California Water Service Company

2007 Urban Water Management Plan

East Los Angeles District

Adopted

December 21, 2007

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California Water Service Company
2007 Urban Water Management Plan
Contact Sheet

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1 Introduction

California Water Service Company (Cal Water) is an investor-owned public utility supplying water service to 1.7 million Californians through 435,000 connections. Its 25 separate water systems serve 63 communities from Chico in the North to the Palos Verdes Peninsula in Southern California. In 2000, Cal Water merged with the Dominguez Services Corporation incorporating several northern and southern California water systems. California Water Service Group, Cal Water's parent company, is also serving communities in Washington, New Mexico, and Hawaii. Rates and operations for districts located in California are regulated by the California Public Utilities Commission (CPUC) and are set separately for each of the systems. Cal Water incorporated in 1926 and has provided water service to the East Los Angeles community since 1928.

1.1 Purpose

California Water Code §10644(a) requires urban water suppliers to file with the Department of Water Resources, the California State Library, and any city or county within which the supplier provides water supplies, a copy of its Urban Water Management Plan, no later than 30 days after adoption. All urban water suppliers as defined in Section 10617 (including wholesalers), either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet annually are required to prepare an Urban Water Management Plan.

California Water Service Company will follow the California Water Code and file an Urban Water Management Plan at least once every five years on or before December 31, in years ending in five and zero. However, since California Water Service Company operates 25 Districts, updating and submitting all 25 Urban Water Management Plans in a single year is unfeasible. Therefore, the Districts have been divided into three sets that will follow an established three-year schedule. The Plan for East Los Angeles is part of the 2007 grouping and was last submitted in 2004. The next update for this District will be in 2010.

This UWMP is a foundation document and source of information for a Water Supply Assessment and a Written Verification of Water Supply. An UWMP also serves as:

- A long-range planning document for water supply,
- Source data for development of a regional water plan, and
- A source document for cities and counties as they prepare their General Plans.
- A key component to Integrated Regional Water Management Plans.

1.2 Public Review

California Water Service Company completed a draft of the Urban Water Management Plan for the District on July 1, 2007. The draft was sent to the Cities and County listed in Table 1.2-1 for review and comment. Copies of the draft plan are available at the California Water Service Company San Jose corporate, and district office for public review and comment.

California Water Service Company conducted a formal public meeting to present information on its general rate case request to the CPUC. Presentation of the Urban Water Management Plan is included in the proceedings and serves as a public review of the Urban Water Management Plan. A public hearing was held on November 14, 2007, at 7:00 p.m. at the following location:

Crowne Plaza Hotel at Commerce Casino -
Diamond Room
6121 E. Telegraph Road
Commerce, California

Proof of the public hearing is presented in Appendix A

Table 1.2-1: Coordination with Appropriate Agencies (Table 1)

	Commented on the draft	Was sent a copy of the draft plan	Was sent a notice of intention to adopt
Central Basin Municipal Water District		✓	✓
Los Angeles County Department of Regional Planning		✓	✓
City of Montebello Planning Department	✓	✓	✓
City of Commerce Community Development Department		✓	✓
City of Vernon, Planning Division		✓	✓

1.3 Plan Adoption

No additional comments were received by December 14, 2007. The final plan was adopted by the Vice President of Engineering & Water Quality on December 21, 2007 and was submitted to California Department of Water Resources within 30 days of approval. Appendix A presents a copy of the signed Resolution of Plan Adoption.

The agencies listed in Table 1.2-1 above will also be sent a copy of the final version of this report, as well as a copy to the California State Library.

In addition to the resolution, Appendix A also contains the following:

- Any comments received during the public review of this plan.
- Minutes from the public hearing.
- The review sheet check list from Department of Water Resources.

1.4 Water Management Tools

California Water Service Company uses the following water management tools to maximize water resources for the district:

- Hydraulic analysis will be used to identify limitations in the water distribution network and provide recommendations if main replacement is required.

- SCADA/Water measurement provides information as to how the district is operating and gives a historical record of the district, including water levels. California Water Service Company maintains detailed records including the water sales and the customer service connections by sector and used this information for future projections.
- Geographical Information Systems (GIS) will be used to combine several sources of information and allow land usage management tools to provide insight into the growth of the district.
- Water quality data analysis provides a detailed compositional analysis of the water and provides information on potential supply shortfalls that can result from mineral intrusion or contamination.
- Water Supply and Facilities Master Plan provides details into the district from a global perspective and evaluates the major equipment and facilities replacement schedule, and identifies long-term projects. The Water Supply and Facilities Master Plan will be prepared in 2007.

1.5 Plan Organization

This plan is organized as described in the following outline. The corresponding provisions of the California Urban Water Management Planning Act are included as references. Tables in this plan have cross-references to the tables as listed in the "Guidebook to Assist Water Suppliers in the Preparation of a 2005 Urban Water Management Plan" prepared by the California Department of Water Resources.

Table 1.5-1: Plan Organization

Section	Executive Summary	Act Provision
Contact Sheet	List of Contact Persons	-
Chapter 1	Introduction This chapter describes the requirement and the purpose of the Urban Water Management Planning Act, plan adoption, schedule, and management tools.	§10620 (d, f) §10621(a -b) §10635(b) §10642 §10643 §10644 (a) §10645
Chapter 2	Service Area Information This chapter describes the district service area and includes area information, population estimate, and climate description.	§10631 (a)
Chapter 3	Water Sources This section includes a detailed discussion of the water supply sources including a section on the water quality.	§10620 (d)(1)(2) §10631 §10633 §10634
Chapter 4	Water Shortage Contingency Plan This chapter describes the District's planning during water shortages during drought and emergency situations.	§10631 (d) §10632
Chapter 5	Water Use Provisions This chapter describes the water supply projection methodology used to estimate water demand and supply requirements to 2030 in five-year increments.	§10631

Table 1.5-1: Plan Organization		
Section	**Executive Summary**	**Act Provision**
Chapter 6	Supply And Demand Comparison This discussed the water supply outlook for the district under different hydrologic conditions in accordance with DWR guidelines. Specifically, supply and demand comparisons in five-year increments to 2030 under normal, dry-year, and multiple dry-year conditions are presented in this section.	§10635 (a)
Chapter 7	Water Demand Management Demand management measures used to benchmark conservation methods are described in this chapter.	§10631
References	References The sources of the information used in this plan are listed in this section.	-
Appendix A	Resolution To Adopt The Urban Water Management Plan This section includes the following: 1) Resolution 2) Letters to and comments from various agencies 3) Minutes from the public hearing 4) DWR Checklist	§10621 (b) §10642 §10644 (a)
Appendix B	Service Area Map This appendix includes the service area map of the district as filed with the Public Utilities Commission.	-
Appendix C	Water Supply, Demand, And Projection Worksheets This section includes the spreadsheet used to estimate the water demand for the district.	-
Appendix D	California's Groundwater Bulletin 118 Sections from the Department of Water Resources Bulletin 118 are included as a reference and details of the basin for the district.	§10631 (b)(1-4)
Appendix E	Tariff Rule 14.1 Water Conservation And Rationing Plan This section contains the tariff rule for reference.	-
Appendix F	Water Efficient Landscape Guidelines and Joint Water Conservation Recommendations For Regulated Water Companies This appendix contains two items. The first item is the Guideline for Water Efficient Landscape that California Water Service Company uses at its properties, including renovations. The second item are Water Conservation Recommendations supported by Cal Water and other Regulated Water Companies.	-
Appendix G	CUWCC Annual Reports This section contains the reports filed with the California Urban Water Conservation Council.	§10631 (j)
Appendix H	BMP Economic Analysis Assumptions Worksheets for each BMP are presented in this section.	-
Appendix I	Central Basin Urban Management Plan This section contains the Management Plan	§10631 (b)(1-4)
Appendix J	Purchase Agreement This section contain the Purchase Agreement between Cal Water and Central Basin	-
Appendix K	Ground Water Management Plan This section contains the GWMP	-

1.6 Implementation of Previous UWMP

California Water Service Company has 25 separate water service districts and maintains separate plans for each district. The plans have been divided into 3 groups, with each group being updated on a 3-year cycle, as approved by the Public Utilities Commission. The last Urban Water Management Plan for the District was published in 2004 as part of the general rate case. The BMP programs outlined in that plan and the status of each program as of last year is discussed in Section 7.6

2 Service Area Information

2.1 General Information

The East Los Angeles District is located east of downtown Los Angeles with a western boundary approximately three miles from LA's Civic Center. Figure 2.1-1 shows a general location map of the district. The service area is built upon the uplifted Repetto Hills and spreads down on to the alluvium of the Los Angeles coastal plain. The area enjoys a mild climate with an average temperature of 65 degrees and average annual rainfall of 14.9 inches.

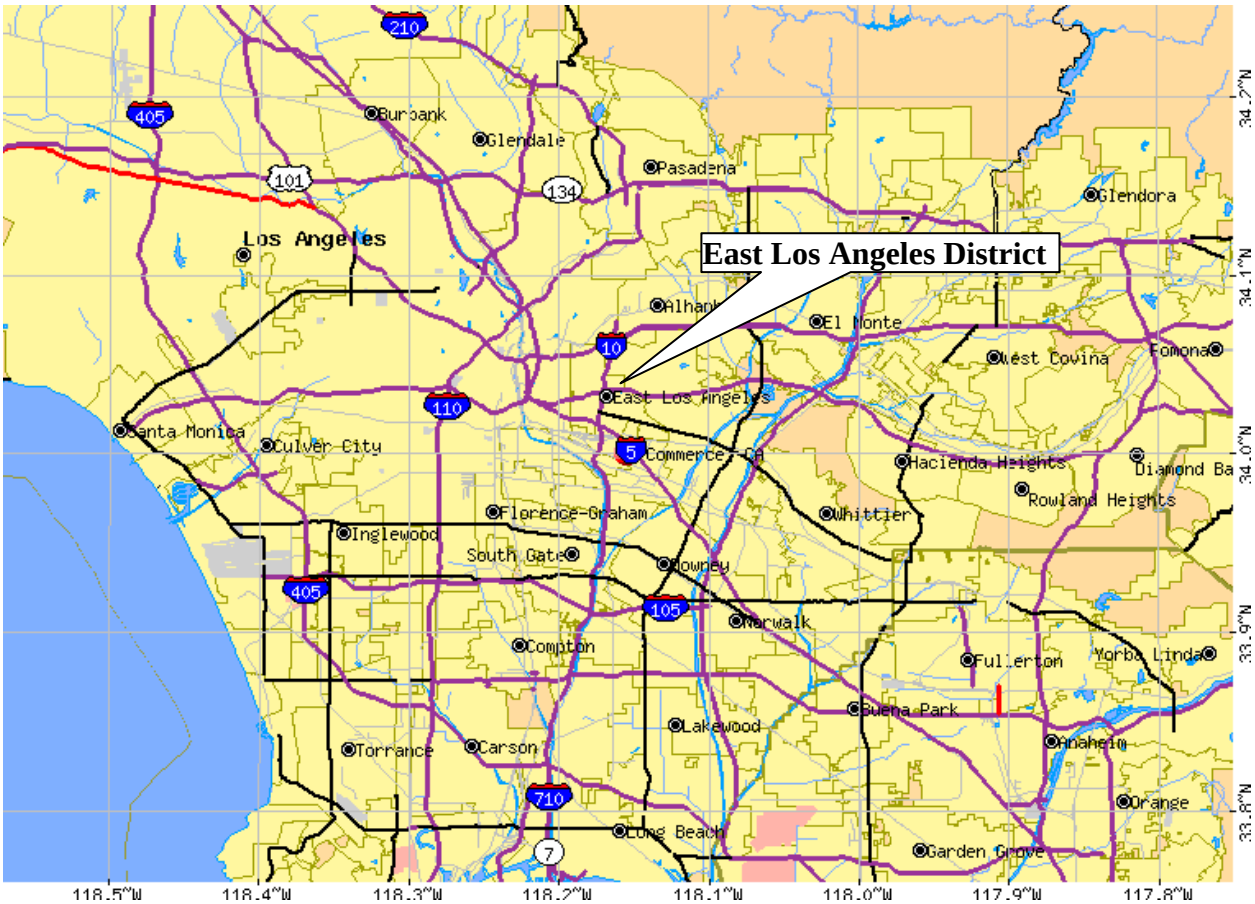
The service area encompasses a large section of unincorporated Los Angeles County known as East Los Angeles and portions of the cities of Montebello (20%), Commerce (85%), and Vernon (10%). The system is bounded on the west and north by the City of Los Angeles, on the north by the city of Monterey Park, on the east by the city of Montebello, and on the south by the cities of Commerce, Bell, and Vernon. A portion of the district's southern boundary is the Los Angeles River.

The Los Angeles Department of Water and Power (LADWP) provides retail water service to Los Angeles. The City of Monterey Park serves Monterey Park. San Gabriel Valley Water Company, the Montebello Land and Water Company, the South Montebello Irrigation District, and the City of Montebello Water Department serve Montebello. Commerce and Vernon are served by their own City Water Departments. Cal Water operates the water systems for Montebello and Commerce under contracts with these cities.

