		201.12	129.52	97.74	31.78
1999	4243.27	496.01	5002.98	435.71	60.30	175.79	170.14	111.84	58.30
2000	3708.79	493.53	4977.96	380.83	112.70	153.65	205.63	125.37	80.26
2001	3241.63	491.06	4953.07	332.86	158.20	134.30	236.66	138.37	98.29
2002	2833.32	488.61	4928.31	290.93	197.67	117.38	263.78	150.85	112.92
2003	2476.44	486.16	4903.67	254.29	231.88	102.59	287.48	162.84	124.64
2004	2164.51	483.73	4879.15	222.26	261.47	89.67	308.20	174.34	133.85
2005	1891.87	481.31	4854.75	194.26	287.05	78.38	326.30	185.39	140.91
2006	1653.57	478.91	4830.48	169.79	309.11	68.50	342.13	196.00	146.13
2007	1445.29	476.51	4806.33	148.41	328.11	59.88	355.96	206.19	149.78

APPENDIX F

***DRAFT ORDINANCE – DROUGHT MANAGEMENT PLAN
IMPLEMENTATION***



March 17, 2003

TO: Norm Buehring, Director of Resource Conservation & Public Outreach
FROM: Randal Orton, Resource Conservation Administrator
SUBJECT: **Drought Management Plan - Ordinance**

SUMMARY

At the direction of the Board of Directors last November, the attached ordinance was drafted to implement the district's updated Drought Management Plan. This effort is identified in the district's Action Plan 2003 as Issue 2.2 under Service Policies.

RECOMMENDATION

To approve the attached ordinance, amending Ordinance No. 11-86-161 and adopting the Drought Management Plan (LVMWD Report No. 2225.00) adopted by the Board of Directors on November 26, 2002.

FISCAL IMPACT

None.

DISCUSSION

This action completes Item 2.2 in the District Action Plan (Service Policies) by adopting an ordinance implementing the Drought Management Plan (DMP) adopted by the board on November 26, 2002, consistent with the Drought Policy Principles adopted by the Board on January 22, 2002. As discussed at the Board's Nov. 26th meeting, the ordinance provides for:

- Declaration of water shortage by the board on the recommendation of the General Manager (§2)
- Adjustment of conservation rates and tiers during drought (§3)
- Prohibitions on wasteful practices (§3), including penalties for unreasonable use (§4) and;
- an Appeal process (§6)

Attachment.

APPROVED FOR March 25, 2003 AGENDA _____
Norman L. Buehring

APPROVED FOR March 25, 2003 AGENDA _____
James E. Colbaugh, General Manager

ORDINANCE NO. _____

**AN ORDINANCE OF THE BOARD OF DIRECTORS OF
LAS VIRGENES MUNICIPAL WATER DISTRICT
AMENDING ORDINANCE NO. 11-86-161
(LAS VIRGENES CODE) BY ADOPTING
A WATER SHORTAGE PLAN**

**BE IT ORDAINED BY THE BOARD OF DIRECTORS OF LAS
VIRGENES MUNICIPAL WATER DISTRICT as follows:**

1. Purpose.

This ordinance amends the Las Virgenes Code by establishing a comprehensive program the board can implement when a water shortage occurs. This ordinance does not institute water use restrictions at this time.

2. Amendment.

Article 4A is added to Title 3 of the Las Virgenes Code to read as follows:

“Article 4A. Water Shortage Emergencies

Section 3-4A.101. Purpose.

This Article provides a comprehensive set of water shortage response options to ensure equitable allocation of water during times of scarcity, based on the Drought Management Plan adopted by the Board of Directors on November 26, 2002 (LVMWD Report No. 2225.00).

Section 3-4A.102. Declaration of Water Shortage.

The General Manager shall recommend activation of one or more elements of this article whenever the water supplies of the District have a reasonable prospect for being inadequate to meet the needs of customers. The recommendation shall be presented to the board in the form of a written report which includes the reasons for

the recommendation. The board shall consider the report at a duly-noticed public hearing.

Section 3-4A.103. Water Conservation Rates During Water Shortage.

