Appendix J: Calleguas MWD Urban Water Management Plan

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Calleguas Municipal Water District

2005 Urban Water Management Plan

Black & Veatch Corporation
B&V Project 140898.100
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Contents

Page

Chapter 1 – Introduction
A. Purpose and Need....1-1
B. Background....1-3
C. Demographics....1-5
1. Population Projections....1-5
2. Dwelling Unit Projections....1-6
3. Employment Projections....1-7
D. Climate....1-8

Chapter 2 – Water Supplies and Quality
A. Imported Water....2-2
1. Water Quantity Challenges....2-2
2. Water Quality Challenges....2-3
B. Groundwater....2-3
1. Fox Canyon Groundwater Management Authority....2-4
2. Groundwater Storage Programs and Transfer Agreements....2-5
3. Groundwater Quality....2-6
C. Reclaimed Wastewater....2-7
D. Projected Water Supplies....2-11
1. Regional Supply Projections....2-11
a. Imported Supply Projections for MWD's Service Area....2-11
b. Local Supply Projections within MWD's Service Area....2-12
2. Supply Projections for CMWD's Service Area....2-13
a. Imported Supply Projections for CMWD's Service Area....2-13
b. Local Supply Projections within CMWD's Service Area....2-14

E. Regional Water Supply Programs 2-17
1. Recycling 2-18
2. Seawater Desalination 2-18
3. Competitive Local Resources Program 2-18
4. Storage and Groundwater Management Programs 2-18
5. Central Valley Transfer and Storage.....2-19
6. Colorado River Aqueduct.....2-19
F. Local Supply Programs 2-20
1. Regional Recycling Programs.....2-20
a. Simi Valley Regional Recycled Water System 2-20
b. VCWWD No. 1 Reclaimed Water Distribution System Expansion 2-21
2. Calleguas Regional Salinity Management Project (Brineline) 2-21
3. Brackish Groundwater Recovery Projects 2-22
a. Camarillo Groundwater Treatment Facility.....2-22
b. South Las Posas Basin Regional Desalter.....2-23
c. West Simi Desalter 2-23
d. Somis Desalter.....2-24
4. Renewable Water Resources Management Program.....2-24

Chapter 3 – Water Use and Demands
A. Water Use 3-1
B. Demand Projections 3-2
1. Total Demand Projections for CMWD's Service Area.....3-2
2. Imported Demand Projections for CMWD's Service Area 3-4
3. Comparison of CMWD's Imported Demand Projections 3-6

Chapter 4 – Water Demand Management
A. Demand Management Measures 4-1
B. CMWD Conservation Programs 4-2
1. System Water Audits, Leak Detection, and Repair (BMP-03) 4-2
2. Public Information Programs (BMP-07) 4-2
3. School Education Programs (BMP-08) 4-2
4. Wholesale Agency Assistance (BMP-10) 4-3
5. Conservation Pricing (BMP-11) 4-3
6. Conservation Coordinator (BMP-12) 4-3
C. Effectiveness of Conservation Measures 4-4

Chapter 5 – Reliability Planning
A. Average Year Supply versus Demand Evaluation 5-1
1. MWD Average Year Reliability Evaluation 5-1
2. CMWD Average Year Reliability Evaluation 5-2
B. Dry Year Supply versus Demand Evaluation 5-2
1. MWD Dry Year Reliability Evaluation 5-2
2. CMWD Dry Year Reliability Evaluation 5-3
C. Multiple Dry Year Supply versus Demand Evaluation 5-4
1. MWD Multiple Dry Year Reliability Evaluation 5-4
2. CMWD Multiple Dry Year Reliability Evaluation 5-5
D. Supply Reliability Strategies 5-6
1. DWR Strategies for SWP Supplies 5-6
a. Water Management 5-7
b. Storage 5-7
c. Conveyance 5-7
d. Water Use Efficiency 5-7
e. Water Transfers 5-7
f. Environmental Water Account 5-8
g. Drinking Water Quality 5-8
h. Watershed Management 5-8
i. Levee System Integrity 5-8
j. Ecosystem Restoration 5-8

k. Science 5-8
2. MWD Strategies for SWP and Colorado River Supplies....5-8
a. Kern Delta 5-9
b. Chuckwalla.....5-9
3. CMWD Strategies for Local Supplies.....5-9
a. Las Posas Aquifer Storage and Recovery 5-9
b. Lake Bard Water Treatment Plant.....5-10
c. Standby Power.....5-10
d. Transfer Opportunities 5-10

Chapter 6 – Contingency Planning
A. Severe Drought Planning 6-1
1. CMWD Water Shortage Stages of Action 6-1
2. Three-Year Estimated Minimum Supply Evaluation.....6-2
B. Catastrophe Planning 6-7
1. MWD's Catastrophe Plan 6-7
2. CMWD Catastrophe Strategies.....6-8
3. CMWD Emergency Pipeline Repair Protocol.....6-9
C. Water Quality Contingency Planning 6-11
1. MWD Water Quality Contingency Planning 6-11
2. CMWD Water Quality Contingency Planning.....6-11
D. Provisions to Reduce Water Consumption 6-12
1. Guidelines for Meeting Reduced Consumption Mandates 6-12
2. Monitoring and Enforcing Reduced Consumption Mandates 6-13
3. Fiscal Impacts from Reduced Water Deliveries 6-13

List of Appendices

Appendix A DWR Checklist

Appendix B Documentation Related to Groundwater Management

Appendix C Water Supply and Demand Justification

Appendix D 2003 and 2004 CUWCC Reports

Appendix E CMWD's Draft Resolution Adopting Water Shortage Contingency Procedures

Appendix F Public Hearing Information and Resolution to Adopt the 2005 UWMP

List of Tables

Page

Table 1-1 Agency Coordination 1-2
Table 1-2 CMWD Purveyors by Region 1-4
Table 1-3 CMWD Service Area Population Projections 1-6
Table 1-4 CMWD Service Area Dwelling Unit Projections 1-7
Table 1-5 CMWD Service Area Employment Projections 1-8
Table 1-6 Monthly Average Climatic Data 1-9

Table 2-1 Fox Canyon GMA Groundwater Basin Pumping Allocations 2-4
Table 2-2 Groundwater Basin Water Quality Summary 2-7
Table 2-3 Reclaimed Wastewater in CMWD's Service Area 2-8
Table 2-4 Wastewater Treatment in CMWD's Service Area 2-9
Table 2-5 Available Reclaimed Wastewater in CMWD's Service Area 2-10
Table 2-6 Imported Supply Projections for MWD Service Area 2-12
Table 2-7 Local Supply Projections for MWD Service Area 2-13
Table 2-8 MWD's Imported Supply Projections for CMWD's Service Area 2-14
Table 2-9 MWD's Local Supply Projections for CMWD's Service Area 2-14
Table 2-10 CMWD's Local Supply Use and Projections for Average Year Conditions 2-15
Table 2-11 CMWD's Local Supply Projections for Dry Year Conditions 2-16
Table 2-12 CMWD's Local Supply Projections for Multiple Dry Year Conditions 2-17

Table 3-1 CMWD's Water Use by Sector (Estimated by MWD) 3-1
Table 3-2 MWD's Total Demand Projections for CMWD's Service Area 3-2
Table 3-3 CMWD's Total Demand Projections 3-3
Table 3-4 MWD's Imported Demand Projections for CMWD's Service Area for Average Year Conditions 3-4
Table 3-5 CMWD's Imported Demand Projections for Average Year Conditions 3-4
Table 3-6 CMWD's Imported Demand Projections for Single Dry Year Conditions 3-5
Table 3-7 CMWD's Imported Demand Projections for Multiple Dry Year Conditions 3-6
Table 3-8 Comparison of CMWD Imported Water Demand Projections for Average Year Conditions 3-6

Table 4-1 CUWCC Demand Management Program BMPs 4-1

Table 5-1 MWD Supply versus Demand for Average Year Conditions.....5-1
Table 5-2 CMWD Supply versus Demand for Average Year Conditions 5-2
Table 5-3 MWD Supply versus Demand for Dry Year Conditions 5-3
Table 5-4 CMWD Supply versus Demand for Dry Year Conditions.....5-4
Table 5-5 MWD Supply versus Demand for Multiple Dry Year Conditions ...5-5
Table 5-6 CMWD Supply versus Demand for Multiple Dry Year Conditions 5-6

Table 6-1 CMWD Water Shortage Stages of Actions Guidelines 6-2
Table 6-2 Three-Year Estimated Minimum Water Supply for 2005 – 2010 ..6-3
Table 6-3 Three-Year Estimated Minimum Water Supply for 2010 – 2015 ..6-4
Table 6-4 Three-Year Estimated Minimum Water Supply for 2015 – 2020 ..6-5
Table 6-5 Three-Year Estimated Minimum Water Supply for 2020 – 2025 ..6-6
Table 6-6 Three-Year Estimated Minimum Water Supply for 2025 – 2030 ..6-7
Table 6-7 Strategies for Meeting 2005 Average Year Demands During Reduced MWD Deliveries.....6-9

List of Figures

Following Page

Figure 1-1 CMWD Service Area 1-5
Figure 1-2 CMWD Purveyor Boundaries 1-5
Figure 1-3 Population Projections 1-5
Figure 1-4 Dwelling Projections 1-6
Figure 1-5 Employment Projections 1-7

Figure 2-1 Historical Groundwater Data 2-6
Figure 2-2 Wastewater Service Providers in CMWD's Service Area 2-7

Figure 3-1 Approximate Purveyor Distribution 3-1
Figure 3-2 Total and Imported Water Demand Projections 3-5
Figure 3-3 Imported Water Demand Projections 3-7

Figure 4-1 Historic Water Sales Before and After Implementation Of Conservation BMPs 4-4

List of Acronyms

ac-ft	acre-feet
ASR	aquifer storage and recovery
Bay-Delta	San Francisco Bay/Sacramento-San Joaquin Bay Delta
BMP	Best Management Practices
Brineline	Calleguas Regional Salinity Management Project
Ca	calcium
$CaCO_3$	calcium carbonate
CALFED	CALFED Bay-Delta Program
CCDP	Conejo Creek Diversion Project
cfs	cubic feet per second
CII	commercial, industrial, and institutional
Cl	chlorine
CMWD	Calleguas Municipal Water District
CRA	Colorado River Aqueduct
CUWCC	California Urban Water Conservation Council
CVP	Central Valley Project
DWR	California Department of Water Resources
ESA	Endangered Species Act
GMA	Groundwater Management Agency
GREAT	Groundwater Recovery Enhancement and Treatment

GSP	Groundwater Storage Program
HCO_3	carbonate
HDPE	high density polyethylene (HDPE)
IRP	Integrated Resources Plan
LAS	Lower Aquifer System
LRP	Competitive Local Resources Program
Mg	magnesium
mgd	million gallons per day
mg/L	milligrams per liter
MOU	Memorandum of Understanding
MWD	Metropolitan Water District of Southern California
Na	sodium
NO_3	nitrate
PHWA	Port Hueneme Water Authority
RO	reverse osmosis
ROD	Record of Decision
SCAG	Southern California Association of Government
SDP	Seawater Desalination Program
SO_4	sulfate
SWP	State Water Project
TDS	total dissolved solids
TOC	total organic carbon

UAS	Upper Aquifer System
ULFT	Ultra Low Flush Toilet
UWCD	United Water Conservation District
UWMP	Urban Water Management Plan
VCOG	Ventura Council of Regional Governments
VCWWD	Ventura County Waterworks District
WSDM Plan	Water Surplus and Drought Management Plan
WTP	water treatment plant

Chapter 1

Introduction

Chapter 1
Introduction

A. Purpose and Need

This Urban Water Management Plan (UWMP) was prepared for the Calleguas Municipal Water District (CMWD) and submitted to the California Department of Water Resources (DWR) to meet requirements of the 1984 Urban Water Management Planning Act and all subsequent amendments adopted through December 2004. The act requires urban water suppliers providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre feet (ac-ft) of water annually to prepare and adopt an UMWP every five years.

The intent of this plan is to provide DWR with information on present and future water sources and demands and provide an assessment of CMWD's water resource needs. Specifically, the UWMP must provide water supply planning for a 20-year planning period in 5-year increments, identify and quantify adequate water supplies for existing and future demands during normal, dry and drought years, and implement conservation and efficient use of urban water supplies.

CMWD has coordinated its UWMP planning efforts with a number of agencies to ensure that data and issues are presented accurately. To minimize reporting redundancy, water management activities undertaken by CMWD's purveyors are not discussed in detail in this document, as they are addressed in the individual UWMPs of the purveyors that are required to prepare plans. Table 1-1 lists the agencies that have provided coordination with the development of this UWMP.

To improve the readability of this UWMP, the document has been organized differently than the structure laid out in DWR's guidance manual. Appendix A lists the required elements as defined in DWR's guidance manual, and the associated section where that topic can be found in this report.

Table 1-1

Agency Coordination

Agency	Participated in UWMP Development	Received Draft Report and Public Hearing Notice	Attended Public Meetings	Received Final Report
Berylwood Mutual Water Co.	X	X		X
Brandeis Mutual Water Co.	X	X		X
Butler Ranch Mutual Water Co.		X		X
California American Water Co.	X	X		X
California DWR		X		X
California Water Service Co.	X	X		X
Camrosa Water District	X	X		X
Camarillo Library		X		X
Camarillo Sanitary District	X			
Capehart Housing (U.S. Navy)	X	X		X
City of Camarillo	X	X		X
City of Moorpark		X		X
City of Oxnard	X	X	X	X
City of Simi Valley (VCWWD No. 8)	X	X		X
City of Thousand Oaks	X	X		X
Crestview Mutual Water Co.	X	X		X
Fox Canyon Groundwater Management Agency	X			X
Lake Sherwood Community Services District	X			
Metropolitan Water District of Southern California	X	X	X	X
Moorpark Library		X		X
Newbury Park Academy Water	X	X		X
Oxnard Library		X		X
Port Hueneme Library		X		X
Pleasant Valley Mutual Water Co.	X	X		X
Simi Valley Library		X		X
Solano Verde Mutual Water Co.	X	X		X
Southern California Association of Governments		X		X
Southern California Water Co.	X	X		X
Thousand Oaks Library		X		X
Ventura Council of Governments		X		X
Ventura County Watershed Protection District	X			X
Ventura County Waterworks Districts Nos. 1 and 19 (VCWWD No. 1 and VCWWD No. 19)	X	X		X
Ventura County Regional Sanitation District (Oak Park Water/Triunfo Sanitation District)	X	X		X
Zone Mutual Water Co.	X	X		X

B. Background

CMWD is an enterprise special district that was formed by the voters of southern Ventura County in 1953 for the purpose of providing a safe, reliable water supply. Named for the watershed in which it is located, the district is a public agency established under the Municipal Water District Act of 1911. It is governed by a five-member board of directors elected by voters to represent each of the five divisions within the District.

In 1960, voters authorized CMWD to join Metropolitan Water District of Southern California (MWD) to gain access to MWD's water supply system. MWD is comprised of 26 member agencies. MWD provides wholesale water from the Colorado River via the Colorado Aqueduct and northern California via the State Water Project (SWP). CMWD is the fifth largest member agency in terms of average annual water deliveries.

CMWD currently supplies high quality drinking water to over 550,000 people. Three-quarters of Ventura County residents depend on CMWD for all or part of their water. The water supplied by CMWD currently represents approximately 70 percent of the total municipal and industrial water demand within its service area. It is important to note that a large portion of the water use in Ventura County serves agricultural demands. These other demands are met by other agencies or private entities using untreated surface water, recycled wastewater, and groundwater produced from various groundwater basins underlying the area.

CMWD distributes water on a wholesale basis to 20 local purveyors, which in turn deliver water to area residents, businesses, and agriculture customers. These purveyors are grouped by CMWD and are listed in Table 1-2.

Table 1-2

CMWD Purveyors by Region

Region	Purveyors
Conejo Valley	California-American Water Company California Water Service City of Thousand Oaks Newbury Park Academy Water Company Lake Sherwood CSD
Camarillo	City of Camarillo Capehart Housing (U.S. Navy) Crestview Mutual Water Company Pleasant Valley Mutual Water Company Camrosa Water District
Moorpark	Berylwood Heights Mutual Water Company Butler Ranch Mutual Water Company VCWWD No. 1 VCWWD No. 19 Solano Verde Mutual Water Company[(1)] Zone Mutual Water Company
Simi Valley	Brandeis Mutual Water Company Southern California Water Company City of Simi Valley (VCWWD No. 8)
Oak Park	Oak Park Water Service
Oxnard	City of Oxnard

[(1)]Potential future CMWD purveyor.

Since the 2000 UWMP, there have been some minor changes to the list of purveyors. In 2003, the Port Hueneme Water Authority (PHWA), the City of Oxnard, and CMWD signed the "Three Party Agreement". Under this agreement, CMWD sells water directly to the City of Oxnard, and they in turn supply water to PHWA, which serves the City of Port Hueneme, Naval Base Ventura County and Channel Islands Beach Community Services District. Therefore, CMWD no longer lists PHWA as a member purveyor. Similarly, VCWWD No. 17, which

provides water to Bell Canyon, is served indirectly by CMWD via VCWWD No. 8, and thus is no longer listed as a member purveyor.

Mesa Water Company was the nominal retail purveyor for a proposed development called Ahmanson Ranch. This development is no longer anticipated to occur as the land has been sold to the State of California to become a state park. Since there is no need to serve the area, Mesa Water Company is no longer included as a CMWD member purveyor. The Solano Verde Mutual Water Company was served in the past by wells, but these have been rendered inoperable and they are currently being served by VCWWD No. 19. There is a possibility that Solano Verde will become a CMWD purveyor when the Bradley Road Lateral and pump station is constructed. This is expected to occur in late 2005 or early 2006.

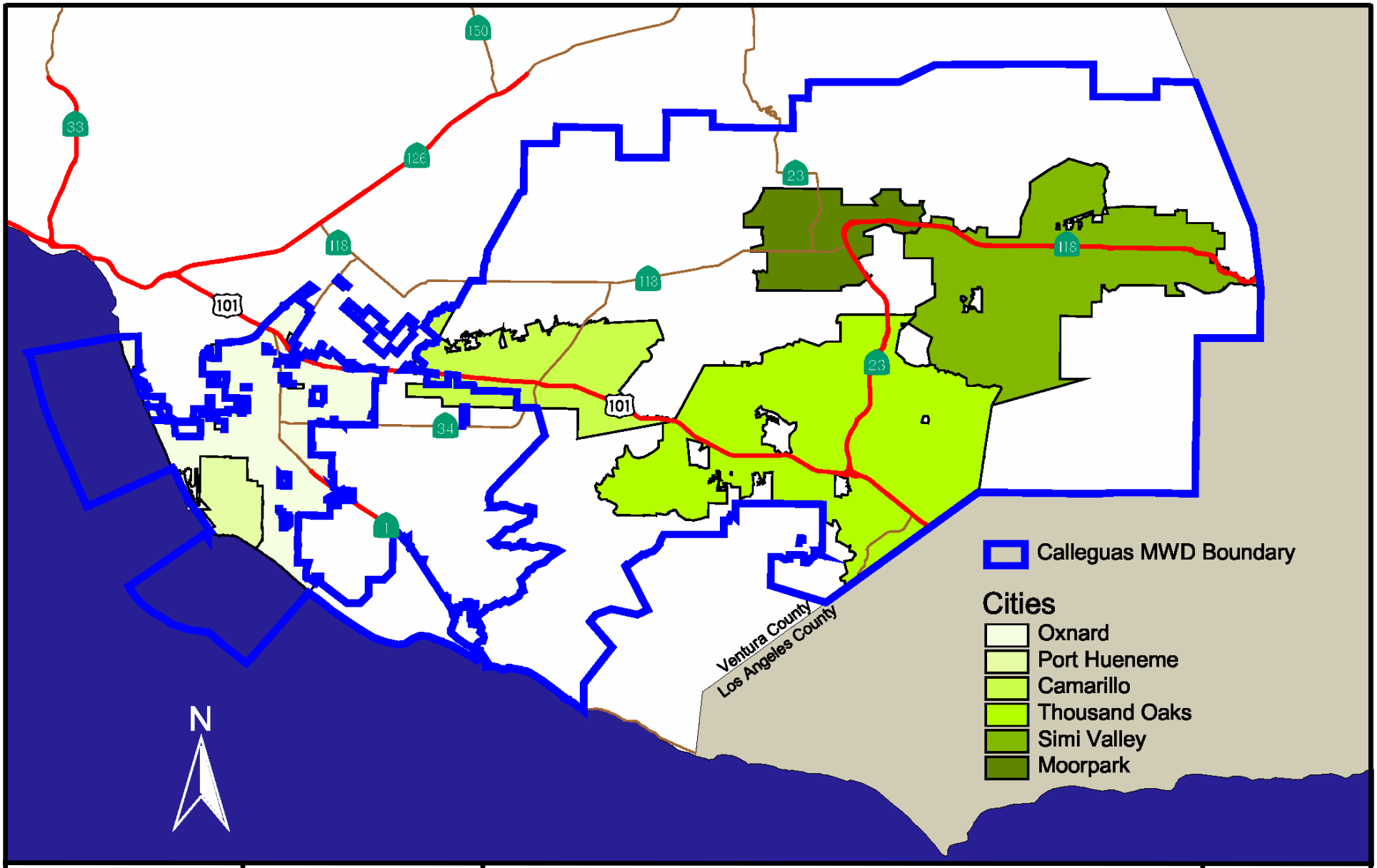
Figures 1-1 and 1-2 show CMWD's service area and purveyor boundaries, respectively. CMWD's service area encompasses approximately 375 square miles in southern Ventura County. Land use in the area includes mostly residential, commercial, industrial, and irrigated cropland.

C. Demographics

Population, dwelling unit, and employment projections are all tools utilized to project municipal and industrial water demands. The following sections provide discussion on each of these demographics.

1. Population Projections

Table 1-3 lists population projections for the CMWD service area through the year 2030. These projections are also shown graphically on Figure 1-3. Population projections were obtained from MWD, Ventura Council of Regional Governments (VCOG), and Southern California Association of Governments (SCAG). The VCOG projections are based on the sum of the population projections for both growth and non-growth sections of the following areas: Camarillo, Las Posas, Moorpark, Oak Park, Oxnard, Port Hueneme (including Channel Islands Beach and Naval Base Ventura County), Simi Valley, and Thousand Oaks. These areas are located within CMWD's service area and currently comprise approximately 74 percent of the total population projections for Ventura County. This percentage is not expected to change significantly in the near future, and therefore, this same percentage was used to forecast



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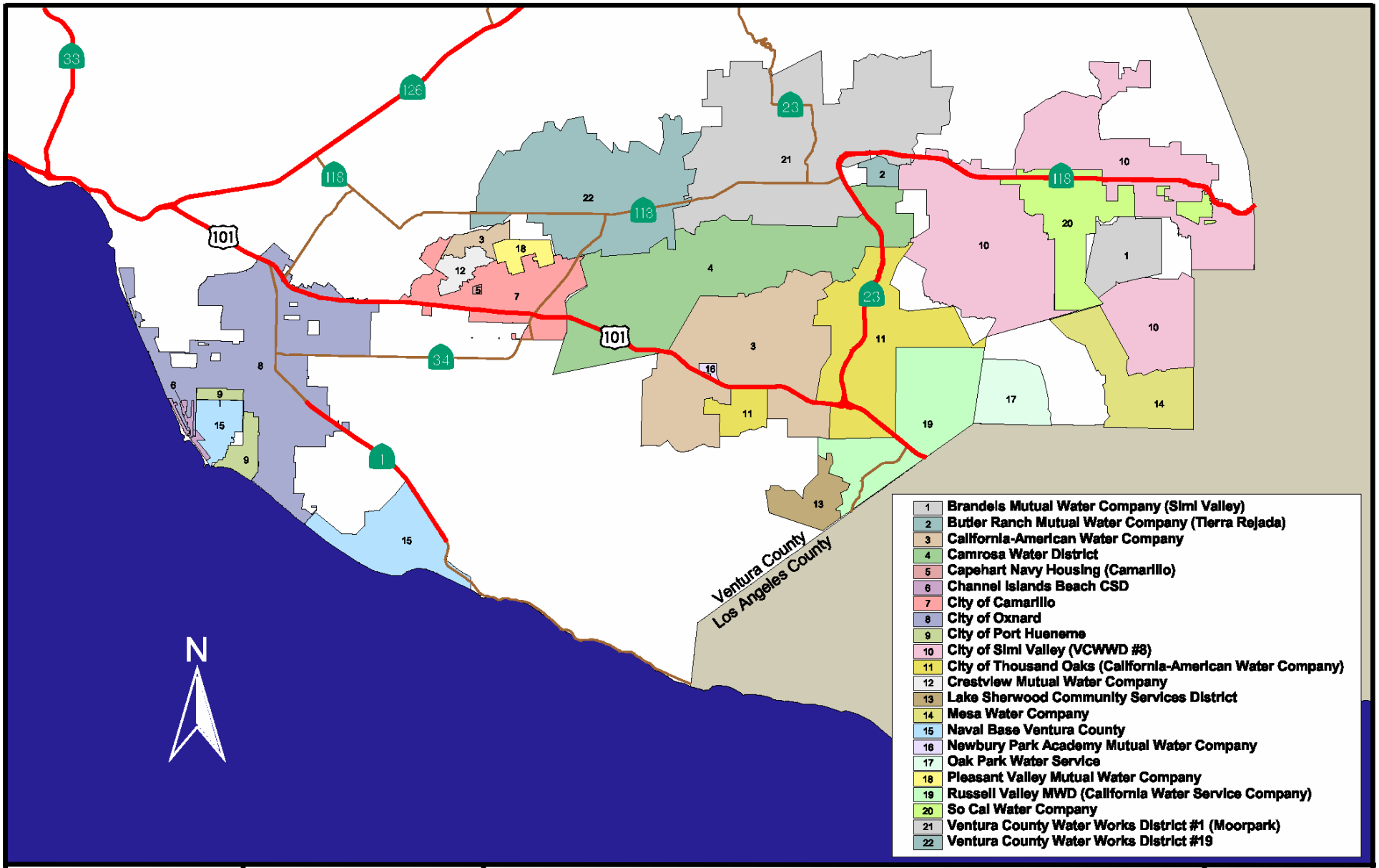
CMWD 2005 Urban Water Management Plan
CMWD Service Area

Figure 1-1



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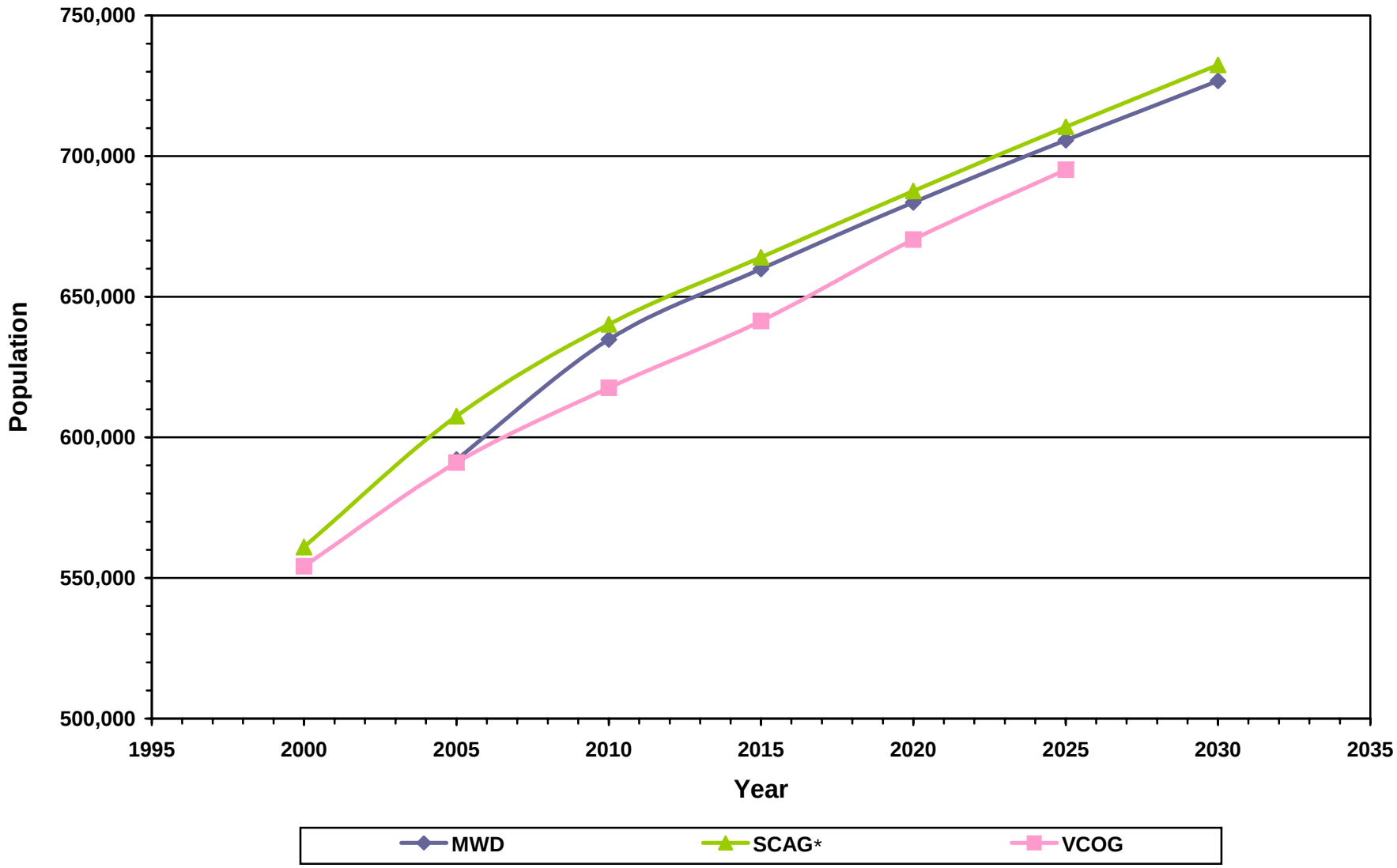
CMWD 2005 Urban Water Management Plan
CMWD Purveyor Boundaries

Figure 1-2



*Based on 74 percent of SCAG projections for Ventura County

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CMWD 2005 Urban Water Management Plan
Population Projections

Figure 1-3

population within CMWD's service area utilizing SCAG's projections for all of Ventura County. MWD population projections are based on computer modeling that considers social and economic trends as well as locations of planned transportation infrastructure. The MWD MAIN computer program uses population forecasts as a key indicator of future water demand.

Table 1-3

CMWD Service Area Population Projections

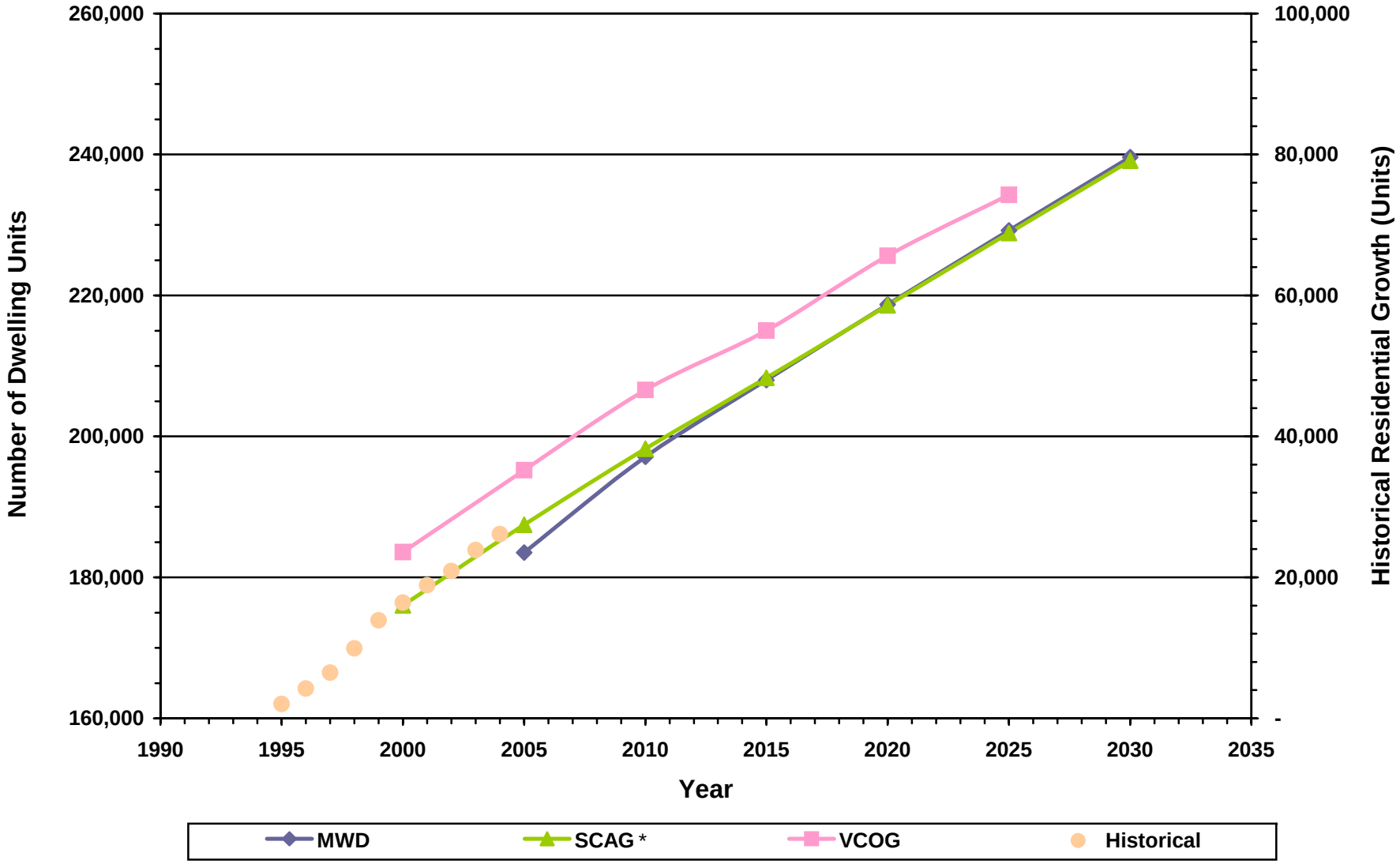
Year	MWD	SCAG[1]	VCOG[2]
2000	-	560,960	554,103
2005	592,100	607,573	591,030
2010	634,800	640,210	617,662
2015	659,900	663,998	641,329
2020	683,500	687,594	670,358
2025	705,700	710,419	695,141
2030	726,800	732,426	-
Average Annual Increase	0.8%	0.9%	0.9%

[1]Projections based on 74 percent of SCAG projections for Ventura County.