Major transportation links in the district include the Santa Ana Freeway (Interstate 5), Long Beach Freeway (Interstate 710), San Bernardino Freeway (Interstate 10), Pomona Freeway (State Highway 60), and Whittier Boulevard (State Highway 72). The Union Pacific Railroad and the Atchison, Topeka, and Santa Fe Railroad both have large rail yards within the district's service area. Los Angeles International Airport (LAX) is about fifteen miles west of the heart of the district.

Major geological features of the region include the Whittier Fault, which is an extension of the Elsinore Fault system, and the Workman Mill Fault. These faults are responsible for the uplift of base rock that forms the Puente Hills and Repetto Hill on which the district is built. The Newport-Inglewood Fault, which has been identified as one of the most dangerous faults in the Los Angeles area, lies ten miles southwest of the district. A major earthquake on either of these faults could disrupt water service.

Figure 2.1-1: General Location of East Los Angeles District – Los Angeles County



Source: http://www.city-data.com/city/Commerce-California.html

Figure 2.1-2: General Service Area

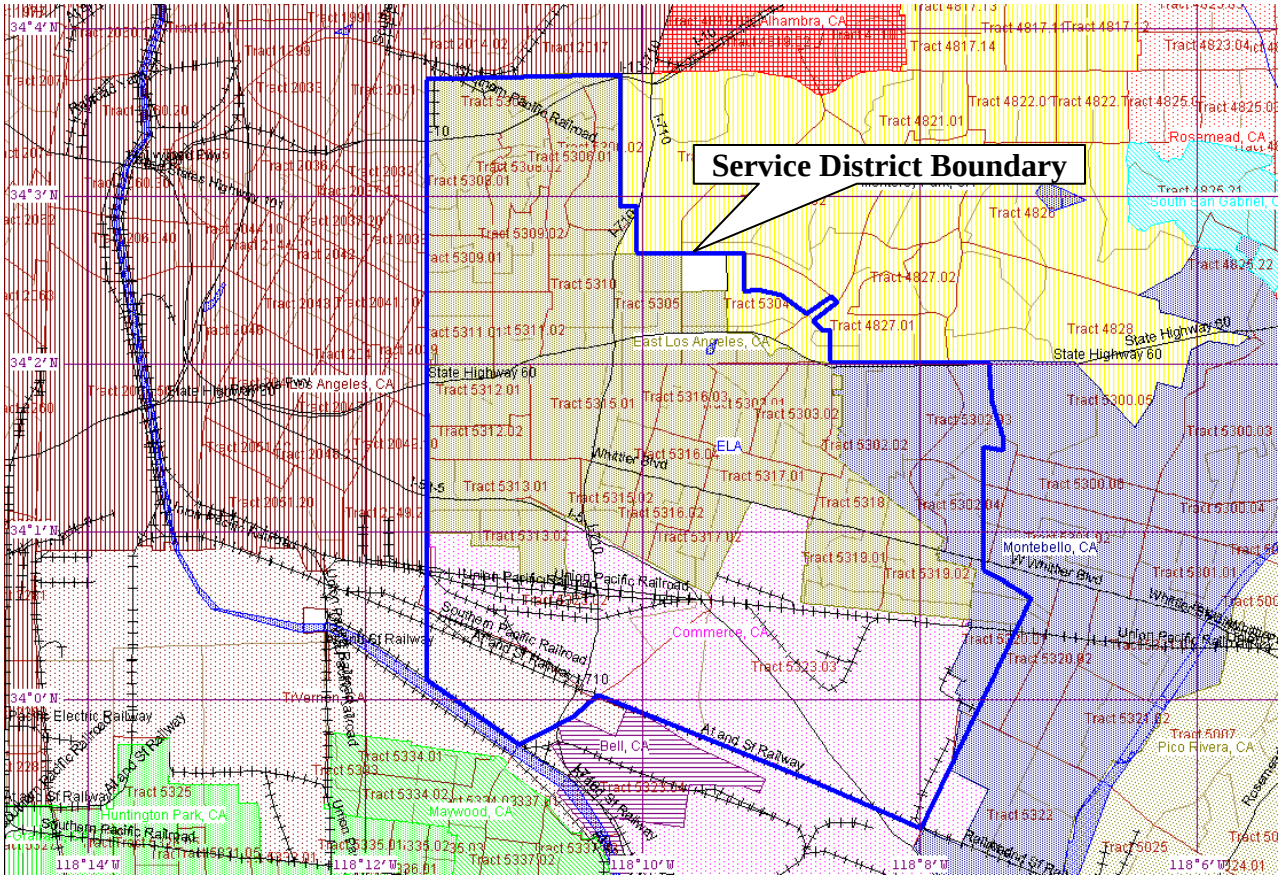
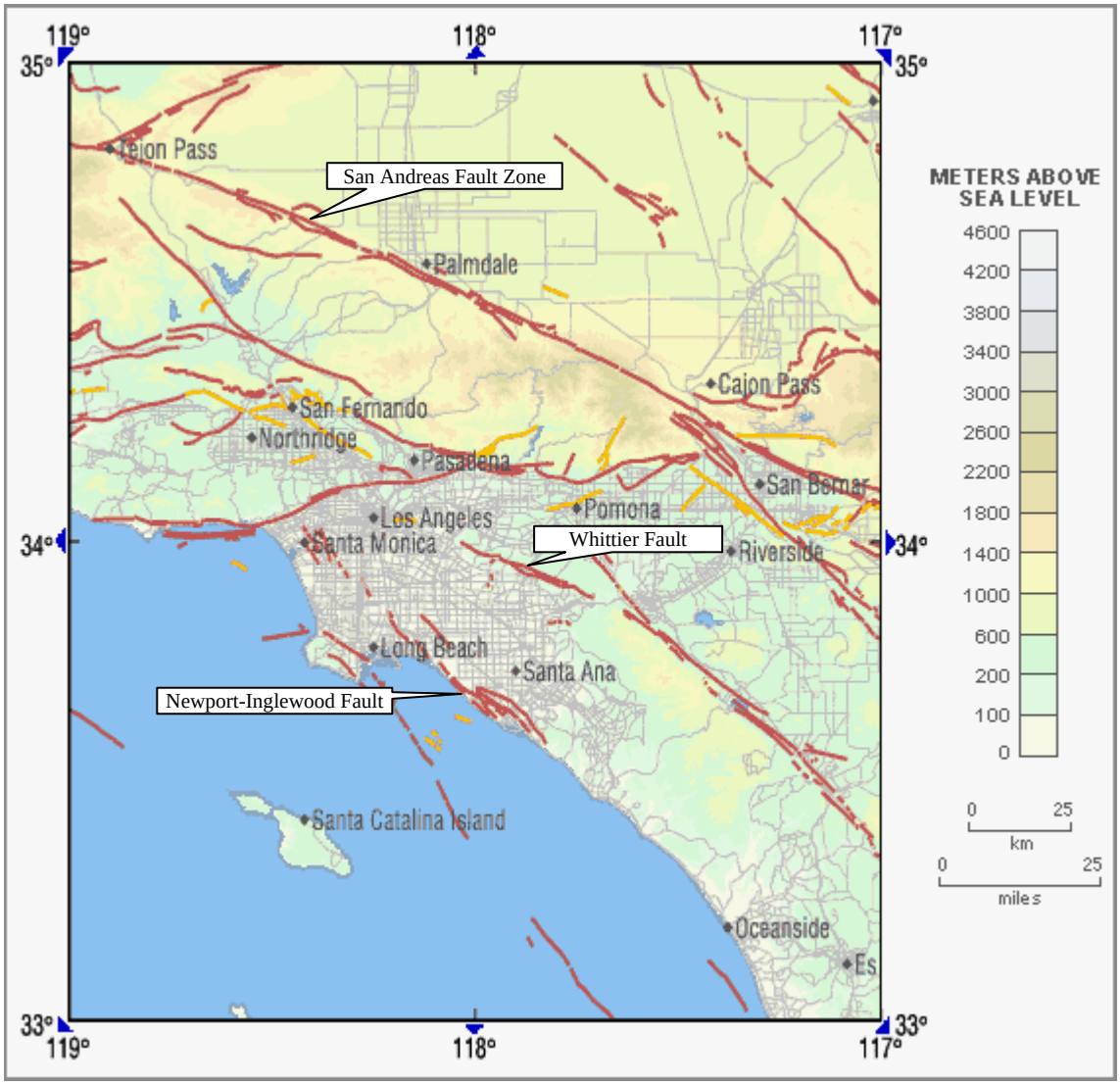


Figure 2.1-3: Major Fault Lines near the East Los Angeles District



Source: USGS

2.2 Service Area Population

Cal Water's East Los Angeles District is growing at a rate of 0.14% based on growth in total services over the past five years. Service counts since 1980 indicate that property redevelopment and growth are slow in the East Los Angeles District. During the past twenty years, the annual growth in total services has never exceeded one half of one percent and has averaged just one tenth of a percent in the last ten years.

The East Los Angeles system is surrounded by communities served by city water departments, water districts, and other water companies. There are no significant undeveloped parcels within the district, indicating that growth will be limited to redevelopment.

Based on 2000 U.S. Census data, considering actual service connection growth and assuming that density has remained unchanged since the census was conducted, Cal Water estimates that as of December 2006, the district's population is approximately 150,740. A density of 6.78 persons per residential service (single family services plus multifamily units) was used for this estimate.

Estimate of the population serviced by Cal Water is based on overlaying the U.S. Census 2000 Block data with the service area map (SAM), as shown in Figure 2.2-1. A summary of the census data for the Year 2000 is shown in Table 2.2-1. LandView 5 and MARPLOT ® software were used to generate the data[1].

Cal Water estimates the service area's population could reach 158,020 by 2030. Table 2.2-2 lists the population growth in 5-year increments.

Table 2.2-1: Summary of Census 2000 Data

	Census Blocks	Population	Housing Units
East Los Angeles Service Area	950	148,480	38,246

Figure 2.2-1: Approximated SAM with US Census 2000 Tract Map

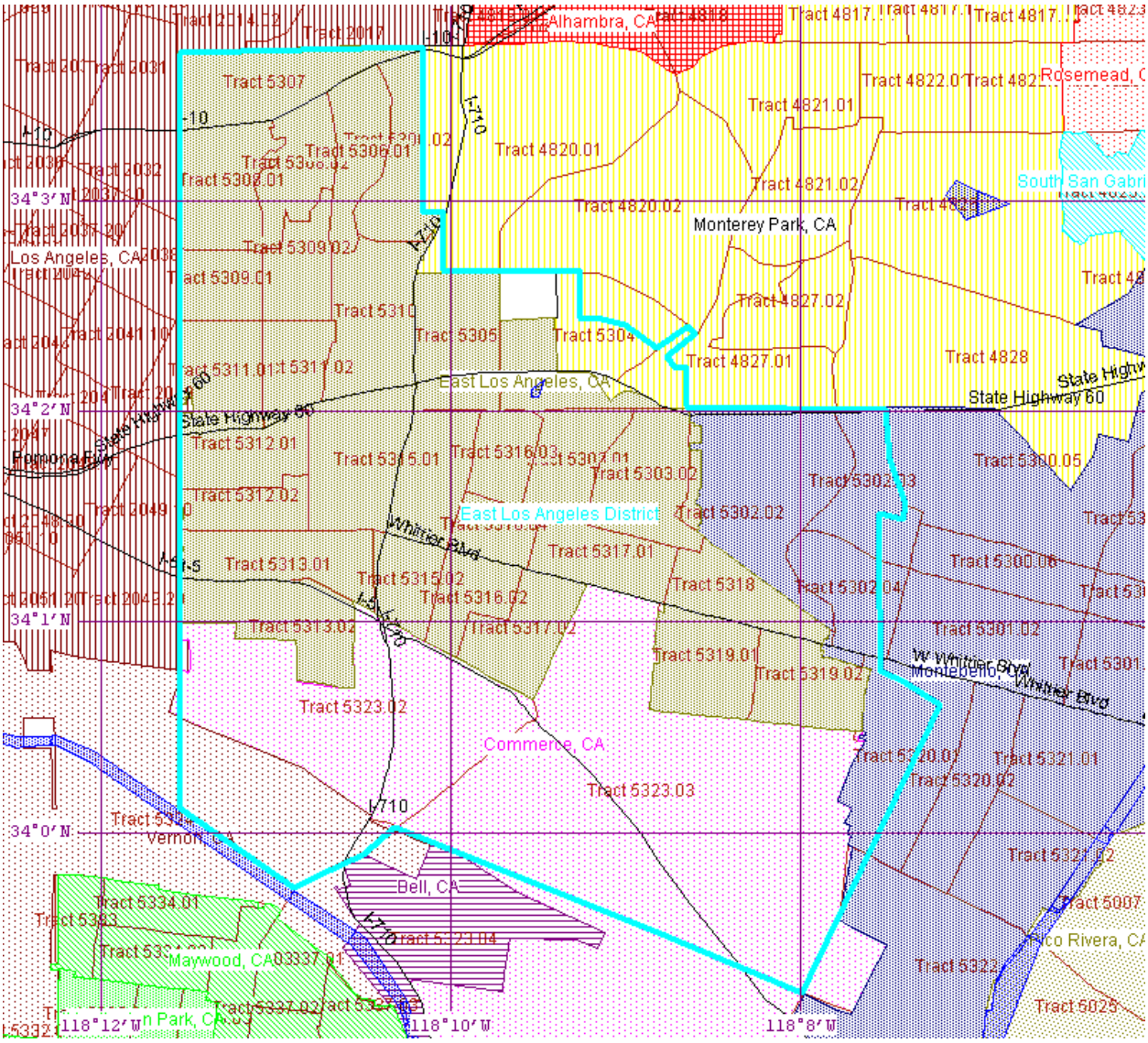
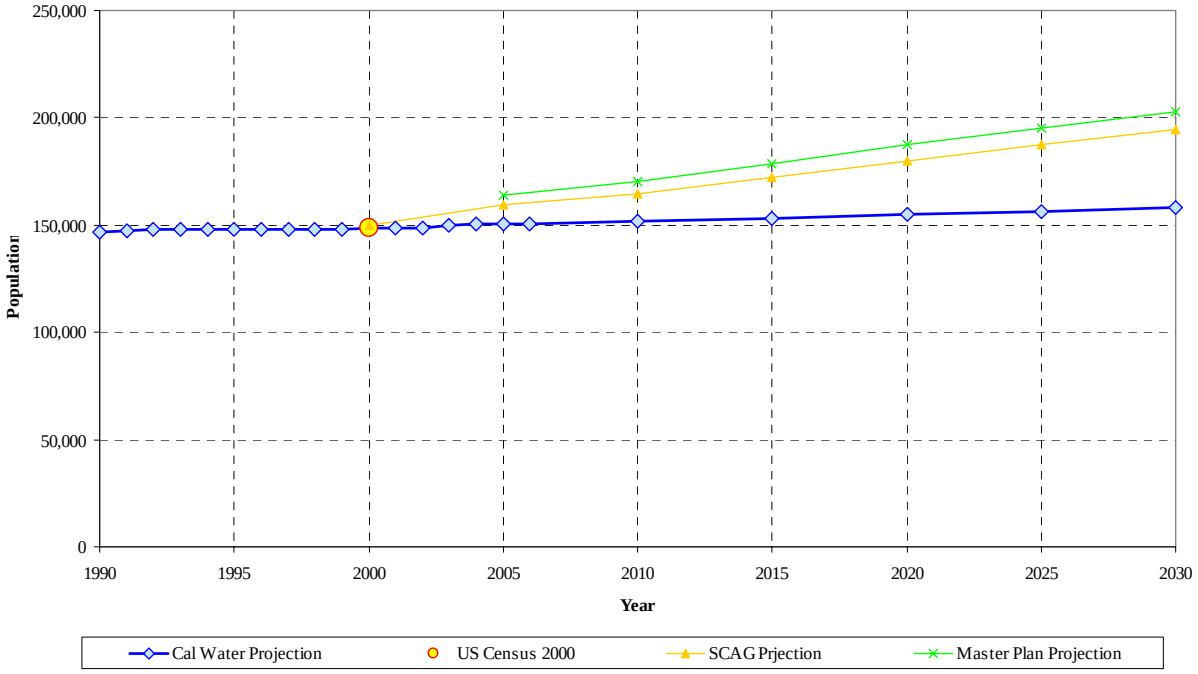