After the public hearing, the board may adjust tiers and rates to provide customers with a financial incentive to conserve water. The volume of water available within each tier under normal weather shall be reduced, and billing rates increased, in proportion to the conservation goal as follows:

No.	Conservation Goal (percent reduction in demand according to severity of drought)	Reduction in Tiers 2 – 4 (percent reduction in volume allocation according to severity of drought)	Rate Increase (%)
1.	10%	10%	0%
2.	15%	15%	5%
3.	20%	20%	10%

Section 3-4A.104. Water Conservation During Water Shortage.

The board may prohibit wasteful practices and implement conservation measures during a water shortage, including restrictions on the following:

- A. Irrigation.
- B. Exterior washing.
- C. Ornamental or recreational uses.
- D. Serving water at restaurants without request.

Section 3-4A.105. Penalties for Unreasonable Use and/or Wastage.

The board may impose restrictions in addition to the financial incentives and conservation measures set forth in this article.

Section 3-4A.106. Appeals.

- A. A customer may request relief from mandatory conservation practices by filing a written appeal with the general manager.

B. The general manager may grant relief in case of hardship if all feasible means of conserving water have been exercised, including but not limited to: retrofitting non-ULF toilets with ULFTs; installation of low-flow showerheads; water audit by the district and compliance with staff recommendations; and no observable runoff from site.

C. The decision of the general manager may be appealed by a five-member water shortage committee appointed by the board. The committee shall review the general manager's decision and approve or deny the petition based on the circumstances of each case. Decisions of the committee shall be final."

3. Other.

Except as provided herein, Ordinance No. 11-86-161 is reaffirmed and readopted.

PASSED, APPROVED AND ADOPTED on _____, 2003.

President

ATTEST:

Secretary

APPENDIX G

LVMWD DROUGHT MANAGEMENT PLAN - 2002

DROUGHT MANAGEMENT PLAN

LVMWD REPORT No. 2225.00



November 26, 2002

TABLE OF CONTENTS

1. DROUGHT POLICY	
a. Mission Statement	3
b. Policy Principles	3
2. ADMINISTRATIVE PROCEDURES	
a. Declaration of Drought	7
b. Water Conservation Tiers and Rates	7
c. Customer and Revenue Impacts	8
d. Prohibition of Wasteful Practices and Water Conservation Best Management Practices for Drought	10
e. Penalties for Unreasonable Use and/or Wastage	11
f. Appeal Process	12
g. Operational Issues	12
h. Implementation	14
i. Termination of Drought	14
3. DROUGHT ORDINANCE	15

1. DROUGHT POLICY

a. Mission Statement

The purpose of this Drought Management Plan (DMP) is to ensure an appropriate and equitable allocation of water during times of relative scarcity. The need for such a plan is critical in Southern California, where an arid environment coupled with a large resident population requires the import of most of the region's water supply. The need is particularly acute in the district's service area because local groundwater is insufficient to meet needs and of very poor quality¹.

b. Policy Principles

The following 7 principles, developed through the district's experience with previous droughts and approved by the Board in January 2002, guide the district's drought management procedures and ordinances:

Policy Principles

1. Focus on rate structure and appropriate water use practices as needed to accomplish goals, rather than financial penalties and/or shut-offs
2. Customers who meet goals do not pay more for their water
3. Conservation levels relate to the MWD WSDM Plan and rate structures
4. No restrictions on new development
5. An appeal process is available for those that have already conserved
6. Appropriate use of district water storage facilities (Las Virgenes Reservoir)
7. Logical procedures that make sense to customers and that relate clearly and directly to conservation targets.

1. Focus on rate structure and appropriate water use practices as needed to accomplish goals, rather than financial penalties and/or shut-offs

The main goal of a Drought Management Plan (DMP) is to ensure an appropriate allocation of water during times of relative scarcity. To achieve this, some means of motivating customers to reduce their water use is necessary. An alternative to mandatory cutbacks and other "command and control" approaches is an incentive-based strategy. The amount of water included in each of the existing rate tiers can be reduced in proportion to the desired goals and existing rates can be increased to ensure an incentive exists to accomplish goals.