[2]Based on the sum of VCOG projections of both growth and non-growth areas of Camarillo, Las Posas, Moorpark, Oak Park, Oxnard, Port Hueneme, Simi Valley, and Thousand Oaks.

2. Dwelling Unit Projections

Dwelling unit projections for the CMWD service area through 2030 are listed in Table 1-4 and shown graphically on Figure 1-4. As with the population projections, dwelling unit projections were obtained from MWD, VCOG, and SCAG. Historic residential growth since 1995 is also shown on Figure 1-4. The VCOG projections are based on the sum of the dwelling unit projections for the following areas: Camarillo, Las Posas, Moorpark, Oak Park, Oxnard, Port Hueneme (including Channel Islands Beach and Naval Base Ventura County), Simi Valley, and Thousand Oaks. These areas are located within CMWD's service area and comprise approximately 72 percent of the total dwelling



*Based on 72 percent of SCAG projections for Ventura County

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CMWD 2005 Urban Water Management Plan
Dwelling Projections

Figure 1-4

projections for Ventura County. This same percentage was used to estimate CMWD's service area dwelling unit projections utilizing SCAG's projections for all of Ventura County. MWD projections are based on the same computer modeling used to forecast population.

Table 1-4

CMWD Service Area Dwelling Unit Projections

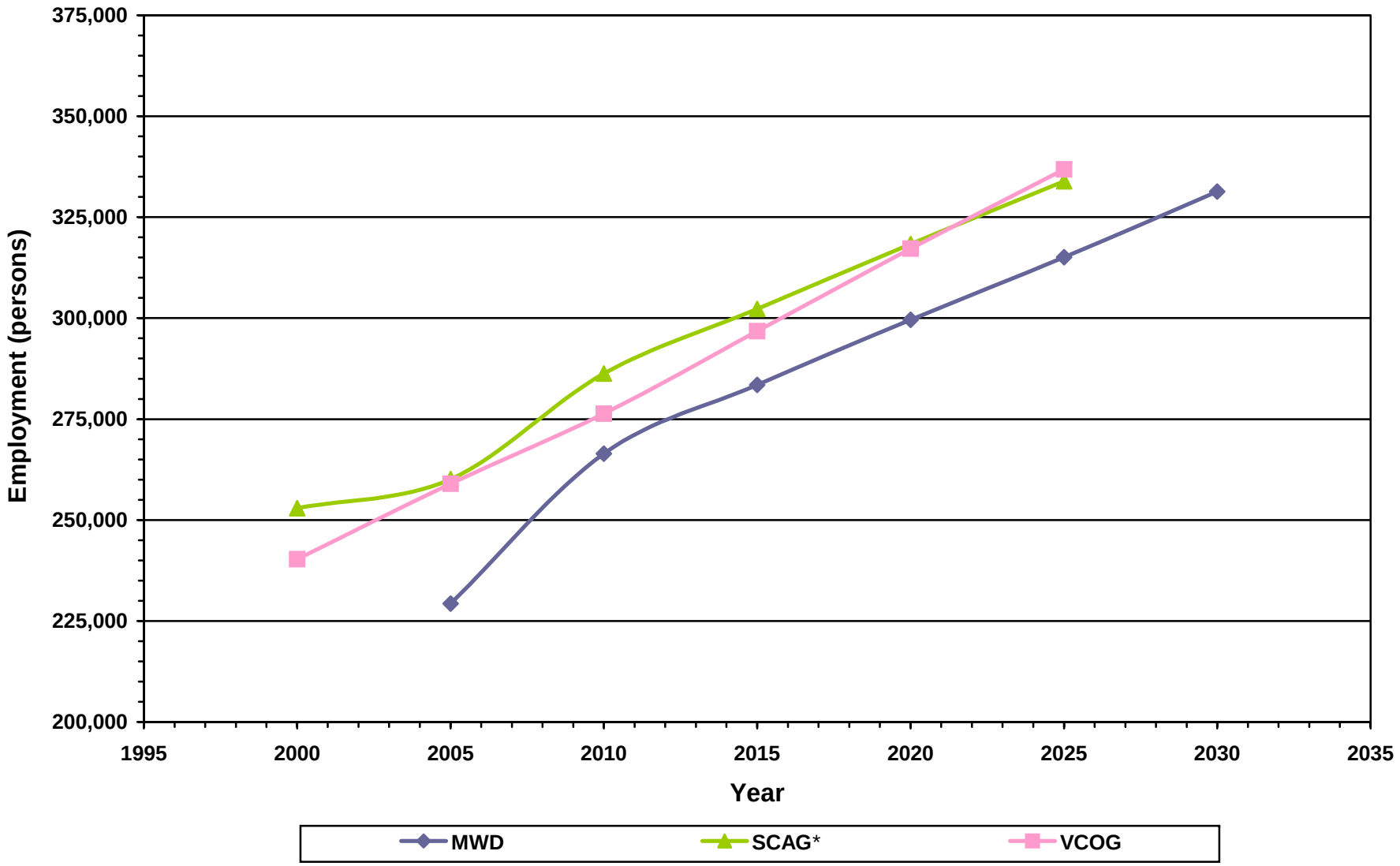
Year	MWD	SCAG[1]	VCOG[2]
2000	-	176,023	183,591
2005	183,500	187,457	195,180
2010	197,100	198,253	206,610
2015	208,000	208,309	215,019
2020	218,700	218,589	225,642
2025	229,200	228,838	234,273
2030	239,600	239,118	-
Average Annual Increase	1.1%	1.0%	1.0%

[1]Projections based on 72 percent of SCAG projections for Ventura County.

[2]Based on the sum of VCOG projections of both growth and non-growth areas of Camarillo, Las Posas, Moorpark, Oak Park, Oxnard, Port Hueneme, Simi Valley, and Thousand Oaks.

3. Employment Projections

Ventura County maintains a skilled labor force. Major industries within the County include agriculture, oil, aerospace, pharmaceutical, tourism, automotive, and military testing and development. Table 1-5 lists the employment projections for the CMWD service area through 2030. These projections are also shown graphically on Figure 1-5. As with the previous projections, employment projections were obtained from MWD, VCOG, and SCAG. The VCOG projections are based on the sum of the employment projections for the following areas: Camarillo, Las Posas, Moorpark, Oak Park, Oxnard, Port Hueneme (including Channel Islands Beach and Naval Base Ventura County), Simi Valley, and Thousand Oaks. These areas are located within CMWD's service area and



*Based on 75 percent of SCAG projections for Ventura County

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CMWD 2005 Urban Water Management Plan
Employment Projections

Figure 1-5

comprise approximately 75 percent of the total employment projections for Ventura County. This same percentage was used to estimate CMWD's service area employment projections utilizing SCAG's projections for all of Ventura County. MWD projections are based on the same computer model as population and dwelling units.

Table 1-5

CMWD Service Area Employment Projections

Year	MWD	SCAG[1]	VCOG[2]
2000	-	252,935	240,285
2005	229,300	260,078	258,987
2010	266,400	286,260	276,369
2015	283,500	302,250	296,789
2020	299,600	318,353	317,199
2025	315,100	333,895	336,814
2030	331,300	349,100	-
Average Annual Increase	1.5%	1.1%	1.4%

[1]Projections based on 75 percent of SCAG projections for Ventura County.

[2]Based on the sum of VCOG projections of both growth and non-growth areas of Camarillo, Las Posas, Moorpark, Oak Park, Oxnard, Port Hueneme, Simi Valley, and Thousand Oaks.

D. Climate

Residents of Ventura County enjoy warm summers and mild winters. High temperatures average 85 degrees Fahrenheit in the summer and low temperatures can drop to 40 degrees Fahrenheit in the winter. Table 1-6 lists the monthly average climatic data for the CMWD service area. The service area receives an average of almost 18 inches of precipitation annually. The majority of this rainfall occurs during the winter months.

Table 1-6

Monthly Average Climatic Data

Month	Monthly Average Evapotranspiration Rate	Monthly Average Maximum Temperature (degrees F)	Monthly Average Minimum Temperature (degrees F)	Monthly Average Total Precipitation (in)
January	1.83	66.5	40.7	4.02
February	2.2	67.9	42.2	4.17
March	3.42	69.1	43.4	2.95
April	4.49	71.8	46.0	1.22
May	5.25	73.4	49.6	0.29
June	5.67	77.0	52.9	0.05
July	5.86	81.6	56.2	0.02
August	5.61	82.5	56.6	0.05
September	4.49	81.4	55.0	0.25
October	3.42	48.2	50.3	0.43
November	2.36	72.7	44.7	1.94
December	1.83	67.6	40.8	2.50
Total	**46.43**	**N/A**	**N/A**	**17.89**

Source: Western Regional Climate Center website www.wrcc.dri.edu.

Chapter 2

Water Supplies and Quality

Chapter 2
Water Supplies and Quality

Southern California's water supply is subject to natural and man-made forces, ranging from drought and earthquakes to environmental regulations and water rights determinations. Some of the challenges facing Southern California with respect to water include:

- Population and resulting urban water demands are increasing.
- A major earthquake could damage the California Aqueduct or the Colorado River Aqueduct (or both), interrupting water supply to the region for up to six months.
- New and increasingly stringent drinking water standards are being promulgated and could further impact the use of local surface and groundwater supplies.
- The demand for water used for environmental purposes is increasing, especially in the San Francisco Bay/Sacramento-San Joaquin Bay Delta (Bay-Delta), reducing the ability to convey water to Southern California.
- California, like much of the west, is susceptible to long periods of drought.
- Recent litigation has reduced Colorado River supplies available to MWD due to Arizona and Nevada using their full allocations.
- Several of the groundwater basins within CMWD's service area are in an overdraft condition.
- Questionable integrity of the levee system within the Bay-Delta.

The economic vitality of Ventura County is contingent upon a dependable water supply. It is therefore imperative to develop a strategy to ensure reliable sources of water supply. This chapter discusses both imported and local supplies of water available to CMWD, as well as the water quality associated with each type of supply.

A. Imported Water

Due to the geographic location of CMWD's service area, CMWD receives SWP water exclusively under normal MWD operating conditions. The SWP is a 600 mile network of reservoirs, aqueducts, and pumping facilities that convey water from the northern Sierra Mountain Range to Southern California. Water is treated by MWD at the Joseph Jensen Filtration Plant in Granada Hills and is delivered to CMWD through MWD's West Valley Feeder No. 2 Pipeline. CMWD's sole connection to MWD is located in the City of Chatsworth at CMWD's East Portal Facility. From this point, water is conveyed 1.3 miles through the Perliter Tunnel into Simi Valley, and then distributed through CMWD's transmission system, injected into the Las Posas aquifer, or stored in Lake Bard.

Water stored in Lake Bard is treated at the Lake Bard Water Treatment Plant (WTP), which has a capacity of 65 million gallons per day (mgd), which is equivalent to 100 cubic feet per second (cfs). The WTP is used during the summer months to supplement imported MWD deliveries to the western part of the CMWD system, and could supply the entire system for short durations if service from MWD is interrupted or reduced due to routine maintenance or emergency.

1. Water Quantity Challenges

The initial facilities of the SWP, completed in the early 1970s, were designed to meet the original needs of the SWP contractors. It was anticipated that additional SWP facilities would be built over time to meet projected increases in contractor delivery needs. However, as decisions on these additional facilities were repeatedly deferred, public attitudes and environmental regulations changed. In addition, the contracted needs for water from the SWP have increased. As a result, the project is not capable of delivering full contractor entitlement each and every year.

The focal point of SWP supplies is the Bay-Delta, the largest estuary on the west coast through which 60 percent of the freshwater used in the State must pass. Years of environmental neglect to this area and political gridlock has resulted in significant environmental damage. In recent years, the Delta smelt, winter-run Chinook salmon, spring-run Chinook salmon, and splittail were added as threatened or endangered species under the federal Endangered Species Act

(ESA). These actions taken to protect the ecosystem of the Bay-Delta, along with others, have placed additional restrictions on SWP operations.

As mentioned previously, CMWD's sole connection to MWD is the West Valley Feeder No. 2 Pipeline. The West Valley Feeder No. 2 Pipeline is capable of delivering up to 300 cfs of water to the East Portal of the Perliter Tunnel. This capacity is insufficient during peak summer demands and Lake Bard is utilized to supplement water demand during these periods. Optimizing local supplies can postpone or eliminate the need for new imported water supply facilities. The reliability of MWD's supply is evaluated in Chapter 5 and contingency planning is discussed in Chapter 6.

2. Water Quality Challenges

SWP water is generally of high quality. Total dissolved solids (TDS) concentrations average 325 milligrams per liter (mg/L). The quality of SWP water as a drinking water source is affected by a number of factors, most notably by seawater intrusion and agricultural drainage from peat soil islands in the Bay-Delta. The water quality parameters of most concern are total organic carbon (TOC), bromide, and salinity. Levels of TOC and bromide increase significantly as water moves through the Bay-Delta. These constituents combine with chemicals used in the water treatment process to form disinfection by-products which are carcinogenic. Wastewater discharged from cities and towns surrounding the Bay-Delta also add salts and pathogens to the water, which affect its suitability for drinking and recycling.

Moreover, actions to protect Bay-Delta fisheries have exacerbated existing water quality problems by forcing SWP diversions to shift from the spring to the fall, when salinity and bromide levels are highest. Closure of the Delta Cross Channel gates to protect migrating fish has also degraded the quality of SWP supplies by reducing the flow of higher quality Sacramento River water.

B. Groundwater

Groundwater has been used in Ventura County for many years, primarily for irrigation, but also for municipal and industrial water supply. The aquifer system has been overdrafted, mostly in the Lower Aquifer System (LAS), which has led to seawater intrusion. Overdrafting of the Upper Aquifer System (UAS) has been significantly reduced in the past few decades through the use of

spreading grounds and revised groundwater management policies such as shifting pumping away from the UAS. Two recent reports that discuss regional overdraft conditions are:

- *Simulation of Groundwater / Surface Water Flow in the Santa Clara – Calleguas Groundwater Basin, Ventura County, California*, United States Geological Service, Sacramento Division, 2003.
- *Calleguas Creek Watershed Management Plan, Phase 1 Report*, Rick Alexander Company, November 2004.

1. Fox Canyon Groundwater Management Authority

The Fox Canyon Groundwater Management Agency (GMA) is an independent special agency created in 1983 to oversee Ventura County's groundwater resources. Fox Canyon's boundary is located largely within CMWD's service area. Groundwater pumping outside of Fox Canyon's service area, but within CMWD's service area is not managed or monitored by the GMA, and therefore, pumping records are not available. However, Fox Canyon staff estimates that groundwater outside of Fox Canyon's management area accounts for less than 10 percent of the pumped groundwater in CMWD's service area.

Table 2-1 lists the groundwater basins under management by Fox Canyon and the associated pumping allocation of each basin.

Table 2-1

Fox Canyon GMA
Groundwater Basin Pumping Allocations

Basin Name	Pumping Allocation (acre feet)
East Las Posas	13,109
Oxnard Forebay	10,239
Oxnard Plain	44,805
Pleasant Valley	20,698
Santa Rosa	313
South Las Posas	1,505
West Las Posas	8,815

It is important to note that actual pumping can vary from allocation and credit amounts based on agreements between Fox Canyon GMA and the well owners.

The Fox Canyon GMA has adopted a number of ordinances in an effort to eliminate historic groundwater overdraft, and to combat the ongoing threat of seawater intrusion in both the UAS and LAS within its boundaries. A copy of Ordinance 8.1 is included in Appendix B. These ordinances and resolutions help to regulate, conserve, and manage the use and extraction of groundwater within the region. In addition, the Fox Canyon GMA has developed and implemented a management plan with the objective of balancing the groundwater supply and demand within its jurisdiction by 2010.

2. Groundwater Storage Programs and Transfer Agreements

CMWD utilizes groundwater credits through specific programs and agreements, as discussed below. These include:

- Grimes Allocation
- Groundwater Storage Program (GSP)
- Conejo Creek Diversion Project (CCDP)
- Port Hueneme Agreement
- Oxnard Agreement
- VCWWD No. 19 Groundwater Conservation Agreement

The Grimes Allocation is an annual allocation of groundwater given to CMWD by the Fox Canyon GMA specifically for the District's well field property.

The GSP is intermittently available to participating CMWD purveyors who take imported water from MWD in-lieu of pumping groundwater. The groundwater that is not pumped is then transferred as a credit to CMWD and MWD. In this way, the groundwater can be stored and pumped when it is needed more, such as during peak demand or drought periods. A copy of the approval letter from Fox Canyon GMA for this operation is included in Appendix B.

The CCDP consists of a diversion structure and pipelines that were jointly constructed by CMWD and the Camrosa Water District. The project is owned and operated by Camrosa Water District. Reclaimed wastewater from the City of

Thousand Oaks is diverted from Conejo Creek and used for agricultural and landscape irrigation within the boundaries of the Camrosa Water District. Water that is not used within the Camrosa Water District is provided to Pleasant Valley County Water District for agricultural irrigation in-lieu of groundwater pumping. In return, CMWD receives groundwater credits which are transferred to United Water Conservation District (UWCD) and pumped at a later date for the benefit of municipal and industrial customers on the Oxnard Plain.

When the PHWA annexed into CMWD's service area, PHWA agreed to transfer 700 acre feet in groundwater credits to CMWD each year.

The Oxnard Agreement (also known as the Three Party Agreement) called for a one-time transfer of 2,400 acre feet of groundwater credits to Oxnard by CMWD. It also provided for the 700 acre feet per year to be transferred from PHWA to Oxnard rather than to CMWD.

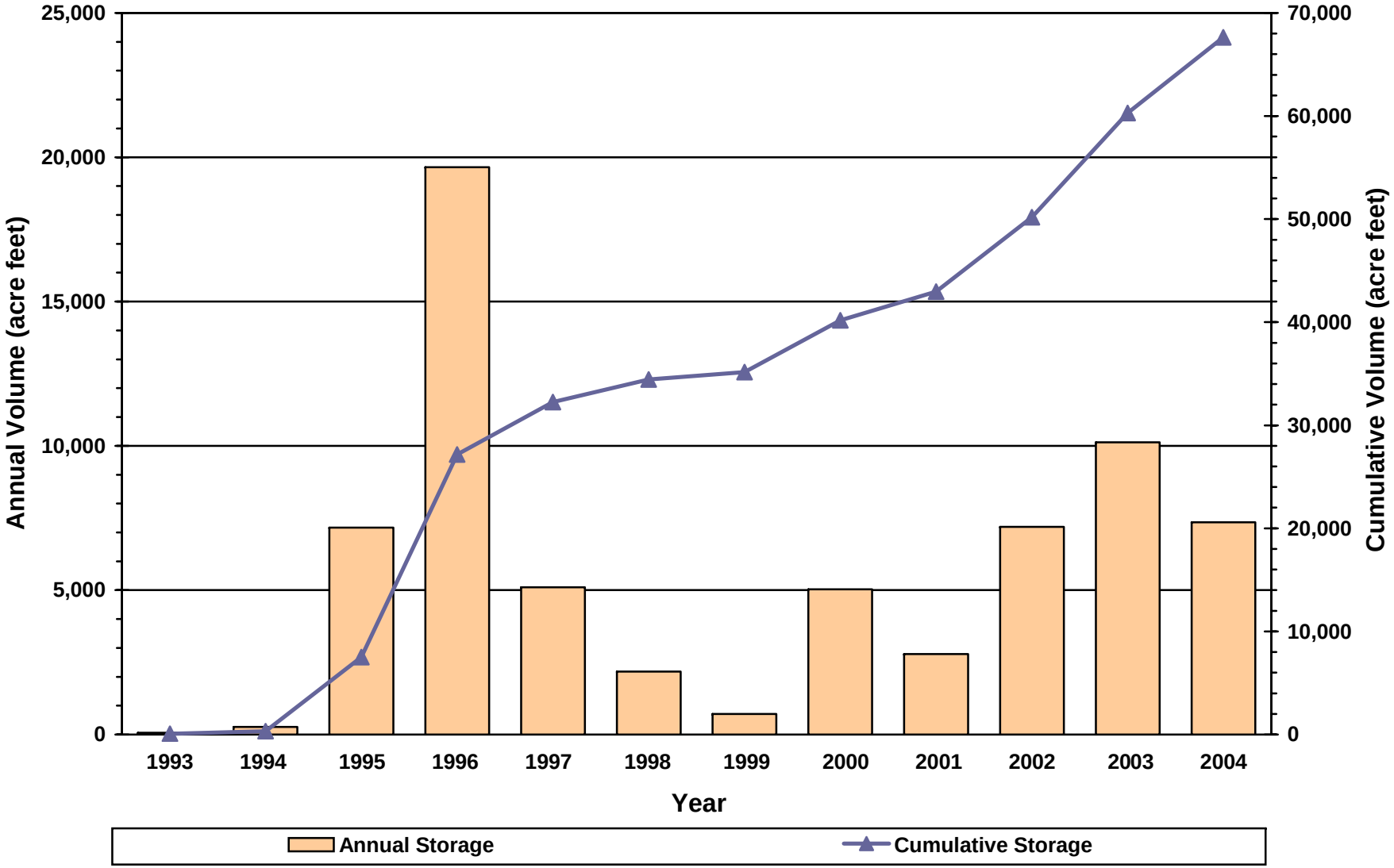
The District 19 Agreement is between VCWWD No. 19 and CMWD. CMWD provides water to District 19 at a discount in exchange for groundwater credits of an equal amount of water.

Figure 2-1 shows the CMWD's accumulated groundwater storage and credits since 1993. Some of this water was injected into Las Posas Wellfield. The majority represents credits gained from a variety of transfers and conjunctive use agreements. As illustrated on Figure 2-1, CMWD's amount of groundwater storage has steadily increased over the recent years.

Further discussion of the Las Posas Wellfield can be found on page 5-9. A description of the groundwater basin utilized by the wellfield is included in Appendix B.

3. Groundwater Quality

Table 2-2 summarizes the groundwater quality by basin in CMWD's service area. This information was obtained from Fox Canyon GMA's website. Groundwater in CMWD's service area is generally high in TDS and occasionally high in nitrate concentrations. It is important to note that water quality within the basins can vary by the location of the sample well, condition of the sample well, and groundwater conditions on the day the sample is taken.



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CMWD 2005 Urban Water Management Plan
Historical Groundwater Data

Figure 2-1

Table 2-2

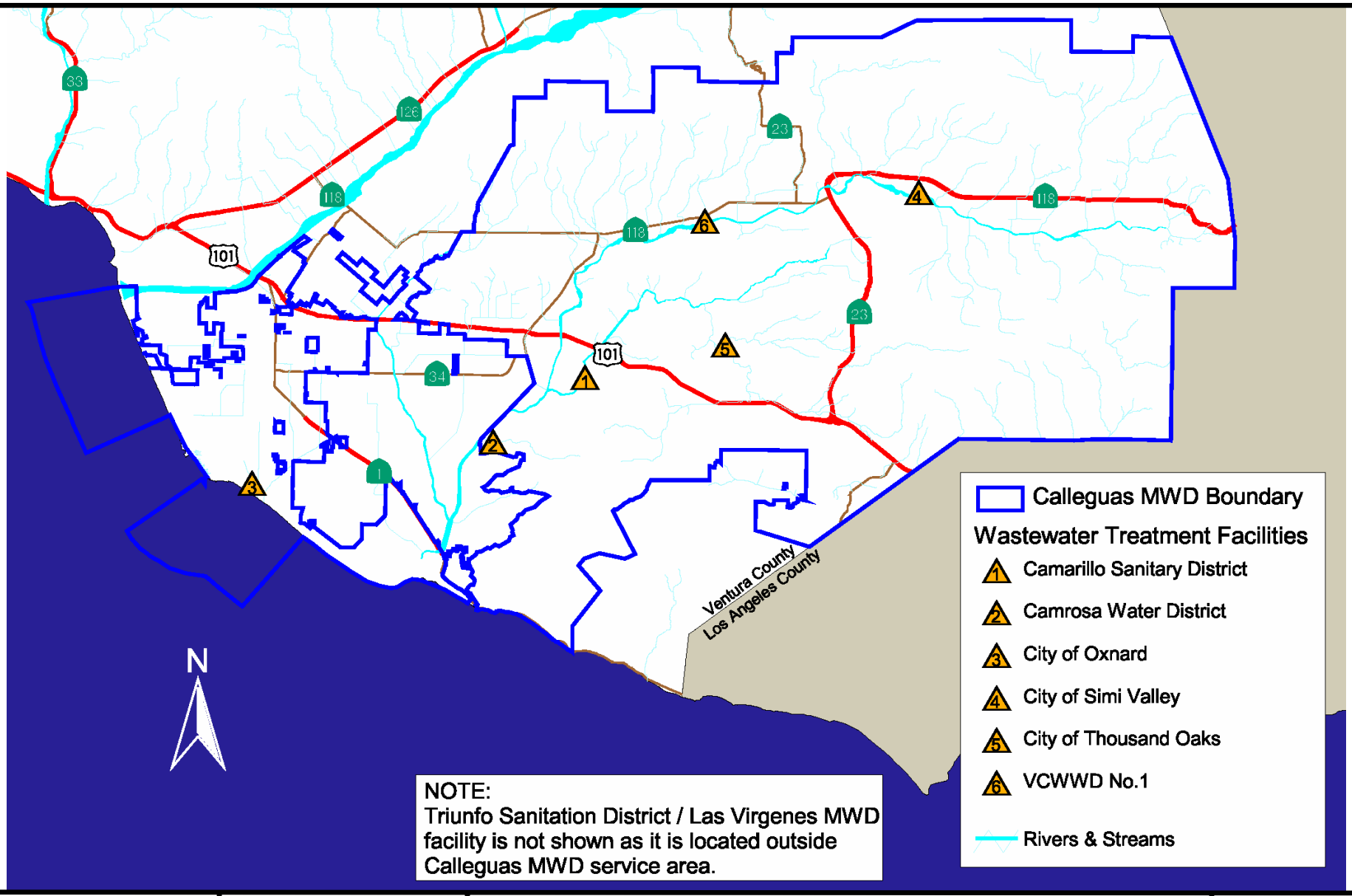
Groundwater Basin Water Quality Summary

Groundwater Basin	Average/ Maximum TDS Level (mg/L)	Maximum Nitrate (NO_3) Level (mg/L)	Main Cations	Main Anions	General Notes
Arroyo Santa Rosa	817 / 1,385	286	Ca Mg	Cl HCO_3 SO_4	High pH (8.2 – 8.6) indicates alkaline or "hard" water.
South Las Posas	709 / 2,318	144	Ca Na	SO_4 HCO_3	Main groundwater recharge is Simi WWTP.
North (East/West) Las Posas	752 / 2,135	186	Ca $CaCO_3$	HCO_3 SO_4	Iron tends to form nodules on well casings and inhibit yield.
Pleasant Valley	1,110 / 3,490	192	Ca Na	Cl SO_4 HCO_3	$CaSO_4$ high in shallow wells, and $CaCO_3$ high in deeper wells.
Oxnard Forebay	N/A / 2,460	222	Ca Mg Na	HCO_3 SO_4 NO_3	High nitrogen and SO_4 levels due to fertilizer applications and high density septic systems.
Oxnard Plain	N/A / 3,535	226	Na Ca Mg	SO_4 HCO_3	Perched water leaking between aquifers. Several wells show TDS levels of 4,000 to 5,000.

N/A – Information not available.

C. Reclaimed Wastewater

There are seven wastewater service providers located in CMWD's service area, as shown on Figure 2-2. It is important to note that CMWD does not treat any wastewater. These service providers are independent of CMWD and therefore, the entire service area of each provider may or may not be within CMWD's service area. Many of these service providers treat wastewater so that it can be reclaimed for non-potable uses such as irrigation of golf courses, street



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CMWD 2005 Urban Water Management Plan
Wastewater Service Providers
in CMWD's Service Area

Figure 2-2

medians, and school athletic fields, and dust abatement. There are a number of issues that local agencies must consider when developing reclaimed water projects. These include economic, financial, institutional, regulatory considerations, water quality, seasonal demands, and public acceptance.

Table 2-3 lists the wastewater service providers located in CMWD's service area, the level of treatment provided, the disposal method for non-reclaimed wastewater effluent, uses of reclaimed wastewater, and methods currently utilized by the service providers to encourage reclaimed wastewater use, as reported by service providers.

Table 2-3

Reclaimed Wastewater in CMWD's Service Area

Wastewater Service Provider	Treatment Level	Method of Disposal for Non-Reclaimed Wastewater	Uses of Reclaimed Wastewater	Methods to Encourage Use
City of Simi Valley	Tertiary	Arroyo Simi	Irrigation, washwater, dust abatement	None
VCWWD No. 1 (Moorpark WWTP)	Tertiary	Percolation Ponds or Arroyo Las Posas(1)	Irrigation	Reuse Water Priced Lower
City of Thousand Oaks (Hill Canyon WWTP)	Tertiary	North Fork of Arroyo Conejo	Irrigation	Reuse Water Priced Lower
Camarillo Sanitary District	Secondary	Conejo Creek	Irrigation	Not applicable
Camrosa Water District	Tertiary	Calleguas Creek(2)	Irrigation	Reuse Water Priced Lower
City of Oxnard	Secondary	Ocean	None	Not applicable
Triunfo Sanitation District/ Las Virgenes MWD	Tertiary	Los Angeles River or Malibu Creek(3)	Irrigation	Reuse Water Priced Lower

(1)Discharge to Arroyo Las Posas is rare and generally only occurs during wet-weather events.

(2)Treated effluent is normally discharged to storage ponds and used for irrigation. Discharge to Calleguas Creek is rare and generally only occurs during wet-weather events.

(3)Triunfo Sanitation District/Las Virgenes are not permitted to discharge into Malibu Creek between April 15th and November 15th.

Although CMWD does not operate any wastewater treatment facilities, it does own and operate some small reclaimed water pipelines. CMWD purchases reclaimed water from Triunfo and Simi Valley and delivers the water to a limited number of customers for irrigation. Additionally, CMWD supports the use of reclaimed wastewater as a financial participant in the CCDP.

Table 2-4 lists the wastewater service providers located in CMWD's service area and their historic and projected wastewater flows through 2030. This information was obtained from the service providers. Detailed quantities of reclaimed water by use type are provided in the individual purveyor's UWMPs.

Table 2-4

Wastewater Treatment in CMWD's Service Area

Wastewater Service Provider	Annual Average Wastewater Flows (acre-feet)						
	2000	2005	2010	2015	2020	2025	2030
City of Simi Valley	10,190	10,300	11,790[1]	13,270[1]	14,760[1]	16,240	N/A
VCWWD No. 1	0	1,680	3,360	3,360	3,360	3,360	3,360
City of Thousand Oaks	11,200	13,440	14,190[1]	14,930[1]	15,680	N/A	N/A
Camarillo Sanitary District	4,140	4,260	5,600	6,160	6,720	N/A	N/A
Camrosa Water District	1,460	1,570	1,870[1]	2,160[1]	2,460	N/A	N/A
City of Oxnard	23,070	26,320	N/A	N/A	N/A	N/A	N/A
Triunfo Sanitation District/ Las Virgenes MWD	9,500	10,000	N/A	N/A	N/A	N/A	N/A

[1]Values based on interpolation.

N/A – Information not available.

Table 2-5 lists the historic and projected available reclaimed wastewater for each service provider through the year 2030. The cities of Simi Valley and Oxnard do not currently have plans to provide significant amounts of reclaimed water to retail customers. However, the City of Oxnard plans to implement its Groundwater Recovery Enhancement and Treatment (GREAT) program. The program will involve the construction of a new regional groundwater desalination facility to serve Oxnard and PHWA, and a recycled water system to serve

agricultural water users in the Pleasant Valley area and protection against seawater intrusion. In addition, Oxnard will receive groundwater credits from the Fox Canyon GMA for the injected water. Desalination concentrates will be conveyed through the Brineline to enhance wetlands in the Ormond Beach area.

VCWWD No. 1, the City of Thousand Oaks, the Camarillo Sanitary District, and the Camrosa Water District plan on recycling all of their wastewater, while the Triunfo Sanitary District plans to continue to reclaim a portion of their treated effluent.