Table 2.2-2: Population - Current and Projected (Table 2)						
	2005	2010	2015	2020	2025	2030
Service Area Population	150,640	151,720	153,280	154,840	156,430	158,020

The population estimates for the district are compared to projections made by other governmental agencies, as shown in Figure 2.2-2. Cal Water's population projection is compared to the projections presented by the Southern California Association of

Governments (SCAG) and to data included in Cal Water's Draft Water Supply and Facilities Master Plan for the East Los Angeles District.

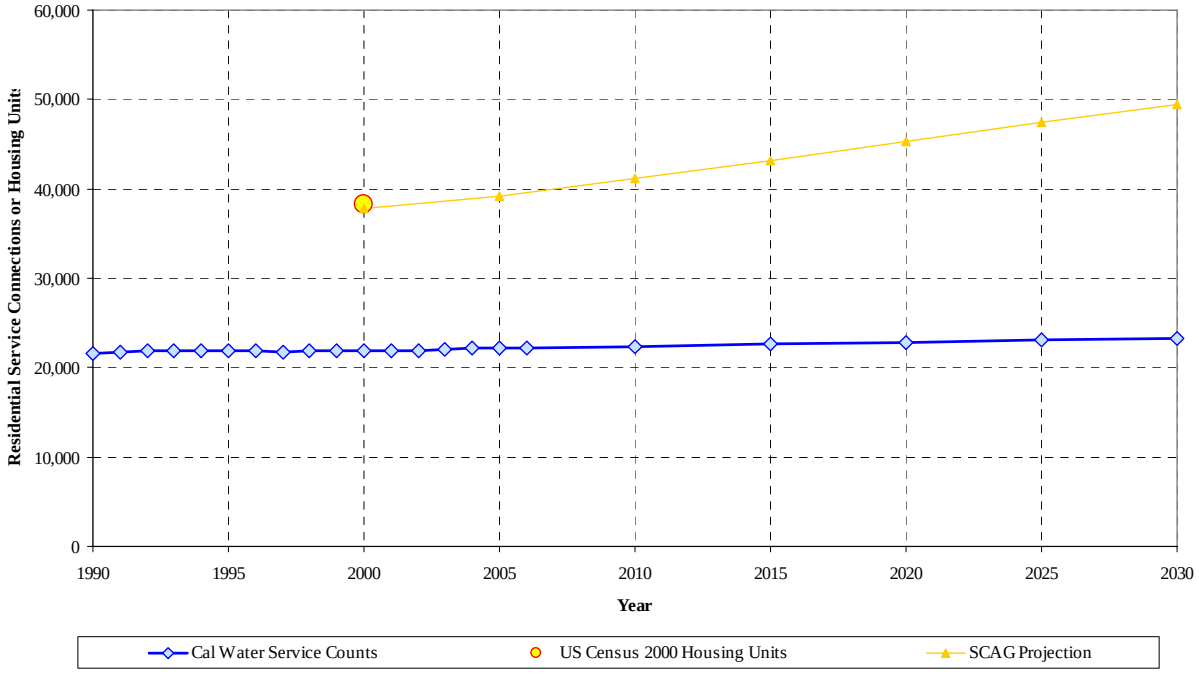
Figure 2.2-2: Estimated Population Comparison



From the graph above, we can see that the growth rate projected by California Water Service Company is much slower than the projected rate of increase estimated by both SCAG and CWS's Master Plan. SCAG data was the original source of the population estimate for the Master Plan, which resulted in a similar growth rate for the two comparison projections. The SCAG projection includes areas near but outside of Cal Water's East Los Angeles Service District that have a greater potential for growth. As a result SCAG's total population figures are greater. Cal Water's service area is mostly built out and population growth will only occur through redevelopment, which is reflected in the Cal Water projection.

Similarly, the housing count was estimated by comparing the US Census 2000 data and the service counts for the East Los Angeles District, Figure 2.2-3. The service count for the year 2000 is lower than the US Census 2000 housing units estimate. This is most likely the result of district service connections including one meter that serves several housing units, such as duplexes or apartments, whereas the US Census data totals all of the housing units (single and multifamily residences). The US Census 2000 housing unit figures were established by summarizing the individual census blocks enclosed within the service area of the district.

Figure 2.2-3: Estimated Housing Comparison



2.3 Climate

The climate for East Los Angeles is mild with warm dry summers and cool winters. The majority of precipitation falls during late autumn, winter, and early spring.

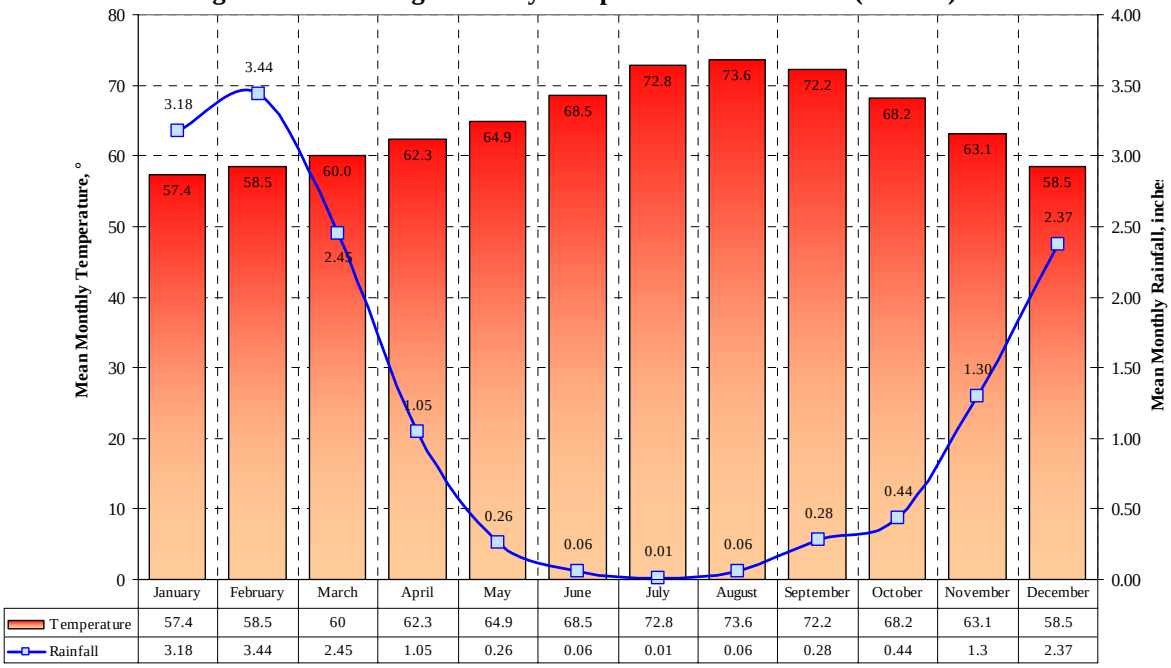
The following table, Table 2.3-1, lists the average annual conditions for the weather station at the Los Angeles Civic Center. The average rainfall for the district is 30% of the annual total evapotranspiration value.

Table 2.3-1: Average Annual Climate (Table 3)

Average Temperature	Average Rainfall	Annual Total Evapo-transpiration
65.0°F	14.92 inches	49.68 inches

Figure 2.3-1 displays the average monthly temperature and rainfall[2]. Additional climate data is provided in the Appendix C, worksheet 18.

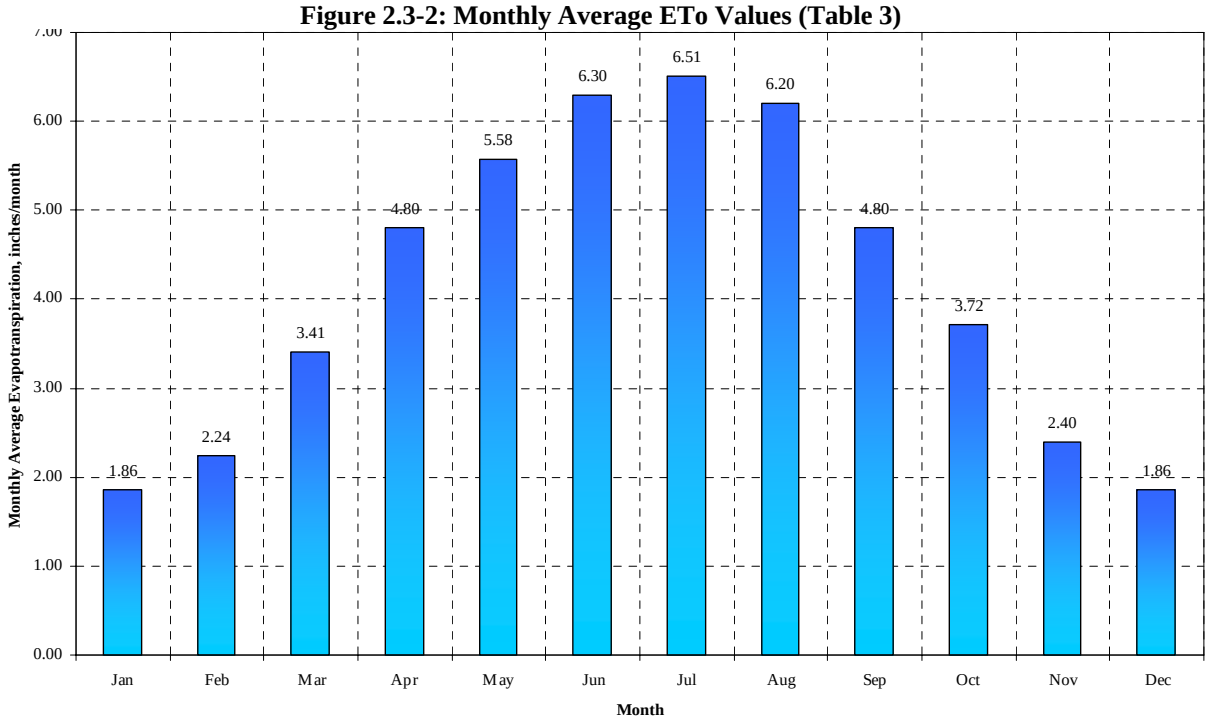
Figure 2.3-1: Average Monthly Temperature and Rainfall (Table 3)



	January	February	March	April	May	June	July	August	September	October	November	December
Temperature	57.4	58.5	60	62.3	64.9	68.5	72.8	73.6	72.2	68.2	63.1	58.5
Rainfall	3.18	3.44	2.45	1.05	0.26	0.06	0.01	0.06	0.28	0.44	1.3	2.37

Figure 2.3-2 displays the monthly average evapotranspiration values for the area of the district[3]. Evapotranspiration values estimate the amount of water loss by the combination of two separate processes: evaporation from soil surface and transpiration by plants.