¹ Total Dissolved Solids (TDS) levels in excess of 2000 mg/l are relatively typical of local surface and groundwater.

An incentive based drought strategy offers several advantages over more restrictive policies. The district's current water rates are already structured as an incentive system to promote efficient water use, greatly simplifying the transition from normal supply and demand to supply and demand under drought conditions. In principle, a single ordinance can authorize the Board to implement conservation tiers and rates, and to set differing charges, in accordance with the severity of drought and customer response, using board resolutions. Customers directly benefit from this approach because they retain the right to purchase and use the water they want during a drought, rather than having specific restrictions and limitations on their water use directly imposed by the district using mandates and penalties. It uses financial incentives - as any market-driven strategy must - but it avoids the need for a separate penalty system by incorporating these incentives into a single rate structure.

As for any system of regulating scarcity, there are some limitations and issues associated with the use of financial incentives to conserve water, and Policy Principles 2 through 7 attempt to address key issues in this regard. In general, however, these issues are less severe than those associated with alternative approaches. In fact, Policy Principle 1 serves to delay the need for more coercive alternatives and preserves customers' discretion to use water as they see fit longer than other, non-market approaches.

2. Customers who meet goals do not pay more for their water.

This principle is an important corollary to Principle 1. Experience during past droughts was that public support for the district's drought policies faltered when customers who met their conservation targets still experienced an increase in their water bills. It did not matter that their bills did not increase as much as customers who did not meet their conservation targets. Customers had difficulty understanding and accepting a drought policy that, in essence, penalized them despite their conservation efforts.

This highlights two issues, both of which are addressed by the Principle 2. The first issue is ease of communication. This principle is short, simple and clear. The second issue is the credibility of financial incentives used to achieve water policy goals (Principle 1). Principle 2 sends a clear message that it really is about saving water. Note that one constraint on the viability of this principle is the assumption that the district can absorb any increase in wholesale water rates by the Metropolitan Water District of Southern California (MWD) in a drought situation.

3. Relate conservation levels to the MWD WSDM Plan and rate structure.

During past droughts, the district adopted conservation goals in excess of those being requested by the district's wholesaler (MWD). This had a variety of negative consequences, including perceptions of overreaction by the district and questions

from the press as to why other communities served by MWD were not being asked to conserve as much water as our communities. In the years since, new regional storage projects and other ongoing “drought-proofing” efforts by MWD have reduced the need for District drought conservation targets in excess of those adopted by MWD. Principle 2 acknowledges this progress, while still retaining the district’s discretion to set conservation targets related to - but not necessarily identical to - MWD’s. It is basically a commitment to manage drought locally in concert with regional efforts. The relationship between the district’s DMP and the MWD Water Surplus and Drought Management Plan (WSDM plan) is described more fully in Section 2. Briefly, a Stage 1 drought in the WSDM plan requires no district action. Stage 2 calls for voluntary agency reduction (= 10% goals in the LVMWD DMP presented here), and Stage 3 calls for mandatory agency conservation (= 15% and higher goals in the LVMWD DMP).

4. No restrictions on new development

Restrictions on new development proved moot during past droughts, since the droughts ended before the demands of any new development came “on line.” Also, future water supply planning by MWD already incorporates new development to the extent that it uses build-out population size and credible population growth projections for regional drought planning. Recent changes in state law also now require large developments to demonstrate adequate water supplies and drought contingency plans.

5. Appeal process for those that have already conserved

Even under a “customers who meet conservation goals do not pay more” policy, the district should anticipate some level of dissatisfaction during drought from customers who have invested in conservation measures and already use their water very efficiently. Such customers may be willing but unable to reduce their water use sufficiently to meet the district’s conservation targets, resulting in a higher water bill.