Table 2-5

Available Reclaimed Wastewater in CMWD's Service Area

Wastewater Service Provider	Approximate Annual Wastewater Flows (acre-feet)						
	2000	2005	2010	2015	2020	2025	2030
City of Simi Valley	30	60	110	110	110	110	110
VCWWD No. 1	2,310	2,690	4,150	5,600	5,600	5,600	5,600
City of Thousand Oaks[1]	11,200	13,440	14,190[2]	14,930[2]	15,680	N/A	N/A
Camarillo Sanitary District	1,680	1,680	5,600	6,160	6,720	N/A	N/A
Camrosa Water District[1]	1,460	1,570	1,870[2]	2,160[2]	2,460	N/A	N/A
City of Oxnard	0	0	4,029	8,059	12,088	16,117	16,117
Triunfo Sanitation District/ Las Virgenes MWD	6,000	6,500	N/A	N/A	N/A	N/A	N/A

[1]All wastewater is recycled, except what is required to maintain an instream flow of 6 cfs.

[2]Values based on interpolation.

N/A – Information not available.

The information listed above is intended to give an overview of reclaimed wastewater facilities in CMWD's service area. Specific reclaimed water uses and amounts can be found in the UWMPs of CMWD's member purveyors.

D. Projected Water Supplies

Water supply projections have been developed based on two general categories; imported water and local supplies. Local supplies include untreated surface water, groundwater and reclaimed wastewater. Water supply projections were projected for three hydrological scenarios; normal year, dry year, and multiple dry years. The normal year is the expected demand under average hydrologic conditions (based on historic average year conditions from 1922 through 2004), the dry year is the expected demand under the single driest hydrologic year (based on conditions experienced in 1977), and the multiple dry year is the expected demand during a period of three consecutive dry years (based on conditions experienced from 1990 through 1992).

1. Regional Supply Projections

As a regional water wholesaler, MWD evaluates the long term availability of both imported and local water supplies for the entire region. In order to make accurate projections of available water supplies, MWD utilizes a variety of resources including computer models, hydrology information, and input from regional agencies and stakeholders. The following sections present MWD's most recent regional projections for imported and local water supplies.

a. Imported Supply Projections for MWD's Service Area

MWD has projected imported water supplies for the region under average, dry, and multiple dry year hydrologic conditions. Table 2-6 summarizes these projections for all three conditions, as well as the percent of supply compared to the average year condition for each year. The imported supplies are provided by a mix of water sources including the State Water Project California Aqueduct and the Colorado River Aqueduct. The supply projections presented in Table 2-6 do not include local water supplies developed from resources located within MWD's service area or water imported by others.

Table 2-6

Imported Supply Projections for MWD Service Area[1]

Hydrologic Condition	(Acre Feet Per Year)					
	2005	2010	2015	2020	2025	2030
Average Year[2]	2,468,000	2,668,000	2,600,000	2,654,000	2,654,000	2,654,000
Dry Year[3]	2,104,000	2,842,000	3,056,300	3,021,400	3,396,600	2,997,800
% of Average Year	85.3	106.5	117.6	113.8	128.0	113.0
Multiple Dry Years[4]	2,410,000	2,618,100	2,833,300	2,810,900	2,797,100	2,797,100
% of Average Year	97.6	98.1	109.0	105.9	105.4	105.4

[1]Supply projections do not include water from the Los Angeles Aqueduct. MWD considers this water a local supply.

[2]Based on historic average year conditions from 1922 through 2004.

[3]Based on conditions experienced in 1977.

[4]Based on conditions experienced from 1990 through 1992.

Table 2-6 highlights the availability of imported water during dry years. MWD anticipates that in the years 2005 through 2009, only 85 percent of the average year water supply may be available to import during a single dry year, and 98 percent of the average year water supply may be available to import during multiple dry years. MWD anticipates that this may also be true during multiple dry year events from 2010 through 2014. However, between 2005 and 2015, new facilities will be operational and will allow MWD to import more than 100 percent of the average year supply during dry and multiple dry years. As shown in the subsequent demand sections, this additional supply will be needed to meet increased imported water demands that are forecasted during dry periods.

b. Local Supply Projections within MWD's Service Area

In addition to imported water supplies, regional water demands are also met with local water sources including groundwater, captured surface water,

reclaimed water, and desalinated water. Imported water from the Los Angeles Aqueduct is also considered a local water supply because it reduces the total imported demand on MWD. Table 2-7 presents MWD's local supply projections for average year hydrologic conditions. Local supply projections for dry and multiple dry years were not provided by MWD.

Table 2-7

Local Supply Projections for MWD Service Area[1]

Hydrologic Condition	(Acre Feet Per Year)					
	2005	2010	2015	2020	2025	2030
Average Year	2,107,600	2,377,400	2,465,900	2,593,300	2,613,500	2,612,100

[1]Includes imported water from the Los Angeles Aqueduct.

Note: Local supply projections for dry and multiple dry year conditions were not provided by MWD.

2. Supply Projections for CMWD's Service Area

Tables 2-6 and 2-7 present the supplies available to the entire region served by MWD. This section focuses on the projected water supplies available to CMWD.

a. Imported Supply Projections for CMWD's Service Area

Table 2-8 lists the quantity of water MWD estimates will be available to CMWD during average, dry and multiple dry year scenarios. Average imported demands were supplied by MWD. Dry and multiple dry year demands were estimated based on the percentage of imported water that MWD anticipates being able to supply to its service area, as listed in Table 2-6.

It is important to note that MWD is committed to meeting demands and therefore equates supplies to match demands for each member agency. However, to ensure adequate supplies are available to meet demands, potential reserve supplies are also presented in all MWD regional supply projections. Potential quantities of reserves are discussed in more detail in Chapter 5.

Table 2-8

MWD's Imported Supply Projections for CMWD's Service Area

Hydrologic Condition	(Acre Feet Per Year)					
	2005	2010	2015	2020	2025	2030
Average Year	125,800	138,200	146,300	155,600	162,800	170,100
Dry Year[1]	107,300	147,200	172,000	177,100	208,400	192,200
Multiple Dry Years[1]	122,800	135,600	159,500	164,800	171,600	179,300

[1]Based on the percentage of imported water MWD anticipates being able to supply to its service area, as listed in Table 2-6.

b. Local Supply Projections within CMWD Service Area

Table 2-9 presents local supply projections estimated by MWD for the CMWD service area. MWD projections are based on computer modeling that considers both existing and potential future local supplies. When predicting future local water supplies, MWD considers that not all water supply projects being contemplated will become an actual water source and the projections take into account variables such as allocated funding, engineering status, and environmental documentation. Local supply projections for dry and multiple dry years were not provided by MWD.

Table 2-9

MWD's Local Supply Projections for CMWD's Service Area

	(Acre Feet Per Year)					
	2005	2010	2015	2020	2025	2030
Average Year	38,300	44,000	43,600	43,000	43,000	43,000

Note: Local supply projections for dry and multiple dry year conditions were not provided by MWD.

Tables 2-10 through 2-12 list CMWD's local supply projections by source for each hydrologic condition. CMWD projections were developed in conjunction with the CMWD purveyors and consider the historic yield of existing local supplies and the anticipated yield of future local supplies.

Table 2-10

CMWD's Local Supply Use and Projections for Average Year Conditions[1]

Hydrologic Condition	(Acre Feet Per Year)						
	2004	2005	2010	2015	2020	2025	2030
CMWD Sources							
Imported Reclaimed Wastewater[2]	1,555	1,544	1,550	1,581	1,597	1,619	1,635
Member Purveyor Sources							
Potable Groundwater	39,417[3]	32,914	25,306	25,941	26,117	18,744	23,883
Desalinated Brackish Groundwater	[3]	4,750	16,050	19,775	20,500	28,700	28,950
Reclaimed Wastewater	677	2,132	7,321	11,500	15,683	19,864	20,021
Untreated Surface Water	2,375	2,150	2,703	3,409	4,115	5,190	6,265
Non-Potable Groundwater	[3]	6,772	7,649	8,135	8,656	8,797	8,976
Total	44,024	50,262	60,579	70,341	76,668	82,914	89,730

[1]Includes reclaimed wastewater and groundwater pumping associated with the CCDP.

[2]Reclaimed wastewater purchased from Triunfo and Simi Valley and delivered for irrigation.

[3]2004 data was not broken out between potable, desalinated brackish, and non-potable groundwater. Amount listed under potable groundwater is the total of all three categories.

As discussed previously, CMWD is a financial participant in the CCDP. The City of Thousand Oaks discharges treated wastewater effluent from the Hill Canyon Wastewater Treatment Plant (WWTP) into Conejo Creek. It is captured

a few miles downstream at the Conejo Creek diversion structure. Camrosa Water District distributes some of the diverted water through its reclaimed water distribution system and that portion of the recaptured water is reflected in Camrosa's projected supply of untreated surface water. The balance of the diverted water flows through a CMWD pipeline to agricultural customers outside of CMWD's service area where it is used in lieu of groundwater pumping. In return, Fox Canyon GMA provides groundwater credits to CMWD equal to the amount of water delivered by the pipeline. By agreement, those credits are transferred to the City of Oxnard and when needed, the water is pumped for Oxnard from wells operated by UWCD. This component of the water captured by the Conejo Creek Diversion is accounted for in the City of Oxnard's projections of groundwater supplies.

Table 2-11

CMWD's Local Supply Projections for Dry Year Conditions[1]

Hydrologic Condition	(Acre Feet Per Year)					
	2005	2010	2015	2020	2025	2030
CMWD Sources						
Imported Reclaimed Wastewater	1,609	1,620	1,646	1,677	1,694	1,719
Member Purveyor Sources						
Potable Groundwater	32,862	25,301	25,931	26,097	18,719	23,820
Desalinated Brackish Groundwater	4,750	16,050	19,775	20,500	28,700	28,950
Reclaimed Wastewater	2,117	7,301	11,485	15,663	19,849	20,001
Untreated Surface Water	2,150	2,703	3,409	4,115	5,190	6,265
Non-Potable Groundwater	5,572	6,370	6,741	7,111	7,111	7,111
Total	49,060	59,345	68,987	75,163	81,263	87,866

[1]Includes reclaimed wastewater and groundwater pumping associated with the CCDP.

Table 2-12

CMWD's Local Supply Projections for Multiple Dry Year Conditions[1]

Hydrologic Condition	(Acre Feet Per Year)					
	2005	2010	2015	2020	2025	2030
CMWD Sources						
Imported Reclaimed Wastewater	1,609	1,620	1,646	1,677	1,694	1,815
Member Purveyor Sources						
Potable Groundwater	32,252	25,998	28,133	28,304	20,921	26,050
Desalinated Brackish Groundwater	4,750	15,490	19,180	19,870	28,070	28,320
Reclaimed Wastewater	2,117	7,301	11,485	15,663	19,849	20,001
Untreated Surface Water	2,150	2,703	3,409	4,115	5,190	6,265
Non-Potable Groundwater	6,592	7,548	8,110	8,631	8,772	8,926
Total	49,470	60,660	71,963	78,260	84,496	91,377

[1]Includes reclaimed wastewater and groundwater pumping associated with the CCDP.

In 2004, CMWD purveyors utilized approximately 44,000 acre feet of local water supplies. Comparing Table 2-9 to Table 2-10 indicates that CMWD's purveyors expect to utilize more local supply sources than what is projected by MWD. This may be due to differences in what MWD and CMWD consider proposed local supply projects.

E. Regional Water Supply Programs

MWD's strategy for meeting increasing water demands in its service area includes the implementation of both regional and local supply augmentation and demand management programs. CMWD's Board of Directors recognizes that these programs are essential to reduce the reliance on imported water deliveries.

In 1995, MWD and its member agencies developed an Integrated Resources Plan (IRP) to meet the region's present and future needs for dependable supplies of high quality water. The primary goal of the IRP was to identify a preferred resource mix of local water resources, imported supplies, and demand-side management programs to meet the region's reliability objectives. It

is anticipated that water shortages similar to those experienced in 1991 will occur less than once every 50 years once the IRP is fully implemented.

A description of current MWD efforts to develop new and alternative water supplies is given below.

1. Recycling

In the 1990s, the United States Bureau of Reclamation, in conjunction with MWD, the California Department of Water Resources, and six other Southern California water agencies, studied the feasibility of regional water reclamation projects in Southern California. This study identified 34 potential regional projects within MWD's service area with an estimated yield for 450,000 acre feet per year. Approximately 30 percent of the reclaimed water in MWD's service area is used for groundwater replenishment and seawater barriers.

2. Seawater Desalination

MWD's IRP Update includes a target of up to 150,000 acre feet per year of seawater desalination by 2025. As a first step, MWD has issued a competitive request for proposals through its Seawater Desalination Program (SDP), targeting 50,000 acre feet per year of desalinated seawater. This proposal includes financial assistance from MWD of up to $250 per acre foot per year for up to 25 years.

3. Competitive Local Resources Program

The primary goal of the Competitive Local Resources Program (LRP) is to support the development of cost-effective water recycling and groundwater recovery projects that reduce demands for imported supplies. Thirteen projects were selected in 2004 for financial incentives of up to $250 per acre foot per year for up to 25 years. These projects will yield approximately 65,000 acre feet per year.

4. Storage and Groundwater Management Programs

Diamond Valley Lake was constructed in 1999 and holds 800,000 acre feet of water. Some of this water will be used for dry year storage and the remainder for emergency storage. In addition, MWD has operational control of approximately 219,000 acre feet of water in reservoirs at the southern terminals

of the California Aqueduct, which provide greater flexibility in handling supply shortages.

In addition to surface water storage, MWD delivers replenishment water to member agencies. The member agency then delivers this water in-lieu of utilizing water from local sources. The deferred local production allows water to be left in local storage for future use. MWD also delivers water directly to water storage facilities, including spreading sites and injection wells for groundwater replenishment. These programs increase supply availability and improve MWD's operational flexibility, thus allowing it to better manage out-of-region supply and storage programs to meet dry year needs.

MWD has an agreement with CMWD to store up to 210,000 acre feet of water in the North Las Posas Groundwater Basin for aquifer storage and recovery (ASR). The intent of this project is that this water will be used exclusively by CMWD. The remaining 90,000 acre feet of capacity may be used by CMWD. Phase 1 has been completed and 18 wells are currently online.

Through Proposition 13, MWD received $45 million to help fund the Southern California Water Supply Reliability Projects Program. This money is being used to fund eight conjunctive use projects that will provide approximately 195,000 acre feet of additional storage. In addition, a conjunctive use program in Raymond Basin is expected to yield 25,000 acre feet of water per year by 2010.

5. Central Valley Transfer and Storage

MWD currently has eight Central Valley Project (CVP)/SWP transfer and storage programs, and three more under development. The agencies involved in these programs include Semitropic Water Storage District, Arvin-Edison Water Storage District, San Bernardino Valley Municipal Water District, Kern-Delta Water District, Desert Water Agency, and Coachella Valley Water District. These programs are expected to provide approximately 396,000 acre feet of dry-year water supply.

6. Colorado River Aqueduct

MWD has implemented several programs related to the Colorado River Aqueduct (CRA), including:

- A conservation agreement between MWD and the Imperial Irrigation District, which guarantees MWD at least 80,000 acre feet of water per year.

- The Coachella and All-American Canal Lining Projects, which are expected to conserve 26,000 and 67,700 acre feet of water per year, respectively.

- A 35-year land management, crop rotation, and water supply program with the Palo Verde Irrigation District that is estimated to provide up to 111,000 acre feet of water per year, when the program is fully implemented.

- The Hayfield Groundwater Storage Program will eventually allow approximately 500,000 acre feet of CRA water to be stored in the Hayfield Groundwater Basin for future withdrawal.

F. Local Supply Programs

CMWD has focused its planning efforts on more efficient use of existing supplies and maximization of local water resources. Working cooperatively with local agencies, CMWD supports a number of local recycling and groundwater recovery projects to offset increasing imported water demands. The projects described below include a combination of wastewater reclamation, brackish groundwater recovery, and regional salinity management programs. It is important to note that the effect of each of these projects on groundwater resources and environmental compliance must be evaluated and approved before they can be implemented.

1. Regional Recycling Projects

CMWD is working with local agencies to implement a regional water recycling program. As discussed above, reclaimed wastewater is used for beneficial use applications including agricultural and non-agricultural irrigation, industrial use, and groundwater recharge.

a. Simi Valley Regional Recycled Water System

The Simi Valley Regional Recycled Water System would involve the construction of new reclaimed water distribution facilities including pipelines and

two new reservoirs that would serve major users within the District's service area. The project would connect with the existing reclaimed water infrastructure. The proposed facilities would deliver tertiary effluent from the Simi Valley Water Quality Control Plant. It is estimated that almost 2,000 acre feet per year of reclaimed water could be delivered upon completion of the project for both existing and planned future users.

b. VCWWD No. 1 Reclaimed Water Distribution System Expansion

The Moorpark Wastewater Treatment Plant is operated by VCWWD No. 1 and has a secondary treatment capacity of 3.0 mgd and tertiary treatment capacity of up 1.5 mgd. Currently, reclaimed water is being provided to one golf course.

The proposed project is intended to expand District's reclaimed water distribution system to provide reclaimed water for agricultural and/or additional landscape irrigation. The proposed project includes construction of a single reservoir and pipelines to distribute reclaimed water in lieu of potable water, where possible.

2. Calleguas Regional Salinity Management Project (Brineline)

CMWD, working with other agencies and stakeholders, initiated the implementation of the Calleguas Regional Salinity Management Project (Brineline) to manage the use of both treated municipal wastewater and high salinity groundwater. This project will facilitate the beneficial use of up to 45,000 acre feet of local water resources per year for domestic and agricultural use, thus reducing the need to import water to the region.

The Brineline will consist of a pipeline system to collect treated wastewater and brine concentrates from municipal wastewater treatment plants, groundwater treatment facilities (both municipal and agricultural), and industrial operations located within the Calleguas Watershed, and convey the effluent to other areas for direct use (e.g., suitable agricultural uses and wetland applications) or an existing ocean outfall. Operation of the facilities will substantially reduce the amount of salts released into the watershed, and over time, reduce salt concentrations in surface waters and groundwaters within the watershed.

The alignment of the proposed pipeline system will extend approximately 32 miles from its upstream end in the City of Simi Valley to its downstream terminus near Ormond Beach in the City of Oxnard. The pipeline will pass through the cities of Simi Valley, Moorpark, Camarillo, Oxnard, and portions of unincorporated Ventura County. Along its route, the Brineline will receive discharges of tertiary treated effluent from several wastewater treatment plants (Camrosa Wastewater Reclamation Facility, Camarillo Sanitary District Water Reclamation Plant, Moorpark WWTP, and Hill Canyon Wastewater Treatment Plant), and brine waste from several proposed desalters (including the Camarillo Groundwater Treatment Facility, South Las Posas Basin Desalter, Somis Desalter, West Simi Desalter, and two in the Renewable Water Resource Management Program for the Southern Reaches of Calleguas Creek Watershed).

To date, Calleguas has constructed approximately 20,000 linear feet of 54-inch high density polyethylene (HDPE) pipe, which comprises Phase 1A. Phase 1B, which includes another 9,000 linear feet of 54-inch HDPE pipe, is currently under design. Phase 1C will connect Phases 1A and 1B with an existing ocean outfall at the Reliant Energy Ormond Beach Power Plant for ocean discharge. Future phases will extend the Brineline up through the watershed, roughly paralleling Calleguas Creek, to enable additional facilities to connect to the Brineline for discharge.

3. Brackish Groundwater Recovery Projects

Brackish groundwater recovery projects reclaim poor water quality groundwater. A major benefit of the recovery projects is that they use groundwater that would otherwise remain unusable. As a result, these projects will increase the availability and reliability of the regional local water supply.

a. Camarillo Groundwater Treatment Facility

Camarillo currently delivers a combination of local groundwater and imported water to its customers. Despite the availability of groundwater extraction rights, the relatively high TDS, chloride, iron, and manganese concentrations in the groundwater require that it be blended with imported water before it can be used for potable purposes. Declining water quality in the Pleasant Valley Groundwater Basin has reduced the effectiveness of blending,

such that Camarillo has removed one of its wells from regular service and decreased pumping from the remaining two wells. As a result, Camarillo has not pumped its full Fox Canyon GMA allocation over the past few years and has increased its use of imported water.

The Camarillo Groundwater Treatment Facility would treat brackish water that is currently unusable, thus increasing water supply reliability. The facility would provide reverse osmosis (RO) treatment and have a capacity of 4 mgd. Brine waste, containing concentrated salts from the RO process, would be discharged to the Brineline and disposed of via an ocean outfall.

In addition, Camarillo has proposed to construct two booster pumping stations. These pumping stations would enable Camarillo to serve areas that currently can only be supplied with imported water with treated groundwater from the new facility instead. This could reduce Camarillo's reliance on imported water by up to 1,000 acre feet per year.

b. South Las Posas Basin Regional Desalter

The South Las Posas Groundwater Basin has been virtually full since 1983. Despite the availability of water and the presence of potential users, the relatively high TDS and chloride concentrations in the groundwater require that the water be treated before it can be for potable purposes.

The South Las Posas Basin Regional Desalter would be a 5 mgd brackish groundwater treatment facility. RO treatment technology would be used to produce potable quality water. Brine waste would be discharged to the Brineline and disposed of via an ocean outfall.

c. West Simi Desalter

VCWWD No. 8 operates five dewatering wells in the western portion of the City of Simi Valley to lower the groundwater table and relieve nuisance water to houses and other occupied structures. Approximately 3 mgd are pumped and discharged to the Arroyo Simi. Due to its saline quality, the Simi Valley Groundwater Basin has never been utilized as a potential source of potable water by the City. Despite the availability of water and the presence of potential users, the relatively high TDS and chloride concentrations in the groundwater require that the water be treated before it can be used for potable purposes.

With construction of the West Simi Desalter, VCWWD No. 8 could capture this brackish water for treatment (desalination) and beneficial use as potable water.

The West Simi Desalter would be a brackish groundwater treatment facility with a capacity of 3 mgd. Groundwater pumped from the five dewatering wells would be conveyed to a central location, where the desalter would use RO treatment technology to produce potable quality water. Brine waste would be discharged to the Brineline and disposed of via an ocean outfall.

d. Somis Desalter

This Somis Desalter would be a brackish groundwater treatment facility, similar to the South Las Posas Basin Regional Desalter. The Somis Desalter would have a capacity of 2 mgd and be owned and operated by VCWWD No. 19. The Somis Desalter is expected to be constructed after the South Las Posas Basin Regional Desalter is completed. RO treatment technology would be used to produce potable quality water. Brine waste would be discharged to the Brineline and disposed of via an ocean outfall.

4. Renewable Water Resources Management Program

The Renewable Water Resource Management Program for the Southern Reaches of Calleguas Creek Watershed (RWRMP) is an integrated set of facilities to reduce the reliance on imported water supplies while improving water quality through the managed transport of salts out of the watershed. There are three major elements to the project: water resource reclamation, salts management, and adaptive management. This project seeks to increase water resources while moving toward a net daily salts balance. The RWRMP is a joint effort among the Camrosa Water District, Camarillo Sanitary District, and the City of Thousand Oaks.

The RWRMP reduces reliance on imported water and overdrafted confined groundwater aquifers by expanding water recycling and reclaiming poor quality, unconfined groundwater supplies. The RWRMP facilities will also improve the quality of water supporting the riparian environment and groundwater recharge and increase the water quality options for agricultural users. The RWRMP seeks to manage salts through a systems approach. To the extent possible, the RWRMP will address the salt imbalance through the following:

- Reducing salts introduced into the watershed.
- Removing salts currently disposed into the watershed.
- Distributing water to move salts down-gradient and out of the watershed.
- Introducing high quality water to increase the watershed's capacity to carry salts that cannot otherwise be intercepted.
- Capturing and disposing of concentrated salts that would not otherwise move out of the watershed.

In order to evaluate the RWRMP's ongoing effect on sub-watershed salt balances, a monitoring and adaptive management element is included. The initial phase will include the establishment of automated monitoring points on Calleguas Creek to measure flow and salt concentrations. By collecting data on an ongoing basis, the agencies can track and evaluate how best to move additional salts out of the watershed. Data and analysis results and conclusions will be shared with stakeholders through the Calleguas Creek Watershed planning process. The RWRMP is designed to be implemented incrementally so that water quality impacts and future actions can be evaluated at each phase, as described below.

Phase 1 focuses on increasing reclaimed water use, reducing salt inputs to surface waters, and constructing facilities to transport salts out of the watershed. Phase 2 will expand groundwater treatment and recycled water distribution facilities, and initiate water releases to the Arroyo Conejo Creek system in anticipation of termination of discharge by the Hill Canyon WWTP to the North Fork of the Arroyo Conejo (Phase 3). Phase 3 will focus on terminating discharge of effluent from the Hill Canyon WWTP into Arroyo Conejo and introducing it directly into the Camrosa recycled/non-potable water distribution system for agricultural irrigation purposes. Finally, Phase 4 focuses on pumping brackish groundwater to transport salts out of the watershed.

Chapter 3

Water Use and Demands

Chapter 3
Water Use and Demands

This chapter addresses water use characteristics and projected imported water demands on CMWD.

A. Water Use

Figure 3-1 shows the distribution of the CMWD's purveyors with respect to projected average water deliveries. As illustrated on Figure 3-1, CMWD's largest customer is the City of Simi Valley, which accounts for approximately one-quarter of the water distributed by CMWD.

Municipal and industrial uses are expected to account for approximately 90 percent of the water distributed by CMWD's purveyors through the planning period. This percentage is forecasted to increase slightly through the planning period, from 89 to 93 percent as a result of continual urban growth. Agricultural uses are expected to account for approximately 10 percent of the water distributed by CMWD's purveyors. This percentage is forecasted to decrease slightly through the planning period, from 11 to 7 percent due to the impact of urban growth.

MWD has also estimated water use by four different sectors for CMWD's service area as listed in Table 3-1.

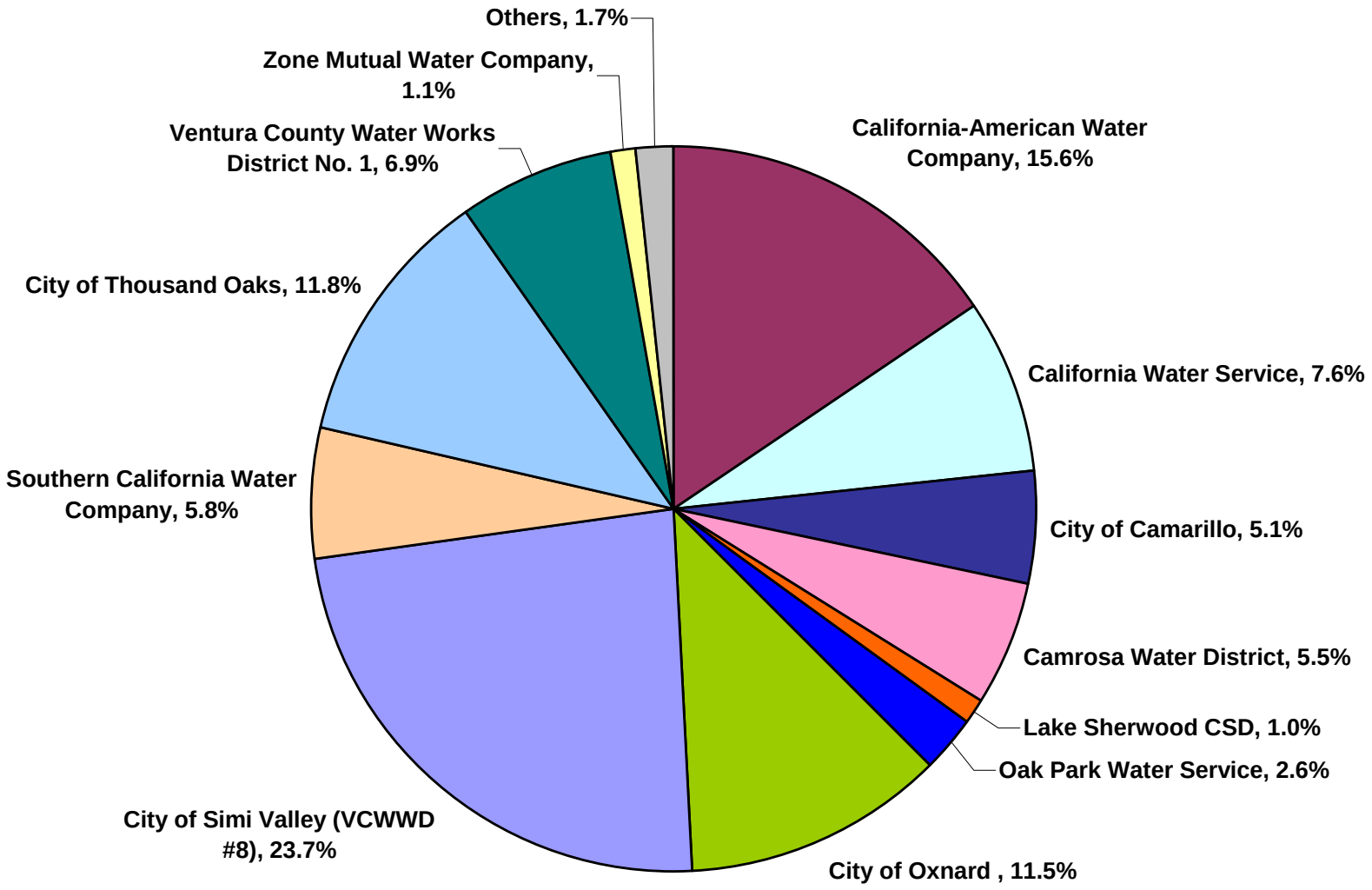
Table 3-1

CMWD's Water Use by Sector (Estimated by MWD)[1]

Sector	Percentage
Single Family	56.6
Multi-Family	7.9
Non-Residential	27.7
Unmetered and System Losses[2]	7.8

[1]A detailed breakdown of water use by sector is provided in individual purveyor UWMPs.

[2]Includes system losses in CMWD's and its purveyor's systems.



*Distribution based on normal year demands

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CMWD 2005 Urban Water Management Plan
Approximate Purveyor Distribution

Figure 3-1

B. Demand Projections

This section discusses demand projections for the CMWD service area. Demand projections were developed by both MWD and CMWD in conjunction with their member purveyors.

1. Total Demand Projections for CMWD's Service Area

Similar to the local supply projections, water demand for the CMWD service area were projected for three hydrological scenarios; normal year, dry year, and multiple dry years. The normal year is the expected demand under average hydrologic conditions, the dry year is the expected demand under the single driest hydrologic year, and the multiple dry year is the expected demand during a period of three consecutive dry years.

MWD projections were developed utilizing the MWD-MAIN Water Use Forecasting System and are shown in Table 3-2. This model incorporates demographic and economic projections from regional planning agencies, along with conservation and end uses. Demand projections for dry and multiple dry years were not provided by MWD.

Table 3-2

MWD's Total Demand Projections for CMWD's Service Area[(1), (2)]

	(Acre Feet Per Year)					
	2005	**2010**	**2015**	**2020**	**2025**	**2030**
Average Year	164,100	182,100	189,900	198,600	205,800	213,100

[(1)]Considers demand reduction due to conservation.

[(2)]Includes an allotment of 1,900 acre feet per year for groundwater replenishment.

CMWD's demand projections represent a summary of forecasts by individual member purveyors. Each purveyor has considered expected population growth and planned land use in its service area. These projections are listed in Table 3-3. Individual purveyor projections are listed in Appendix C.

Data from 2000 through 2004 indicate that water loss through CMWD's distribution system is approximately 0.05 percent. This amount of water loss is below the threshold of metering accuracy and is considered negligible when looking at CMWD's demand projections.

Table 3-3

CMWD's Total Demand Projections[1]

	(Acre Feet Per Year)					
	2005	**2010**	**2015**	**2020**	**2025**	**2030**
Average Year[2]	173,127	186,041	200,570	212,239	222,795	234,267
Dry Year	177,004	190,612	205,449	217,504	228,256	239,973
Multiple Dry Years	179,388	193,599	208,874	221,353	232,515	244,606

[1]Considers demand reduction due to conservation.

[2]Includes an allotment of 1,900 acre feet per year for groundwater replenishment.

As expected, demands increase slightly during dryer years. Demands increase approximately 3 percent during single dry year scenarios and 5 percent during multiple dry year scenarios. Similar to the average year demands, the dry year demands will be met with a combination of local supplies and imported water supplies.

The projected demands presented in Tables 3-2 and 3-3 consider the on-going and future benefits from water conservation-related programs. CMWD is a member of the California Urban Water Conservation Council (CUWCC) and has been implementing water conservation Best Management Practices (BMPs) since the early 1990s. These BMPs are discussed in more detail in Chapter 4. CMWD's recent CUWCC reports are also shown in Appendix D.

MWD total demand projections for CMWD's service area are less than CMWD's projections. The discrepancy between the water demands shown in Tables 3-2 and 3-3 may help explain the discrepancy in local supply projections shown in Tables 2-9 and 2-10. It is possible that there are water demands in CMWD's service area that are not included in the MWD demand projections and

that these demands are met with local water supplies that are not included in the MWD local supply projections. However, as shown in the following section, imported water demands for CMWD's service area are similar for both MWD's and CMWD's projections.

2. Imported Demand Projections for CMWD's Service Area

Both MWD and CMWD have estimated CMWD's need for imported water based on the following formula:

CMWD Imported Demand = Total CMWD Demands – Local Supplies in CMWD Service Area

The imported water demands are the local demands for the CMWD region minus the local supplies. Tables 3-4 and 3-5 present the estimated imported water demands based on MWD and CMWD projections for average year conditions.