Figure 2.3-2: Monthly Average ETo Values (Table 3)



3 Water Sources

3.1 Introduction

The water supply for the customers of the East Los Angeles District is a combination of imported purchased water and groundwater. The projected water supply sources and volumes based on average consumption are summarized in Table 3.1-1.

Table 3.1-1: Current and Planned Water Supplies (Table 4) (AFY)

Water Supply Sources	2005	2010	2015	2020	2025	2030
Central Basin Municipal Water District	17,308	17,308	17,308	17,308	17,308	17,308
Cal Water groundwater wells	11,774	11,774	11,774	11,744	11,744	11,744
Transfers in or out	-	-	-	-	-	-
Exchanges In or out	-	-	-	-	-	-
Recycled Water (projected use)	-	800	800	800	800	800
Desalination	-	-	-	-	-	-
Total	29,082	29,882	29,882	29,882	29,882	29,882

3.2 Purchased Water

Purchased imported water currently satisfies approximately 72 percent of the district's water requirements. The East Los Angeles District purchases imported water from the Central Basin Municipal Water District (CBMWD), one of the twenty-seven member agencies of the Metropolitan Water District of Southern California (MWD). MWD imports water through either the Colorado River Aqueduct, which is owned by MWD, or the California Aqueduct, a facility of the State Water Project, which is owned and operated by the California Department of Water Resources. CBMWD serves as the regional water wholesaler. A copy of CBMWD's Urban Water Management Plan is presented in Appendix I.

Cal Water signed a purchase agreement with CBMWD effective January 1, 2003 which lasts for a period of five years and has a base allocation of 19,321 AFY. The agreement has a tiered pricing structure so that 17,308 AFY is available at the Tier 1 price and the remaining 2,013 AFY of base allocation is available at the Tier 2 price. Under terms of the agreement Cal Water will purchase a minimum of 57,693 AF during the length of the contract. This was calculated as 60 percent of the base allocation over five years.

The purchase agreement was modified effective May 1, 2003 to include the City of Commerce water system that Cal Water operates. This was done to ensure adequate Tier 1 quantities for the City of Commerce. The new agreement raised the base allocation to 19,533 AFY, with 17,580 AF being at the Tier 1 rate. This agreement has a purchase commitment of 58,599 AF over five years. For the purposes of this plan, the City of

Commerce data was excluded and the prior water supply quantities were used. A copy of the purchase agreement is included in Appendix J.

Delivery of imported water is made through three CBMWD service connections to the MWD distribution feeder network. The total rated capacity of these three service connections is 22,500 gallons per minute (gpm), which if operated at full capacity, could deliver 32.4 mgd. This rate of delivery would be adequate to address even the largest projected 31.9 mgd maximum daily demand for the year 2030 based on the typical 1.40:1 maximum to average daily ratio.

Because these three connections are located on just two MWD distribution system feeders, the district is completely reliant on these two feeders, the Middle Feeder and the Palos Verdes Feeder. There are no other easily accessible MWD feeders serving the region.

MWD offers four classifications of water service: Firm (Non-Interruptible), In-Lieu Seasonal Storage, Shift Seasonal Storage and Emergency. Non-Interruptible service is the basic classification available at any time throughout the year. Seasonal Storage Service is a classification for water that is available for delivery during the winter (October through April) in years of adequate supply. Monthly certification is required to receive this reduced-price Seasonal Storage Service and whether it is considered In-Lieu or Shift depends upon how the district's groundwater rights are used in conjunction with the imported water. Emergency Service can be imposed when a purveyor is unable to sustain all or part of a reduction in the delivery of water as may occasionally be required by MWD and or CBMWD.

To qualify for Seasonal Storage Service water rates, a purveyor must reduce the demand for supplemental water from MWD in the summer months (May to September) and shift production of groundwater from winter to summer. The baseline production ratio between local groundwater supply and total demand verifies that this shift has been accomplished; in which case, the Seasonal Storage Service is considered Shift. If the purveyor instead retires the water rights and purchases additional MWD water, then it is considered In-Lieu Seasonal Storage.

This program benefits MWD by reducing the summer peak flows that were beginning to tax MWD's treatment facilities and distribution system, and enables MWD to maximize water importation during the winter when surplus flows are abundant in the areas of origin.

3.3 Surface Water

The East Los Angeles District does not impound or divert surface water as a means to meet supply requirements.

3.4 Groundwater

The District has sufficient groundwater production rights, Table 3.4-1, to supply 54% of the projected 2030 annual demand. However, in prior years, the operational plan for managing the District's water supply had been structured to coordinate with the existing regional conjunctive-use programs. These programs reduced the immediate overall cost of water and assured adequate reserves for use in future drought periods. These programs were modified effective July 1, 2002 and Cal Water's East Los Angeles District is no longer eligible to participate.

Table 3.4-1:Groundwater Pumping Rights - AF Year (Table 5)	
Basin Name	**Pumping Right - AFY**
Central Basin Municipal Water District	11,774
Total	11,774

Groundwater extracted from the Central Basin's Lynwood and Silverado aquifers satisfies 28% of the district's water demand. Other aquifers may be used depending on the depth of perforations in specific wells. The East Los Angeles District has 20 wells, 12 of which are active. The active wells have a capacity to produce 6,230 GPM or 8.97 mgd. This daily production capacity represents 47% of the ten-year average annual daily demand. If operated non-stop daily, this pumping capacity could produce 10,049 acre feet per year, or about half of the total annual demand for the district. The amount of groundwater pumped and projected to be pumped is shown in the following tables.

Table 3.4-2: Amount of Groundwater pumped – AFY (Table 6)							
Basin Name	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
Central Basin Municipal Water District	3,294	2,850	5,676	5,294	5,924	6,048	5,908
% of Total Water Supply	15.0%	13.8%	26.2%	25.8%	28.6%	30.1%	30.0%

Table 3.4-3: Amount of Groundwater projected to be pumped – AFY (Table 7)					
Basin Name	**2010**	**2015**	**2020**	**2025**	**2030**
Central Basin Municipal Water District	11,774	11,774	11,774	11,774	11,774
% of Total Water Supply	40.5%	39.4%	39.4%	39.4%	39.4%

The Central Basin is an adjudicated groundwater basin with a total annual Allowed Pumping Allocation (APA) of 217,367 acre-feet. This APA is set at 80% of the adjudicated rights established under the judgment. This limitation was imposed on all basin pumpers due to the historically severe overdraft condition of the basin. The judgment permits an annual carry-over of up to 20% of the APA and permits over-extraction of up to 20% provided the over-extraction is off-set by next year's APA or future leases. As a result, annual allowable extractions vary as the allowable carry-over amount fluctuates. The judgment contains provisions for an exchange pool and for the leasing or transfer of adjudicated rights between parties of the judgment.

The East Los Angeles District exercises an annual adjudicated right of 14,717 AF, which has been limited under the judgment to an Allowed Pumping Allocation of 11,774 AF or

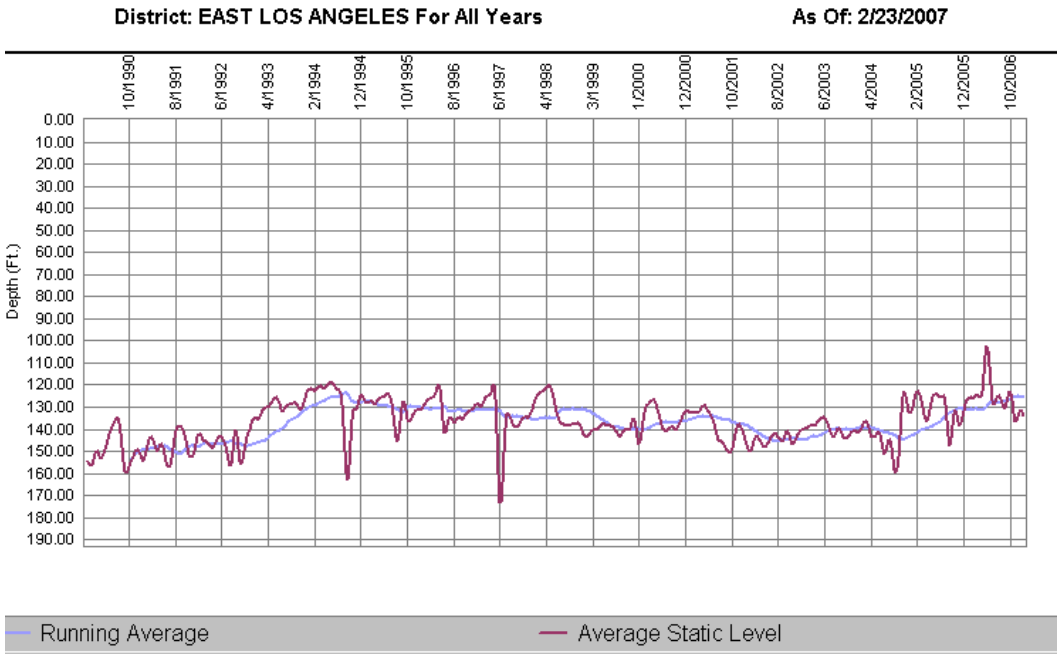
80% of the adjudicated right. The Company has become more active in leasing its annual unused water rights.

Because the District participated in the In-Lieu Replenishment Program, and because of water quality and production issues, the district has not produced its full adjudicated rights in any year during the past ten years. All water not produced by the district is either leased for production by others or it is lost to storage in groundwater aquifers which helps to replenish the basin.

The Department of Water Resources of the State of California (DWR) is the designated Watermaster for the Central Basin Adjudication and, in that capacity, accounts for all groundwater in the basin reporting annually on groundwater production and related groundwater-use transactions. DWR's Groundwater Bulletin 118 is included in Appendix D, which describes the basin in more depth.

The Department of Water Resources' Annual Summary of Watermaster Service reports the groundwater status in the basin. This summary includes figures depicting lines of equal water level elevation in the fall and spring of each year, lines of equal change in water level, and charts showing historical fluctuation of water level elevation in wells throughout the basin. These references clearly indicate that, since the reduction in pumping began in 1962 followed by the final adjudication in 1965, groundwater levels in the Central Basin have risen as much as one hundred feet. However, most groundwater elevations remain below sea level, requiring the maintenance of seawater intrusion barriers and continued replenishment operations. Due to management of the basin, groundwater levels have remained stable, with minor fluctuations resulting from climatic variation, as shown in Figure 3.4-1.

Figure 3.4-1: District Well Level Average (Static)



Seawater intrusion has been a concern in the Central Basin since the late 1940s. The intense uncontrolled pumping of groundwater during the 40s and 50s created an overdraft in the basin that lowered the water level to as much as 100 feet below sea level. The threat of losing the basin to salt water prompted the formation of the Central Basin Municipal Water District and its annexation to the Metropolitan Water District of Southern California. CBMWD is responsible for the acquisition of supplemental water supplies, the adjudication of the basin, and the installation of the Alamitos Barrier in Long Beach. The Los Angeles County Department of Public Works operates this barrier while the Water Replenishment District purchases the water used in the facility.

The Water Replenishment District of Southern California (WRDSC) is a public agency responsible for eliminating annual overdraft, reducing historical overdraft in both the Central and West Coast Basins, and protecting these basins from seawater intrusion or other contamination. In addition, the WRDSC manages various groundwater quality cleanup programs. To finance its designated responsibilities the WRDSC levies a Replenishment Assessment on every acre-foot of groundwater produced in the Central and West Coast Basins. A copy of the Strategic Plan from the WRDSC is provided in Appendix K.

Except for the capture and recharge of stormwater runoff, which is funded by the Los Angeles County Department of Public Works as part of a long standing inter-agency agreement, all other water used for replenishing the groundwater of the Central and West Coast Basins is funded by the WRDSC through the Replenishment Assessment. The principle mechanism for recharge in the Central Basin is through percolation of water applied to surface spreading ponds in the Montebello Forebay. Injection of water into the seawater intrusion barriers and in-lieu replenishment contributes to this effort. The sources of water used for percolation include imported water purchased through CBMWD, recycled water purchased from the Los Angeles County Sanitation District, and storm runoff flowing down the Rio Hondo and San Gabriel Rivers.

3.4.1 Basin Boundaries and Hydrology

The following description and additional details of the basin are given in the DWR's Groundwater Bulletin 118, see Appendix D[4]:

The Central Subbasin occupies a large portion of the southeastern part of the Coastal Plain of Los Angeles Groundwater Basin. This subbasin is commonly referred to as the Central Basin and is bounded on the north by a surface divide called the La Brea High, and on the northeast and east by emergent less permeable Tertiary rocks of the Elysian, Repetto, Merced, and Puente Hills. The southeast boundary between Central Basin and the Orange County Groundwater Basin roughly follows Coyote Creek, which is a regional drainage province boundary. The southwest boundary is formed by the Newport Inglewood fault system and the associated folded rocks of the Newport Inglewood uplift. The Los Angeles and San Gabriel Rivers drain inland basins and pass across the surface of the Central Basin on their way to the Pacific Ocean.