An appeal process specifically for this class of customers will be developed and communicated at the onset of drought and the activation of the district’s drought management plan. The district’s Information Systems (IS) capabilities have advanced significantly, enabling a relatively straightforward calculation of customer water use efficiency (both indoor and outdoor). Objective standards for water efficiency have also improved, providing uniform criteria for processing exemption requests. Changes in the district drought management plan policies (especially the abandonment of penalties under Principles 1 and 2) should help reduce the large volume of requests for exemptions experienced during the past droughts. One advantage of the appeal process under Principle 5 is that it creates an opportunity for inefficient water users to self-select for ULFT rebates, free low-flow showerheads, water audits, and other district services that are already available. This will be a first step for customers seeking exemptions to the drought ordinance.

6. Appropriate use of district water storage facilities (Las Virgenes Reservoir)

Use of the district's reservoir during drought is to provide water to make up any difference between customers' collective conservation and the conservation targets effective under the MWD WSDM plan and rate structure. For example, Las Virgenes Reservoir water would be used to offset the difference between an 8 percent reduction achieved by district customers and a 10 percent reduction required under the MWD WSDM plan. Use of reservoir water in this fashion delays the onset of more restrictive tiers and/or higher rates under Policy Principle 1, and also preserves any district credits under the WSDM plan for the district's previous investments in water conservation and recycling. While the actual WSDM plan per-agency conservation targets and rate structure have not yet been identified by MWD, the district should receive substantial credit for its conservation investments to date, such that any difference between customers' achieved reductions and MWD targets are likely to be small and probably within the district's capability to offset for all but severe drought events. The reservoir is probably not big enough, however, to completely negate the need for customer reductions, especially without limiting reserves for fire protection and temporary service interruptions (emergency or otherwise). Reservoir usage alone may not be sufficient to offset significant MWD rate increases if they occur.

7. Logical procedures that make sense to customers and relate clearly and directly to conservation targets

A thread running through each of these principles is the need for a DMP that makes sense to customers, using rationales that are not unnecessarily complicated or difficult to communicate. To the extent possible, any rules and procedures adopted under the district's DMP should be stable through the course of the drought, yet flexible enough to enable varying levels of district and community response depending on the severity of the drought. It is probably not necessary or desirable to plan for all contingencies and all scenarios; extreme events or circumstances will likely require separate board action in any case.

2. ADMINISTRATIVE PROCEDURES

a. Declaration of Drought

The decision to activate the water conservation elements specific to the district's Drought Management Plan is made by the district Board of Directors upon the recommendation of the General Manager. This decision will likely coincide with declarations of drought by the State Department of Water Resources (DWR) or the Metropolitan Water District of Southern California (MWD).

b. Water Conservation Tiers and Rates

Water rates in the District's service area already incorporate an "inverted tier" structure (also known as an inclined block system) to encourage efficient water use. Under this system, the unit cost of water (\$/HCF) increases in proportion to the volume used according to the thresholds and current prices shown in Table 1.

Table 1. Water Conservation Tiers - Normal Weather

	Conservation Tiers			
	TIER 1	TIER 2	TIER 3	TIER 4
	First 12 units	Next 12 units	Next 91 units	over 115 units
ZONE 1	\$1.18	\$1.31	\$1.91	\$2.48
ZONE 2	\$1.49	\$1.62	\$2.22	\$2.79
ZONE 3	\$1.70	\$1.83	\$2.43	\$3.00
ZONE 4	\$2.10	\$2.23	\$2.83	\$3.40
ZONE 5	\$3.03	\$3.16	\$3.76	\$4.33

In the event of a district-declared drought, it is imperative that customers have greater incentive to reduce their water use. Ideally, these incentives would be linked in a simple fashion to the volume of water that must be conserved. To achieve this goal, the volumes of water available under each tier in Table 1 will be reduced in proportion to the conservation goal, which in turn depends on the severity of the drought. Table 2a shows the revised conservation tiers that will be applied during droughts of increasing severity (corresponding to water conservation goals of 10, 15 and 20 percent). Note that there is no reduction in Tier 1 volume (first 12 units of water), because this is the calculation of the minimal water necessary for drinking, health and hygiene.