Table 3-4

MWD's Imported Demand Projections for CMWD's Service Area For Average Year Conditions

	(Acre Feet Per Year)					
	2005	**2010**	**2015**	**2020**	**2025**	**2030**
Total Demand[1]	164,100	182,100	189,900	198,600	205,800	213,100
Local Supply	38,300	44,000	43,600	43,000	43,000	43,000
Imported Demand[2]	125,800	138,200	146,300	155,600	162,800	170,100

[1]Includes an allotment of 1,900 acre feet per year for groundwater replenishment.

[2]Equals the imported water supply allocated to CMWD, as shown in Table 2-8 and as presented in MWD's 2005 Draft UWMP.

Table 3-5

CMWD's Imported Demand Projections For Average Year Conditions[1]

	(Acre Feet Per Year)					
	2005	**2010**	**2015**	**2020**	**2025**	**2030**
Total Demand	173,127	186,041	200,570	212,239	222,795	234,267
Local Supply	50,262	60,579	70,341	76,668	82,914	89,730
Imported Demand	122,865	125,462	130,229	135,571	139,881	144,537

[1]Includes an allotment of 1,900 acre feet per year for groundwater replenishment.

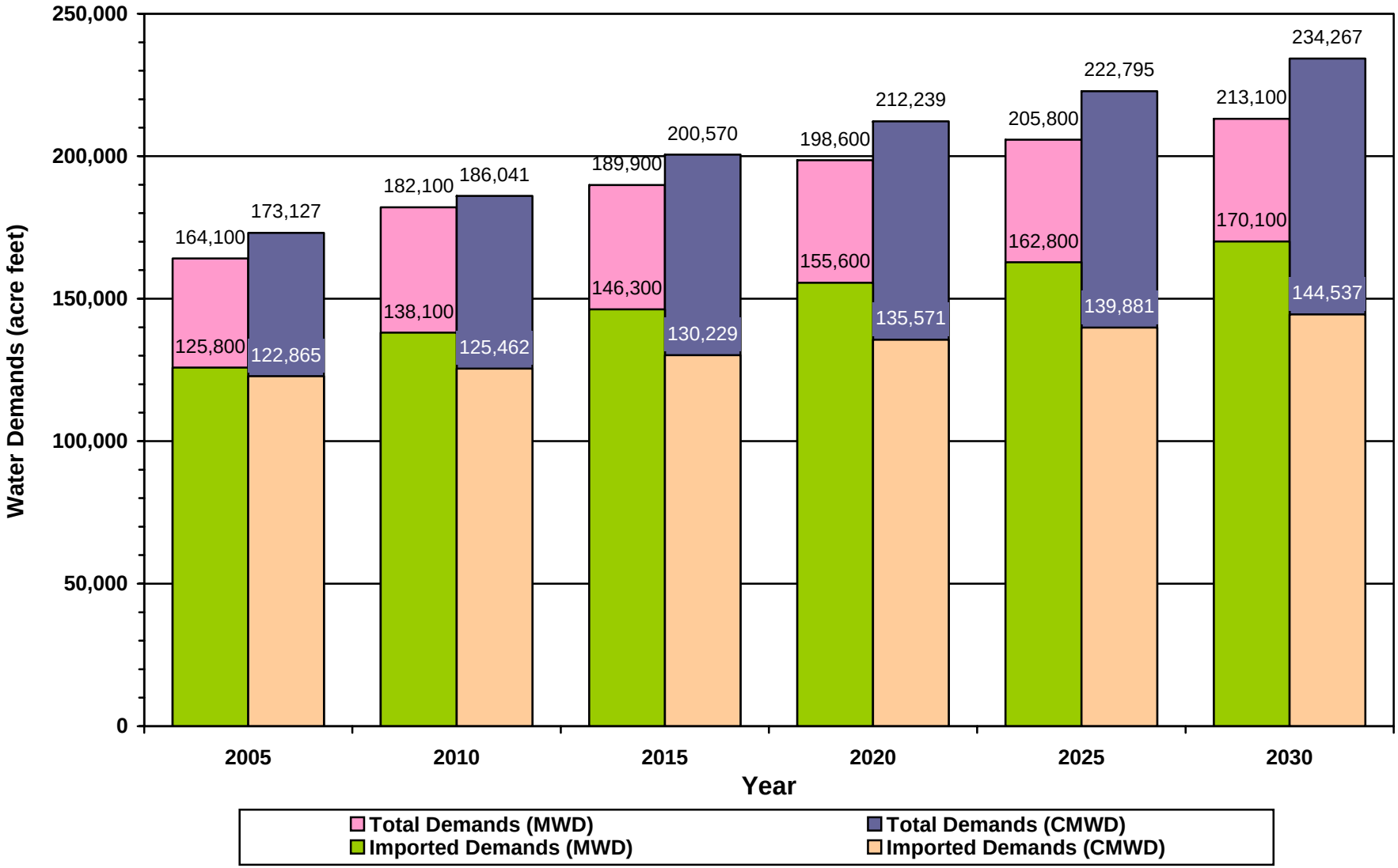
As shown in Tables 3-4 and 3-5, the higher CMWD demand projections are off-set by the higher local supply projections. As stated above, there are likely some water demands in CMWD's service area that are not included in the MWD demand projections. However, because these demands are met with local water supplies, the imported water demands predicted by both agencies are similar. These projections are shown graphically on Figure 3-2.

Tables 3-6 and 3-7 show CMWD's imported demand projections for single dry and multiple dry year conditions.

Table 3-6

CMWD's Imported Demand Projections For Single Dry Year Conditions

	(Acre Feet Per Year)					
	2005	**2010**	**2015**	**2020**	**2025**	**2030**
Total Demand	177,004	190,612	205,449	217,504	228,256	239,973
Local Supply	49,060	59,345	68,987	75,163	81,263	87,866
Imported Demand	127,944	131,267	136,462	142,341	146,993	152,107



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CMWD 2005 Urban Water Management Plan
Total and Imported Average Year
Water Demand Projections

Figure 3-2

Table 3-7

CMWD's Imported Demand Projections For Multiple Dry Year Conditions

	(Acre Feet Per Year)					
	2005	**2010**	**2015**	**2020**	**2025**	**2030**
Total Demand	179,388	193,599	208,874	221,353	232,515	244,606
Local Supply	49,470	60,660	71,963	78,260	84,496	91,377
Imported Demand	129,918	132,939	136,911	143,093	148,019	153,229

3. Comparison of CMWD's Imported Demand Projections

MWD demand projections shown in Table 3-4 are based on its MWD-MAIN model that considers social and economic data, as well as typical weather conditions. CMWD demand projections shown in Table 3-5 are based on information from CMWD's member purveyors. Table 3-8 shows how these projections compare to previous CMWD demand projections for average year conditions.

Table 3-8

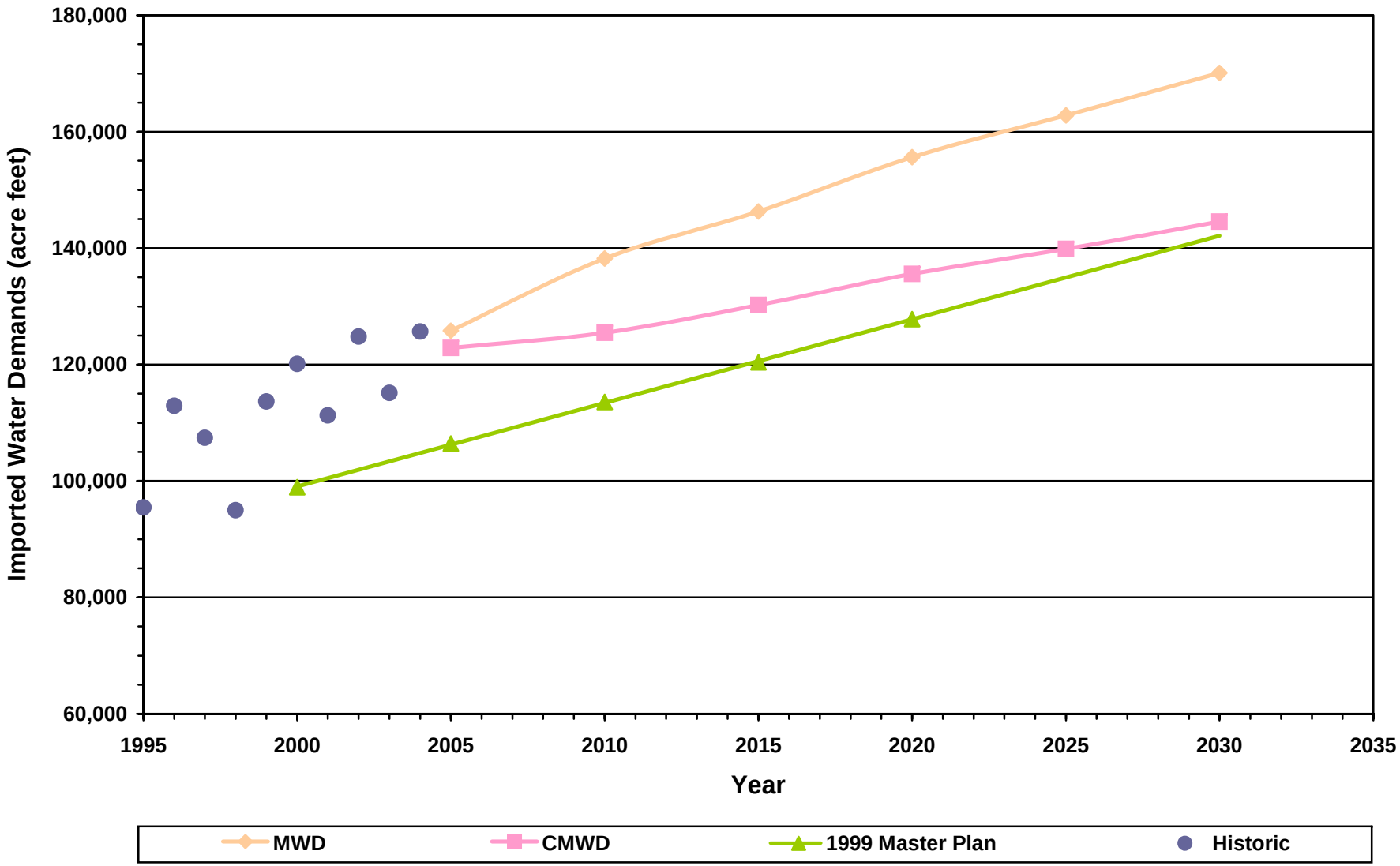
Comparison of CMWD Imported Water Demand Projections for Average Year Conditions

Year	MWD	CMWD	1999 Master Plan
2005	125,800	122,865	106,400
2010	138,200	125,462	113,600
2015	146,300	130,229	120,400
2020	155,600	135,571	127,800
2025	162,800	139,881	136,500[(1)]
2030	170,100	144,537	145,800[(1)]
Average Annual Increase	1.2%	0.7%	1.3%

[(1)]Based on extrapolation.

These projections are also shown graphically on Figure 3-3, along with historic water sales. The projected annual average increase for CMWD's service area is approximately 0.7 percent. The projections by CMWD and the 1999 Water Master Plan, prepared by Camp, Dresser and McKee closely match, especially at the end of the planning period (2030). This consistency between imported demand projections provides an added level of confidence, despite the differences in demand projection methodology.

It should also be noted that the imported demands calculated by MWD always exceed the projected imported water need by CMWD. This provides a small contingency for CMWD because MWD will be prepared to supply slightly more water than the CMWD projects it may need.



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CMWD 2005 Urban Water Management Plan
Imported Water Demand Projections

Figure 3-3

Chapter 4

Water Demand Management

Chapter 4
Water Demand Management

This section evaluates the current demand management measures that CMWD employs to reduce the demand for imported water.

A. Demand Management Measures

The CUWCC developed a Memorandum of Understanding (MOU) in the early 1990s to provide guidance for implementing conservation measures as a way to manage water demands. CMWD is a member of the CUWCC and was a signatory of the MOU. The MOU included a list of BMPs that define industry standards for implementing demand management measures. Table 4-1 lists these BMPs.

Table 4-1

CUWCC Demand Management Program BMPs

BMP	Applicability	
	Retailers	Wholesalers
1. Residential Water Surveys	Yes	No
2. Residential Plumbing Fixture Retrofits	Yes	No
3. System Water Audits, Leak Detection, and Repair	Yes	Yes
4. Metering and Commodity Rates	Yes	No
5. Large Landscape Audits	Yes	No
6. High Efficiency Washing Machine Rebates	Yes	No
7. Public Information Programs	Yes	Yes
8. School Education Programs	Yes	Yes
9. CII Conservation Programs	Yes	No
10. Wholesale Agency Assistance	No	Yes
11. Conservation Pricing	Yes	Yes
12. Conservation Coordinator	Yes	Yes
13. Water Waste Prohibition	Yes	No
14. Residential Ultra Low Flush Toilet (ULFT) Replacement	Yes	No

B. CMWD Conservation Programs

CMWD has worked closely with its purveyors and MWD to implement BMP programs. CMWD submits annual reports which summarize the status on implementation of BMP measures. The most recent annual reports submitted to the CUWCC are included in Appendix D of this report. Even though many of the BMPs listed in Table 4-1 are not applicable to wholesale agencies such as CMWD, CMWD is actively involved in their implementation. A description of each of CMWD's specific conservation programs is given below.

1. System Water Audits, Leak Detection and Repair (BMP-03)

Every water agency has some degree of unaccounted for water use, which can include system leaks, unmetered deliveries, or unmetered usage in locations such as water treatment plants. CMWD monitors the amount of unaccounted water use by comparing metered sales to the total supply delivered into the water system. In 2004, less than 1 percent of the water delivered into the CMWD system was unaccounted water. To help ensure this high level of accountability, the CMWD performs an annual audit of their 144 miles of transmission piping.

2. Public Information Programs (BMP-07)

CMWD has developed literature brochures and distributed this information at public events to help encourage the wise use of water. In 2004, approximately $47,000 was budgeted for public information programs and literature brochures were made available at an estimated 17 different public venues.

3. School Education Programs (BMP-08)

CMWD has work closely within the state recommended framework to implement a school information program. These programs include teacher inservice workshops and classroom presentations for grades kindergarten through 12. The primary focus of the various programs is to educate children on water resource issues including available water sources, water use and conservation. In 2004, CMWD allocated nearly $7,800 for school education programs, distributed conservation information materials to over 500 students, and made formal presentations to 25 student classes.

4. Wholesale Agency Assistance (BMP-10)

CMWD has worked closely with its purveyors and provided financial assistance in the implementation of several BMPs. In 2004, CMWD provided approximately $156,000 in assistance and has budgeted $85,000 in additional assistance for 2005.

CMWD supports its purveyors in promoting the installation of water efficient equipment. CMWD budgeted $2,500 for residential customer water surveys and $2,500 for plumbing retrofits in 2004. In 2004, CMWD contributed approximately $73,500 water efficient washing machine rebates. CMWD also provides financial assistance by providing rebates for the purchase of an ULFT when replacing a traditional toilet, as well as distributing ULFTs to customers at no charge through community-based organizations. In 2004, CMWD provided approximately $33,000 in assistance and has budgeted over $46,000 for 2005.

CMWD budgeted $20,000 in 2004 to assist large irrigation water users in the evaluation of potential water savings associated with improvements to irrigation practices. This program is designed to focus on dedicated landscape meters within residential areas. These types of meters are found in the common areas of apartment complex common areas and homeowners associations, golf courses, parks, and street medians. The program can provide assistance in retaining a landscape consultant to survey the area, provide a conservation plan, and potentially fund a pilot study to assess the potential savings.

CMWD has worked closely with MWD in recent years to focus on the replacement of fixtures commonly found at commercial, industrial, and institutional (CII) facilities that have the greatest potential for water savings. This new program will target sites having large water savings potential by marketing directly to their corporate headquarters. By focusing on the larger CII users, large water savings have been realized.

5. Conservation Pricing (BMP-11)

CMWD utilizes an inclining block rate structure, which means that the price of water increases with quantity.

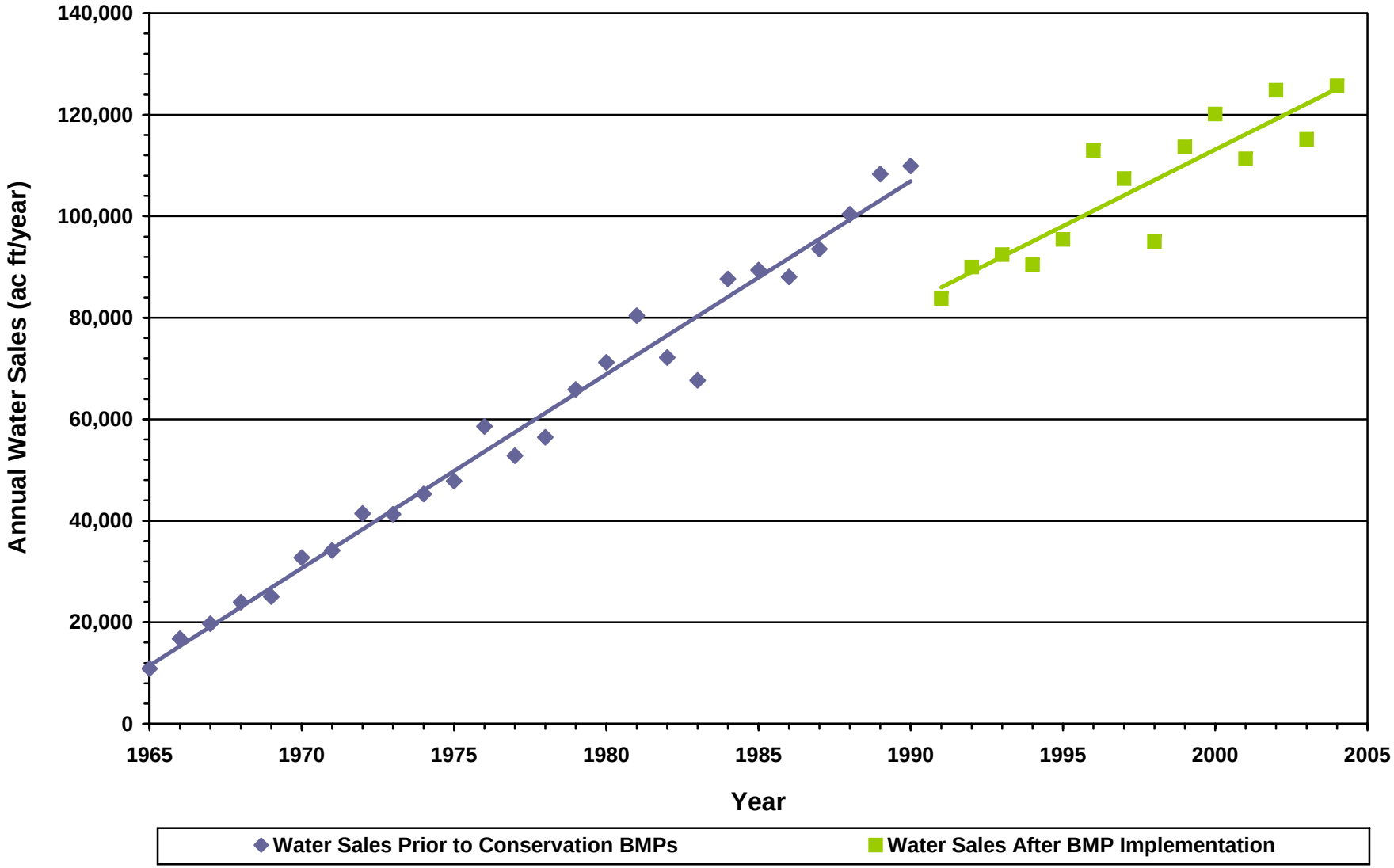
6. Conservation Coordinator (BMP-12)

CMWD has staff designated to the oversight and implementation of the conservation BMPs and the promotion of water conservation.

C. Effectiveness of Conservation Measures

In conjunction with MWD and CMWD purveyors, the implementation of cost-effective BMPs and the adoption of an increasing block rate structure provides mechanisms for both active conservation and financial incentives for reducing discretionary consumption.

CMWD will also continue to work with MWD and regional purveyors to identify new ways to control water consumption in a cost effective manner and will continue to measure and evaluate the effectiveness of the current conservation activities. Figure 4-1 presents historical water sales by CMWD and shows the effectiveness of the BMPs since they were implemented in the early 1990s. It is important to note that California experienced the most severe extended drought on record from 1990 through 1992. Many water providers were forced to increase their water rates, which resulted in decreased water sales. This impact is illustrated on Figure 4-1 by the significant drop in water sales between 1990 and 1991 and no doubt helped contribute to conservation, in addition to the implementation of BMPs.



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CMWD 2005 Urban Water Management Plan
Historic Water Sales Before and After Implementation of Conservation BMPs

Figure 4-1

Chapter 5

Reliability Planning

Chapter 5
Reliability Planning

This chapter evaluates the reliability of available supplies to meet demands. Because the reliability of CMWD imported supplies are dependent upon MWD's delivery ability, this chapter evaluates the supply reliability of both MWD and CMWD.

A. Average Year Supply versus Demand Evaluation

The following section evaluates MWD's and CMWD's reliability with respect to projected average year hydrologic conditions.

1. MWD Average Year Reliability Evaluation

Table 5-1 shows the water supply versus demand evaluation for MWD's projected average year hydrologic conditions. As shown in Table 5-1, sufficient supplies are available to meet the projected average year demands.

Table 5-1

MWD Supply versus Demand for Average Year Conditions

	(Acre Feet Per Year)					
	2005	**2010**	**2015**	**2020**	**2025**	**2030**
MWD Available Supplies	2,468,000	2,668,000	2,660,000	2,654,000	2,654,000	2,654,000
Imported Demand on MWD[1]	2,019,000	2,073,000	2,095,000	2,131,000	2,258,000	2,390,000
Percent of Potential Reserves[2]	22%	22%	19%	20%	15%	10%

[1]Firm demands plus water banking program replenishment demands.

[2]Reserves not used to meet annual demands are used for additional system replenishment.

A potential reserve of at least 10 percent is anticipated during these conditions. Therefore, it is reasonable to utilize the total amount of MWD's available supply projections for CMWD when evaluating CMWD's reliability below.

2. CMWD Average Year Reliability Evaluation

Table 5-2 shows the water supply versus demand evaluation for CMWD's projected average year hydrologic conditions. As shown in Table 5-2, sufficient supplies are available for this condition. On average, there is projected to be a water supply surplus each year of approximately 12 percent.

Table 5-2

CMWD Supply versus Demand for Average Year Conditions

	(Acre Feet Per Year)					
	2005	**2010**	**2015**	**2020**	**2025**	**2030**
Average Year Demand	173,127	186,041	200,570	212,239	222,795	234,267
Average Year Local Supply	50,262	60,579	70,341	76,668	82,914	89,730
Imported Demand on MWD	122,165	125,462	130,229	135,571	139,881	144,537
MWD Available Supplies	125,800	138,200	146,300	155,600	162,800	170,100
Percent Surplus	3%	10%	12%	15%	16%	18%

B. Dry Year Supply versus Demand Evaluation

The following section evaluates MWD's and CMWD's reliability with respect to projected dry year hydrologic conditions.

1. MWD Dry Year Reliability Evaluation

Table 5-3 shows the water supply versus demand evaluation for MWD's projected dry year hydrologic conditions, such as that experienced in 1977. As shown in Table 5-3, sufficient supplies are available to meet the projected dry year demands and a reserve of between 3 and 30 percent is anticipated during these conditions.

Table 5-3

MWD Supply versus Demand for Dry Year Conditions

	(Acre Feet Per Year)					
	2005	**2010**	**2015**	**2020**	**2025**	**2030**
MWD Available Supplies	2,104,000	2,842,000	3,056,300	3,021,400	2,997,800	2,997,800
Imported Demand on MWD [(1)]	2,042,000	2,326,000	2,342,000	2,377,000	2,504,000	2,631,000
Percent of Potential Reserves[(2)]	3%	22%	30%	27%	20%	14%

[(1)]Firm demands plus water banking program replenishment demands.

[(2)]Reserves not used to meet annual demands are used for additional system replenishment.

As with the average year condition, it is reasonable to utilize the total amount of MWD's available supply projections for CMWD when evaluating CMWD's reliability under dry year conditions, due to MWD's projected surplus.

2. CMWD Dry Year Reliability Evaluation

Table 5-4 shows the water supply versus demand evaluation for CMWD's projected dry year hydrologic conditions. As shown, the estimated allocation of water from MWD during a dry year is sufficient to meet the CMWD's projected dry year imported water demands from 2010 through 2030. This is a result of groundwater banking storage facilities that MWD will be constructing between 2005 and 2010 that will store large quantities of water during normal and wet years. This stored water will be extracted during dry years to meet anticipated dry year demands.

Table 5-4

CMWD Supply versus Demand for Dry Year Conditions

	(Acre Feet Per Year)					
	2005	**2010**	**2015**	**2020**	**2025**	**2030**
Dry Year Demand	177,004	190,612	205,449	217,504	228,256	239,973
Dry Year Local Supply	49,060	59,345	68,987	75,163	81,263	87,866
Imported Demand on MWD	127,944	131,267	136,462	142,341	146,993	152,107
MWD Dry Year Allocation(1)	107,300	147,200	172,000	177,100	208,400	192,200
Surplus	-16%(2)	12%	26%	24%	42%	26%

(1)Based on the percentage of imported water MWD anticipates being able to supply to its service area in a dry year, as listed in Table 2-6.

(2)Deficit could be met by the available reserves shown in Table 5-3 or by using water stored by the Las Posas ASR facilities.

For the dry year condition, Table 5-4 shows a deficit between 2005 and 2010 before the completion of the MWD groundwater banking projects. If a dry year equivalent to the 1977 hydrologic condition is experienced during this time, the additional needed water could be supplied by MWD from the estimated available reserves shown in Table 5-3 or by using water stored by the Las Posas ASR facilities. Chapter 6 provides additional details on the how the Las Posas ASR facilities can provide CMWD flexibility in meeting short term supply shortfalls.

C. Multiple Dry Year Supply versus Demand Evaluation

The following section evaluates MWD's and CMWD's reliability with respect to projected multiple dry year hydrologic conditions.

1. MWD Multiple Dry Year Reliability Evaluation

Table 5-5 shows the water supply versus demand evaluation for MWD's projected multiple dry year hydrologic conditions, such as those experienced in

1990 through 1992. As shown in Table 5-5, sufficient supplies are available to meet MWD's projected multiple dry year demands.

Table 5-5

MWD Supply versus Demand for Multiple Dry Year Conditions

	(Acre Feet Per Year)					
	2005	**2010**	**2015**	**2020**	**2025**	**2030**
MWD Available Supplies	2,410,000	2,618,100	2,833,300	2,810,900	2,797,100	2,797,100
Imported Demand on MWD [1]	N/A	2,410,000	2,431,000	2,459,000	2,596,000	2,729,000
Percent of Potential Reserves[2]	N/A	9%	17%	14%	8%	2%

[1]Firm demands plus water banking program replenishment demands.

[2]Reserves not used to meet annual demands are used for additional system replenishment.

N/A – Information not available.

A potential reserve of between 2 percent and 17 percent is anticipated during these conditions. Therefore, it is reasonable to utilize the total amount of MWD's available supply projections for CMWD when evaluating CMWD's reliability under multiple dry year conditions.

2. CMWD Multiple Dry Year Reliability Evaluation

Table 5-6 shows the water supply versus demand evaluation for CMWD's projected multiple dry year hydrologic conditions, which shows a similar condition to the dry year evaluation presented in Table 5-4. Sufficient imported water is projected to be available for the years 2010 through 2030 to meet demands. However, as with the dry year scenario, there could be a shortfall until 2010 is multiple dry conditions are experienced. The five percent shortfall could be provided by MWD from the estimated available reserves shown in Table 5-5 or by utilizing water stored water in the Las Posas ASR facilities.

Table 5-6

CMWD Supply versus Demand for Multiple Dry Year Conditions

	(Acre Feet Per Year)					
	2005	**2010**	**2015**	**2020**	**2025**	**2030**
Multiple Dry Year Demand	179,388	193,599	208,874	221,353	232,515	244,606
Multiple Dry Year Local Supply	49,470	60,660	71,963	78,260	84,496	91,377
Imported Demand on MWD	129,918	132,939	136,911	143,093	148,019	153,229
MWD Available Supplies[1]	122,800	135,600	159,500	164,800	171,600	179,300
Surplus	-5%[2]	2%	16%	15%	16%	17%

[1]Based on the percentage of imported water MWD anticipates being able to supply to its service area, as listed in Table 2-6.

[2]Deficit could be met by the available reserves shown in Table 5-3 or by using water stored by the Las Posas ASR facilities.

D. Supply Reliability Strategies

This section discusses supply reliability strategies for SWP water.

1. DWR Strategies for SWP Supplies

The California DWR delivers water to Southern California using the SWP facilities. In years past, operation of the SWP facilities has been hampered by environmental and water management problems.

The CALFED Bay-Delta Program (CALFED), a cooperative effort among state and federal agencies and California's environmental, urban and agricultural communities, was initiated in 1995 to reduce conflicts by developing a sustainable, long-term solution to water management and environmental problems associated with the Bay-Delta system. The CALFED program is a comprehensive plan that will restore ecological health, improve water supply reliability for beneficial uses, improve water quality, and improve levee stability in the Bay-Delta estuary.

In August of 2000, CALFED issued a Programmatic Record of Decision (ROD), reflecting the long-term plan for the Bay-Delta, which includes the following major program elements:

a. Water Management

The Plan identified actions that could increase California water supplies by nearly 3 million acre-feet by: 1) maximizing conservation, water recycling, and water quality improvements, 2) increasing flexibility through improvements in conveyance, storage and operations, and 3) developing new groundwater and surface water storage projects.

b. Storage

New surface reservoirs and underground aquifers can restore ecosystems, improve water quality, and provide needed storage and flexibility. This is being accomplished by 1) providing financial and technical assistance to implement 0.5 to 1 million acre-feet of new, locally managed, groundwater storage, and 2) pursuing opportunities for new off-stream storage sites and expansion of existing on-stream storage sites.

c. Conveyance

Efforts are being made to move water through the Bay-Delta as efficiently as possible to increase the system's flexibility, ecosystem health, and water quality.

d. Water Use Efficiency

CALFED aims to generate significant water supply, water quality, and ecosystem benefits by implementing a competitive process that will fast-track water conservation and recycling projects.

e. Water Transfers

Through development of an effective water transfer market, existing supplies will be stretched by promoting transfers from willing sellers to buyers while protecting other water users, local economies and the environment.

f. Environmental Water Account

The Environmental Water Account included water rights obtained by CALFED to benefit the environment and minimize water supply impacts on cities, farms and businesses.

g. Drinking Water Quality

Drinking water source protection, treatment, and distribution will be effectively integrated in order to improve public health protection, including comprehensive monitoring and assessment of water quality.

h. Watershed Management

The goal of the Watershed Program is to provide financial and technical assistance that promote collaboration and integration among community based watershed efforts.

i. Levee System Integrity

CALFED is acting to protect water supplies by reducing the threat of levee failure and seawater intrusion.

j. Ecosystem Restoration

Ecosystem restoration actions help restore and improve the health of the Bay-Delta system for all native species while reducing water management constraints.

k. Science

The long-term goal of the Science Program is to establish a body of knowledge covering program elements and communicated to the scientific community, CALFED agency managers, stakeholders, and the public.

2. MWD Strategies for SWP and Colorado River Supplies

MWD is also utilizing storage strategies to increase both SWP and Colorado River reliability. In addition to utilizing Diamond Valley Lake and shared portions of Lake Perris and Castaic Lake, MWD plans to have off-stream storage facilities developed along the SWP California Aqueduct and the CRA. More detail on all of MWD's strategies for providing water supply reliability can be

found in Appendix 3 of the MWD 2005 Regional UWMP. As a result of investments made in conservation, water recycling, storage, and supply, MWD expects to be 100 percent reliable over the next 20 years and therefore, CMWD also expects to be 100 percent reliable with respect to imported water delivery over the next 20 years.

a. Kern Delta

The Kern Delta Water Management Program is a California Aqueduct off-stream storage project that will divert up to a total of 250,000 acre-feet of SWP water during wet years and store it in the local groundwater basin. During dry years, the stored water can be extracted using groundwater wells.

b. Chuckwalla

The Chuckwalla Groundwater Storage Program is a CRA off-stream storage project that will divert and store up to a total of 500,000 acre-feet per year of Colorado River water.

3. CMWD Strategies for Local Supplies

CMWD also operates local facilities to increase reliability within its service area. These facilities are discussed below.

a. Las Posas Aquifer Storage and Recovery

The Las Posas ASR Project is a joint project between MWD and CMWD. The project includes dual-purpose extraction and injection wells in three well fields in the Las Posas groundwater basin. The ASR project can store up to 300,000 AF of imported water for use during peak periods, droughts, scheduled shutdowns, or emergencies. The ASR project is approximately two thirds complete and has an extraction capacity of approximately 70 cfs. It is anticipated that a maximum replenishment rate of 80 cfs and maximum extraction rate of 100 cfs will be available upon completion of the project.