3.4.2 Groundwater Management Plan

MWD has developed the Integrated Resource Plan (IRP) and the Water Surplus and Drought Management Plan (WSDM Plan) to ensure water supply reliability. The goal of the IRP was to determine the correct combination of supply sources in order to meet its 100% reliability objective during periods of excess rainfall and in drought. The IRP was updated in 2003 and new targets were set for each source of supply. The WSDM Plan was established in 1999 as policy to determine how to manage supply to meet the requirements set forth in the IRP. Both of these documents are attached in Appendix I.

3.5 Recycled Water

The recycling of wastewater offers several potential benefits to Cal Water and its customers. Perhaps the greatest of these benefits is to help maintain a sustainable groundwater supply either through direct recharge, or by reducing potable supply needs by utilizing recycled water for appropriate uses (e.g., landscape, irrigation) now being served by potable water. The potential amount of recycled water that can be produced is proportional to the amount of wastewater that is generated by District, and is discussed in the following sections.

Recently enacted legislation and several resolutions and ordinances by the Board of Directors of the Central Basin Municipal Water District have essentially mandated the use of recycled water where a supply exists and its use is economically feasible. Cal Water supports the introduction of recycled water as a sustained source of supply and will promote its use wherever feasible.

3.5.1 Wastewater Collection

The sanitation agencies serving the East Los Angeles District are the Sanitation Districts of Los Angeles County (LACSD) #2 & #23, who participate in the joint outfall system operated by Sanitation Districts of Los Angeles County (SDLAC). This system serves 71 cities using over 1,000 miles of 15" or larger trunk sewer mains and six waste-water plants. Five of these plants are Water Reclamation Plants that produce tertiary treated effluent that exceeds drinking water quality. This recycled water supply is intensely used in regions where it is produced, including the Central Basin where it has been used for groundwater recharge for nearly 35 years. In the past five years, the CBMWD has aggressively worked to develop distribution facilities from the Los Coyotes Water Reclamation Plant and the San Jose Creek Water Reclamation Plant.

3.5.2 Estimated Wastewater Generated

Estimates for the district wastewater quantity since 1980 are shown in Figure 3.5-1 and were calculated by annualizing 90 percent of January water use in the Cal Water's service area. The future quantity of waste generation is based on a linear equation of the historical estimates. According to the LACSD, 37.2% of the wastewater produced in its service area is recycled. Applying this value to the total estimated wastewater produced in East Los Angeles District provides an estimate of the amount of treated wastewater that is discharged through the Joint Water Pollution Control Plant into the Pacific Ocean.

Projected wastewater quantities for the district are presented in five-year increments to the year 2030 in Table 3.5-1.

Figure 3.5-1: Estimated District Annual Wastewater Generated

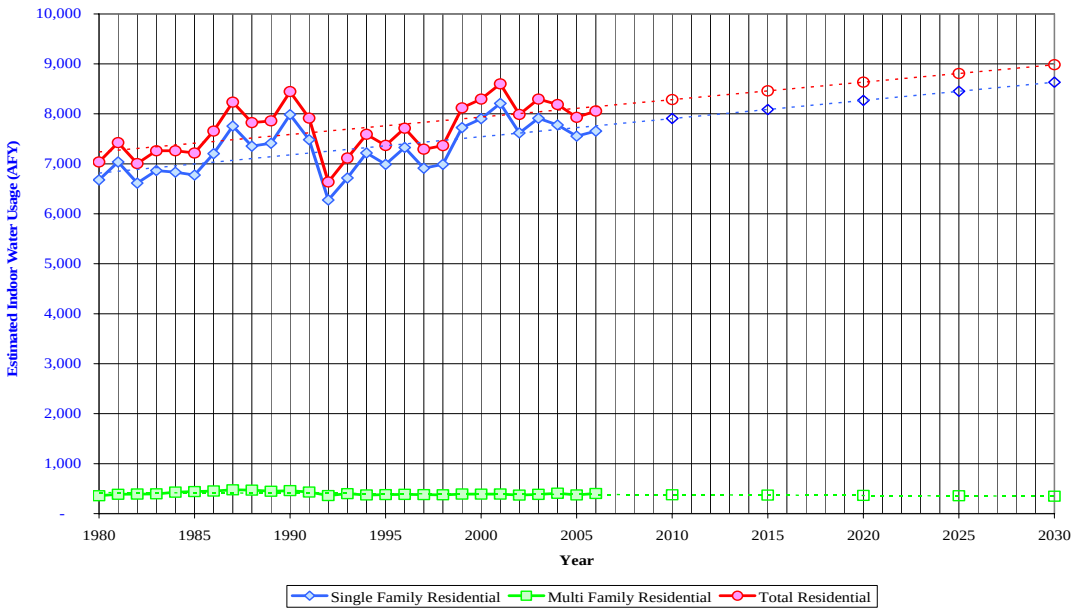


Table 3.5-1: Disposal of wastewater (non-recycled) AF Year (Table 34)							
Method of disposal	**Treatment Level**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**
Discharged to Ocean	Tertiary	7,929	8,284	8,459	8,633	8,807	8,982

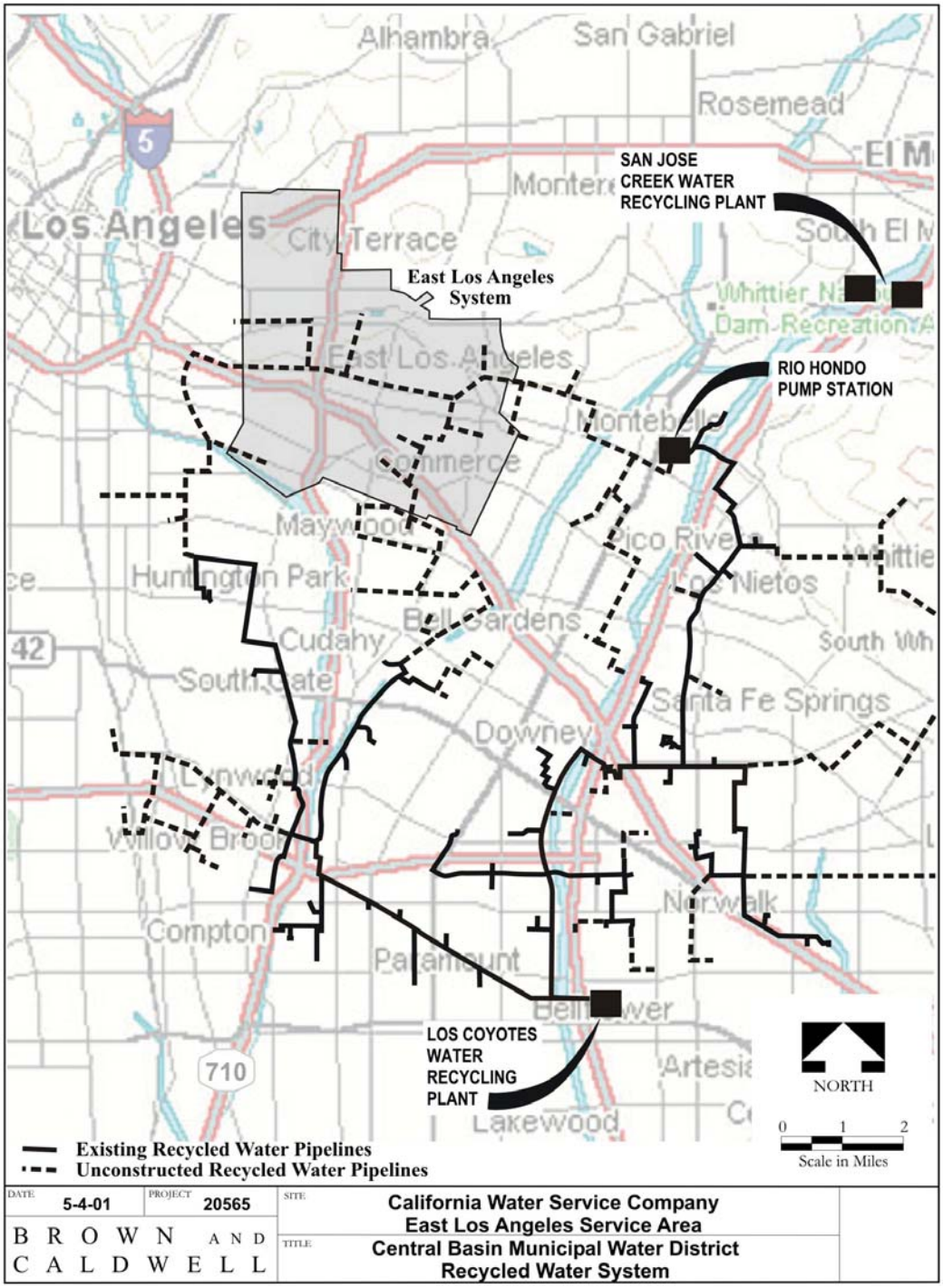
3.5.3 Potential Water Recycling

CBMWD, the regional water wholesaler, has been developing an extensive network of transmission mains for the distribution of recycled water throughout the basin. Two additional phases are being planned for the existing recycled water system. East Los Angeles District and other neighboring water systems will be included in the second phase and is being planned for the next five years.

Cal Water's East Los Angeles service area will be receiving reclaimed water from CBMWD as part of CBMWD's Central Basin Recycled Water Project (CBRWP) within the next five to ten years. The CBRWP serves reclaimed water to more than 210 industrial, commercial, and landscape irrigation sites throughout southeast Los Angeles County including South Gate and Norwalk. Its biggest customers are the Metropolitan State Hospital in Norwalk and the U.S. Gypsum paper mill in South Gate.

The main features of the proposed piping system5 for distributing the recycled wastewater to Cal Water's East Los Angeles service area are shown on Figure 3.5-2.

Figure 3.5-2: Central Basin Recycled Water Project



CBRWP consists of two interconnected recycled water distribution systems (the E. Thornton Ibbetson Century Recycled Water Project, and the Esteban Torres Rio Hondo Recycled Water Project), as well as three pump stations. A new 4 million gallon storage facility at the Rio Hondo Pump Station in Pico Rivera has been brought on-line and has replaced the Santa Fe Springs Reservoir. Currently, the CBRWP distributes about 3.6 mgd of recycled water to its network of commercial, industrial, and landscape irrigation uses.

Recent estimates by CBMWD identified economically feasible recycled water users with an estimated average annual demand of 1,700 AF. These users are located in the Commerce, Montebello and East Los Angeles service areas. Of these, only 800 AF of demand is in East Lost Angeles. Cal Water would be the sole retail provider of recycled water within the district's service area.

According to LACSD, 31.7 percent of its reclaimed water is reused. Of this amount 44.3 percent is used for groundwater recharge. Other uses include landscape irrigation (19.1%), agricultural irrigation (13.4%), industrial processes (9.3%), and recreational impoundments and wildlife habitat maintenance (13.9%).

The CBMWD is responsible for determining the technical and economic feasibility of supplying recycled water to the East Los Angeles service area. The CBMWD is also responsible for encouraging and optimizing the use of recycled water in the East Los Angeles service area. Extension of recycled water lines within the East Los Angeles service area is a responsibility of the CBMWD. Cal Water has not implemented any incentive programs to encourage recycled water use because they do not own and operate the wastewater system.

3.6 Desalinated Water

Because of the saline barriers and recharge efforts of the Water Replenishment District of Southern California (WRDSC) and CBMWD, the presence of salt water intrusion is not a significant threat to groundwater quality in the East Los Angeles District. Because of this, and because of its distance from the ocean, desalination is unlikely to be developed as a source of supply in East Los Angeles.

3.7 Transfer or Exchange Opportunities

The lease or purchase of additional Adjudicated Water Rights could be utilized to achieve increased supply reliability and availability. Obtaining additional adjudicated rights would further increase the savings available to the district under the seasonal service program. However, at this time the district does not have sufficient production capacity to fully utilize all of its existing adjudicated right under this program.

3.8 Water Supply Reliability

A chart comparing annual rainfall since 1980 to the average annual rainfall (14.9 inches) is shown in Figure 3.8-1. The most recent driest year occurred in 2002 when the rainfall was 50.7% below average (7.4 inches). This is taken as the Single Dry Year shown in Table 3.8-1. The Multiple Dry-Water Years used are based on the most recent and consecutive lowest annual rainfall totals which occurred in 1987 to 1990. This period coincides with the drought conditions that California experienced from 1987 to 1992.