Tier reductions alone are not sufficient financial incentive to conserve, particularly for more severe droughts, so unit water prices also will need to be increased according to the schedule shown in Table 2b. These increases are calculated so that the water

bills of conserving customers do not increase (due to less water purchased). The rate increase is only for the duration of the declared drought, and only applies to severe droughts, i.e. those that required conservation greater than 10 percent of normal demand. In addition to providing financial incentives, these tier and rate changes help insure that revenue during drought is sufficient to operate district facilities despite reduced sales, as discussed below in Section (d).

It is important to reiterate that these tiers and rates can be adjusted as needed over time without altering the policy principles behind them (Section 1b). This provides flexibility to react to variables such as the degree of conservation achieved by customers, MWD rate increases and the state of district finances, while preserving adherence to the basic principles behind the DMP.

Table 2a. Conservation Rates by Tier - Drought

Conservation Goal (percent reduction in demand according to severity of drought)	Drought Conservation Rate Structure (percent reduction in units per billing tier for Tiers 2-4)			
	Tier 1	Tier 2	Tier 3	Tier 4
Normal Weather – 0%	First 12 units	Next 12 units	Next 91 units	over 115 units
10 %	First 12 units	Next 11 units	Next 82 units	over 105 units
15 %	First 12 units	Next 10 units	Next 77 units	over 99 units
20 %	First 12 units	Next 10 units	Next 73 units	over 95 units

Table 2b. Conservation Rate Increase

Conservation Goal (percent reduction in demand according to severity of drought)	Reduction in Tiers 2-4 (percent reduction in volume allocation according to severity of drought)	Rate Increase (%)
10 %	10 %	0%
15 %	15 %	5 %
20 %	20 %	10 %

c. District and Customer Revenue Impacts

An important consideration in responding to drought is the impact of reduced usage on district revenue. Fiscal stewardship is critical during drought, and district staff is expected to increase efforts to control costs; past experience shows this is also the expectation of the community. However, even in drought the district must be able to move forward with needed programs. Maintenance of water supply infrastructure is an ongoing requirement regardless of drought, and is as necessary for the reliability of community water supplies as is the availability of water itself. This is a common problem for water agencies during times of drought, and has led most agencies to set aside a portion of water sales towards rate stabilization funds.

In this regard, the increased unit water costs associated with the decreased allocation in each tier and rate increases described in Section 2(b) will offset to some extent losses in revenue due to decreased usage (Table 3). However, it is likely that during a prolonged drought, some portion of the revenue deficit will require application of district revenue stabilization funds. Table 3 provides information on revenue impacts for droughts of various severities, showing revenue deficits for each conservation goal (assuming no change in MWD rates).

Table 3. Estimated Revenue Impacts of Drought - District

Conservation Goal	Reduction in Tiers 2-4	Rate change	Revenue Net Loss
10%	10%	0 %	\$585,000
15%	15%	5%	\$398,000
20%	20%	10%	\$364,000

Another key issue, demonstrated in past droughts at the district, is how customers perceive the need to conserve water and how they perceive procedures adopted by the district to achieve conservation goals. The conservation rate structure discussed in Section 2(b) adheres to the philosophy that those who do not conserve pay more, which creates a basic equity that is easy to communicate. Nonetheless, the district should anticipate questions from both conserving and non-conserving customers on the impact of the drought on their water bills. Table 4 shows how the proposed DMP would impact typical water bills for both compliant and non-compliant households.

Table 4 demonstrates some of the 7 policy principles discussed in Section 1(b). The first row in each unit category shows that customers who conserve water pay less (Policy Principle 2), and that the differential between their water bill versus those who do not conserve (continue using “as-is”) increases proportionately with the severity of the drought, reaching over 20 percent in for the largest volume users (Policy Principles 1 and 7).

Table 4. DMP billing impacts on customers for different conservation goals and consumption.