Also, when available, CMWD provides imported water to local purveyors who typically rely on groundwater pumping. Supplying imported water in-lieu of pumping groundwater provides CMWD a mechanism for obtaining groundwater storage credits in the Las Posas Basin.

b. Lake Bard Water Treatment Plant

The filtration plant capacity was recently expanded from 75 cfs to 100 cfs. Approximately 8,000 acre feet of water may be stored in the lake for use during emergencies and peak demand.

c. Standby Power

Recognizing that water supplies are only as dependable as the electrical supply that powers them, CMWD installed standby generators that can power the Conejo Pump Station and the Lake Bard Water Treatment Plant in the event of an interruption of power from Southern California Edison Company. Generators are also located at remote pumping stations to provide backup power.

d. Transfer Opportunities

CMWD, as a member agency to MWD, benefits from transfer agreements made through MWD. Therefore, CMWD does not currently pursue independent transfer agreements.

Chapter 6

Contingency Planning

Chapter 6
Contingency Planning

CMWD has proactively developed water shortage contingency plans in the event that MWD significantly reduces deliveries to its member agencies during severe water shortage conditions or in the event that a catastrophe results in interruption of water deliveries to CMWD from MWD. This section summarizes CMWD's water shortage contingency measures.

A. Severe Drought Planning

MWD has developed a Water Surplus and Drought Management Plan (WSDM Plan) that provides guidance for the management of regional water supplies to avoid imposing mandatory water restrictions during drought conditions. However, in the event that there is an extreme shortage in water available to MWD, the WSDM also identifies guidelines for implementing water restrictions and for allocating reduced supplies. MWD's WSDM Plan is also the blueprint for CMWD's actions in the event of a water shortage. The WSDM Plan is thoroughly discussed in MWD's Regional UWMP.

A copy of the draft resolution regarding CMWD's water shortage contingency procedures is included in Appendix E. To minimize the potential impact of imposed water restrictions, CMWD will continue to store water in local reservoirs and groundwater basins when surplus water is available. This stored water can then be extracted should there be a shortage in available imported water.

1. CMWD Water Shortage Stages of Action

Table 6-1 presents potential water management actions that could be implemented by CMWD during both surplus and shortage conditions. There are five CMWD surplus stages of actions that are intended to be consistent with the surplus stages defined in MWD's WSDM Plan. There are also seven CMWD shortage stages of actions. These stages are intended to be consistent with the shortage stages defined by MWD. In addition, CMWD's Ordinance No. 12 gives the Board of Directors authority to take actions necessary to manage available supplies, including passing through to member agencies allocations and penalties for exceeding allocated deliveries.

Table 6-1

CMWD Water Shortage Stages of Action Guidelines

Condition[1]	Percent Shortage	Action[2]
Stage 4 & 5 Surplus	-	Maximize in-lieu and injection deliveries.
Stage 3 Surplus	-	Store water in Las Posas.
Stage 2 Surplus	-	Continue in-lieu deliveries.
Stage 1 Surplus	-	Begin in-lieu deliveries.
Supply = Demand	0	No in-lieu or injection deliveries.[3]
Stage 1 Shortage	0 - 10	Continue to maximize deliveries from MWD.
Stage 2 Shortage	10 - 15	Begin withdrawals from Las Posas.
Stage 3 Shortage	15 - 33	Call on purveyors to maximize local supplies, promote voluntary conservation.
Stage 4 Shortage	33 - 40	Discontinue agricultural water deliveries.
Stage 5 & 6 Shortage	40 - 50	Call for extraordinary conservation efforts.
Stage 7 Shortage	50+	Enforce compliance with MWD reduced allocation requirements.[4]

[1]Stages of CMWD actions are intended to be consistent with action stages defined by MWD.

[2]As surplus or shortage conditions progress, these actions are additive.

[3]Deliveries will be reduced to just purveyor demands and regulatory deliveries to Lake Bard.

[4]CMWD will monitor consumption and asses penalties for excessive use.

Table 6-1 presents action guidelines that may be utilized by CMWD during surplus or shortage conditions. However, the CMWD system is complex and the ultimate actions made by CMWD will depend on the unique issues of each particular condition.

2. Three-Year Estimated Minimum Supply Evaluation

The UWMP Act requires that the minimum water supply be quantified based on the driest three-year historic sequence. The reliability of CMWD's water supply during multiple dry years is directly dependent on the reliability of MWD's supply during multiple dry years. As outlined in MWDs Draft 2005

UWMP, a diverse mix of water supplies is available to MWD. Utilizing a computer model that considers over 80 years of historical records for each water source, MWD has indicated that the years of 1990, 1991, and 1992 are representative of the driest three consecutive years for MWD supplies.

Based on review of MWD published average year supply capability in comparison to multiple dry-year supply capability, and assuming a repeat of 1990 through1992 hydrology, the driest three years would yield approximately 2.4 percent less supply than the average year. Table 6-2 assumes that the average year supply available to CMWD would also be reduced by 2.4 percent for years 2006, 2007, and 2008.

Table 6-2

Three-Year Estimated Minimum Water Supply for 2005 – 2010[1]

CMWD Source of Supply	2005 Average Year	2006	2007	2008
MWD Imported Supplies[2]	125,800	91,900	91,900	91,900
MWD In-Basin Supplies[3]	0	30,900	30,900	30,900
Total Supplies to CMWD	125,800	122,800	122,800	122,800
Imported Demand[4]	122,865	130,522	131,126	131,730
Surplus	2%	-6%[5]	-6%[5]	-7%[5]

[1]Based on a repeat of the hydrologic conditions experienced in 1990 through 1992.

[2]Based on the ratio of MWD's estimate of available water from the CRA and California Aqueduct during a multiple dry year event (approximately 65 percent).

[3]Estimated portion of in-basin storage needed to meet MWD's multiple dry year allocation to CMWD.

[4]Interpolated from CMWD's projected multiple dry year demands for 2005 and 2010.

[5]Shortfall could be met by utilizing in-basin storage from Las Posas, ordering a portion of MWD identified reserves, or implementing short-term conservation measures.

Table 6-3 presents a similar three-year estimated water supply to that presented in Table 6-2 for the 2010 through 2015 time period. As shown, any potential shortfalls between 2005 and 2010 are anticipated to be resolved due to additional available water supplies.

Table 6-3

Three-Year Estimated Minimum Water Supply for 2010 – 2015[1]

CMWD Source of Supply	2010 Average Year	2011	2012	2013
MWD Imported Supplies[2]	138,600	91,200	91,200	91,200
MWD In-Basin Supplies[3]	0	44,400	44,400	44,400
Total Supplies to CMWD	138,600	135,600	135,600	135,600
Imported Demand[4]	125,462	133,733	134,527	135,321
Surplus	10%	1%	0.7%	0.2%

[1]Based on a repeat of the hydrologic conditions experienced in 1990 through 1992.

[2]Based on the ratio of MWD's estimate of available water from the CRA and California Aqueduct during a multiple dry year event (approximately 66 percent).

[3]Estimated portion of in-basin storage needed to meet MWD's multiple dry year allocation to CMWD.

[4]Interpolated from CMWD's projected multiple dry year demands for 2010 and 2015.

Tables 6-4 through 6-6 show similar multiple dry year scenario evaluations for the time periods of 2015 through 2020, 2020 through 2025, and 2025 through 2030. As shown on these tables, even greater surplus are anticipated due to additional available water supplies.

Table 6-4

Three-Year Estimated Minimum Water Supply for 2015 – 2020[1]

CMWD Source of Supply	2015 Average Year	2016	2017	2018
MWD Imported Supplies[2]	146,300	96,200	96,200	96,200
MWD In-Basin Supplies[3]	0	63,300	63,300	63,300
Total Supplies to CMWD	146,300	159,500	159,500	159,500
Imported Demand[4]	128,329	138,147	139,383	140,619
Surplus	14%	15%	14%	13%

[1]Based on a repeat of the hydrologic conditions experienced in 1990 through 1992.

[2]Based on the ratio of MWD's estimate of available water from the CRA and California Aqueduct during a multiple dry year event (approximately 66 percent).

[3]Estimated portion of in-basin storage needed to meet MWD's multiple dry year allocation to CMWD.

[4]Interpolated from CMWD's projected multiple dry year demands for 2015 and 2020.

Table 6-5

Three-Year Estimated Minimum Water Supply for 2020 – 2025[1]

CMWD Source of Supply	2020 Average Year	2021	2022	2023
MWD Imported Supplies[2]	155,600	102,200	102,200	102,200
MWD In-Basin Supplies[3]	0	62,600	62,600	62,600
Total Supplies to CMWD	155,600	164,800	164,800	164,800
Imported Demand[4]	133,671	144,078	145,063	146,048
Surplus	16%	14%	14%	13%

[1]Based on a repeat of the hydrologic conditions experienced in 1990 through 1992.

[2]Based on the ratio of MWD's estimate of available water from the CRA and California Aqueduct during a multiple dry year event (approximately 66 percent).

[3]Estimated portion of in-basin storage needed to meet MWD's multiple dry year allocation to CMWD.

[4]Interpolated from CMWD's projected multiple dry year demands for 2020 and 2025.

Table 6-6

Three-Year Estimated Minimum Water Supply for 2025 – 2030[1]

CMWD Source of Supply	2025 Average Year	2026	2027	2028
MWD Imported Supplies[2]	162,800	107,000	107,000	107,000
MWD In-Basin Supplies[3]	0	64,600	64,600	64,600
Total Supplies to CMWD	162,800	171,600	171,600	171,600
Imported Demand[4]	137,981	149,061	150,103	151,145
Surplus	18%	15%	14%	14%

[1]Based on a repeat of the hydrologic conditions experienced in 1990 through 1992.

[2]Based on the ratio of MWD's estimate of available water from the CRA and California Aqueduct during a multiple dry year event (approximately 66 percent).

[3]Estimated portion of in-basin storage needed to meet MWD's multiple dry year allocation to CMWD.

[4]Interpolated from CMWD's projected multiple dry year demands for 2025 and 2030.

As shown on Tables 6-2 through 6-6, CMWD has developed water supply strategies to meet future multiple dry year events.

B. Catastrophe Planning

Although MWD and CMWD water delivery systems are very robust, these systems are still vulnerable. A natural event, such as an earthquake, could cause the complete and sudden failure of the facilities used by MWD to import water into the region. Similarly, the facilities used to import water from MWD into the CMWD region are susceptible to these same threats.

1. MWD Catastrophe Plan

The majority of Southern California's water is imported via three facilities, the California Aqueduct, Los Angeles Aqueduct, and the CRA. All three sources

cross the San Andreas Fault. A catastrophic event that resulted in an unplanned interruption in supply from any of these facilities would have a significant impact on the ability to supply water. Consequently, MWD has invested heavily in emergency storage facilities located both in and out of the region to store a significant quantity of water. As a result, MWD anticipates that approximately 75 percent of average year demands could be delivered to its member agencies even if there was a disruption of service from a regional water supply.

2. CMWD Catastrophe Strategies

CMWD is one of only a few member agencies of MWD that imports 100 percent of its water from a single connection to MWD facilities. In the event that service from this supply is disrupted, CMWD would be required to meet local demands from water stored in Lake Bard and the Las Posas groundwater basin.

Lake Bard has a total storage capacity of 10,000 acre-feet; however, only 8,000 acre-feet are quantified as usable storage. The Lake Bard Water Treatment Plant extracts water stored in Lake Bard and can produce 100 cfs of potable water for a short period of time. Additionally, the Las Posas groundwater basin has an approximate storage capacity of 300,000 acre-feet. Currently the basin extraction facilities have a total capacity of approximately 80 cfs. However, upon ultimate completion in 2010, the basin extraction and treatment facilities will be capable of producing up to 100 cfs of potable water.

Utilizing a combination of Lake Bard and Las Posas facilities, CMWD can endure an extended disruption in service from MWD. Table 6-7 shows several strategies for meeting 2005 water demands during conditions of reduced deliveries from MWD.

Table 6-7

Strategies for Meeting 2005 Average Year Demands During Reduced MWD Deliveries

Source of Supply	25 Percent Reduction of Average Year Delivery (ac ft/yr)	50 Percent Reduction of Average Year Delivery (ac ft/yr)	Short-Term MWD Interruption (cfs)	Long-Term MWD Interruption (ac ft/yr)
MWD	94,400	62,900	0	0
Lake Bard[1]	0	0	100	0
Las Posas[2],[3]	22,965	54,465	65	58,000
Additional Local Supply[4]	5,500	5,500	5	20,700[5]
Total	122,865	122,865	170	78,700
Imported Demand	122,865	122,865	170	122,865
Conservation Required	0%	0%	0%	36%

[1]Lake Bard facilities can supply 100 cfs for between 10 and 35 days, depending on initial lake levels.

[2]Las Posas facilities can supply 80 cfs and has a maximum storage capacity is 300,000 ac-ft per year.

[3]Most of the water stored in Las Posas is owned by MWD a can only be extracted with MWD approval.

[4]During an extended MWD outage, CMWD would request local purveyors to maximize local supplies.

[5]Based on purveyor estimates of sustained pumping capacity for a three month period.

3. CMWD Emergency Pipeline Repair Protocol

The CMWD distribution system has proven highly reliable for over 30 years. However, its potential vulnerability was demonstrated by the 1994 Northridge Earthquake, which resulted in numerous pipeline separations and cracked joints, and again in 1997 by an intense pressure surge which lead to the rupture of a 20 linear-foot section of a 66-inch diameter pre-stressed concrete pipe in Simi Valley.

Recognizing the inherent vulnerability of water transmission systems, in 1998, the CMWD Board of Directors adopted an Emergency Pipeline Repair

Protocol as part of its continuing commitment to quality service. The intent of this protocol is to establish a state of preparedness and an organized, planned procedure to mobilize and begin work. The plan facilitates timely emergency response and assures that repairs will be performed in the most efficient manner.

Large diameter pipeline failures, if not addressed promptly and properly, can inconvenience thousands of customers and cause considerable property damage. Facility failures may be caused by construction activity, earthquakes, power failures, or other conditions such as pressure surges (i.e., water hammer). While failures can be expected, their locations are unknown until they occur, which dictates that a repair protocol be applicable to a broad range of situations and locations. Furthermore, the more quickly the failure can be repaired, the less likely it will cause debilitating damage or service outages.

In preparing the protocol, CMWD sought to identify factors that can enhance the efficiency with which emergency repairs are performed, and develop specific actions to improve emergency repair procedures. In an effort to learn from the experiences of others in the water industry, the study included meetings and discussions with pipeline suppliers and other vendors as well as with other large water providers including MWD and the San Diego County Water Authority.

Research indicated that the key to efficient repair procedures is a structured approach, in which specific procedures, responsible personnel and necessary equipment are identified and secured ahead of time. With this in mind, CMWD developed a protocol that includes a step-by-step procedure for responding to an emergency. The key elements of the protocol are:

- Establishment of emergency repair organizational structure.
- Identification of emergency contacts.
- Damage assessment.
- Materials and equipment assessment.
- Comprehensive repair procedures for various facility types.
- Ongoing maintenance of the protocol.

Since execution of the protocol depends on the direction of a designated Emergency Repair Manager, the establishment of a "chain of command" is critical to the success of this approach. Checklists for emergency contacts, damage assessment, assessment of materials, and equipment are included in the protocol, as well as specific repair and disinfection procedures, technical details, and applicable specifications.

Rapid mobilization of repair crews is dependent upon having equipment and replacement pipe and appurtenances at the ready. CMWD's plan contains recommendations for the stockpiling of a total of seven sizes of replacement pipe, in diameters ranging from 24 to 78 inches. This pipe has been purchased and is stored at CMWD's Lake Bard and well field properties. Having this inventory available gives CMWD the ability to quickly repair up to 98 percent of the pipelines in its distribution system.

C. Water Quality Contingency Planning

Changes in drinking water regulations, environmental litigation, or identification of a new contaminate could result in the loss of an existing water supply source. This section discusses how water quality concerns could impact the reliability of the regional water systems.

1. MWD Water Quality Contingency Planning

To reduce the potential impact from a decrease in water supply due to water quality, MWD has instituted a 10 percent planning buffer requirement. This buffer requires the identification of contingency supplies equal to 10 percent above that needed to meet 2025 demands. These supplies are to be used only if existing supplies become unavailable and allows for a more speedy response should existing water supplies become unavailable.

2. CMWD Water Quality Contingency Planning

CMWD manages two major local storage facilities, Lake Bard and the Las Posas ASR Facilities. Lake Bard is relatively small and is primarily intended to provide operational flexibility to CMWD rather than to serve as a regular water supply. Contamination of the lake is an unlikely event as the lake and its watershed are owned by CMWD and access is restricted. However, if the lake was deemed unusable due to water quality, only approximately 5 percent of CMWD's total annual demands would be affected. It is anticipated that this lost

supply could be supplemented with additional imported water from MWD or by extracting water from the Las Posas groundwater basin.

Alternatively, the Las Posas groundwater basin is anticipated to have a storage capacity of approximately 300,000 acre-feet. During a severe drought condition, MWD may call upon this supply to meet a significant portion of CMWD's total water demands. Because this basin is an important part of both MWD's and CMWD's water resource mix, any potential water quality related issues with this basin would have a significant impact on the ability to meet demands during dry years.

Water quality problems in this basin are highly unlikely due to the fact that the basin is confined. If a water quality issue occurred in the Las Posas basin, it would likely be resolved with treatment upon extraction. In the event that the existing treatment facilities were not capable of removing the contaminant, CMWD would rely on MWD to deliver additional imported water until the facilities could be upgraded to remove the contaminant.

D. Provisions to Reduce Water Consumption

Under the most severe drought conditions and under almost any catastrophe condition, CMWD may call for mandatory reduction in water consumption. This section presents guidelines to reduce water consumption and identifies measures that could be utilized by CMWD to monitor and enforce reduced water consumption.

1. Guidelines for Meeting Reduced Consumption Mandates

In the event that a mandatory reduction in water consumption is required, one or all the following guidelines can be implemented to meet the water consumption goals:

- Disallow non-essential irrigation and limit water use for essential irrigation.
- Restrict irrigation hours to evening and early morning hours.
- Restrict or disallow the use of sprinklers during all hours.
- Limit or disallow the use of potable water for golf course and park irrigation.

- Disallow the use of water to fill ornamental lakes, ponds, pools, and fountains.
- Limit or disallow the washing of vehicles.
- Disallow the use of water for spraying of outdoor paved surfaces.
- Request that restaurants not serve water to customers unless specifically requested.
- Restrict the use of water from fire hydrants for construction purposes.
- Develop a rate structure for charges and penalties for water use restriction violations.

2. Monitoring and Enforcing Reduced Consumption Mandates

California Water Code Section 10632-f allows urban water suppliers to charge penalties for excessive water use in order to encourage consumption reduction during a water shortage. Under the current WSDM Plan adopted by MWD, any time a member agency takes 102 percent of their reduced allotment under a declared Stage 7 shortage condition, they will be assessed a surcharge equal to three times the MWD full service rate. To meet MWD reduced allotments during water shortages, CMWD may be required to reduce allotments in-kind.

CMWD can monitor daily water consumption and issue penalties for excessive use during declared shortage conditions using existing water metering facilities. Additionally, CMWD is currently in the design phase of the Turnout Automation Project. When complete, the system will provide monitoring of flow conditions at all turnouts and will provide real time flow data to both CMWD and its purveyors. The Turnout Automation Project will assist in more efficient operations during both water shortage conditions and normal operating conditions.

3. Fiscal Impacts from Reduced Water Deliveries

During periods of reduced consumption, revenue from water sales will decline while expenses remain relatively constant. A natural disaster may also entail unpredicted expenditures for repairs. Therefore, it is imperative that

CMWD have adequate reserves to cover operating and emergency repair expenses during these periods. CMWD maintains a minimum in its general fund reserves of $15,000,000, which is equivalent to eighteen months of operating expenses. In addition, CMWD maintains a minimum of $25,000,000 in construction reserves, which is sufficient to fund expected damage repairs. If periods of reduced consumption are prolonged, CMWD may be required to adjust rates to remain financially stable.

Appendix A

DWR Checklist

CMWD 2005 Urban Water Management Plan
Check List

Report Requirements

DWR Guidance Table #	Table Title	Report Chapter	Report Location
Table 1	Agency Coordination	1 - Introduction	Table 1-1
Table 2	Population Projections	1 - Introduction	Tables 1-3, 1-4, 1-5
Table 3	Climate Summary	1 - Introduction	Table 1-6
Table 4	Current & Planned Supplies	2 - Water Supplies and Quality	Chapter 2
Table 5	Groundwater Pump Rights	2 - Water Supplies and Quality	Chapter 2, Section B.2
Table 6	Groundwater Pumping History	2 - Water Supplies and Quality	Figure 2-1
Table 7	Groundwater Pumping Projections	2 - Water Supplies and Quality	Table 2-10
Tables 8,9,10	Dry Year Supply Projections	2 - Water Supplies and Quality	Tables 2-8, 2-11, 2-12
Table 11	Transfer Opportunities	Not Applicable	MWD Regional UWMP
Table 12	Water Use by Type	3 - Water Use and Demands	Table 3-1
Table 13	Sales to Other Agencies	3 - Water Use and Demands	Figure 3-1
Table 14	Unaccounted Water Use	3 - Water Use and Demands	Table 3-1
Table 15	Total Water Use	3 - Water Use and Demands	Tables 3-2, 3-3
Table 16	Demand Management Measures	4 - Water Demand Management	Table 4-1, Appendix C
Table 17	Future Water Supplies	2 - Water Supplies and Quality	Chapter 2, Sections E & F
Table 18	Desalination Opportunities	2 - Water Supplies and Quality	Chapter 2, Section F.2
Tables 19,20	Wholesale Water Supply	2 - Water Supplies and Quality	Table 2-8
Tables 21,22	Wholesale Supply Reliability	5 - Reliability Planning	Tables 5-1, 5-3, 5-5
Table 23	Water Shortage Conditions	6 - Contingency Planning	Table 6-1
Table 24	Three-Year Minimum Supply	6 - Contingency Planning	Table 6-2
Table 25	Catastrophe Preparation	6 - Contingency Planning	Chapter 6, Section B
Table 26	Mandatory Prohibitions	6 - Contingency Planning	Chapter 6, Section D.1
Table 27	Consumption Reductions	6 - Contingency Planning	Chapter 6, Section D.1
Table 28	Penalties and Charges	6 - Contingency Planning	Chapter 6, Section D.2
Tables 29,30	Fiscal Impacts	6 - Contingency Planning	Chapter 6, Section D.3
Table 31	Use Monitoring	6 - Contingency Planning	Chapter 6, Section D.2
Table 32	Recycled Water Agencies	2 - Water Supplies and Quality	Table 2-3
Table 33	Wastewater Treated	2 - Water Supplies and Quality	Table 2-4
Tables 34,35	Recycled Water Use	2 - Water Supplies and Quality	Tables 2-10, 2-11, 2-12
Tables 36,37	Recycled Water Availability	2 - Water Supplies and Quality	Table 2-5
Table 38	Recycled Water Support	2 - Water Supplies and Quality	Chapter 2, Section F
Table 39	Water Quality Contingency	6 - Contingency Planning	Chapter 6, Sections C.1 & C.2
Tables 40-42	Supply vs. Demand - Average Year	5 - Reliability Planning	Table 5-2
Tables 43-45	Supply vs. Demand - Dry Year	5 - Reliability Planning	Table 5-4
Tables 46-57	Supply vs. Demand - Multiple Dry Year	5 - Reliability Planning	Table 5-6

Actions Required

Code Section	Code Title	CMWD Action	Report Location
10642	Public notice to adopt plan advertised in two papers.	Copy of advertisments provided.	Appendix D
10644	Adopt UWMP prior to December 31, 2005.	Copy of adoption resolution provided.	Appendix D
10644	File UWMP with all City/County offices.	Will be filed within 30 days of adoption.	Not applicable

Appendix B

Fox Canyon GMA Ordinances

ORDINANCE NO. 8.1

An Ordinance to Adopt the Fox Canyon Groundwater Management Agency Code

The Board of Directors of the Fox Canyon Groundwater Management Agency ordains as follows:

1. The Board hereby repeals Ordinance No 8.0.

2. The Board will periodically review the effectiveness of this Ordinance toward meeting its purpose and intent. This review shall occur at least once every five years. If necessary, this Ordinance will be amended by the Board to ensure that the goals of the Agency are met.

3. The Board hereby adopts the Fox Canyon Groundwater Management Agency Ordinance Code as follows:

Fox Canyon Groundwater Management Agency Ordinance Code

Adopted July 27, 2005

CHAPTER 1.0
Definitions

As used in this code, the following terms shall have the meanings stated below:

1.1. **"Agency"** means the Fox Canyon Groundwater Management Agency.

1.2. **"Agency Boundary"** shall be as depicted on the map adopted by the Ventura County Board of Supervisors and recorded as an official record with the Ventura County Recorder's Office, and as may be updated as provided in the Agency's enabling legislation.

1.3. **"Agricultural extraction facility"** means a facility whose groundwater is used on lands in the production of plant crops or livestock for market, and uses incidental thereto.

1.4. **"Annual"** means the calendar year January 1 through December 31.

1.5. **"Aquifer"** means a geologic formation or structure that yields water in sufficient quantities to supply pumping wells or springs. A confined aquifer is an aquifer with an overlying less permeable or impermeable layer.

1.6. **"Board"** means the Board of Directors of the Fox Canyon Groundwater Management Agency.

1.7. **"Developed Acreage"** means that portion of a parcel within the boundaries of the Agency that is receiving water for reasonable and beneficial agricultural, domestic or municipal and industrial (M & I) use.

1.8. **"East Las Posas Basin"** That part of the former North Las Posas Basin that is East of the subsurface anomaly described by significant changes in groundwater levels and located for record purposes on maps in the Agency Offices.

1.9. **"Excess extraction"** means those extractions in excess of an operator's extraction allocation or adjusted extraction allocation.

1.10. **"Executive Officer"** means the individual appointed by the Board to administer Agency functions. Replaces the former title of Agency Coordinator.

1.11. **"Exempt well operators"** means all well operators operating extraction facilities supplying a single family dwelling on one acre or less, with no income producing operations and those operators granted an exemption by the Board of Directors.

1.12. **"Expansion area"** means the lower aquifer system (LAS) outcrop in the north and northeasterly portion of the Agency. Map Number Two, entitled Fox Canyon Outcrop, Las Posas Basin, 1995 shows the expansion area and is available in the County Water Resources Division office.

1.13. **"Extraction"** means the act of obtaining groundwater by pumping or other controlled means.

1.14. **"Extraction allocation"** means the amount of groundwater that may be obtained from an extraction facility for a given calendar year, before a surcharge is imposed.

1.15. **"Extraction facility"** means any device or method (e.g. water well) for extraction of groundwater within a groundwater basin or aquifer.

1.16. **"Foreign Water"** means water imported to Ventura County through the State Water Project facilities or other newly available water as approved by the Board, such as recycled water that would otherwise be lost to the Ocean.

1.17. **"Groundwater"** means water beneath the surface of the earth within the zone below the water table in which the soil is completely saturated with water.

1.18. **"Groundwater basin"** means a geologically and hydrologically defined area containing one or more aquifers, which store and transmit water yielding significant quantities of water to extraction facilities. For the purposes of this Ordinance Code, groundwater Basins inside the Agency Boundary shall include but not be limited to the Forebay Basin, Oxnard Plain Pressure Basin, Pleasant Valley Basin, East Las Posas Basin, West Las Posas Basin, South Las Posas Basin and the Arroyo Santa Rosa Basin. The boundaries of these basins are shown on maps that have been recorded with the County Recorder. Copies of the maps may be viewed in the Agency Offices and portions of the maps may be available at the Agency web site.

1.19. **"Historical extraction"** means the average annual groundwater extraction based on the five (5) calendar years of reported extractions from 1985 through 1989 within the boundaries of the Agency. This average will be expressed in acre-feet per year. ***All historical extraction allocations became effective on January 1, 1991.***

1.20. **"Inactive Well"** An inactive well is a well that conforms to the County of Ventura Ordinance Code requirements for an active well, but is being held in an idle status in case of future need. Inactive wells are not required to have a flow meter. Pumping to meet Ventura County Ordinance Code requirements shall not exceed 12 hours in a 12 month period. Meters shall be installed on inactive wells and the well shall revert to a groundwater extraction facility if the requirement exists to pump the well for more than 12 hours in any 12 month period. The pumping to meet Ventura County Ordinance Code requirements shall be for beneficial use and the 12 hour pumping limitation shall not be used to justify the lack of a meter for any well that serves a primary purpose. The application of an inactive well status implies that there is a minimum of one additional source of water to serve as a primary supply.

1.21. **"Injection/storage Program"** means any device or method for injection/storage of water into a groundwater basin or aquifer within the boundaries of the Agency, including a program to supply foreign water in lieu of pumping.

1.22. **"Las Posas outcrop"** or **"outcrop"** means the area of Lower Aquifer System surface exposure as defined by Map Number One, Fox Canyon Outcrop, Las Posas Basin, 1982. This map is available for inspection in the Ventura County Water Resources Division office.

1.23. **"May"** as used in this Ordinance Code, permits action but does not require it.

1.24. **"Metering Equipment"** or **"Meters"** means a manufactured instrument for accurately measuring and recording the flow of water in a pipeline.

1.25. **"Municipal and Industrial (M & I) Provider"** means an entity or person which provides water for domestic, industrial, commercial, or fire protection purposes within the boundaries of the Agency.

1.26. **"Municipal and Industrial (M & I) Operator"** An owner or operator that supplied groundwater for M & I use during the historical allocation period and did not supply a significant amount of agricultural irrigation during the historical period."

1.27. **"Municipal and Industrial (M & I) User"** means a person or other entity that used or uses water for any purpose other than agricultural irrigation. **"Municipal and Industrial (M & I) use"** means any use other than agricultural irrigation.

1.28. **"Operates"** means to manage the use of groundwater and report the well extraction data to the Agency.

1.29. **"Operator"** means a person who operates a groundwater extraction facility. In the event the Agency is unable to determine who operates a particular extraction facility, then "operator" shall mean the person to whom the extraction facility is assessed by the County Assessor, or, if not separately assessed, the person who owns the land upon which the extraction facility is located.

1.30. **"Overdraft"** means the condition of a groundwater basin or aquifer where the average annual amount of water extracted exceeds the average annual supply of water to a basin or aquifer.

1.31. **"Owner"** means a person who owns a groundwater extraction facility. Ownership shall be determined by reference to whom the extraction facility is assessed by the County Assessor, or if not separately assessed, the person who owns the land upon which the extraction facility is located.

1.32. **"Perched or Semi-Perched Aquifer"** means the water bearing area that is located between the earth's surface and clay deposits that exist above an Aquifer.

1.33. **"Person"** includes any state or local governmental agency, private corporation, firm, Partnership, individual, group of individuals, or, to the extent authorized by law, any federal agency.

1.34. **"Recharge"** means natural or artificial replenishment of groundwater in storage by percolation or injection of one or more sources of water.

1.35. **"Safe Yield"** means the condition of groundwater basin when the total average annual groundwater extractions are equal to or less than total average annual groundwater recharge, either naturally or artificially.

1.36. **"Section"** as used in this Ordinance Code, is a numbered paragraph of a chapter.

1.37. **"Semi Annual Report of Groundwater Extractions"** is a statement filed by each well operator containing the information required by Section 2.2 and 2.3.1 and shall cover the periods from January 1 to June 30 and from July 1 to December 31 annually.

1.38. **"Shall"** as used in this Ordinance Code, is an imperative requirement.

1.39. **"West Las Posas Basin"** is that part of the former North Las Posas Basin that is West of the subsurface anomaly described by significant changes in groundwater levels and located for record purposes on maps in the Agency Offices.

CHAPTER 2.0
Registration of Wells and Levying of Charges

2.1. Registration of Wells

2.2. All groundwater extraction facilities within the boundaries of the Agency shall be registered with the Agency. All new extraction facilities constructed within the Agency Boundary shall obtain a no-fee permit from the Agency prior to the issuance of a Well Permit by the Ventura County Watershed Protection District. No extraction facility may be operated or otherwise utilized so as to extract groundwater within the boundaries of the Agency, or in the Expansion Area unless that facility is registered with the Agency, metered and permitted, if required, and all extractions reported to the Agency as required. The operator of an extraction facility shall register his extraction facility and

provide in full, the information required to complete the form provided by the Agency that includes the following:

2.2.1. Name and address of the operator(s).

2.2.2. Name and address of the owner(s) of the land upon which the extraction facility is located.

2.2.3 A description of the equipment associated with the extraction facility.

2.2.4 Location, parcel number and state well number of the water extraction facility.

2.3. **Reporting Extractions -** The method for computing extractions shall be as specified by Chapter 3. The Agency shall send a "Semi-Annual Report of Groundwater Extractions" form to each well owner on or about the first of January and the first of July each year. Each operator of a registered extraction facility shall enter the necessary information and return the "Semi Annual Report of Groundwater Extractions" covering all wells they operate on or before the due date. Statements are due on or before February 1st or August 1st annually or thirty days after the date on top right of the Semi Annual report form. Statements shall contain the following information on forms provided by the Agency:

2.3.1. The information required under Section 2.2 above.

2.3.2. The method of measuring or computing groundwater extractions.

2.3.3. The crop types or other uses and the acreage served by the extraction facility.

2.3.4. Total extractions from each extraction facility in acre-feet for the proceeding six (6) month period.

2.4. **Groundwater Extraction Charges**

2.4.1. All persons operating groundwater extraction facilities shall pay a groundwater extraction charge for all groundwater extracted after July 1, 1993, in the amount as established by Resolution of the Board. Payments are due semi-annually, and shall accompany the statement required pursuant to Section 2.3.