Figure 3.8-1: Comparison of Annual Rainfall to Historical Average

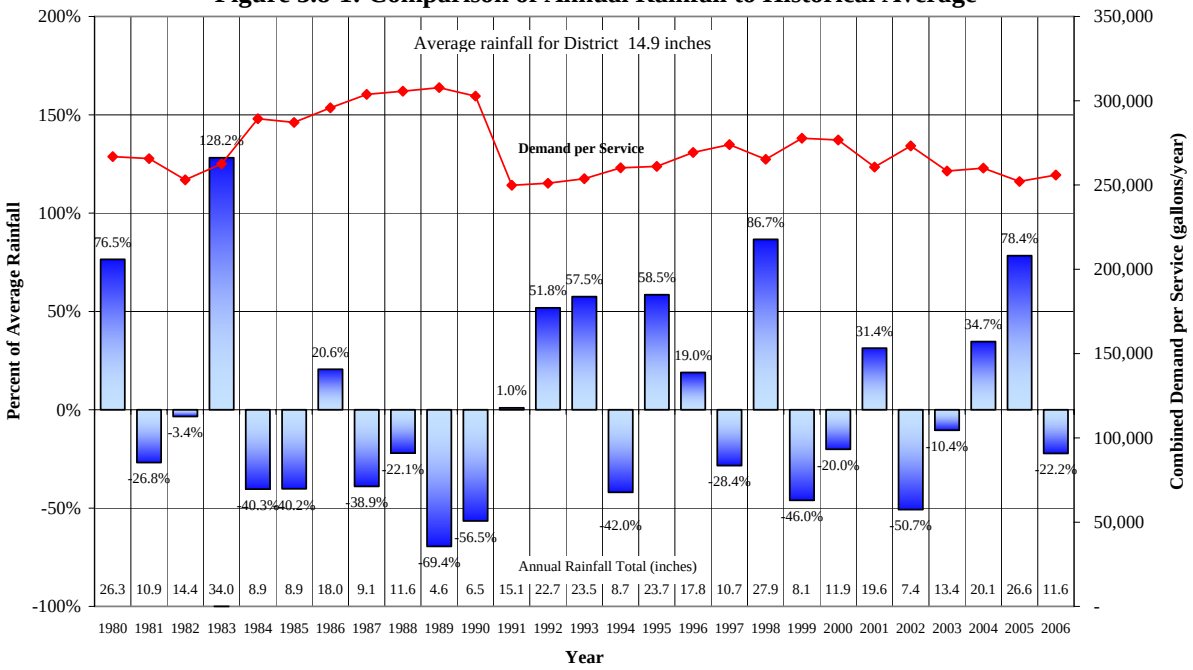


Table 3.8-1: Basis of Water Year Data (Table 9)	
Water Year Type	**Base Year (s)**
Average Water Year	1991
Single-Dry Water Year	2002
Multiple-Dry Water Years	1987-1990

According to planning documents such as Central Basin's 2005 Urban Water Management Plan and MWD's Updated Integrated Resource Plan (IRP), Cal Water can expect 100% reliability of supply even in multiple year droughts through 2030. Over time, water conservation and the use of recycled water will offset a portion of future demands. Also, during dry years as deliveries from the Colorado River Aqueduct and the SWP are reduced, MWD will draw water from other storage areas established through groundwater banking and transfer agreements made with other agencies. These

agreements are further described in MWD's Water Surplus and Drought Management Plan (WSDM Plan).

Cal Water is not a regional water wholesaler and does not store water seasonally in reservoirs or other storage facilities. Therefore total runoff figures can not be used to determine supply reliability. Total supply amounts have been used instead. The supply reliability figures shown in Table 3.8-2 reflect the assertion that the combination of the safe yield of groundwater in conjunction with MWD's available drought year supplies will be sufficient to provide the normal allotment of water to Cal Water's East Los Angeles District even in times of prolonged drought. For this analysis it is assumed that the current agreement for purchased water with CBMWD will be renewed.

Table 3.8-2: Supply Reliability - AF Year (Table 8)

Average / Normal Water Year (2006)	Single Dry Water Year (2007)	Multiple Dry Water Years		
		Year 1 (2008)	Year 2 (2009)	Year 3 (2010)
29,082	29,082	29,082	29,082	29,082
% of Normal	100%	100%	100%	100%

Although the historical climatic record shows that the demand can be met by the supply, other factors which may threaten the reliability of supply are listed in Table 3.8-3.

Table 3.8-3: Factors Resulting In Inconsistency of Supply (Table 10)

Name of supply	Legal	Environmental	Water Quality	Climatic
Groundwater	✓		✓	✓

Although unlikely, any change to current agreements with CBMWD or WRDSC could negatively affect the future availability of supply.

Historically, Cal water has been able to meet all state and federal water quality regulations. Chemicals of concern in the East Los Angeles District include perchlorates, tetrachloroethylene (PCE), trichloroethylene (TCE), and nitrates. Several Cal Water wells have been impacted by these chemicals. In each case, the wells were either taken out of service or wellhead treatment was applied. Currently, Cal Water is using wellhead treatment for perchlorates and PCE to ensure concentrations are below MCL for these chemicals. Similarly, wells that are heavily impacted by iron and manganese are either taken out of service or treatment facilities are added to remove these minerals. The presence of any of these or other emerging contaminants could negatively affect the reliability of supply. Water quality is discussed further in the following section.

As noted earlier, short-term drought events should not pose a serious threat to the reliability of supply in the East Los Angeles District. During extended droughts, as the

primary source of supply shifts from CBMWD deliveries to groundwater withdrawals, reliability of supply would decrease as the drought event continued.

3.8.1 Water Quality

The drinking water delivered to customers in the East Los Angeles District meets or surpasses all federal and state regulations. The U.S. Environmental Protection Agency as authorized by the Federal Safe Drinking Water Act of 1974 sets drinking water standards. A state can either adopt the USEPA standard or set state standards that are more stringent than those set by the federal government.

There are two general types of drinking water standards, Primary and Secondary. Primary Standards are designed to protect public health by establishing Maximum Contamination Levels (MCL) for substances in water that may be harmful to humans. MCLs are established very conservatively for each contaminant and are generally based on health effects which may occur if a person were to drink three liters of the water per day for 70 years. Secondary Standards are based on the aesthetic qualities of the water such as taste, odor, color, and certain mineral content. These standards, established by the State of California, specify limits for substances that may affect consumer acceptance of the water.

The quality of the groundwater produced by the district's 12 active wells tends to be highly mineralized. This is evident in the 2003 water quality report showing a groundwater concentration range of 256 to 681 mg/Liter for Total Dissolved Solids (TDS). Several wells have exceeded the Secondary Standard for Iron and Manganese; though many of these wells have been taken out of service, some of them have been placed back on-line due to addition of treatment facilities.

Additionally, some wells have been tested to contain concentrations of volatile organic compounds, particularly tetrachloroethylene (PCE) and trichloroethylene (TCE) which exceed the MCL for these substances. Several wells have been found to contain concentrations of Nitrates in excess of the MCL. One well was found to contain perchlorate in excess of the Action Level. In all cases, these wells have been taken out of service or treated to remove the contaminant.

The presence of these contaminants in wells puts into question their potential availability if the concentration were to increase above the existing treatment capacity. Also of concern is the potential loss of other wells due to contaminant migration. Additionally, there are several wells that contain low levels of PCE, TCE, and/or 1,1-dichloroethylene. Production capacity from these wells could be jeopardized if the contaminant concentrations increase to greater than the MCLs.

3.9 Water Supply Projects

The viability of future supplies is contingent upon how these supplies influence or are affected by several critical conditions. These conditions include operational feasibility

and reliability, supply reliability, economic incentive, economic effect on customers, and regional supply ramifications.

For an alternate water strategy to be acceptable, it must be feasible and add to the overall reliability of the distribution system. The East Los Angeles District no longer has enough well capacity to produce all of its adjudicated rights for one year. The distribution system has the capacity to deliver the current and future demands of the District's customers. Therefore, additional groundwater pumping facilities are required to meet demand and maintain required pressures. Developing additional production capacity can decrease the amount of money spent to purchase water and provide greater reliability during shortages. The cost of constructing facilities to provide additional production capacity increases as more facilities are constructed; and, at some point, the revenue requirements to finance this construction exceed the savings generated by the added capacity.

There are conditions that complicate the placement of wells in the Central Basin. For the most part aquifers below the East Los Angeles District are shallow, narrow, and highly mineralized. These same aquifers are deeper and wider and charged with better quality water east of existing district wells; however, this region is outside the district. If highly mineralized water is encountered during well development, increased costs for the installation of additional facilities may be incurred. Subsequently, additional property and equipment may be required driving up the total water cost.

It is the Company’s objective to provide facilities sufficient to maintain adequate production capacity in order to properly exercise the district’s annual adjudicated rights and to take full advantage of economic incentives that may be offered by MWD and WRDSC in the future.

The reliability of MWD’s imported water supplies has deteriorated in recent years. Because of this deterioration, Metropolitan has implemented programs that provide financial incentives for development of local supplies, seasonal use of imported supplies in a manner that maximizes importation into southern California, storage of surplus imported supplies for future use, and restoration of the usability of contaminated local groundwater.

As a regulated utility, the expense of purchasing or producing water is passed directly through to the customer; a utility can only earn money on the investment made in the utility plant—the equipment and facilities needed to produce and deliver water. Cal Water is committed to pursuing alternatives that provide the lowest achievable water cost without burdening customers and the Company with unjustified and extravagant plant expenses.

Cal Water regularly evaluates and critiques the proposed water rates of regional water supply and management agencies. The Company was instrumental in developing and promoting the In-lieu Replenishment concept in the 1960s and today is striving, through its work with regional water agencies, to improve these programs by maintaining the economic incentives and regional supply benefits.

For these programs to be successful, MWD and WRDSC must guarantee incentives for a given level of participation. It is anticipated that periodic dry spells will result in temporary suspension of the programs, resulting in delayed investment paybacks. If no assurance is provided that full scale incentives will be maintained, projects that now appear feasible could burden ratepayers in the future.

Conversely, as water rates change, projects that appear not to be cost effective today may become economically feasible in the future.

Any program that modifies the operational strategy of the district or requires the installation of additional facilities to enhance supply reliability must be evaluated prior to being implemented, to determine what impact that project will have on regional supply conditions. These ramifications are interrelated; impacting one will affect the others. Supply conditions include the following:

- The Central Basin is an adjudicated groundwater basin.
- Seawater intrusion barriers exist within the basin.
- The Central Basin Municipal Water District offers a reclamation program.
- Basin overdraft has caused declining groundwater levels.
- Shortages of available imported water supplies will become more frequent.

Future water supply projects are summarized in Table 3.9-1.

Table 3.9-1: Future Water Supply Projects (Table 17)

Project Name	Projected Start Date	Projected Completion Date
"Well A"	2007	2007
"Well B"	2008	2008
"Well C"	2009	2009

4 Water Shortage Contingency Plan

4.1 Worst Case Water Supply Availability

This section describes measures the company may take in times of supply shortages. During periods of water shortages, the company's conservation programs can be expanded and may include more restrictive measures such as mandatory reductions, rationing, and penalties.

4.2 Stages of Action

California Water Service Company has developed a four-stage rationing plan. The plan includes voluntary and mandatory stages. Approval from the CPUC must be obtained prior to implementation of mandatory restrictions.

Table 4.2-1: Consumption Reduction Methods (Table 27)

Shortage	Stage	Demand Reduction Goal	Type Of Program
Minimum 5 - 10%	Stage 1	10% reduction	Voluntary
Moderate 10 - 20%	Stage 2	20% reduction	Voluntary or Mandatory*
Severe 20 - 35%	Stage 3	35% reduction	Mandatory*
Critical 35 - 50%	Stage 4	50% reduction	Mandatory*

* Mandatory = Allocations

4.2.1 Actions to Be Undertaken By California Water Service Company

The following outline lists the actions to be taken during periods when a reduction in consumption is required:

Stage 1

- California Water Service Company maintains an ongoing public information campaign consisting of distribution of literature, speaking engagements, monthly bill inserts, and conservation messages printed in local newspapers.
- Educational programs in area schools are also ongoing.

Stage 2

- California Water Service Company will aggressively continue its public information and education programs.
- Ask consumers for 10 to 20 percent voluntary or mandatory water use reductions.
- Prior to implementation of mandatory reductions, obtain approval from CPUC.
- Lobby for passage of drought ordinances by appropriate governmental agencies.

Stage 3

- Implement mandatory reductions after receiving approval from CPUC.
- Maintain rigorous public information campaign explaining water shortage conditions.
- Water use restrictions go into effect; prohibited uses can include watering resulting in gutter flooding, using a hose without shutoff device, filling of pools or fountains, etc.
- Limiting landscape irrigation by restricting the hours of the day and or days of the week during which water for irrigation can be used.
- Monitor production weekly for compliance with necessary reductions.
- Installation of a flow restrictor on the service line of customers who consistently violate water use restrictions.

Stage 4

- All of steps taken in prior stages intensified.
- Discontinuance of water service for customers consistently violating water use restrictions.
- Monitor production daily for compliance with necessary reductions.
- More restrictive conditions for, or a prohibition, of landscape irrigation

4.2.2 Mandatory Prohibitions

Due to Cal Water's investor-owned status, it is not authorized to pass any ordinances. Should conditions warrant mandatory reductions, Cal Water will request authority to add Tariff Rule 14.1, Mandatory Water Conservation Plan (see Appendix E), to existing tariffs for a district. Included in Rule 14.1 is Section A. Conservation - Nonessential or Unauthorized Water Use which prohibits use of water for filling or refilling of swimming pools, use of water which results in flooding or runoff in gutters, etc.

4.2.3 Consumption Limits

California Water Service Company maintains extensive water use records on individual metered customer accounts. These records are reviewed in the districts on a daily basis to identify potential water loss problems.

In order to protect itself against serious and unnecessary waste or misuse of water, Cal Water may meter any flat rate service and apply the regularly established meter rates where the customer continues to misuse or waste water beyond five days after Cal Water has given the customer written notice to remedy such practices.

4.2.4 Monitoring Procedure during Periods of Water Shortages

During all stages of water shortages, daily production figures are reported to and monitored by the district manager on a daily basis. Consumption will be monitored through these daily production figures in the district for compliance with necessary reductions.