24 Units	Current Bill	10% conservation goal w/ 0% rate increase	15% conservation goal w/ 5% rate increase	20% conservation goal w/ 10% rate increase
Conserving Customer	\$29.88	\$28.57	\$27.96	\$28.56
No change in use	-	\$30.48	\$31.98	\$32.74
Increase	-	6.7%	14.4%	14.6%
50 Units				
Conserving Customer	\$79.54	\$72.50	\$72.18	\$74.54
No change in use	-	\$80.14	\$84.24	\$87.08
Increase	-	10.5%	16.7%	16.8%
115 Units				
Conserving Customer	\$203.69	\$185.19	\$182.73	\$189.49
No change in use	-	\$204.29	\$214.89	\$222.93
Increase	-	10.3%	17.6%	17.6%
150 Units				
Conserving Customer	\$290.49	\$264.55	\$260.73	\$271.39
No change in use	-	\$296.79	\$315.33	\$328.72
Increase	-	12.2%	20.9%	21.1%

d. Prohibition of Wasteful Practices and Water Conservation Best Management Practices for Drought

In addition to financial incentives, the district will select needed conservation practices in response to the drought condition and use appropriate public outreach to encourage all customers to reduce their water consumption using one or more of the following:

Irrigation practices:

1. Irrigation scheduling. Landscape irrigation with potable or recycled water shall be allowed only between the hours of 8 p.m. and 6 a.m., when controlled by an automatic irrigation controller/timer
2. Scheduled irrigation days. The district may limit irrigation to scheduled days only, to conserve water supplies.
3. Hand watering only. The district may limit irrigation to hand watering to avoid area-wide watering of large turf areas.

Exceptions: Conservation measures 1-3 will not apply to drip irrigation systems or areas of new plantings until they are established and can survive without daytime irrigation.

4. Landscape irrigation with potable or recycled water is permitted without restriction when performed with a manually operated irrigation system.
5. Irrigation runoff – Substantial irrigation runoff is prohibited

Exterior washing practices

1. Washing of buildings, facilities, equipment or mobile equipment such as vehicles, is prohibited except where a hand-held hose equipped with a positive shut-off nozzle is used.
2. Water shall not be used to wash down sidewalks, driveways, parking areas, tennis courts, patios or other paved areas except to alleviate immediate fire, sanitation or health hazards.

Ornamental or recreational uses

1. Refilling swimming pools, decorative ponds and fountains is prohibited.

Restaurants

1. Restaurants shall serve water only upon customer request.

Leaks

1. Leaks must be repaired as soon as discovered and shall not be allowed to continue for more than 48 hours.

e. Penalties for Unreasonable Use and/or Wastage

The various responses to drought described in previous sections are intended to avoid or defer the need for rationing community water supplies, while preserving some latitude of choice with respect to how much water individual customers use. However, the success of this framework depends on all customers using water efficiently. In the event of unreasonable use or waste, the district reserves the right to impose penalties in addition to the financial incentives described in Section 2(b), including the right to install flow restrictors or to shut-off supply.

f. Appeal Process

As with any system for allocating community resources, exceptional individual circumstances or needs may warrant review and specific accommodations. In considering such circumstances, the district will strive to balance individual needs with the community's need for adequate water and a practical system for allocating it.

Step 1: Staff review. Customers seeking exceptions to the district's DMP must demonstrate that all feasible means of conserving water have been exercised, including but not limited to:

- Retrofitting non-ULF toilets with ULFTs.
- Installation of low flow showerheads.
- District indoor / outdoor water audit and demonstration of compliance with staff recommendations.
- No observable runoff from site

Staff will review the petition for appeal and make a finding to approve or deny the appeal. Exceptions may include suspension or adjustment of the conservation tier allocations and/or rates, as circumstances warrant. Findings and recommended exceptions, if any, will then be forwarded to the General Manager for approval.

Step 2: Escalation to Appeal Panel. In the event a customer contests the recommendation of the General Manager in Step 1, they will have recourse to a 5-member peer review panel drawn from each Director's division (one appointee per

Division). This panel will review the petition and staff findings, and make recommendations on approval or denial, based on the circumstances of each case. Decisions of the Appeal Panel are final.

g. Operational Issues

Reservoir Management. Insofar as practical, the district will operate the Las Virgenes Reservoir to offset reductions in supply from the Metropolitan Water District (MWD) as a result of drought. This use will take into account the need to retain reserves for fire protection, temporary interruption in deliveries from MWD, and other essential operational needs. Where possible, use of the reservoir during a drought will be coordinated with seasonal storage and agreements with MWD pursuant to the Local Resources Plan (LRP).