2.4.2. Payments not received or postmarked by the date due forty-five days after the billing date shall be charged interest in the amount of 1.5 percent per month, or part of month that the charge remains unpaid. Late Penalty. The operator shall pay a late penalty for any extraction charge not satisfied by the due and payable date. The late penalty shall be 1½ percent per month, or any portion thereof, of the amount of the unsatisfied extraction charge. The late penalty shall not exceed 100% of the original charge, provided the penalty is paid within 60 days of the due date. If the fee is not paid within the 60 days, the penalty will continue to accrue at 1.5 percent per month with a final maximum of 200% of the original penalty due.

2.4.3. Owners of extraction facilities are ultimately responsible for payment of pumping charges and penalties should an operator not pay. Consequently, owners must consider this liability in respect to their agreements with well operators and water users.

2.5 **Collection of Delinquent Extraction Charges and Late Penalties** - The Board may order that any given extraction charge and/or late penalty shall be a personal obligation of the operator or shall be an assessment against the property on which the extraction facility is located. Such assessment constitutes a lien upon the property, which lien attaches upon recordation in the office of the County Recorder. The assessment may be collected at the same time and in the same manner as ordinary ad valorem taxes are collected, and shall be subject to the same penalties and the same procedure and sale, in case of delinquency as provided for such taxes. All laws applicable to the levy, collection and enforcement of ad valorem taxes shall be applicable to such assessment, except that if any real property to which such lien would attach has been transferred or conveyed to a bona fide purchaser for value, or if a lien of a bona fide encumbrance for value has been created and attaches thereon, prior to the date on which the first installment of such taxes would become delinquent, then the lien which would otherwise be imposed by this section shall not attach to such real property and an assessment relating to such property shall be transferred to the unsecured roll for collection.

2.6 **Use of Extraction Charges and Late Penalties -** Revenues generated from extraction charges and late penalties shall be used exclusively for authorized Agency purposes, including financial assistance to support Board approved water supply, conservation, monitoring programs and water reclamation projects that demonstrate significant reductions in overdraft.

CHAPTER 3.0
Installation and Use of Metering Equipment for Groundwater Extraction Facilities

3.1. Installation and Use of Metering Equipment

3.1.1. Installation Requirement - Operators of extraction facilities shall install metering equipment on each well that extracts groundwater. Meters are not required on inactive wells as defined in this Ordinance Code, nor are meters required for extraction facilities supplying a single family dwelling on one acre or less, with no income producing operations. If more than one operator uses the same extraction facility, meters shall be installed to record the water use of each operator. Well operators were required to install metering equipment on wells by July 1, 1994.

3.1.2. Back-up Metering Equipment - Water meters occasionally fail, losing periods of record before the disabled or inaccurate meter is either replaced or repaired. Well operators shall be prepared to provide another acceptable method of computing extractions during these periods of meter failure to avoid the loss of record on wells that require metering under this Ordinance Code.

3.1.3. Back-up Methods - It is the operator's responsibility to maintain the flow meter. Any allowable or acceptable method for backup metering will be specified in a

separate resolution of the Board, and may be changed as technology improves or changes.

3.1.4. Special Cases - If special circumstances exist where specified back-up procedures cannot be used or are impracticable to use, the operator shall request the Executive Officer's approval of another alternative back-up procedure.

3.1.5. Meter Readings - Functional meters shall be read and the readings reported semi-annually on the extraction statements required under Section 2.3 above.

3.1.6 Inspection of Metering Equipment - The Agency may inspect metering equipment installations for compliance with this Ordinance Code at any reasonable time.

3.2. **Meter Testing and Calibration -** All water flow meters shall be tested for accuracy at a frequency interval determined by the Board to meet specific measurement standards. Calibration methods and procedures approved by the Board of Directors shall be detailed in an adopted Resolution of the Board.

3.3 **Altering Metering Equipment** - Any person who alters, removes, resets, adjusts, manipulates, obstructs or in any manner interferes or tampers with any metering equipment affixed to any groundwater extraction facility required by this Ordinance Code, resulting in said metering equipment to improperly or inaccurately measure and record groundwater extractions, is guilty of an intentional violation of this Ordinance Code, and will be subject to any and all penalties as described in Chapter 8.

3.4 **Costs Of Testing and Calibration**. All costs incurred with flow meter testing or calibration shall be the personal obligation of the well owner. Non-compliance with any provision of the meter calibration requirements will subject the owner to financial penalties and/or liens as described below or in Chapter 8 of the Ordinance Code.

3.5 **Fees and Enforcement.** If any water production facility within the Agency's boundaries is used to produce water without a flow meter, or with a non-operating flow meter, the Agency shall assess a Non-Metered Water Use Fee against the water production facility owner. The Non-Metered Water Use Fee shall be assessed during each Meter Report period until the first full Meter Report period after the Agency meter is installed. The amount of the fee shall be calculated as follows:

3.5.1 Ground water extraction facilities - The fee shall be equal to double the current ground water extraction charge for all estimated water used. Estimates of water used shall be calculated by the Agency staff using best available information about site use and conditions. Any delinquent extraction charge obligations shall also be charged interest at the rate of 1.5 percent per month on any unpaid balances.

3.6 Upon violation of any meter provision, the Agency may, as allowed by law, petition the Superior Court of the County for a temporary restraining order or preliminary or permanent injunction prohibiting the well owner from operating the facility or for such other injunctive relief as may be appropriate.

CHAPTER 4.0
Protection of the Las Posas Basins

4.1 This chapter has the following purpose and intent:

4.1.1 To eliminate overdraft from the aquifer systems within the boundary of the East and West Las Posas basins and bring these basins to a "safe yield" condition by the year 2010.

4.1.2 To protect the Las Posas outcrop as a source of groundwater recharge into the East and West Las Posas basins.

4.1.3 To prevent groundwater quality degradation of the East and West Las Posas basins by influence from the Expansion area.

4.1.4 This Ordinance Code is only one means by which these goals will be met.

4.2 Anti-degradation and Extraction Prohibition

4.2.1 Extraction Facility Permits.

4.2.1.1 Permit Required - Prior to: (a) initiating any new or increased use of groundwater in the Expansion area, obtained from any source within the Agency including the Expansion area; or (b) constructing a new or replacement extraction facility in the East or West Las Posas basins, or the Expansion area, a permit must be obtained from the Agency as provided in this Chapter. For the purpose of this Chapter, a new or increased use is that which did not exist or occur before June 30, 1988.

4.2.1.2 Permit Application - Application shall be made to the Agency on the approved Ventura County Water Well Ordinance form available from the Ventura County Public Works Agency and shall include all information required by the Ventura County Well Ordinance and the following:

4.2.1.2.1 Location of each water well to be used, along with the associated state well number.

4.2.1.2.2 Location(s) of groundwater use, including acreage accurately plotted on copy of the Ventura County Assessor's Parcel Map.

4.2.1.2.3 The proposed crop type(s) or Municipal and Industrial use(s) at each location.

4.2.1.2.4 A brief description of the type of irrigation or distribution system and metering equipment to be used.

4.2.1.2.5 The estimated average annual quantity of water use proposed for each location of use.

4.2.1.2.6 An identification of the source of historical allocation to supply the proposed water use by the well.

4.2.1.2.7 An analysis of the potential impacts on the water balance in the Las Posas Basins resulting from the proposed use(s).

4.2.1.3 Findings - A permit may only be granted if the Executive Officer finds that the proposed groundwater use will result in no net detriment to the East or West Las Posas Basins by determining that:

4.2.1.3.1 The Las Posas outcrop is not exposed to potential degradation of water quality of any type, and

4.2.1.3.2 Recharge to the East and West Las Posas Basins from the Las Posas outcrop is not diminished, and

4.2.1.3.3 Neither baseline nor efficiency allocation will be used, directly or indirectly, to support groundwater use on the Expansion Area, and (an example of indirect use is using efficiency to supply a demand inside the Agency and using the replaced historical allocation on the outcrop)

4.2.1.3.4 No increased or new uses of groundwater from inside the Agency boundary will be applied on any area outside the Expansion area (or outside the East or West Las Posas boundary).

4.2.1.4 Permit Conditions. The Executive Officer may include in the permit granted, any conditions consistent with the purpose of this Chapter, including:

4.2.1.4.1 Any proposed agricultural use shall include the installation of irrigation systems that employ irrigation best management practices consistent with then current industry standards.

4.2.1.4.2 Any proposed municipal or industrial use shall include the installation of systems that employ municipal and industrial best management practices consistent with the then current industry standards.

4.2.1.4.3 A permit term, not to exceed 10 years from the date of issuance.

4.2.1.4.4 Mitigation, monitoring, and periodic reporting, as may be appropriate given the proposed use.

4.2.2 Permit Renewal - Permits may be renewed pursuant to the requirements of Section 4.2.1.

4.3 **Registration of Existing Uses** - The owners of groundwater wells located within the East or West Las Posas basins shall register their wells with the Agency no later than January 1, 2006, through the following procedure:

4.3.1 Registration Form - The Agency shall make available a registration form which shall be completed, and filed with the Agency for each well, which shall include the following:

4.3.1.1 Location(s) of all water well(s), along with the associated state well number(s) including offsite well(s) serving the proposed use. Information concerning wells shall also include any other use for the water well.

4.3.1.2 Location(s) of groundwater use for the well including acreage accurately plotted on a copy of the Ventura County Assessor's Parcel Map.

4.3.1.3 The proposed crop type(s) or Municipal and Industrial use(s) at each location.

4.3.1.4 A brief description of the type of irrigation or distribution system and metering equipment in use.

4.3.1.5 The estimated average annual quantity of water use at each location and for each well.

4.4 **Monitoring** - The Agency shall monitor compliance with this Chapter by reviewing County well permit applications and reported groundwater extractions and by conducting field surveys as may be necessary.

4.5 **Unreasonable Uses** - The Agency may commence and prosecute legal actions to enjoin unreasonable uses or methods of use of water within the agency or outside the territory of the agency to the extent those uses or methods of use adversely affect the groundwater supply within the Agency.

CHAPTER 5.0
Reduction of Groundwater Extractions

5.1. **Purpose** - The purpose of this Chapter is to eliminate overdraft from the aquifer systems within the boundaries of the Agency and bring the groundwater basins to safe yield by the year 2010. It is not the purpose of this Chapter to determine or allocate water right entitlements, including those, which may be asserted pursuant to California Water Code sections 1005.1, 1005.2 or 1005.4.

5.2. **Extraction Allocations**

5.2.1. General Limitations

5.2.1.1. The Executive Officer shall establish an operator's extraction allocation for each extraction facility located within the boundaries of the Agency. The extraction allocation shall be the historical extraction as reported to the United Water Conservation District and/or to the Agency pursuant to Chapter 2 (or its successor), reduced as provided by Section 5.4, or as otherwise provided for in Section 5.6 of this Ordinance Code. An alternative allocation, either baseline or efficiency, may also be approved as explained in Sections 5.6.1.1 and 5.6.1.2. All extraction facilities have an allocation of zero unless the Executive Officer determines otherwise. The operator may determine whether the annual allocation used shall be either a combination of baseline and historical allocation, or based on an efficiency allocation. All wells used by an operator in any given basin shall be operated on either a combination of historical and baseline or an efficiency allocation except water purveyors as approved by the Executive Officer. As explained by Section 5.6.1.2, an efficiency allocation may not be combined with either a baseline or a historical allocation. Extraction allocations may be adjusted or transferred only as provided ion Section 5.3.

5.2.1.2. Regardless of allocation, the total water use for agricultural purposes must be at least 60 percent efficient as determined by the formula described in Section 5.6.1.2.4. This 60 percent irrigation efficiency is totally unrelated to the 80 percent efficiency described in Section 5.6.1.2, "Annual Efficiency Extraction Allocation".

5.2.1.3. Where an operator operates more than one extraction facility in the same basin, the extraction allocations for the individual facilities may be combined.

5.2.1.4. Where there is more than one operator for any agricultural extraction facility, each operator shall be entitled to a pro rata share of the facility's historical allocation based on either usage or acreage irrigated during the historical extraction period. Such pro rata shares shall be determined by the owner of the extraction facility, and this determination shall be subject to the approval of the Executive Officer.

5.2.1.5. When an operator is no longer entitled to use an extraction facility, that operator is no longer entitled to any portion of the extraction allocation attributed to that extraction facility.

5.2.1.6. A historical allocation is assigned to an extraction facility and a baseline allocation is assigned to the land, both may be used, but neither is owned by the operator.

5.2.1.7. Where there is a sale or transfer of a part of the acreage served by any extraction facility, the extraction allocation for that facility shall be equitably apportioned between the real property retained and the real property transferred by the owner of the extraction facility, This apportionment shall be approved by the Executive Officer who may modify the apportionment to assure equity.

5.2.1.8. The name of the owner of each extraction facility, the parcel number on which the well is located along with the names of all operators for each extraction facility shall be reported to the Agency with each semi-annual report and upon any change of ownership or operators, together with such other information required by the Executive Officer.

5.2.1.9. The Executive Officer may, on written request from a land owner or well operator, waive allocation requirements for the extraction of groundwater from the Perched or Semi-perched aquifer of Sealing Zone III when the pumping of that groundwater is specifically for the purpose of lowering the water table to reduce the high water table threat to property, including the root zone of crops, or for dewatering construction sites. The Executive Officer shall require that the groundwater extraction facility used for this purpose be perforated only in the Perched or Semi-perched zone, and shall also require the landowner and/or the operator to protect the Agency from damage potentially caused by transferring water to another location.

5.2.2 General Limitations: Special Board Approval Requirements - Notwithstanding any other provisions of this Ordinance Code, the following uses of water resources associated with the aquifers within the Agency may only be undertaken with prior Board approval of and subject to the conditions and restrictions established by the Board.

5.2.2.1 Direct or indirect export of groundwater extracted from within the Agency boundary for use outside the Agency boundary.

5.2.2.2 The direct or indirect use of surface water or Foreign Water from within the Agency outside the Agency in a manner that may adversely affect the groundwater supply within the Agency.

5.2.2.3 Application to the Board - To obtain the approval of the Board for any use provided in Sections 5.2.2.1 and 5.2.2.2, application shall be made to the Agency describing the details of the proposed use, including all the following information:

5.2.2.3.1 The location of each water well to be used, along with the associated state well number, and/or the location of each surface diversion and a description of the associated water right.

5.2.2.3.2 Location(s) of groundwater use, including acreage, accurately plotted on copy of the Ventura County Assessor's Parcel Map.

5.2.2.3.3 The proposed crop type(s) or Municipal and Industrial use(s) at each location.

5.2.2.3.4 A brief description of the type of irrigation or distribution system and metering equipment to be used.

5.2.2.3.5 The estimated average annual quantity of water use proposed for each location of use.

5.2.2.3.6 An identification of the source of historical allocation, if any, to supply the proposed water use by the well.

5.2.2.3.7 An analysis of the potential impacts on the water balance in any Basin or Subbasin within the Agency Boundaries resulting from the proposed use(s).

5.2.2.4 Findings - The Board may approve the proposed use if, after a public hearing, it finds that the proposed use will result in no net detriment to the Basin, or any subbasin, or aquifer associated with the use, by determining that:

5.2.2.4.1 The proposed use does not result in the material degradation of water quality of any type, or

5.2.2.4.2 Recharge to any aquifer within the Agency is not materially diminished.

5.2.2.4.3 In granting approval to projects subject to this subsection, the Board may impose any conditions as may be appropriate, including limitations on the quantity of water use, term of the approval, and periodic reporting to the Agency.

5.2.3. An operator shall comply with all provisions of this Ordinance Code and Resolutions prior to receiving an extraction allocation.

5.3. Adjustments to Extraction Allocations

5.3.1 Adjustments to extraction allocations may be necessary to provide some flexibility, while still maintaining the goal of reaching a safe yield condition by the year 2010. Adjustments may be accomplished by a transfer, an assignment of historical extraction allocation, or a demonstration of a new water source.

5.3.2 Subject to the provisions in this Section 5.3, transfers of extraction allocation are authorized provided they result in no net detriment to the Basins within the Agency. In making this determination, consideration shall be given to the location

of extraction facilities, the aquifer systems being used, potential groundwater quality impacts, and the overall assessment of the cumulative impacts of transfers of extraction allocation.

5.3.3 Types of Transfers of Allocation. When irrigated agricultural land(s) changes to M & I use, a basic extraction allocation of 2 acre-feet per acre shall be transferred. In addition, a historical extraction allocation shall be transferred from the agricultural extraction facility(s) operators to the M & I provider in accordance with the following conditions:

5.3.3.1 When the extraction facility is located on the land transitioning and did not serve other land during the historical allocation determination period, the M & I Operator shall receive a historical extraction allocation of 2 acre-feet per acre per year for the acreage transitioning to M & I use. Any historical allocation in excess of 2 acre-feet per acre for the land transitioning to M & I use shall be eliminated.

5.3.3.2 When the extraction facility is located on the land transitioning and served other land during the historical allocation determination period, the historical allocation associated with the transitioning property shall be allocated on a pro rata basis by acreage to the total property served. The pro rata share for the property transitioning shall be eliminated. Two acre-feet per acre per year, based upon the acreage being transferred, shall be provided to the M & I provider.

5.3.3.3 When the extraction facility serving the lands transitioning is not located on the land transitioning, the Executive Officer shall determine the allocation on an equitable basis for the remaining properties not transitioning to M & I. Two acre-feet per acre per year, based upon the acreage being transferred, shall be provided to the M & I provider.

5.3.3.4 The transfer shall be effective upon the approval of the Executive Officer, taking into account the ongoing use of the property.

5.3.3.5 Allocation originating from an agricultural extraction facility shall not be transferred to an M & I use except as provided in this Section 5.3.3.

5.3.4 Allocation may be transferred between M & I extraction facilities provided there is no net detriment to the aquifer system. In making this determination, the Executive Officer shall, at a minimum, consider the location of extraction facilities, the aquifer system being used and groundwater quality impacts of the transfer.

5.3.5 Transfer of Allocation - Upon request, the Executive Officer may transfer allocation from one agricultural operator to another agricultural operator or from one M & I operator to another M & I operator provided there is no net detriment to the basins and the transfer is equitable. The transfer of allocation will be of indefinite duration, approved on a "case-by-case" basis, and the Executive Officer shall determine the rate of extraction and the point or points of extraction. Requests for the transfer of allocations shall be submitted jointly by the parties

involved and shall include the specific details of their proposal. To ensure that there is no net detriment to the aquifer systems, transfers of allocation shall be subject to other conditions as approved by the Board. Transfers of allocation from Agricultural use to M & I use shall only be approved as provided by Section 5.3.3.

5.3.6. The Executive Officer may approve a temporary assignment of allocation from one operator to another operator when there is no net detriment to the aquifer system. The temporary assignment shall not exceed one year.

5.3.7 Adjustments to M & I Allocations - The Board may adjust the historical allocation of an M & I operator when that operator has supplied groundwater to either an agricultural or M & I user during the historical allocation period and discontinues service to that user. This adjustment may be made by transferring the supplied portion of the historical allocation from the M & I operator to the new user. This adjustment will avoid increased pumping due to windfall allocations that could otherwise result when the M & I operator discontinues service. To avoid retroactive inequities, where an M & I operator has discontinued service to a user prior to July 1, 2005, the amount of the supplied portion of the historical allocation may be allocated to both the M & I operator and the user.

5.3.8 Historical allocation is subject to adjustment as provided in Section 5.4 below.

5.3.9 Procedures for Adjustment

5.3.9.1 It shall be necessary for the operator of the extraction facility to file a verified Application for Adjustment with the Executive Officer.

5.3.9.2 Adjustments of extraction allocations, pursuant to the Applications for Adjustment, shall be considered for approval by the Board after reviewing the findings and recommendations of the Executive Officer and, if approved, shall be effective for the remainder of the calendar year and for all subsequent calendar years until modified by a subsequent Board approved adjustment.

5.4 Reduction of Extraction Allocations

5.4.1 Historical extraction allocations, adjusted or otherwise, shall be reduced in order to eliminate overdraft from the aquifer systems within the boundaries of the Agency for agricultural and M & I uses. The reductions shall be as set forth below:

1992 - 1994 extraction allocation = 95% of historical extraction, as adjusted.
1995 - 1999 extraction allocation = 90% of historical extraction, as adjusted.
2000 - 2005 extraction allocation = 85% of historical extraction, as adjusted.
2005 - 2009 extraction allocation = 80% of historical extraction, as adjusted.
After 2009 extraction allocation = 75% of historical extraction, as adjusted.

5.4.2 Following the appropriate public review, the Board may exempt historical extraction allocations from these adjustments on a basin-by-basin basis.

5.5 Exemptions from Reductions

5.5.1 The following types of extraction allocations are exempt from the reductions set forth in Section 5.4.1:

5.5.1.1 Baseline Extraction Allocations as set forth in 5.6.1.1.

5.5.1.2 Annual Efficiency Extraction Allocations as set forth in 5.6.1.2.

5.5.1.3 Non-metered Extraction Facilities. Reductions in extraction allocations shall not apply to those extraction facilities as identified in Chapter 3 that do not require meters. Neither retroactive adjustments nor refunds will be made, except that any outstanding surcharges for non-metered extractions that existed prior to June 26, 2002 will be waived.

5.6 Alternative Extraction Allocations

5.6.1 As an alternative to historical extractions, the Executive Officer may establish a Baseline or an Annual Efficiency extraction allocation for an operator, as follows:

5.6.1.1 Baseline Extraction Allocations. If no historical extraction exists, or the historical allocation is less than one acre-foot per acre per year, a Baseline extraction allocation may be established by the Executive Officer at one acre-foot per acre per year.

5.6.1.1.1 A Baseline Extraction Allocation specifically applies to undeveloped acreage that is being developed and once approved shall remain with that developed acreage. A Baseline allocation may be combined with a historical allocation for commonly operated facilities in the same basin. A baseline allocation shall not be used with an efficiency allocation.

5.6.1.1.2 To obtain a Baseline Extraction Allocation, a detailed report must be submitted to the Executive Officer. The report shall describe the historical extraction of groundwater use, if any, during the period between the end of calendar year 1984 and the end of calendar year 1989, the type (crop type or M & I) and the amount of water use and acreage involved. The report shall include copies of Assessor's maps identifying the parcels where groundwater is presently being used. For the purpose of this ordinance, one (1) acre-foot per acre per year represents a reasonable use of water for a Baseline extraction allocation.

5.6.1.1.3 Application for the initial Baseline Extraction Allocation must be submitted prior to submission of the annual report of pumping. If approved, the Baseline Extraction Allocation shall apply beginning with the current calendar year.

5.6.1.1.4 To facilitate accounting procedures, an operator shall use Baseline Extraction Allocation before using Historical Allocation.

5.6.1.2 Annual Efficiency Extraction Allocation - If an operator can demonstrate to the Executive Officer that water used for agriculturally developed land is at least 80 percent overall irrigation efficient, based on evapotranspiration requirements, an Annual Efficiency extraction allocation shall be established for one calendar year. An 80 percent overall irrigation efficiency has been determined by the Agency to be reasonable on agricultural lands within the Agency's boundaries.

5.6.1.2.1 An Efficiency Allocation may be used when no historical allocation exists or when the historical allocation is not sufficient for the crop being grown. A historical allocation shall not be used in conjunction with an efficiency allocation.

5.6.1.2.2 To prove that irrigation efficiency is at least 80 percent, the operator must submit a detailed report covering a minimum period of the immediately preceding calendar year. This report shall be submitted to the Executive Officer no later than February 1st of the following year unless otherwise extended by the Board of Directors. The report shall include a complete crop and irrigation history for the extraction facility and actual acreage irrigated. The report shall include the reference evapotranspiration (ETo) rates and crop factors (Kc) for the calendar year period similar to that provided by the California Irrigation Management Information System (CIMIS) as developed and modified by the California Department of Water Resources. The report shall include a summary sheet that compares the water use to the evapotranspiration requirements for each crop and the corresponding acreage covered in the calendar year. The Board may extend the time to apply for an efficiency allocation for any year.

5.6.1.2.3 Irrigation efficiency will include an appropriate amount of water necessary to avoid salt build-up based on the quality of irrigation water used.

5.6.1.2.4 Irrigation Efficiency (I.E.) will be calculated using the following formula:

$$\text{I.E.} = \frac{[\text{ETo} \times \text{Kc}] - \text{ER} \times 100}{\text{Actual Water Applied (inches)}}$$

Where:

ETo is the reference evapotranspiration measured in inches

Kc is a crop factor, which is a dimensionless number that relates water use by a given plant in comparison to ETo.

ER is the effective rainfall measured in inches as determined by the Executive Officer.

5.6.2 Exceptions - The Board may grant exceptions to Sections 5.6.1.1 and 5.6.1.2 on a case-by-case basis. However, individual exceptions shall not become the norm. Where agricultural efficiency cannot be measured as set forth in Section 5.6.1.2, then the most efficient practices of record for the type of agricultural use shall be the measurement of efficiency utilized by the Board in its deliberations.

5.7 Credits

5.7.1 Credits can be obtained by operators, but are not considered as extraction allocations or adjustments to extraction allocations. Credits are not subject to any reductions as set forth in Section 5.4.1. Credits, if available, shall be used to avoid paying extraction surcharges. Credits shall be accounted for through the normal reporting and accounting procedure and are carried forward from year to year. Except as provided below, credits may be transferred between commonly operated extraction facilities and within the basin where the credits were earned.

5.7.2 The Board may transfer credits between facilities that are not commonly operated within a basin or beyond the basin where such credits were earned, provided that there is no net detriment to the aquifers within the Agency. In determining whether there is no net detriment, the Board may, among other things, consider whether the transfer will help bring the aquifers within the Agency into equilibrium or whether the transfer is a part of an Agency or inter-Agency management plan or program to bring the aquifers of the Agency into balance. Also, in making this determination of no net detriment the Board may consider quality of water as well as the quantity. The transfer of credits will be of indefinite duration, approved on a "case-by-case" basis, and the Executive Officer shall determine the rate of extraction and the point or points of extraction.

5.7.2.1 Requests for the transfer of credits shall be submitted jointly by the parties involved and shall include the specific details of their proposal. To ensure that there is no net detriment to the aquifer systems, transfers of credits shall be subject to other conditions as approved by the Board. Under no circumstances shall credits earned as a result of agricultural use be transferred to an M & I Provider, M & I Operator or an M & I User unless the transfer is specifically approved by the Board and no net detriment to the aquifer systems involved can be shown. Credits earned by an M & I facility shall remain with that facility unless transferred by the Board or transferred as part of a program such as an Agency or inter-Agency management plan or program approved by the Board. The types of credits are:

5.7.2.1.1 Conservation credits. An operator can obtain conservation credits by extracting less groundwater than the historical

extraction allocation. Annual Efficiency, Baseline, or an allocation assigned to an extraction facility that is not required to have a meter shall not earn credits. Credits shall be determined by the Executive Officer after receipt of annual extraction data. Subsequent to determining the amount of credits earned, a confirmation shall be mailed to the operator indicating the current allocation, the groundwater extracted during the previous calendar year, and the credits or surcharges for the previous year.

5.7.2.1.2 Storage credits - An operator may obtain storage credits for water that has been determined by the Board to qualify for credits or foreign water stored, injected or spread and percolated or delivered in lieu of pumping in a Board approved injection/storage program used within the boundaries of the GMA. A written application for approval of a program or an injection/storage facility shall include:

5.7.2.1.2.1 Operator of proposed injection/storage program.

5.7.2.1.2.2 Purpose of proposed injection/storage program.

5.7.2.1.2.3 Location, depth, casing diameter, perforated interval and other information regarding proposed injection/extraction facilities, if applicable.

5.7.2.1.2.4 Method of operation including source, quantity and quality of water, planned scheduling of storage, injection/extraction, delivery or percolation operations and proposed use of extracted water.

5.7.2.1.2.5 Any other information deemed necessary by the Executive Officer.

5.7.3 Following Board approval of the application, successful storage, delivery or injection of water and reporting of results, an operator will obtain credit as determined by the Executive Officer.

5.8 Extraction Surcharges and Late Penalty

5.8.1 Necessity for Surcharges

5.8.1.1 Extraction surcharges are necessary to achieve safe yield from the groundwater basins within the Agency and shall be assessed annually when annual extractions exceed the historical and/or baseline allocation for a given extraction facility or the combined sum of historical allocation and baseline allocation for combined facilities. The extraction surcharge

shall be fixed by the Board and shall be based upon (1) the cost to import potable water from the Metropolitan Water District of Southern California, or other equivalent water sources that can or do provide non-native water within the Agency jurisdiction; and (2) the current groundwater conditions within the Agency jurisdiction.

5.8.2 At the discretion of the Board, the extraction surcharge may be structured, tiered, and varied between basins and or aquifers.

5.8.3 The Board shall fix the surcharge by resolution at a cost sufficiently high to discourage extraction of groundwater in excess of the approved allocation when that extraction will adversely affect achieving safe yield of any basin within the Agency and may adjust the surcharge by resolution; provided however, that the then existing extraction surcharge shall remain in effect until adjusted by the Board.

5.8.4 Surcharge for No Allocation - In circumstances where an individual or entity extracts groundwater from a facility(s) having no valid extraction allocation, the extraction surcharge shall be applied to the entire quantity of water extracted. Imposition and acceptance of payment of the surcharge imposed on an individual or entity that extracts water from a facility(s) that holds no extraction allocation shall not be deemed a waiver of the Agency's authority to limit or enjoin the unauthorized extractions.

5.8.5 Efficiency Surcharge Facilities relying on the annual, efficiency, allocation shall also be subject to surcharge for inefficient use. The extraction allocation for efficiency is the amount of water used at 80% efficiency as defined in 5.6.1.2 of this ordinance. Extraction surcharges will be applied to the difference between the water extracted which correlates with the actual efficiency achieved and the water that would have been extracted to attain the 80% efficiency allocation. For example, an actual efficiency of 70% would be subject to surcharges on the difference between the amount of water used at 70% efficiency and the amount of water that would have been used at 80% efficiency. If an efficiency of less than 60% is achieved, no efficiency allocation will be available, and the operator shall revert to a historical, baseline or to no allocation whichever applies to that facility. Extraction surcharges would then apply to the difference between actual water used and the applicable allocation, if any. For example, a facility operating at an actual efficiency of 59% with no historical or baseline allocation, would be subject to surcharges on all water used.

5.8.6 Payment of Extraction Surcharges

5.8.6.1 Surcharges are assessed annually in respect to the annual allocation and shall become due and payable by the owner/operator on February 1st each year or 30 days after the date shown on the upper right of the "Semi Annual Report of Groundwater Extractions" statement. Payments shall be made with credits, if available. The Board may extend the 30-day time allowed to pay surcharges for a period of up to twelve months when circumstances exist that in the opinion of the Board warrant such

extension. The Board may also approve the payment of surcharges in installments of up to 24 months with terms suitable to the Board.

5.8.6.2 Late Penalty - The operator shall pay a late penalty for any extraction surcharge not satisfied by the due and payable date. The late penalty shall be 1.5 percent per month, or any portion thereof, of the amount of the unsatisfied extraction surcharge. The late penalty shall not exceed 100% of the original surcharge, provided the penalty is paid within 60 days of billing. If the fee is not paid within the 60 days, the penalty will continue to accrue at 1.5 percent per month with a final maximum of 200% of the original penalty due.

5.8.6.3 Collection of Delinquent Extraction Surcharges and Late Penalties - The Board may order that any given extraction surcharge and/or late penalty shall be a personal obligation of the operator or shall be an assessment against the property on which the extraction facility is located. Such assessment constitutes a lien upon the property, which lien attaches upon recordation in the office of the County Recorder. The assessment may be collected at the same time and in the same manner as ordinary ad valorem taxes are collected, and shall be subject to the same penalties and the same procedure and sale, in case of delinquency as provided for such taxes. All laws applicable to the levy, collection and enforcement of ad valorem taxes shall be applicable to such assessment, except that if any real property to which such lien would attach has been transferred or conveyed to a bona fide purchaser for value, or if a lien of a bona fide encumbrance for value has been created and attaches thereon, prior to the date on which the first installment of such taxes would become delinquent, then the lien which would otherwise be imposed by this section shall not attach to such real property and an assessment relating to such property shall be transferred to the unsecured roll for collection.

5.8.6.4 Use of Extraction Surcharges and Late Penalties. Revenues generated from extraction surcharges and late penalties shall be used exclusively for authorized Agency purposes, including financial assistance to support Board approved water supply, conservation, monitoring programs and water reclamation projects that demonstrate significant reductions in overdraft.

CHAPTER 6.0
Appeals

6.1 Any person aggrieved by a decision or determination made by the Executive Officer may appeal to the Board within forty-five (45) calendar days thereof by filing with the Clerk, or Deputy Clerk, of the Board a written request that the Board review the decision of the Executive Officer. The Board shall equitably act on the appeal within 120 days after all relevant information has been provided by the appellant.

CHAPTER 7.0
Severability

7.1 If any section, part, clause or phrase in this Ordinance Code is for any reason held invalid or unconstitutional, the remaining portion of this Ordinance Code shall not be affected but shall remain in full force and effect.

CHAPTER 8.0
Penalties

8.1 Any operator or other person who violates the provisions of this Ordinance Code is subject to the criminal and civil sanctions set forth in the Agency's enabling act and its Ordinances.