4.2.5 Penalties or Charges for Excessive Use

Cal Water, after one written warning, shall install a flow-restricting device on the service line of any customer observed by Cal Water personnel to be using water for any non-essential or unauthorized use defined in Section A. of Tariff Rule 14.1 (see Appendix E). Repeated violations of unauthorized water use will result in discontinuance of water service.

4.2.6 Analysis of Revenue and Expenditure Impacts

California Water Service Company is an investor-owned water utility and, as such, is regulated by the CPUC. On March 8, 1989, the Commission instituted an investigation to determine what actions should be taken to mitigate the effects of water shortages on the State's regulated utilities and their customers. In decision D. 90-07-067, effective July 18, 1990, the Commission authorized all utilities to establish memorandum accounts to track expenses and revenue shortfalls caused both by mandatory rationing and by voluntary conservation efforts. Subsequently, D. 90-08-55 required each class A utility (more than 10,000 connections) seeking to recover revenues from a drought memorandum account to submit; for Commission approval, a water management program that addresses long-term strategies for reducing water consumption. Utilities with approved water management programs were authorized to implement a surcharge to recover revenue shortfalls recorded in their drought memorandum accounts.

However, the Commission's Decision 94-02-043 dated February 16, 1994, states:

> *10. Now that the drought is over, there is no need to track losses in sales due to residual conservation.*
> *11. The procedures governing voluntary conservation memorandum accounts (see D.92-09-084) developed in this Drought Investigation will no longer be available to water companies as of the date of this order.*
> *12. Procedures and remedies developed in the Drought Investigation that are not specifically authorized for use in the event of future drought in these Ordering Paragraphs will no longer be available to water companies as of the date of this order except upon filing and approval of a formal application.*
> *(CPUC Decision 94-02-043, Findings of Fact, paragraphs 10-12)*

It was at this time that Cal Water significantly curtailed conservation activities in its districts. At the time that triggers for voluntary or mandatory reductions should occur in the future, Cal Water will determine if a filing to the CPUC is necessary to enforce the reductions and to begin tracking lost sales from the required reductions.

4.3 Implementing the Plan

Section 357 of the Water Code requires that suppliers that are subject to regulation by the CPUC shall secure its approval before imposing water consumption regulations and restrictions required by water shortage emergencies.

4.4 Supply Shortage Triggers

Although California Water Service Company's East Los Angeles District is not currently experiencing a supply shortage, Cal Water intends to manage its supply prudently. If a supply deficiency should occur, Cal Water will implement the appropriate "Stage of Action" unless the Public Utilities Commission adopts findings to implement a less restrictive stage.

Table 4.4-1: Water Supply Triggering Levels	
Stage	% Shortage
Stage 1	Up to 10% supply reduction
Stage 2	10 to 20% supply reduction
Stage 3	20 to 35% supply reduction
Stage 4	35 to 50% supply reduction

4.5 Three-Year Minimum Water Supply

Table 4.5-1 lists the minimum water supply for the next three years based on the current purchase agreement and allowable pumping limit for the District.

Table 4.5-1: Three-Year Estimated Minimum Water Supply (Table 24) (AFY)				
Source	**Normal**	**Year 1**	**Year 2**	**Year 3**
Central Basin Municipal Water District Municipal Water District	17,308	17,308	17,308	17,308
Cal Water Groundwater Wells	11,774	9,000	9,500	10,000
Total	29,082	26,308	26,808	27,308

Cal Water's pumping right for the District is 11,774 AFY; however, actual pumping capacities have been limited to some wells being impacted by contamination or high mineral content. The wells were either taken out of service or wellhead treatment was applied. The District is planning to bring remaining wells on-line by additional treatment facilities to regain full pumping rights.

4.6 Catastrophic Water Supply Interruption

Cal Water has an Emergency Response Plan in place that coordinates overall company response to a disaster in any or all of its districts. In addition, the Emergency Response Plan requires each District to have a local disaster plan that coordinates emergency responses with other agencies in the area.

Cal Water also inspects its facilities annually for earthquake safety. To prevent loss of these facilities during an earthquake, auxiliary generators and improvements to the water storage facilities have been installed as part of our annual budgeting and improvement process.

There are three emergency connections from the East Los Angeles District to neighboring water systems: one with Montebello Land and Water Company (6"), one with the South

Montebello Irrigation District (8"), and one with City of Montebello (8"). These connections can be used to help offset the impact of the interruption in service to district customers. Being two-way connections, they can also be used to supply either imported water or pumped groundwater from the East Los Angeles District to the adjoining water system.

Neighboring water systems to which these emergency interconnections are linked rely completely on groundwater pumping facilities. If the emergency is a complete loss of MWD's capability to deliver water to the region, the East Los Angeles District could rely on these connections to make-up some of its 8 to 9 MGD deficit in production capacity.

5 Water Use Provisions

5.1 Distribution of Services

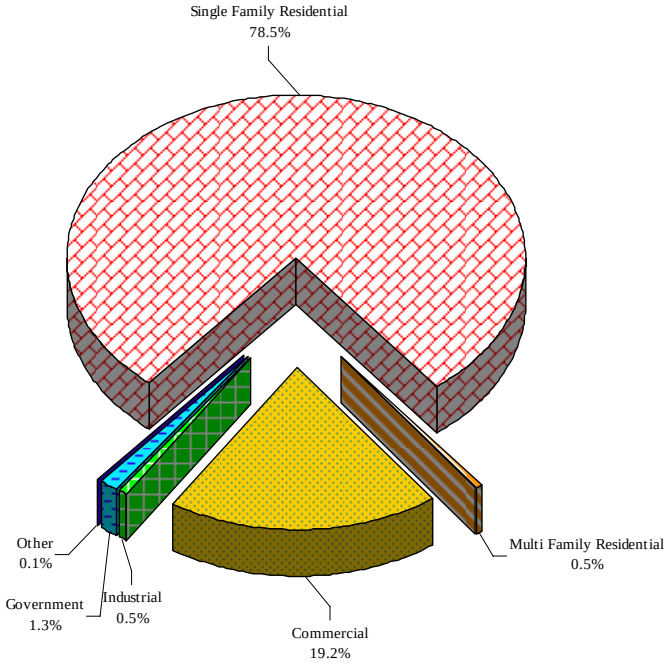
California Water Service Company classifies customer service connection categories as follows:

- Single Family Residential
- Multi Family Residential
- Commercial
- Industrial
- Government
- Other

The residential sector of Cal Water Service customers includes permanent single and multifamily residents and does not include service for seasonal customers.

Land use in the East Los Angeles District is dominated by residential and commercial activities, as seen in the service count of the District, Figure 5.1-1. Single-family residential services account for 78.5 percent of all services; multifamily residential services represent 0.5 percent, and commercial services 19.2 percent. Thus, 98.2 percent of all services are for residential and commercial facilities. The remaining 1.8 percent includes industrial, governmental uses, and other functions such as temporary construction meters.

Figure 5.1-1: Distribution of Services (2006)



5.2 Historical and Current Water Demand

Demand per service was established as a function of historical sales and service data. Projected demand is the mathematical product of total projected services and demand per service. Historical sales values are illustrated in Figure 5.2-1. Historical service counts are illustrated in Figure 5.2-2.

Figure 5.2-1: Historical Sales

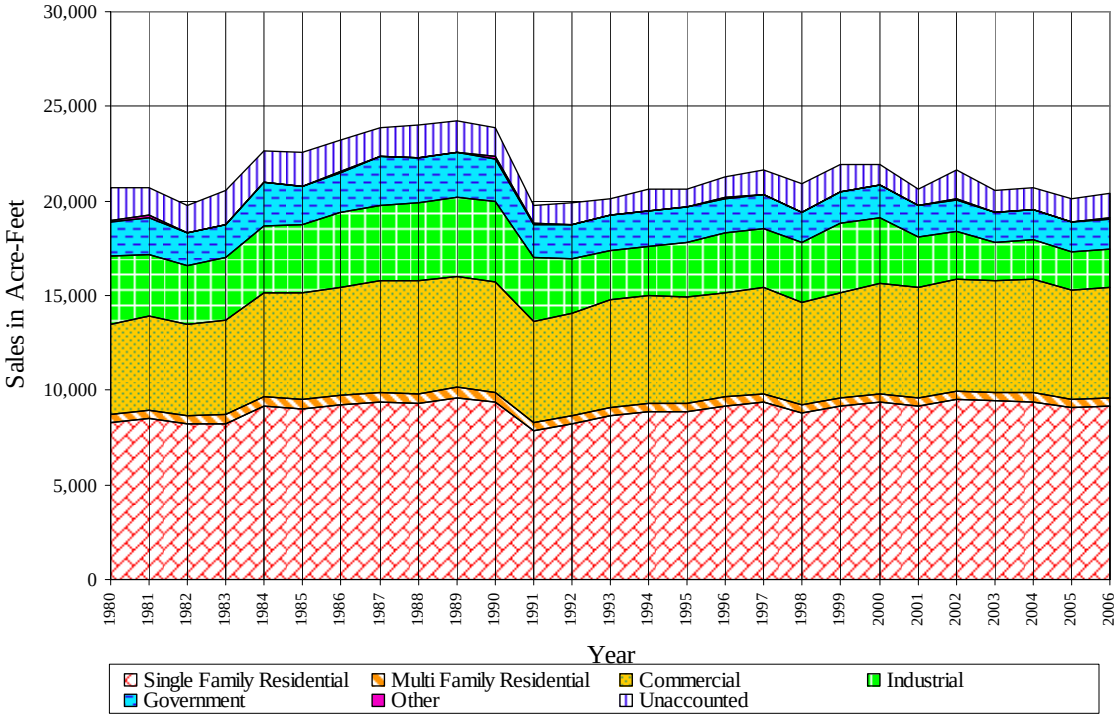
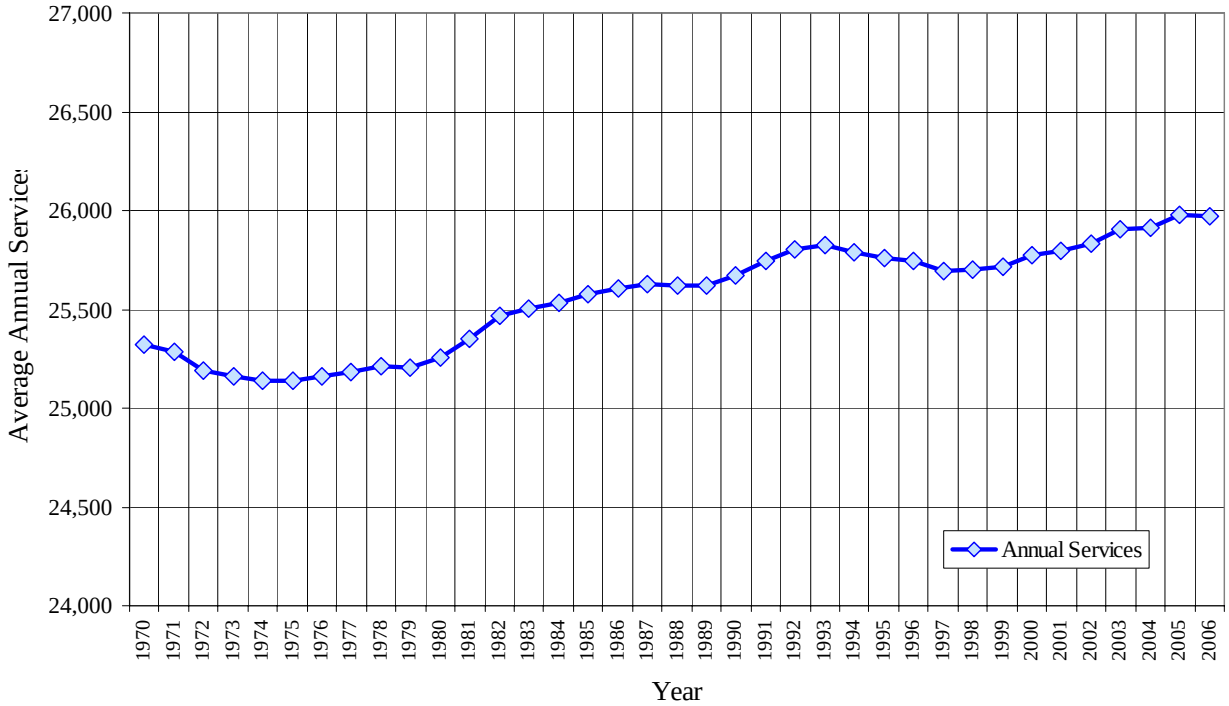
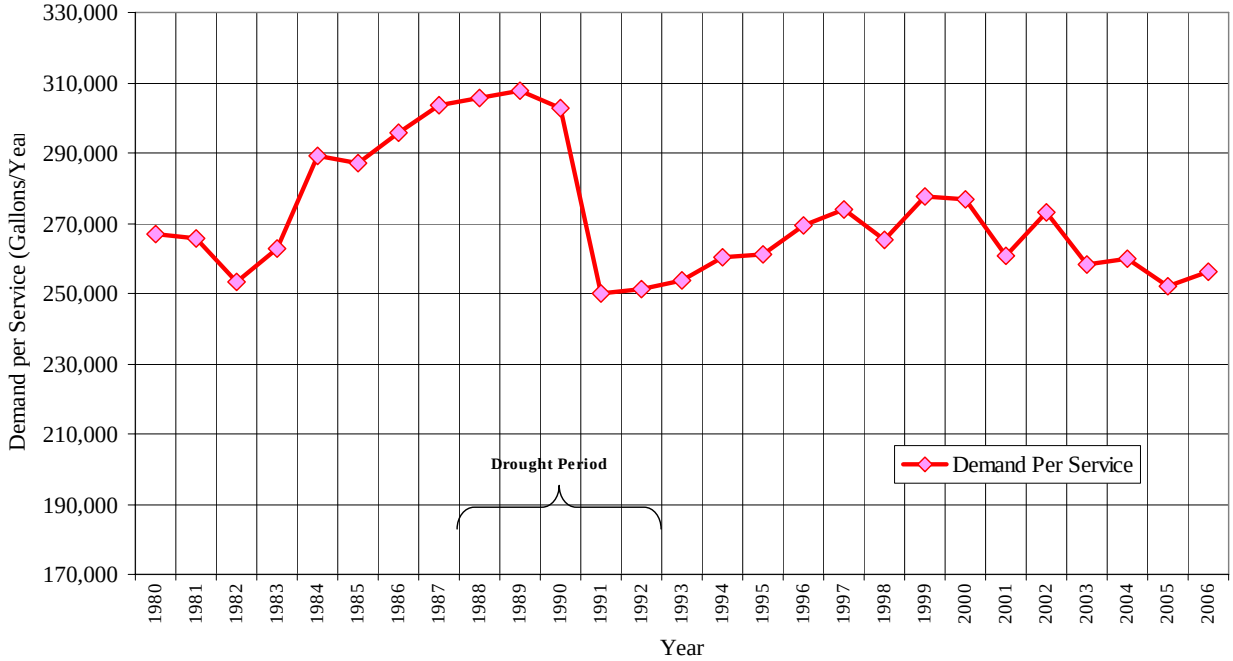