Coordination with MWD. The Metropolitan Water District of Southern California (MWD) is the district's sole provider of potable water. For this reason, the district's drought management efforts need to coordinate closely with MWD drought planning and procedures. District staff needs to stay informed and involved with MWD drought planning, particularly as it relates to water deliveries to member agencies. The MWD Integrated Resources Plan (IRP) and Water Supply and Drought Management Plan (WSDM Plan) are the primary sources of information in this regard, but there is also a need to consult periodically with MWD planning and conservation staff regarding pending changes to these plans and other information relevant to drought planning.

Currently, the MWD Surplus and Drought Management Plan (WSDM) identifies three stages of drought: Shortage, Severe Shortage and Extreme Shortage. Transitions from one stage to another requires formal action by the MWD Board of Directors. A brief description of these shortage categories and their counterparts in the LVMWD DMP follows.

Shortage

When MWD declares a water shortage, it will use its own storage facilities to supplement supplies. It may also interrupt long-term seasonal and replenishment discounted deliveries. In either case, an MWD-declared shortage would not impact the district, as the district is not a participant in any MWD discounted delivery program.

Severe Shortage

Under severe shortages, MWD would call on member agencies to make voluntary reductions in water use, and also curtail discounted delivery programs. Under the LVMWD DMP, an MWD-declared severe shortage would trigger implementation of conservation measures identified in the DMP sufficient to achieve 10% conservation by district customers.

Extreme Shortage

An MWD-declared extreme shortage would trigger reduced allocations to MWD member agencies, based on 3 principles in the WSDM Plan:

1. Avoid mandatory allocations to the extent practicable
2. Equitable allocations on the basis of agency needs
3. Use of storage to mitigate shortages and maintain water quality

Principles 1 and 3 are essentially identical to Policy Principles 1 and 6 in the LVMWD DMP. With respect to Principle 2, Table 5 below evaluates each of MWD's eight allocation factors for their applicability to the district's service area. Items ranked as "+" in the third column indicate important factors that could increase the district's allocation, whereas items ranked as "-" are factors that could decrease the allocation.

Table 5. Factors affecting potential MWD allocations during drought

Equity / Allocation factor in MWD WSDM plan	Potential Implications for LVMWD	+ / -
Impact on retail consumers and the economy	Other agencies typically serve more water-dependent industries	-
Each agency's reclamation / recycling effort	LVMWD recycling effort unparalleled	+
Each agency's conservation effort	LVMWD conservation efforts very good	+
Each agency's population and economic growth	Both projected to be quite high through 2020	+
Each agency's investment in local resources	Westlake wells	+
Each agency's change and/or loss in local supply	Negligible local supplies	+
Each agency's participation in MWD interruptible programs	No participation	-
Each agency's investment in MWD facilities	Equivalent to other agencies on per capita basis, smaller absolute investment	+/-

It is difficult to forecast district allocations under extreme shortage conditions, but they will likely require implementation of elements in the LVMWD DMP sufficient to meet the 15 percent and higher conservation goals.

h. Implementation

The objective of this Drought Management Plan is to provide a comprehensive set of drought response options based on the drought policy principles established by the Board of Directors (7 policy principles). As water supply conditions warrant, the Board will select and implement by resolution those options of the DMP it deems appropriate.

i. Termination

The decision to discontinue one or more elements of the district's Drought Management Plan in response to improved water supply outlook will be made by the district Board of Directors upon the recommendation of the General Manager.

2. DROUGHT ORDINANCE

[TO BE WRITTEN FOLLOWING BOARD APPROVAL OF SECTIONS 1-2]



Las Virgenes Municipal Water District
4232 Las Virgenes Road, Calabasas, CA 91302
818.251.2100 www.LVMWD.com