8.2 Any person who intentionally violates any provision of this Ordinance Code shall be guilty of an infraction and may be required to pay a fine to the Agency in an amount not to exceed five hundred dollars ($500).

8.3 Any person who negligently or intentionally violates any provision of this Ordinance Code may also be liable civilly to the Agency for a sum not to exceed one thousand dollars ($1,000) per day for each day of such violation, in addition to any other penalties that may be prescribed by law.

8.4 Upon the failure of any person to comply with any provision of this Ordinance Code, the Agency may petition the Superior Court for a temporary restraining order, preliminary or permanent injunction, or such other equitable relief as may be appropriate. The right to petition for injunctive relief is an additional right to those, which may be provided elsewhere in this Ordinance Code or otherwise allowed by law. The Agency may petition the Superior Court of the County to recover any sums due the Agency.

This Ordinance Code shall become effective on the thirty-first day after adoption.

ADOPTED this 27TH day of July 2005 by the following vote:

AYES: Directors Maulhardt, Borchard, Craven, Flynn and Fox

NOES: None

ABSENT: None

Lynn Maulhardt, Chair, Board Of Directors
Fox Canyon Groundwater Management Agency

ATTEST: I hereby certify that the above is a true and correct copy of Ordinance 8.1

Kathy Miller, Clerk of the Board

FOX CANYON GROUNDWATER MANAGEMENT AGENCY

BOARD OF DIRECTORS
Lynn E. Maulhardt, Chair
John K. Flynn
Sam McIntyre
James Daniels
Michael Conroy

AGENCY COORDINATOR
Lowell Preston, Ph.D.

July 12, 1994

Eric Berg, Projects Administrator
Calleguas Municipal Water District
2100 Olsen Road
Thousand Oaks, CA 91360-6800

SUBJECT: BOARD APPROVAL OF CMWD APPLICATION FOR INJECTION/STORAGE FACILITIES IN NORTH LAS POSAS GROUNDWATER BASIN

Dear Mr. Berg:

At the Board of Directors meeting on February 23, 1994, the Board approved the CMWD application for injection/storage facilities in the North Las Posas Basin. The approval of this application, as provided for under Ordinance 5.3, was subject to the conditions that follow. These conditions include several changes and additions requested by the Board of Directors.

NORTH LAS POSAS BASIN INJECTION/STORAGE FACILITIES CONDITIONS

1. *The identification, size, depth, well logs and location of wells used for injection/extraction will be registered with the GMA. A maximum of twenty (20) wells all to be permitted by the County of Ventura, Public Works Agency, and registered with the GMA.*

2. *Calleguas will inject/extract on a schedule determined by availability of water to inject and the needs of their customers. The number of acre-feet injected/extracted from each well shall be reported to the GMA monthly. The monthly report shall also include a water quality analysis for the injected water that covers and conforms to the limits listed for the following items:*

a.	*Sodium Adsorption Ratio (SAR) calculated in meq/l as* $SAR=NA/((CA+Mg)/2)^{.5}$	$\geq 1 \leq 4$	
b.	*Total Dissolved Solids (TDS)* *Electrical conductivity (EC)*	$\geq 100 \leq 800$ <1100	*mg/l* *uMHO*
c.	*Chloride (Cl)*	≤ 120	*mg/l*
d.	*Boron* (H_3Bo_3)	≤ 1	*mg/l*
e.	*Nitrates*	<45	*mg/l*

(NOTE: These limits are based on University of California research. Should the University reverse these limits, the recommended changes will be incorporated into these conditions.)

800 South Victoria Avenue, Ventura, CA 93009
(805) 654-2088 FAX:(805) 654-3952

Testing shall be conducted monthly during periods of continuous injection, prior to beginning an injection of more than one hundred (100) acre-feet (but no more frequently than monthly), and as frequently as necessary when a change in water quality is suspected or known to exist.

3. *The total water in storage at any one time shall not exceed three hundred thousand (300,000) acre-feet (AF) unless approved by the GMA Board of Directors.*

4. *The point of extraction shall be the same as the point of injection or in the near vicinity. Extraction from points other than that of injection may be desirable and shall be coordinated with, and approved by the GMA.*

5. *Water stored by the facility shall be used in Ventura County.*

6. *Calleguas shall periodically review the effects of the injection on surrounding basins to ensure no detrimental effects result from the injection alone or in combination with natural recharge. Should negative effects exist, Calleguas shall take action to mitigate those effects caused by the injection program.*

7. *Should the injected water or conditions deviate from these standards, injection will stop, or not be started until the condition has been corrected.*

If you have any questions regarding this Agency's approval of your project facilities, please call Rick Farnsworth at 654-2327 or myself at 648-9204.

Very truly yours,

Lowell Preston, Ph.D.
Agency Coordinator

RF:vg

JGC/berg

Excerpts From The Las Posas Aquiver Storage And Recovery Project Feasibility Study

NORTH LAS POSAS BASIN

The North Las Posas Basin is an east-west trending basin which occupies an area of about 34,400 acres (53.8 square miles; Calleguas and Metropolitan, 1989) in the north-central portion of the Calleguas service area. The basin is managed by the (Fox Canyon) GMA. The basin is bounded by South Mountain and Oak Ridge on the north, Big Mountain on the east, the Moorpark Anticline on the southeast, and the Camarillo Hills and Las Posas Hills on the south. Surface runoff in the basin drains southwest through Beardsley Wash into the Oxnard Plain Pressure Basin west of the Camarillo Hills, and to the south through Arroyo Las Posas into the Pleasant Valley Basin between the Camarillo Hills and the Las Posas Hills.

Water-bearing formations underlying the North Las Posas Basin include Recent alluvium, lower Pleistocene to Pliocene nonmarine and marine deposits, and older Miocene to Oligocene sedimentary and volcanic rocks. With the exception of the Recent alluvium, the older formations have been folded into a major gently west-plunging syncline with additional smaller anticlinal and synclinal structures also formed in these deposits.

The primary aquifers in the North Las Posas Basin consist of the Fox Canyon and Grimes Canyon aquifers, collectively called the LAS. Geologic studies performed by CH_2M Hill (1993) and SWRCB (1953) indicate that the San Pedro formation consists of up to 1,400 feet of interbedded sand, gravel, silt and clay. The Fox Canyon aquifer, composed predominantly of sand and gravel, occurs at the base of the San Pedro formation and is typically 200 to 400 feet in thickness. The Santa Barbara formation generally grades from sandstone and conglomerate in the east-central portion of the basin to sandstone and mudstone in the western portion of the basin. The Grimes Canyon aquifer, composed mostly of sandstone with minor conglomerate, occurs near the top of the Santa Barbara formation and ranges in thickness from about 100 to 400 feet. Throughout much of the basin the uppermost 50 to 100 feet of the Santa Barbara formation consists of low permeability fine-grained sediments which separate the Grimes Canyon aquifer from the Fox Canyon aquifer. Groundwater also occurs in interbedded sand and gravel lenses of the San Pedro formation above the Fox Canyon aquifer, in the Recent alluvium and in underlying sedimentary and volcanic rocks. However, these water-bearing formations do not provide the bulk of the groundwater demands in the basin but may locally be important where the LAS is absent.

Groundwater in the LAS is confined except in the outcrop areas along portions of the hills that border the northern and southern margins of the basin. Groundwater generally flows in a westerly direction in the eastern portion of the basin and south in the western portion of the basin where large pumping centers exist. Depth to groundwater may vary considerably and generally ranges from about 800 feet in the northeastern part of the basin to as little as 100 feet near the western boundary of the basin (VCPWA, 1986).

Groundwater recharge to the LAS in the North Las Posas Basin primarily occurs through deep percolation of direct precipitation in the outcrop areas of this aquifer system in the hills bordering the basin and as subsurface recharge from the South Las Posas Basin (Calleguas and Metropolitan, 1989). Recharge to the LAS also occurs as subsurface inflow from the Pleasant Valley Basin west of the Camarillo Hills toward the localized pumping depression in the southwestern portion of the basin and eastward from the Oxnard Forebay Basin due to artificial recharge operations at the Saticoy Spreading Grounds (United, 1996; VCPWA, 1986).

Groundwater depletion chiefly occurs as pumpage for municipal, irrigation, and industrial use. Groundwater outflow in the shallow alluvial aquifer(s) to the Pleasant Valley Basin beneath Arroyo Las Posas near Somis presumably also occurs; however, this quantity has not been reported. Subsurface outflow in the LAS to the Pleasant Valley Basin reportedly occurred under natural unstressed conditions (SWRCB, 1953) and may still occur to the large pumping depression that continues to exist in the Camarillo area.

The maximum storage capacity of the LAS has been estimated to be 3,500,000 acre-feet in 1951 (Calleguas and Metropolitan, 1989). Based on groundwater modeling of this basin (Calleguas and Metropolitan, 1989), groundwater storage in the LAS is estimated to have been depleted by at least 300,000 acre-feet since 1951, and the average annual overdraft for the base period 1980-1987 was estimated to be about 11,000 acre-feet. The natural recharge to the groundwater basin was estimated to be 10,800 acre-feet year (DWR, 1975).

Groundwater quality in the North Las Posas Basin is typified by wide variations in TDS, SO_4, NO_3, iron and manganese concentrations which locally and/or occasionally exceed drinking water MCLs. TDS has varied between about 200-300 mg/l in the northeastern part of the basin to more than 1,800 mg/l in wells adjacent to Arroyo Las Posas in the south-central part of the basin. However, TDS concentrations generally range between 250 and 1,000 mg/l. SO_4 concentrations also vary widely, ranging from 10 to 806 mg/l. The greatest SO_4 concentrations have been encountered in wells located adjacent to Arroyo Las Posas east of Somis. The elevated TDS and SO_4 concentrations encountered near Arroyo Las Posas may be related to the recharge of treated wastewater effluent from the Simi Valley Water Quality Control Plant (SVWQCP) and/or the Moorpark

CMWD 2005 UWMP - Purveyor Forecast Summary

Isolated Dry Year Scenario

Oxnard Region

Retail Water Demand	2005	2010	2015	2020	2025	2030
Agricultural	21	21	21	21	21	21
Municipal and Industrial	37,672	42,555	47,410	51,806	56,659	62,002
Total Retail Demand	37,693	42,576	47,431	51,827	56,680	62,023
Local Supplies						
Potable						
Groundwater with Disinfection as the Only Treatment	17,842	10,462	11,082	11,238	3,845	8,964
Groundwater Disinfected and Treated for Iron and/or Manganese Removal						
Desalinated Brackish Groundwater	4,750	13,000	13,200	13,400	21,600	21,850
Other (Please Explain)						
Sub-Total Local Potable Supply	22,592	23,462	24,282	24,638	25,445	30,814
Non-Potable						
Recycled Wastewater		4,029	8,059	12,088	16,117	16,117
Untreated Surface Water						
Non-Potable Groundwater						
Other (Please Explain)						
Subtotal Non-Potable Local Supply	0	4,029	8,059	12,088	16,117	16,117
Total Local Supply	22,592	27,491	32,341	36,726	41,562	46,931
Exports to Other Agencies						
Net Local Supplies	22,592	27,491	32,341	36,726	41,562	46,931
Net Projected Requrements of Imported Water from CMWD	15,101	15,085	15,090	15,101	15,118	15,092
Change		*-0.1%*	*0.0%*	*0.1%*	*0.1%*	*-0.2%*

Average Change 0.0% Per Year

Wastewater Treatment Plant (MWWTP) into the alluvial and underlying Fox Canyon aquifers. Cl concentrations have only occasionally exceeded the secondary MCLs and have ranged between 8 and 284 mg/l. NO_3 concentrations have ranged from ND to 144 mg/l. The two highest concentrations reported (132 and 144 mg/l) were detected in wells adjacent to Arroyo Las Posas and Beardsley Wash, suggesting possible impact from irrigation return flows.

Manganese and iron concentrations also occasionally exceeded the secondary drinking water MCLs. Manganese and iron were encountered at concentrations ranging between ND and 0.31 mg/l and ND and 8.4 mg/l, respectively. The greatest manganese concentrations were detected north of Somis, while the highest iron concentrations were detected near the western margin of the basin.

Owing to the existing and projected overdraft in the North Las Posas Basin, the estimated 300,000 acre-feet of available storage in the LAS and the degradation of the alluvium and LAS by poor quality recharge from the South Las Posas Basin, an LAS aquifer storage and recovery (ASR) project is currently being implemented in the North Las Posas Basin. As proposed, the ASR project will require the installation of 30 injection/extraction wells which will ultimately inject as much as 300,000 acre-feet of imported water into the LAS for storage during low water demand periods. The stored water could then be recovered or extracted for use during peak normal year water demand periods, during droughts or in emergencies

Appendix C

Water Supply and Demand Justification

CMWD 2005 UWMP - Purveyor Forecast Summary

Normal Year Scenario

Camarillo Region

Retail Water Demand	2005	2010	2015	2020	2025	2030
Agricultural	7,730	6,908	6,635	6,037	5,639	5,242
Municipal and Industrial	21,386	23,861	26,588	29,412	31,239	33,064
Total Retail Demand	29,116	30,769	33,223	35,449	36,878	38,306
Local Supplies						
Potable						
Groundwater with Disinfection as the Only Treatment	8,200	5,200	4,200	4,200	4,200	4,200
Groundwater Disinfected and Treated for Iron and/or Manganese Removal	1,669	4,735	5,750	5,770	5,790	5,810
Desalinated Brackish Groundwater		1,050	1,575	2,100	2,100	2,100
Other (Please Explain)						
Sub-Total Local Potable Supply	9,869	10,985	11,525	12,070	12,090	12,110
Non-Potable						
Recycled Wastewater	1,249	1,391	1,534	1,676	1,819	1,961
Untreated Surface Water	2,150	2,703	3,409	4,115	5,190	6,265
Non-Potable Groundwater	1,222	1,745	2,116	2,486	2,486	2,486
Other (Please Explain)						
Subtotal Non-Potable Local Supply	4,621	5,839	7,059	8,277	9,495	10,712
Total Local Supply	14,490	16,824	18,584	20,347	21,585	22,822
Exports to Other Agencies						
Net Local Supplies	14,490	16,824	18,584	20,347	21,585	22,822
Net Projected Requrements of Imported Water from CMWD	14,626	13,945	14,639	15,102	15,293	15,484
Change		*-4.7%*	*5.0%*	*3.2%*	*1.3%*	*1.2%*
Average Change	0.2% Per Year					

CMWD 2005 UWMP - Purveyor Forecast Summary

Normal Year Scenario

Moorpark Region

Retail Water Demand	2005	2010	2015	2020	2025	2030
Agricultural	11,007	11,358	11,358	11,408	11,433	11,458
Municipal and Industrial	11,633	13,342	15,318	16,447	16,476	16,505
Total Retail Demand	22,640	24,700	26,676	27,855	27,909	27,963
Local Supplies						
Potable						
Groundwater with Disinfection as the Only Treatment	3,953	2,909	2,909	2,909	2,909	2,909
Groundwater Disinfected and Treated for Iron and/or Manganese Removal	750	1,500	1,500	1,500	1,500	1,500
Desalinated Brackish Groundwater		2,000	5,000	5,000	5,000	5,000
Other (Please Explain)						
Sub-Total Local Potable Supply	4,703	6,409	9,409	9,409	9,409	9,409
Non-Potable						
Recycled Wastewater	1,008	2,016	2,016	2,016	2,016	2,016
Untreated Surface Water						
Non-Potable Groundwater	4,500	4,750	4,750	4,775	4,775	4,800
Other (Please Explain)						
Subtotal Non-Potable Local Supply	5,508	6,766	6,766	6,791	6,791	6,816
Total Local Supply	10,211	13,175	16,175	16,200	16,200	16,225
Exports to Other Agencies						
Net Local Supplies	10,211	13,175	16,175	16,200	16,200	16,225
Net Projected Requrements of Imported Water from CMWD	12,429	11,525	10,501	11,655	11,709	11,738
Change		*-7.3%*	*-8.9%*	*11.0%*	*0.5%*	*0.2%*
Average Change	-0.2% Per Year					

CMWD 2005 UWMP - Purveyor Forecast Summary

Normal Year Scenario

Simi Valley Region

Retail Water Demand	2005	2010	2015	2020	2025	2030
Agricultural	90	99	110	121	134	150
Municipal and Industrial	33,080	35,201	38,670	41,891	45,448	49,414
Total Retail Demand	33,170	35,300	38,780	42,012	45,582	49,564
Local Supplies						
Potable						
Groundwater with Disinfection as the Only Treatment	500	500	500	500	500	500
Groundwater Disinfected and Treated for Iron and/or Manganese Removal						
Desalinated Brackish Groundwater						
Other (Please Explain)						
Sub-Total Local Potable Supply	500	500	500	500	500	500
Non-Potable						
Recycled Wastewater	100	110	121	133	147	162
Untreated Surface Water						
Non-Potable Groundwater	1,000	1,104	1,219	1,345	1,486	1,640
Other (Please Explain)						
Subtotal Non-Potable Local Supply	1,100	1,214	1,340	1,478	1,633	1,802
Total Local Supply	1,600	1,714	1,840	1,978	2,133	2,302
Exports to Other Agencies						
Net Local Supplies	1,600	1,714	1,840	1,978	2,133	2,302
Net Projected Requrements of Imported Water from CMWD	31,570	33,586	36,940	40,034	43,449	47,262
Change		*6.4%*	*10.0%*	*8.4%*	*8.5%*	*8.8%*
Average Change	2.0% Per Year					

CMWD 2005 UWMP - Purveyor Forecast Summary

Normal Year Scenario

Conejo Valley Region

Retail Water Demand	2005	2010	2015	2020	2025	2030
Agricultural						
Municipal and Industrial	44,308	46,496	48,260	48,896	49,546	50,211
Total Retail Demand	44,308	46,496	48,260	48,896	49,546	50,211
Local Supplies						
Potable						
Groundwater with Disinfection as the Only Treatment						
Groundwater Disinfected and Treated for Iron and/or Manganese Removal						
Desalinated Brackish Groundwater						
Other (Please Explain)						
Sub-Total Local Potable Supply	0	0	0	0	0	0
Non-Potable						
Recycled Wastewater	10,969	11,475	11,981	11,987	11,994	12,000
Untreated Surface Water						
Non-Potable Groundwater	50	50	50	50	50	50
Other (Please Explain)						
Subtotal Non-Potable Local Supply	11,019	11,525	12,031	12,037	12,044	12,050
Total Local Supply	11,019	11,525	12,031	12,037	12,044	12,050
Exports to Other Agencies	10,500	11,000	11,500	11,500	11,500	11,500
Net Local Supplies	519	525	531	537	544	550
Net Projected Requrements of Imported Water from CMWD	43,789	45,971	47,729	48,359	49,002	49,661
Change		*5.0%*	*3.8%*	*1.3%*	*1.3%*	*1.3%*
Average Change	0.5% Per Year					

CMWD 2005 UWMP - Purveyor Forecast Summary

Normal Year Scenario

Oak Park Region

Retail Water Demand	2005	2010	2015	2020	2025	2030
Agricultural						
Municipal and Industrial	4,300	4,300	4,300	4,300	4,300	4,300
Total Retail Demand	4,300	4,300	4,300	4,300	4,300	4,300
Local Supplies						
Potable						
Groundwater with Disinfection as the Only Treatment						
Groundwater Disinfected and Treated for Iron and/or Manganese Removal						
Desalinated Brackish Groundwater						
Other (Please Explain)						
Sub-Total Local Potable Supply	0	0	0	0	0	0
Non-Potable						
Recycled Wastewater	850	850	870	880	890	900
Untreated Surface Water						
Non-Potable Groundwater						
Other (Please Explain)						
Subtotal Non-Potable Local Supply	850	850	870	880	890	900
Total Local Supply	850	850	870	880	890	900
Exports to Other Agencies						
Net Local Supplies	850	850	870	880	890	900
Net Projected Requrements of Imported Water from CMWD	3,450	3,450	3,430	3,420	3,410	3,400
Change		*0.0%*	*-0.6%*	*-0.3%*	*-0.3%*	*-0.3%*
Average Change	-0.1% Per Year					

CMWD 2005 UWMP - Purveyor Forecast Summary

Normal Year Scenario

Oxnard Region

Retail Water Demand	2005	2010	2015	2020	2025	2030
Agricultural	21	21	21	21	21	21
Municipal and Industrial	37,672	42,555	47,410	51,806	56,659	62,002
Total Retail Demand	37,693	42,576	47,431	51,827	56,680	62,023
Local Supplies						
Potable						
Groundwater with Disinfection as the Only Treatment	17,842	10,462	11,082	11,238	3,845	8,964
Groundwater Disinfected and Treated for Iron and/or Manganese Removal						
Desalinated Brackish Groundwater	4,750	13,000	13,200	13,400	21,600	21,850
Other (Please Explain)						
Sub-Total Local Potable Supply	22,592	23,462	24,282	24,638	25,445	30,814
Non-Potable						
Recycled Wastewater		4,029	8,059	12,088	16,117	16,117
Untreated Surface Water						
Non-Potable Groundwater						
Other (Please Explain)						
Subtotal Non-Potable Local Supply	0	4,029	8,059	12,088	16,117	16,117
Total Local Supply	22,592	27,491	32,341	36,726	41,562	46,931
Exports to Other Agencies						
Net Local Supplies	22,592	27,491	32,341	36,726	41,562	46,931
Net Projected Requrements of Imported Water from CMWD	15,101	15,085	15,090	15,101	15,118	15,092
Change		*-0.1%*	*0.0%*	*0.1%*	*0.1%*	*-0.2%*
Average Change	0.0% Per Year					

CMWD 2005 UWMP - Purveyor Forecast Summary

Normal Year Scenario

CMWD District-Wide Normal Year

Retail Water Demand	2005	2010	2015	2020	2025	2030
Agricultural	18,848	18,386	18,124	17,587	17,227	16,871
Municipal and Industrial	152,379	165,755	180,546	192,752	203,668	215,496
Total Retail Demand	171,227	184,141	198,670	210,339	220,895	232,367
Local Supplies						
Potable						
Groundwater with Disinfection as the Only Treatment	30,495	19,071	18,691	18,847	11,454	16,573
Groundwater Disinfected and Treated for Iron and/or Manganese Removal	2,419	6,235	7,250	7,270	7,290	7,310
Desalinated Brackish Groundwater	4,750	16,050	19,775	20,500	28,700	28,950
Other (Please Explain)	0	0	0	0	0	0
Sub-Total Local Potable Supply	37,664	41,356	45,716	46,617	47,444	52,833
Non-Potable						
Recycled Wastewater	14,176	19,871	24,581	28,780	32,983	33,156
Untreated Surface Water	2,150	2,703	3,409	4,115	5,190	6,265
Non-Potable Groundwater	6,772	7,649	8,135	8,656	8,797	8,976
Other (Please Explain)	0	0	0	0	0	0
Subtotal Non-Potable Local Supply	23,098	30,223	36,125	41,551	46,970	48,397
Total Local Supply	60,762	71,579	81,841	88,168	94,414	101,230
Exports to Other Agencies	10,500	11,000	11,500	11,500	11,500	11,500
Net Local Supplies	50,262	60,579	70,341	76,668	82,914	89,730
Net Projected Requrements of Imported Water from CMWD	120,965	123,562	128,329	133,671	137,981	142,637
Change		*2.1%*	*3.9%*	*4.2%*	*3.2%*	*3.4%*
Average Change	0.7% Per Year					

CMWD 2005 UWMP - Purveyor Forecast Summary

Isolated Dry Year Scenario

Camarillo Region

Retail Water Demand	2005	2010	2015	2020	2025	2030
Agricultural	8,152	7,530	7,009	6,387	5,966	5,544
Municipal and Industrial	22,415	24,897	27,831	30,862	32,795	34,726
Total Retail Demand	30,567	32,427	34,840	37,249	38,761	40,270
Local Supplies						
Potable						
Groundwater with Disinfection as the Only Treatment	8,200	5,200	4,200	4,200	4,200	4,200
Groundwater Disinfected and Treated for Iron and/or Manganese Removal	1,617	4,730	5,740	5,750	5,765	5,747
Desalinated Brackish Groundwater		1,050	1,575	2,100	2,100	2,100
Other (Please Explain)						
Sub-Total Local Potable Supply	9,817	10,980	11,515	12,050	12,065	12,047
Non-Potable						
Recycled Wastewater	1,249	1,391	1,534	1,676	1,819	1,961
Untreated Surface Water	2,150	2,703	3,409	4,115	5,190	6,265
Non-Potable Groundwater	1,222	1,745	2,116	2,486	2,486	2,486
Other (Please Explain)						
Subtotal Non-Potable Local Supply	4,621	5,839	7,059	8,277	9,495	10,712
Total Local Supply	14,438	16,819	18,574	20,327	21,560	22,759
Exports to Other Agencies						
Net Local Supplies	14,438	16,819	18,574	20,327	21,560	22,759
Net Projected Requrements of Imported Water from CMWD	16,129	15,608	16,266	16,922	17,201	17,511
Change		-3.2%	4.2%	4.0%	1.6%	1.8%

Average Growth 0.3% Per Year

CMWD 2005 UWMP - Purveyor Forecast Summary

Isolated Dry Year Scenario

Moorpark Region

Retail Water Demand	2005	2010	2015	2020	2025	2030
Agricultural	12,748	13,169	13,169	13,194	13,219	13,292
Municipal and Industrial	13,019	14,932	17,142	18,395	18,427	18,456
Total Retail Demand	25,767	28,101	30,311	31,589	31,646	31,748
Local Supplies						
Potable						
Groundwater with Disinfection as the Only Treatment	3,953	2,909	2,909	2,909	2,909	2,909
Groundwater Disinfected and Treated for Iron and/or Manganese Removal	750	1,500	1,500	1,500	1,500	1,500
Desalinated Brackish Groundwater		2,000	5,000	5,000	5,000	5,000
Other (Please Explain)						
Sub-Total Local Potable Supply	4,703	6,409	9,409	9,409	9,409	9,409
Non-Potable						
Recycled Wastewater	1,008	2,016	2,016	2,016	2,016	2,016
Untreated Surface Water						
Non-Potable Groundwater	4,300	4,575	4,575	4,575	4,575	4,575
Other (Please Explain)						
Subtotal Non-Potable Local Supply	5,308	6,591	6,591	6,591	6,591	6,591
Total Local Supply	10,011	13,000	16,000	16,000	16,000	16,000
Exports to Other Agencies						
Net Local Supplies	10,011	13,000	16,000	16,000	16,000	16,000
Net Projected Requrements of Imported Water from CMWD	15,756	15,101	14,311	15,589	15,646	15,748
Change		*-4.2%*	*-5.2%*	*8.9%*	*0.4%*	*0.7%*

Average Change 0.00% Per Year

CMWD 2005 UWMP - Purveyor Forecast Summary

Isolated Dry Year Scenario

Simi Valley Region

Retail Water Demand	2005	2010	2015	2020	2025	2030
Agricultural	90	99	110	121	134	150
Municipal and Industrial	33,130	35,251	38,720	41,941	45,498	49,464
Total Retail Demand	33,220	35,350	38,830	42,062	45,632	49,614
Local Supplies						
Potable						
Groundwater with Disinfection as the Only Treatment	500	500	500	500	500	500
Groundwater Disinfected and Treated for Iron and/or Manganese Removal						
Desalinated Brackish Groundwater						
Other (Please Explain)						
Sub-Total Local Potable Supply	500	500	500	500	500	500
Non-Potable						
Recycled Wastewater	100	110	121	133	147	162
Untreated Surface Water						
Non-Potable Groundwater						
Other (Please Explain)						
Subtotal Non-Potable Local Supply	100	110	121	133	147	162
Total Local Supply	600	610	621	633	647	662
Exports to Other Agencies						
Net Local Supplies	600	610	621	633	647	662
Net Projected Requrements of Imported Water from CMWD	32,620	34,740	38,209	41,429	44,985	48,952
Change		*6.5%*	*10.0%*	*8.4%*	*8.6%*	*8.8%*

Average Change 2.0% Per Year

CMWD 2005 UWMP - Purveyor Forecast Summary

Isolated Dry Year Scenario

Conejo Valley Region

Retail Water Demand	2005	2010	2015	2020	2025	2030
Agricultural						
Municipal and Industrial	45,357	47,758	49,637	50,377	51,137	51,918
Total Retail Demand	45,357	47,758	49,637	50,377	51,137	51,918
Local Supplies						
Potable						
Groundwater with Disinfection as the Only Treatment						
Groundwater Disinfected and Treated for Iron and/or Manganese Removal						
Desalinated Brackish Groundwater						
Other (Please Explain)						
Sub-Total Local Potable Supply	0	0	0	0	0	0
Non-Potable						
Recycled Wastewater	10,469	10,975	11,481	11,487	11,494	11,500
Untreated Surface Water						
Non-Potable Groundwater	50	50	50	50	50	50
Other (Please Explain)						
Subtotal Non-Potable Local Supply	10,519	11,025	11,531	11,537	11,544	11,550
Total Local Supply	10,519	11,025	11,531	11,537	11,544	11,550
Exports to Other Agencies	10,000	10,500	11,000	11,000	11,000	11,000
Net Local Supplies	519	525	531	537	544	550
Net Projected Requrements of Imported Water from CMWD	44,838	47,233	49,106	49,840	50,593	51,368
Change		*5.3%*	*4.0%*	*1.5%*	*1.5%*	*1.5%*
Average Change	0.6% Per Year					

CMWD 2005 UWMP - Purveyor Forecast Summary

Isolated Dry Year Scenario

Oak Park Region

Retail Water Demand	2005	2010	2015	2020	2025	2030
Agricultural						
Municipal and Industrial	4,400	4,400	4,400	4,400	4,400	4,400
Total Retail Demand	4,400	4,400	4,400	4,400	4,400	4,400
Local Supplies						
Potable						
Groundwater with Disinfection as the Only Treatment						
Groundwater Disinfected and Treated for Iron and/or Manganese Removal						
Desalinated Brackish Groundwater						
Other (Please Explain)						
Sub-Total Local Potable Supply	0	0	0	0	0	0
Non-Potable						
Recycled Wastewater	900	900	920	940	950	964
Untreated Surface Water						
Non-Potable Groundwater						
Other (Please Explain)						
Subtotal Non-Potable Local Supply	900	900	920	940	950	964
Total Local Supply	900	900	920	940	950	964
Exports to Other Agencies						
Net Local Supplies	900	900	920	940	950	964
Net Projected Requrements of Imported Water from CMWD	3,500	3,500	3,480	3,460	3,450	3,436
Change		*0.0%*	*-0.6%*	*-0.6%*	*-0.3%*	*-0.4%*

Average Change -0.1% Per Year

CMWD 2005 UWMP - Purveyor Forecast Summary

Isolated Dry Year Scenario

CMWD District-Wide Dry Year

Retail Water Demand	2005	2010	2015	2020	2025	2030
Agricultural	21,011	20,819	20,309	19,723	19,340	19,007
Municipal and Industrial	155,993	169,793	185,140	197,781	208,916	220,966
Total Retail Demand	177,004	190,612	205,449	217,504	228,256	239,973
Local Supplies						
Potable						
Groundwater with Disinfection as the Only Treatment	30,495	19,071	18,691	18,847	11,454	16,573
Groundwater Disinfected and Treated for Iron and/or Manganese Removal	2,367	6,230	7,240	7,250	7,265	7,247
Desalinated Brackish Groundwater	4,750	16,050	19,775	20,500	28,700	28,950
Other (Please Explain)	0	0	0	0	0	0
Sub-Total Local Potable Supply	37,612	41,351	45,706	46,597	47,419	52,770
Non-Potable						
Recycled Wastewater	13,726	19,421	24,131	28,340	32,543	32,720
Untreated Surface Water	2,150	2,703	3,409	4,115	5,190	6,265
Non-Potable Groundwater	5,572	6,370	6,741	7,111	7,111	7,111
Other (Please Explain)						
Subtotal Non-Potable Local Supply	21,448	28,494	34,281	39,566	44,844	46,096
Total Local Supply	59,060	69,845	79,987	86,163	92,263	98,866
Exports to Other Agencies	10,000	10,500	11,000	11,000	11,000	11,000
Net Local Supplies	49,060	59,345	68,987	75,163	81,263	87,866
Net Projected Requrements of Imported Water from CMWD	127,944	131,267	136,462	142,341	146,993	152,107
Change		*2.6%*	*4.0%*	*4.3%*	*3.3%*	*3.5%*

Average Change 0.8% Per Year

CMWD 2005 UWMP - Purveyor Forecast Summary

Multiple Dry Year Scenario

Camarillo Region

Retail Water Demand	2005	2010	2015	2020	2025	2030
Agricultural	9,493	8,796	8,198	7,501	7,003	6,506
Municipal and Industrial	24,824	27,768	31,036	34,401	36,667	38,932
Total Retail Demand	34,317	36,564	39,234	41,902	43,670	45,438
Local Supplies						
Potable						
Groundwater with Disinfection as the Only Treatment	6,940	3,940	2,940	2,940	2,940	2,940
Groundwater Disinfected and Treated for Iron and/or Manganese Removal	1,605	6,025	8,540	8,555	8,565	8,575
Desalinated Brackish Groundwater		490	980	1,470	1,470	1,470
Other (Please Explain)						
Sub-Total Local Potable Supply	8,545	10,455	12,460	12,965	12,975	12,985
Non-Potable						
Recycled Wastewater	1,249	1,391	1,534	1,676	1,819	1,961
Untreated Surface Water	2,150	2,703	3,409	4,115	5,190	6,265
Non-Potable Groundwater	1,042	1,594	2,041	2,486	2,486	2,486
Other (Please Explain)						
Subtotal Non-Potable Local Supply	4,441	5,688	6,984	8,277	9,495	10,712
Total Local Supply	12,986	16,143	19,444	21,242	22,470	23,697
Exports to Other Agencies						
Net Local Supplies	12,986	16,143	19,444	21,242	22,470	23,697
Net Projected Requrements of Imported Water from CMWD	21,331	20,421	19,790	20,660	21,200	21,741
Change		*-4.3%*	*-3.1%*	*4.4%*	*2.6%*	*2.6%*

Average Growth 0.1% Per Year

CMWD 2005 UWMP - Purveyor Forecast Summary

Multiple Dry Year Scenario

Moorpark Region

Retail Water Demand	2005	2010	2015	2020	2025	2030
Agricultural	12,498	12,970	12,970	12,995	13,020	13,045
Municipal and Industrial	13,275	15,221	17,473	18,747	18,780	18,813
Total Retail Demand	25,773	28,191	30,443	31,742	31,800	31,858
Local Supplies						
Potable						
Groundwater with Disinfection as the Only Treatment	3,953	2,909	2,909	2,909	2,909	2,909
Groundwater Disinfected and Treated for Iron and/or Manganese Removal	750	1,500	1,500	1,500	1,500	1,500
Desalinated Brackish Groundwater		2,000	5,000	5,000	5,000	5,000
Other (Please Explain)						
Sub-Total Local Potable Supply	4,703	6,409	9,409	9,409	9,409	9,409
Non-Potable						
Recycled Wastewater	1,008	2,016	2,016	2,016	2,016	2,016
Untreated Surface Water						
Non-Potable Groundwater	4,500	4,800	4,800	4,750	4,750	4,750
Other (Please Explain)						
Subtotal Non-Potable Local Supply	5,508	6,816	6,816	6,766	6,766	6,766
Total Local Supply	10,211	13,225	16,225	16,175	16,175	16,175
Exports to Other Agencies						
Net Local Supplies	10,211	13,225	16,225	16,175	16,175	16,175
Net Projected Requrements of Imported Water from CMWD	15,562	14,966	14,218	15,567	15,625	15,683
Change		*-3.8%*	*-5.0%*	*9.5%*	*0.4%*	*0.4%*

Average Change 0.0% Per Year

CMWD 2005 UWMP - Purveyor Forecast Summary

Multiple Dry Year Scenario

Simi Valley Region

Retail Water Demand	2005	2010	2015	2020	2025	2030
Agricultural	90	99	110	121	134	150
Municipal and Industrial	33,180	35,351	38,870	42,141	45,748	49,764
Total Retail Demand	33,270	35,450	38,980	42,262	45,882	49,914
Local Supplies						
Potable						
Groundwater with Disinfection as the Only Treatment	500	500	500	500	500	500
Groundwater Disinfected and Treated for Iron and/or Manganese Removal						
Desalinated Brackish Groundwater						
Other (Please Explain)						
Sub-Total Local Potable Supply	500	500	500	500	500	500
Non-Potable						
Recycled Wastewater	100	110	121	133	147	162
Untreated Surface Water						
Non-Potable Groundwater	1,000	1,104	1,219	1,345	1,486	1,640
Other (Please Explain)						
Subtotal Non-Potable Local Supply	1,100	1,214	1,340	1,478	1,633	1,802
Total Local Supply	1,600	1,714	1,840	1,978	2,133	2,302
Exports to Other Agencies						
Net Local Supplies	1,600	1,714	1,840	1,978	2,133	2,302
Net Projected Requrements of Imported Water from CMWD	31,670	33,736	37,140	40,284	43,749	47,612
Change		*6.5%*	*10.1%*	*8.5%*	*8.6%*	*8.8%*

Average Change 2.0% Per Year

CMWD 2005 UWMP - Purveyor Forecast Summary

Multiple Dry Year Scenario

Conejo Valley Region

Retail Water Demand	2005	2010	2015	2020	2025	2030
Agricultural						
Municipal and Industrial	43,935	46,418	48,386	49,221	50,083	50,973
Total Retail Demand	43,935	46,418	48,386	49,221	50,083	50,973
Local Supplies						
Potable						
Groundwater with Disinfection as the Only Treatment						
Groundwater Disinfected and Treated for Iron and/or Manganese Removal						
Desalinated Brackish Groundwater						
Other (Please Explain)						
Sub-Total Local Potable Supply	0	0	0	0	0	0
Non-Potable						
Recycled Wastewater	10,469	10,975	11,481	11,487	11,494	11,600
Untreated Surface Water						
Non-Potable Groundwater	50	50	50	50	50	50
Other (Please Explain)						
Subtotal Non-Potable Local Supply	10,519	11,025	11,531	11,537	11,544	11,650
Total Local Supply	10,519	11,025	11,531	11,537	11,544	11,650
Exports to Other Agencies	10,000	10,500	11,000	11,000	11,000	11,000
Net Local Supplies	519	525	531	537	544	650
Net Projected Requrements of Imported Water from CMWD	43,416	45,893	47,855	48,684	49,539	50,323
Change		*5.7%*	*4.3%*	*1.7%*	*1.8%*	*1.6%*

Average Change 0.6% Per Year

CMWD 2005 UWMP - Purveyor Forecast Summary

Multiple Dry Year Scenario

Oak Park Region

Retail Water Demand	2005	2010	2015	2020	2025	2030
Agricultural						
Municipal and Industrial	4,400	4,400	4,400	4,400	4,400	4,400
Total Retail Demand	4,400	4,400	4,400	4,400	4,400	4,400
Local Supplies						
Potable						
Groundwater with Disinfection as the Only Treatment						
Groundwater Disinfected and Treated for Iron and/or Manganese Removal						
Desalinated Brackish Groundwater						
Other (Please Explain)						
Sub-Total Local Potable Supply	0	0	0	0	0	0
Non-Potable						
Recycled Wastewater	900	900	920	940	950	960
Untreated Surface Water						
Non-Potable Groundwater						
Other (Please Explain)						
Subtotal Non-Potable Local Supply	900	900	920	940	950	960
Total Local Supply	900	900	920	940	950	960
Exports to Other Agencies						
Net Local Supplies	900	900	920	940	950	960
Net Projected Requrements of Imported Water from CMWD	3,500	3,500	3,480	3,460	3,450	3,440
Change		*0.0%*	*-0.6%*	*-0.6%*	*-0.3%*	*-0.3%*

Average Change -0.1% Per Year

CMWD 2005 UWMP - Purveyor Forecast Summary

Multiple Dry Year Scenario

Oxnard Region

Retail Water Demand	2005	2010	2015	2020	2025	2030
Agricultural	21	21	21	21	21	21
Municipal and Industrial	37,672	42,555	47,410	51,806	56,659	62,002
Total Retail Demand	37,693	42,576	47,431	51,827	56,680	62,023
Local Supplies						
Potable						
Groundwater with Disinfection as the Only Treatment	18504	11124	11744	11900	4507	9626
Groundwater Disinfected and Treated for Iron and/or Manganese Removal						
Desalinated Brackish Groundwater	4750	13000	13200	13400	21600	21850
Other (Please Explain)						
Sub-Total Local Potable Supply	23,254	24,124	24,944	25,300	26,107	31,476
Non-Potable						
Recycled Wastewater	0	4029	8059	12088	16117	16117
Untreated Surface Water						
Non-Potable Groundwater						
Other (Please Explain)						
Subtotal Non-Potable Local Supply	0	4,029	8,059	12,088	16,117	16,117
Total Local Supply	23,254	28,153	33,003	37,388	42,224	47,593
Exports to Other Agencies						
Net Local Supplies	23,254	28,153	33,003	37,388	42,224	47,593
Net Projected Requrements of Imported Water from CMWD	14,439	14,423	14,428	14,439	14,456	14,430
Change		*-0.1%*	*0.0%*	*0.1%*	*0.1%*	*-0.2%*
Average Change	0.0% Per Year					

CMWD 2005 UWMP - Purveyor Forecast Summary

Multiple Dry Year Scenario

CMWD District-Wide Multiple Dry Year

Retail Water Demand	2005	2010	2015	2020	2025	2030
Agricultural	22,102	21,886	21,299	20,638	20,178	19,722
Municipal and Industrial	157,286	171,713	187,575	200,715	212,337	224,884
Total Retail Demand	179,388	193,599	208,874	221,353	232,515	244,606
Local Supplies						
Potable						
Groundwater with Disinfection as the Only Treatment	29,897	18,473	18,093	18,249	10,856	15,975
Groundwater Disinfected and Treated for Iron and/or Manganese Removal	2,355	7,525	10,040	10,055	10,065	10,075
Desalinated Brackish Groundwater	4,750	15,490	19,180	19,870	28,070	28,320
Other (Please Explain)	0	0	0	0	0	0
Sub-Total Local Potable Supply	37,002	41,488	47,313	48,174	48,991	54,370
Non-Potable						
Recycled Wastewater	13,726	19,421	24,131	28,340	32,543	32,816
Untreated Surface Water	2,150	2,703	3,409	4,115	5,190	6,265
Non-Potable Groundwater	6,592	7,548	8,110	8,631	8,772	8,926
Other (Please Explain)	0	0	0	0	0	0
Subtotal Non-Potable Local Supply	22,468	29,672	35,650	41,086	46,505	48,007
Total Local Supply	59,470	71,160	82,963	89,260	95,496	102,377
Exports to Other Agencies	10,000	10,500	11,000	11,000	11,000	11,000
Net Local Supplies	49,470	60,660	71,963	78,260	84,496	91,377
Net Projected Requrements of Imported Water from CMWD	129,918	132,939	136,911	143,093	148,019	153,229
Change		*2.3%*	*3.0%*	*4.5%*	*3.4%*	*3.5%*

Average Change 0.7% Per Year

CMWD 2005 UWMP - Net Projected Demands on CMWD by Purveyor

Normal Year

Purveyor	2005	2010	2015	2020	2025	2030
Berylwood Heights Mutual Water Company	0	0	0	25	50	50
Brandeis Mutual Water Company	80	90	95	95	100	150
Butler Ranch Mutual Water Company	0	0	0	0	0	0
California-American Water Company	19,241	19,727	20,225	20,736	21,259	21,796
California Water Service	9,677	9,793	9,910	10,029	10,149	10,271
Camarillo, City of	5,600	5,800	6,600	7,400	7,400	7,400
Camrosa Water District	8,409	7,294	7,151	6,784	6,943	7,104
Capehart Housing - U.S. Navy	186	186	188	188	190	190
Crestview Mutual Water Company	220	350	400	450	500	550
Lake Sherwood CSD	1,130	1,310	1,453	1,453	1,453	1,453
Newbury Park Adacemy Water Company	141	141	141	141	141	141
Oak Park Water Service	3,450	3,450	3,430	3,420	3,410	3,400
Oxnard, City of	15,101	15,085	15,090	15,101	15,118	15,092
Pleasant Valley Mutual Water Company	211	315	300	280	260	240
Simi Valley, City of (VCWWD #8)	23,990	25,946	29,245	32,289	35,649	39,362
Solano Verde Mutual Water Co. (Future)	270	280	290	300	300	300
Southern California Water Company	7,500	7,550	7,600	7,650	7,700	7,750
Thousand Oaks, City of	13,600	15,000	16,000	16,000	16,000	16,000
Ventura County Water Works District No. 1	10,187	8,998	7,937	9,028	9,028	9,028
Ventura County Water Works District No. 19	472	747	774	802	831	860
Zone Mutual Water Company	1,500	1,500	1,500	1,500	1,500	1,500
Total	120,965	123,562	128,329	133,671	137,981	142,637

= No projections provided

CMWD 2005 UWMP - Net Projected Demands on CMWD by Purveyor

Dry Year

Purveyor	2005	2010	2015	2020	2025	2030
Berylwood Heights Mutual Water Company	0	25	25	50	75	100
Brandeis Mutual Water Company	80	90	95	95	100	150
Butler Ranch Mutual Water Company	0	0	0	0	0	0
California-American Water Company	19,260	19,845	20,447	21,068	21,708	22,367
California Water Service	9,169	9,279	9,391	9,504	9,617	9,733
Camarillo, City of	6,000	6,100	7,000	7,900	7,900	7,900
Camrosa Water District	9,431	8,623	8,338	8,054	8,296	8,538
Capehart Housing - U.S. Navy	215	215	218	218	220	220
Crestview Mutual Water Company	270	400	450	500	550	600
Lake Sherwood CSD	1,254	1,454	1,613	1,613	1,613	1,613
Newbury Park Adacemy Water Company	155	155	155	155	155	155
Oak Park Water Service	3,500	3,500	3,480	3,460	3,450	3,436
Oxnard, City of	15,101	15,085	15,090	15,101	15,118	15,092
Pleasant Valley Mutual Water Company	213	270	260	250	235	253
Simi Valley, City of (VCWWD #8)	24,990	27,050	30,464	33,634	37,135	41,002
Solano Verde Mutual Water Co. (Future)	310	320	330	330	330	330
Southern California Water Company	7,550	7,600	7,650	7,700	7,750	7,800
Thousand Oaks, City of	15,000	16,500	17,500	17,500	17,500	17,500
Ventura County Water Works District No. 1	11,991	11,003	10,174	11,396	11,396	11,396
Ventura County Water Works District No. 19	955	1,253	1,282	1,313	1,345	1,422
Zone Mutual Water Company	2,500	2,500	2,500	2,500	2,500	2,500
Total	127,944	131,267	136,462	142,341	146,993	152,107

= No projections provided

CMWD 2005 UWMP - Net Projected Demands on CMWD by Purveyor

Multiple Dry Years

Purveyor	2005	2010	2015	2020	2025	2030
Berylwood Heights Mutual Water Company	0	50	50	125	150	175
Brandeis Mutual Water Company	80	90	95	95	100	150
Butler Ranch Mutual Water Company	0	0	0	0	0	0
California-American Water Company	19,279	19,963	20,672	21,406	22,166	22,952
California Water Service	7,723	7,816	7,910	8,005	8,100	8,098
Camarillo, City of	6,500	5,400	4,800	5,700	5,700	5,700
Camrosa Water District	14,121	14,106	14,042	13,982	14,485	14,991
Capehart Housing - U.S. Navy	215	215	218	218	220	220
Crestview Mutual Water Company	320	450	500	550	600	650
Lake Sherwood CSD	1,254	1,454	1,613	1,613	1,613	1,613
Newbury Park Adacemy Water Company	160	160	160	160	160	160
Oak Park Water Service	3,500	3,500	3,480	3,460	3,450	3,440
Oxnard, City of	14,439	14,423	14,428	14,439	14,456	14,430
Pleasant Valley Mutual Water Company	175	250	230	210	195	180
Simi Valley, City of (VCWWD #8)	23,990	25,946	29,245	32,289	35,649	39,362
Solano Verde Mutual Water Co. (Future)	330	340	350	350	350	350
Southern California Water Company	7,600	7,700	7,800	7,900	8,000	8,100
Thousand Oaks, City of	15,000	16,500	17,500	17,500	17,500	17,500
Ventura County Water Works District No. 1	12,231	11,276	10,487	11,730	11,730	11,730
Ventura County Water Works District No. 19	1,001	1,300	1,331	1,362	1,395	1,428
Zone Mutual Water Company	2,000	2,000	2,000	2,000	2,000	2,000
Total	129,918	132,939	136,911	143,094	148,019	153,229

= No projections provided

Calleguas Municipal Water District
Historic Water Sales By Month

YEAR	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
1965	454.8	447.3	537.0	499.3	1,031.0	1,081.8	1,353.9	1,575.7	1,203.7	1,434.4	748.8	531.2	10,898.9
1966	600.6	527.5	907.1	1,330.9	1,513.1	1,943.1	2,244.9	2,327.6	1,872.2	1,711.5	959.8	837.2	16,775.5
1967	1,149.1	952.3	1,054.7	724.9	1,590.8	2,031.7	2,775.5	2,931.9	2,047.2	1,959.8	1,457.7	1,045.1	19,720.7
1968	1,137.8	970.1	1,348.8	1,843.7	2,377.3	2,591.8	3,122.1	2,930.6	2,702.7	2,015.9	1,628.1	1,285.1	23,954.0
1969	1,105.7	899.7	1,408.3	1,692.7	2,167.9	2,397.7	3,322.1	3,311.2	2,782.5	2,621.8	1,715.0	1,606.0	25,030.6
1970	1,236.9	1,261.9	1,691.9	2,902.3	3,808.7	3,824.5	4,448.9	3,977.8	3,525.7	2,783.3	2,086.8	1,207.0	32,755.7
1971	1,408.8	1,532.4	2,135.7	2,512.3	2,915.1	3,533.9	4,621.9	4,530.3	3,616.7	3,327.0	2,216.6	1,789.1	34,139.8
1972	1,947.1	2,267.2	3,085.2	3,491.4	4,040.8	4,338.7	5,034.3	4,937.6	3,865.4	3,377.0	2,597.8	2,436.2	41,418.7
1973	2,186.5	1,659.2	1,993.6	3,240.6	3,948.3	4,929.7	5,248.7	4,861.0	4,196.6	3,987.0	2,699.2	2,315.8	41,266.2
1974	1,990.7	2,580.7	2,285.2	3,438.9	4,424.5	5,212.4	5,741.9	5,240.3	4,813.1	3,656.4	3,264.5	2,610.6	45,259.2
1975	2,898.0	2,109.3	2,258.1	2,675.6	4,333.1	4,847.0	6,051.9	5,717.5	4,920.1	4,373.4	4,043.9	3,601.3	47,829.2
1976	4,112.0	2,763.7	3,460.4	3,941.7	5,713.3	6,883.2	6,975.6	6,410.4	4,302.8	4,606.3	4,516.7	4,885.1	58,571.2
1977	3,106.2	3,796.1	3,359.7	4,277.3	3,661.6	5,082.1	6,277.6	5,595.6	5,240.7	4,688.5	4,310.1	3,429.6	52,825.1
1978	2,517.3	2,425.0	2,696.3	2,778.1	5,799.3	6,971.1	7,155.0	7,189.2	6,252.6	5,732.8	3,715.5	3,222.7	56,454.9
1979	2,864.0	2,554.1	3,101.6	4,564.9	6,231.8	7,345.4	7,973.3	7,878.8	7,834.8	5,694.2	4,747.4	5,113.8	65,904.1
1980	3,217.3	2,949.6	3,236.0	5,272.8	5,521.0	7,632.0	9,133.5	8,948.0	7,135.0	7,124.0	6,050.2	4,993.5	71,212.9
1981	4,849.3	3,739.6	3,637.8	5,553.4	7,603.4	9,863.4	10,294.7	9,792.3	8,456.0	6,699.6	5,571.2	4,346.7	80,407.4
1982	3,606.7	3,780.3	3,775.1	4,704.5	6,964.5	7,409.0	9,452.9	9,311.8	7,386.4	7,432.3	4,555.3	3,775.4	72,154.2
1983	4,375.4	3,073.2	3,439.9	4,419.5	6,386.3	7,569.3	9,256.8	8,204.4	8,129.4	5,487.6	3,897.1	3,441.4	67,680.3
1984	4,752.2	5,344.2	6,948.8	7,032.8	8,957.0	9,055.7	10,650.6	10,179.5	8,978.4	7,564.9	4,557.2	3,636.9	87,658.2
1985	4,574.1	4,568.3	5,350.1	7,208.3	8,511.3	9,823.5	10,905.1	10,543.8	9,011.3	8,093.6	5,671.9	5,149.7	89,411.0
1986	5,436.8	3,726.2	4,586.2	6,203.2	8,474.7	9,414.0	10,627.1	10,468.6	8,353.2	7,752.1	6,920.5	6,089.9	88,052.5
1987	5,480.3	5,082.2	5,434.7	8,783.8	9,342.2	10,113.8	10,631.1	10,604.6	9,863.3	7,855.3	5,261.8	5,073.9	93,527.0
1988	4,829.4	6,212.4	7,506.2	7,389.7	9,816.0	10,517.9	11,305.6	10,921.9	9,955.2	9,018.3	6,386.9	6,489.8	100,349.3
1989	5,791.6	4,981.8	6,832.0	9,040.1	9,755.1	10,601.5	11,974.9	11,482.5	10,444.6	9,090.4	9,248.1	9,085.3	108,327.9
1990	6,711.3	5,741.5	7,852.4	7,907.2	9,371.1	10,122.6	11,512.1	11,152.4	10,778.1	10,946.2	9,019.1	8,774.1	109,888.1
1991	6,812.0	6,243.4	3,623.2	5,896.4	7,556.3	7,477.7	8,356.9	8,450.6	7,929.8	7,868.2	7,280.2	6,306.2	83,800.9
1992	5,251.7	4,282.8	4,345.3	6,830.5	8,458.2	9,073.3	9,547.3	10,646.2	10,018.7	8,627.7	7,512.0	5,410.6	90,004.3
1993	4,554.4	4,206.7	5,603.8	7,435.3	9,612.7	9,603.0	10,130.8	10,218.3	9,647.5	8,379.3	7,172.2	5,885.5	92,449.5
1994	6,031.3	3,978.7	5,253.6	6,454.8	6,916.1	9,666.5	10,227.7	10,968.8	9,298.6	8,498.9	6,830.5	6,337.4	90,462.9
1995	4,005.6	4,428.1	4,262.4	6,944.3	7,140.2	8,733.8	11,265.0	12,344.7	11,424.0	10,434.4	7,945.4	6,524.4	95,452.3
1996	6,515.8	4,867.4	5,849.5	8,161.2	11,694.7	12,611.8	12,683.9	13,188.1	12,548.0	11,042.1	7,688.7	6,091.4	112,942.6
1997	4,173.9	5,151.9	8,749.9	9,289.9	10,455.5	11,448.8	12,188.7	12,378.2	11,732.8	10,302.9	6,807.9	4,735.8	107,416.1
1998	4,785.0	3,737.6	4,987.8	5,540.8	7,225.5	9,761.6	11,582.3	11,938.7	10,524.8	9,559.0	8,142.6	7,194.3	94,980.0
1999	7,660.2	5,756.7	6,106.2	6,852.7	10,139.1	10,413.0	12,305.9	13,399.3	11,170.2	12,521.8	8,189.3	9,156.8	113,671.2
2000	7,486.4	4,893.0	6,454.7	9,463.0	11,239.5	12,848.7	13,513.9	14,068.9	11,838.3	10,156.7	9,216.0	8,949.8	120,128.9
2001	6,736.1	5,226.7	6,048.7	8,370.6	10,631.9	11,519.0	13,674.4	13,455.0	12,337.4	10,997.6	6,696.0	5,595.9	111,289.3
2002	6,452.0	7,683.7	9,847.0	9,700.8	11,725.6	13,145.3	13,559.8	13,549.6	13,788.2	10,986.3	8,121.3	6,269.6	124,829.2
2003	8,182.0	6,049.2	6,813.7	8,286.5	8,963.0	10,605.5	13,341.5	13,883.2	12,244.7	11,198.3	8,231.4	7,327.7	115,126.7
2004	7,109.9	6,597.2	8,245.7	10,597.2	14,566.0	12,540.7	13,721.3	14,587.5	13,321.8	9,238.5	7,603.8	7,547.7	125,677.3

Appendix D

2003 and 2004 CUWCC Reports

Appendix E

CMWD's Draft Resolution Adopting Water Shortage Contingency Procedures

RESOLUTION NO. _____

RESOLUTION OF THE BOARD OF DIRECTORS
OF CALLEGUAS MUNICIPAL WATER DISTRICT
ADOPTING WATER SHORTAGE CONTINGENCY
PROCEDURES

WHEREAS, the Board of Directors Calleguas Municipal Water District (Calleguas) adopted an urban Water Management Plan (the Plan) in 1995 in accordance with the requirements of the California Urban Water Management Planning Act (Water Code Sections 10610 et seq; the Act); and the Plan was updated in accordance with applicable law and adopted by the Board in 2000; and further updated and adopted on October 5th, 2005; and

WHEREAS, the Act requires that the Plan include a course of action in the event of a water shortage; and

WHEREAS, the Plan describes actions Calleguas would follow to manage demand and, if necessary, allocate water in response to reductions in available water supplies; and

WHEREAS, Ordinance No. 12 authorizes the Board of Directors to pass through to member agencies of Calleguas any allocations or penalties for use exceeding allocations that Metropolitan Water District of Southern California may impose or that the Board of Directors might independently judge to be necessary.

NOW, THEREFORE, THE BOARD OF DIRECTORS OF CALLEGUAS MUNICIPAL WATER DISTRICT RESOLVES AS FOLLOWS:

1. The water shortage contingency measures described in the Plan are hereby adopted; and

2. During periods of water shortage, Calleguas staff shall inform the Board monthly of water sales for the past month in comparison to the average sales over the last five years during the same month.

ADOPTED, SIGNED AND APPROVED on _____, _____.

_____
Ted Grandsen,
President of the Board of Directors

ATTEST:

_____
Donald G. Hauser
Secretary of the Board of Directors

STATE OF CALIFORNIA)
) ss
COUNTY OF VENTURA)

I, DONALD G. HAUSER, Secretary of the Board of Directors of Calleguas Municipal Water District, DO HEREBY CERTIFY that the foregoing Resolution was duly adopted by the Board of Directors of said District at an adjourned meeting of said Board held on the _____, 2005.

_____
Secretary of the Board of Directors

Appendix F

Public Hearing Information
Resolution to Adopt the 2005 UWMP

TED GRANDSEN, PRESIDENT
DIVISION 1

GAIL L. PRINGLE, DIRECTOR
DIVISION 4

JEFFREY A. BORENSTEIN, TREASURER
DIVISION 2

WILLIAM R. SEAVER, VICE PRESIDENT
DIVISION 5

DONALD G. HAUSER, SECRETARY
DIVISION 3

DONALD R. KENDALL, Ph.D., P.E.
GENERAL MANAGER

web site: http://www.calleguas.com

2100 OLSEN ROAD • THOUSAND OAKS, CALIFORNIA 91360-6800 805/526-9323 • FAX: 805/522-5730 • FAX: 805/526-3675

August 5, 2005

ALL INTERESTED PARTIES:

Draft 2005 Urban Water Management Plan

Calleguas Municipal Water District (Calleguas) hereby provides public notice that its Draft 2005 Urban Water Management Plan is now available for public review.

Urban Water Management Plan

Calleguas has prepared the Urban Water Management Plan (Plan) for submission to the California Department of Water Resources. The document was developed in response to Water Code Sections 10610 through 10657 of the Urban Water Management Planning Act (Act). These Plans which describe and evaluate reasonable, practical and efficient water supplies, uses, reclamation, and conservation activities, are to be filed with the California Department of Water Resources every five years in years ending in five or zero.

Public Review Period

The Act requires that prior to adopting the Plan, the urban water supplier shall make the plan available for public review. As such, Calleguas has made the Plan available for review at local libraries within Calleguas' service area and on the Calleguas web site at www.calleguas.com. Comments on the Plan are to be submitted by September 7th, 2005 to Cy Johnson, Development Programs Administrator, Calleguas MWD, 2100 Olsen Rd., Thousand Oaks, CA. 91360.

Public Hearing

A public hearing on this matter will be held during the Calleguas Board of Directors meeting September 7th, 2005 at 7:30 p.m. at 2100 Olsen Road in Thousand Oaks. This hearing will provide a final opportunity to submit written and/or verbal comments regarding the Plan.

Certificate of Publication

RECEIVED
AUG 17 2005
CALLEGUAS M.W.D.

Ad #891789

In Matter of Publication of:

Notice of Public Hearing

State of California)
))§
County of Ventura)

I, **Kim Lumsden**, hereby certify that the **Ventura County Star, Thousand Oaks Star, Oxnard Star, Simi Valley Star, Moorpark Star, Camarillo Star** has been adjudged a newspaper of general circulation by the Superior Court of California, County of Ventura within the provisions of the Government Code of the State of California, printed and published in the City of San Buenaventura, County of Ventura, State of California; that I am the a clerk of the printer of said paper; that the annexed clipping is a true printed copy and publishing in said newspaper on the following dates to wit:

Aug. 8, 15, 2005

I, Kim Lumsden certify under penalty of perjury, that the foregoing is true and correct.

Dated this Aug. 15, 2005, in San Buenaventura, California

Kim Lumsden
(Signature)

Notice of Public Hearing
Regarding the Calleguas Municipal Water District
Draft 2005 Urban Water Management Plan

Calleguas Municipal Water District (Calleguas) hereby provides public notice that its Draft 2005 Urban Water Management Plan is now available for public review.

Calleguas has prepared the Urban Water Management Plan [illegible] pursuant to the California Department of Water Resources [illegible] which describe and evaluate reasonable and efficient water supplies, uses, reclamation, and conservation activities, are to be filed with the California Department of Water Resources every five years in years ending in five or zero.

The Act requires that prior to adopting the plan, the urban water supplier shall make the plan available for public review. As such, Calleguas has made the plan available for review at the local libraries within Calleguas' service area noted below and on the Calleguas web site at www.calleguas.com. Comments on the Plan are to be submitted by September 7th, 2005 to Mr. Cy Jenkins, Development, Programs Administrator, Calleguas MWD, 2100 Olsen Rd., Thousand Oaks, CA [illegible].

A public hearing on this matter will be held during the Calleguas Board of Directors meeting September 7th, 2005 at 7:30 p.m. at 2100 Olsen Road in Thousand Oaks. This hearing will provide a final opportunity to submit written and/or verbal comments regarding the Plan.

The Plan may be reviewed at the following public libraries:
Camarillo Library, 3100 Ponderosa Drive, Camarillo, CA 93010
Moorpark Library, [illegible]
Oxnard Library, 251 South A Street, [illegible]
Port Hueneme Library, [illegible]
Simi Valley Library, [illegible]
Thousand Oaks Library, 1401 E. Janss Rd., Thousand Oaks, CA 91362

Publish: Aug 8, 15, 2005 Ad No. VC891789

Ted Grandsen
President - Division 1
William R. Seaver
Vice President - Division 5
Donald G. Hauser
Secretary - Division 3
Jeffrey A. Borenstein
Treasurer - Division 2
Gail L. Pringle
Director - Division 4
Donald R. Kendall, Ph.D., P.E.
General Manager

CALLEGUAS
MUNICIPAL WATER DISTRICT

2100 Olsen Road
Thousand Oaks
California 91360-6800
(805) 526-9323
Fax (805) 522-5730
Web site: www.calleguas.com

VOLUNTARY SIGN - IN SHEET

The signing, registering or completion of this sign-in sheet is voluntary, and you may attend this meeting regardless of whether you sign, register or otherwise complete the sign-in sheet. (Gov't Code §54953.3)

MEETING: Board of Directors and Public Hearing

DATE: September 7th, 2005 TIME: 7:30 p.m.

NAME (PLEASE PRINT)	REPRESENTING (PLEASE PRINT)	PHONE #
Vincent Harvey		
Bob Wolin	AFSCME	520-9351
Anthony Emmert	Oxnard	

RESOLUTION NO. 1486

RESOLUTION OF THE BOARD OF DIRECTORS
OF CALLEGUAS MUNICIPAL WATER DISTRICT
ADOPTING THE 2005 URBAN WATER MANAGEMENT PLAN
FOR CALLEGUAS MUNICIPAL WATER DISTRICT

WHEREAS, Calleguas Municipal Water District (Calleguas) has prepared the 2005 Urban Water Management Plan (Plan) for submission to the California Department of Water Resources in accordance with Water Code Sections 10610 through 10657 of the Urban Water Management Planning Act (Act); and

WHEREAS, the Plan, which describes and evaluates reasonable, practical and efficient water supplies, uses, reclamation, and conservation activities, is to be filed with the California Department of Water Resources every five years in years ending in five or zero; and

WHEREAS, Metropolitan Water District of Southern California and member purveyors of Calleguas have provided forecasts of water demand and local water supplies and have conferred on the preparation of the Plan; and

WHERERAS, as the Act requires that prior to adopting the Plan, the urban water supplier shall make the Plan available for public review and Calleguas has made the plan available for review at the local libraries within Calleguas' service area noted below and on the Calleguas web site and held a public hearing to receive public comments; and

WHEREAS, Calleguas considered the comments offered by member agencies and the public and where necessary or appropriate, revised the Plan to respect those comments, and

NOW, THEREFORE, THE BOARD OF DIRECTORS OF CALLEGUAS MUNICIPAL WATER DISTRICT RESOLVES AS FOLLOWS:

1. That the 2005 Urban Water Management Plan dated September 2005 is hereby adopted; and

2. The Plan shall be distributed to all member purveyors, public libraries, cities within the Calleguas service area, the County of Ventura and other concerned agencies within 30 days of the adoption of Resolution No. 1486.

ADOPTED, SIGNED AND APPROVED the fifth day of October, 2005.

Ted Grandsen,
President of the Board of Directors

ATTEST:

Donald G. Hauser
Secretary of the Board of Directors

I certify that this is a true and correct copy of the original Resolution No. 1486, adopted at a regular Board of Directors meeting held on October 5th, 2005.

Alida Inouye, Secretary

STATE OF CALIFORNIA)
) ss
COUNTY OF VENTURA)

I, DONALD G. HAUSER, Secretary of the Board of Directors of Calleguas Municipal Water District, DO HEREBY CERTIFY that the foregoing Resolution was duly adopted by the Board of Directors of said District at an adjourned meeting of said Board held on the fifth day of October, 2005.

Donald G. Hauser
Secretary of the Board of Directors