Figure 5.2-2: Historical Service Counts



The combined demand for all services fluctuates between 250,000 to 310,000 gallons per service per year, Figure 5.2-3.

Figure 5.2-3: Historical Demand per Service



Demand began declining in 1989 in response to the last drought and was capped by a reduction in 1991 as compared to 1990. Since 1991 demand steadily increased then gradually decreased to near-drought demand. Curbing future demand will require the

implementation of conservation activities. The Company's goal is a 10% reduction in demand (based on pre-drought levels). Implementation of Best Management Practices will assist in achieving this goal.

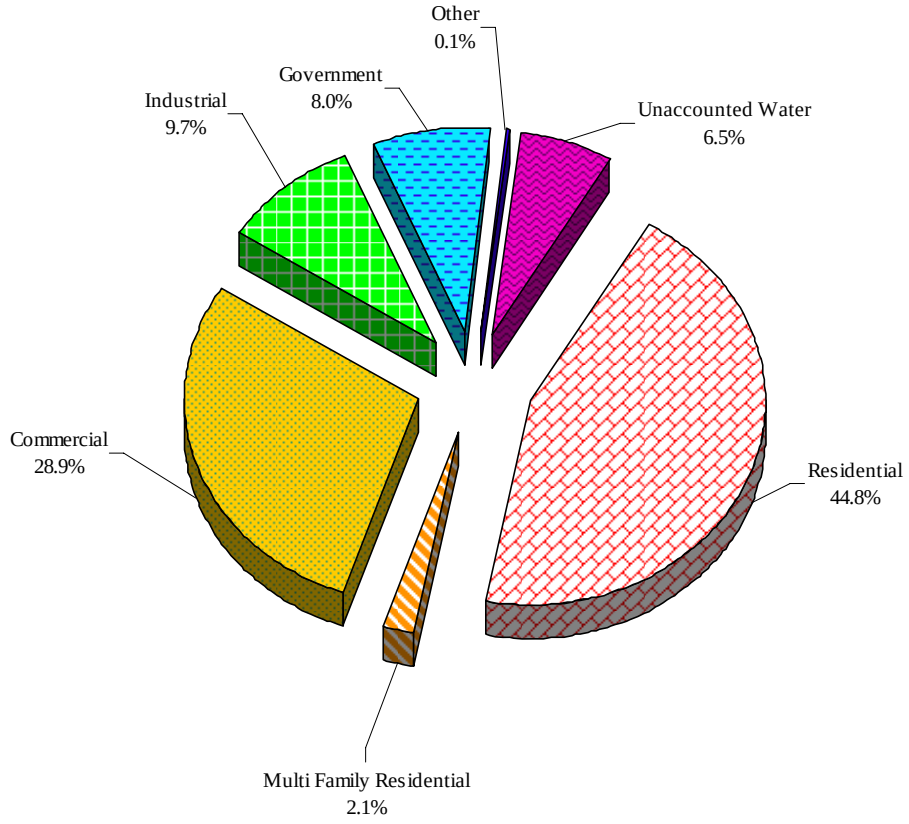
5.3 Per Capita Water Demand

Based on the end of 2006 total demand, per-capita water use in the district is summarized in Table 5.3-1. Based on the total demand of 6,738 million gallons and East Los Angeles District's estimated population of 150,740, water use in 2006 was 122 gallons per capita per day. In comparison, the statewide value is 190 gallons per capita per day and the Sacramento Hydrological Region value was 301 gallons per capita per day.

Table 5.3-1: Per Capita Water Demand (2006)

Units	All Users	Residential
Million Gallons	6,738	3,176
Estimated Population	150,740	150,740
Gallons/Person in Year	44,421	20,951
Gallons Per Capita Per Day	121.7	57.4
Gallons Per Capita Per Minute	0.085	0.040

Figure 5.3-1: Percent of Total Demand by Type of Use (2006)



For the purpose of projecting total system demand, the projected number of services for each customer class was multiplied by the demand per service for that classification. This process was employed because of the significant difference between the demand per service associated with certain uses and the combined or average demand per service.

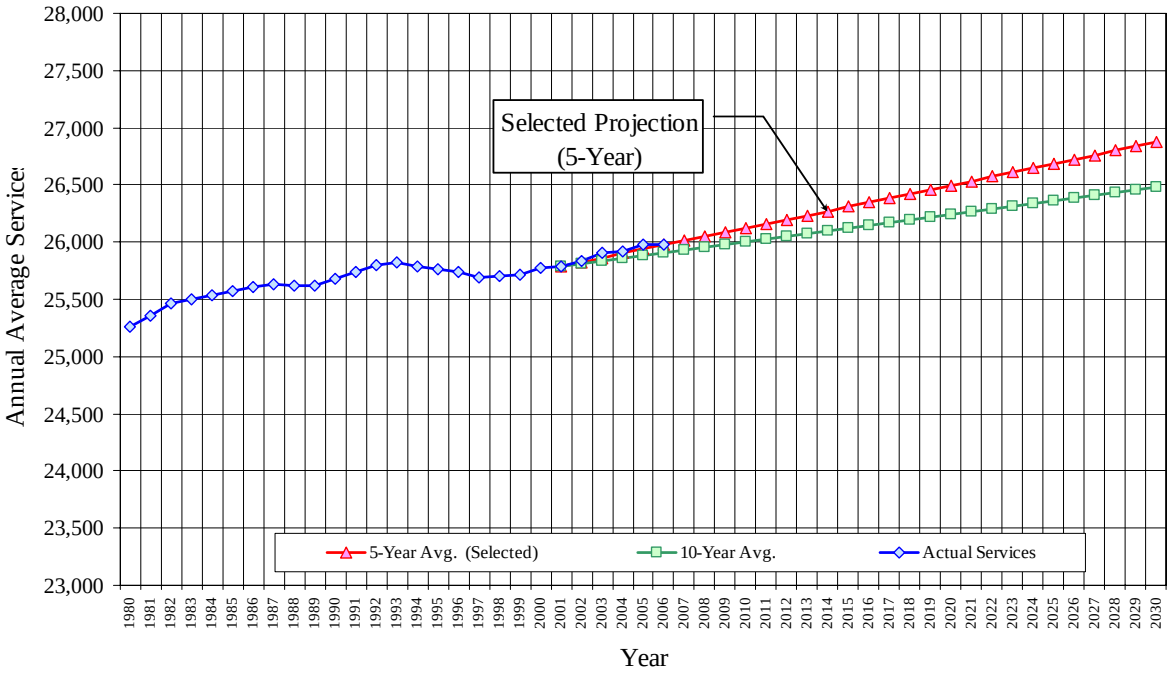
Single family residential water use represents the one of the smallest demand per service segments in the district with a 5 year average of 149,284 gallons per service per year. This category uses 44.8 percent of the total demand. The multifamily residential use was 2.1 percent of the total demand with a demand per service that has a 5 year average of 1,038,857 gallons per service per year. The combined residential sector component of demand is equal to 46.9 percent of total demand.

5.4 Historical and Projected Water Demand

Total system demand was projected by multiplying the number of services for each customer class by the demand per service for that class. This process incorporates the significant differences between the demand per service associated with each customer class and the different growth rates for each class. The service projection is shown in Figure 5.4-1.

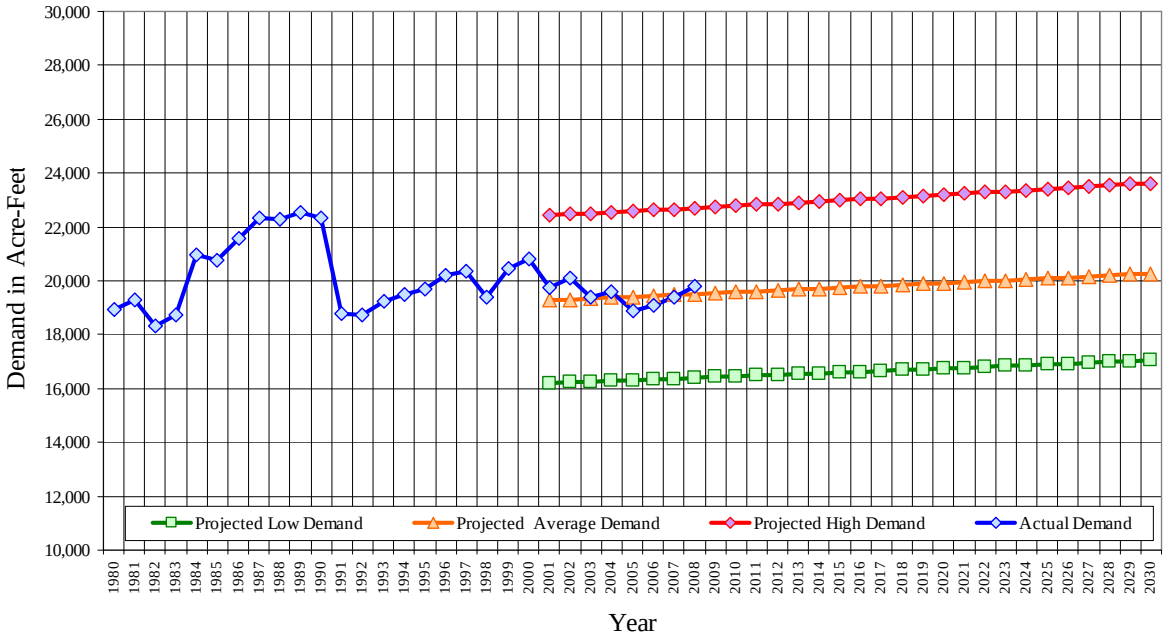
Projected service connections based on past service counts are labeled 5-Year Average and 10-Year Average. The 5-Year Average is the short-term growth rate, calculated from 2002 to 2006 period, which has an overall annual average growth rate of 0.14%. The 10 Year Average, the long-term growth rate calculated from 1997 to 2006 period, exhibits an overall annual average growth rate of 0.09%. As shown in the following graph, the 5-year growth rate has the strongest correlation with the historical trend.

Figure 5.4-1: Historical & Projected Services



Three projection scenarios were used to develop a range of projected demand for the East Los Angeles District. The previously discussed service connection growth pattern was applied to three different sets of demand per service data. Data generated through each scenario is compiled and located separately in Appendix C (Worksheets 10, 11, and 12). Comparative demand data for the three scenarios is presented in Figure 5.4-2. The starting point for each projection was the actual annual average number of services in 2001. This provides a comparison of projected values to actual values over a several-year period.

Figure 5.4-2: Historical & Projected Demand (without system losses)



5.4.1 Scenario 1

The District's five-year average growth pattern was applied to the lowest recorded demand per service values from each customer class. Scenario #1 forecasts total demand for the Year 2030 at 17,049 AF (without system losses). This scenario provides a bottom end for the projected demand range. This scenario represents the level of demand Cal Water customers could achieve if an emergency existed. Projected low system demands in 5-year increments, starting in 2010, are shown in Table 5.4-1.

5.4.2 Scenario 2

The District's five-year average growth pattern was combined with the ten-year average demand per service for each customer class to project the most probable demand values through the Year 2030. This scenario forecasts total demand for the Year 2030 at 20,269 AF (without system losses). Scenario #2 represents the normal position of the demand range that should most likely occur provided the 10% conservation goal established by the Company is achieved and maintained. To accomplish this level of demand it will be essential to effectively promote and implement appropriate conservation programs.

Projected average system demands in 5-year increments, starting in 2010, are shown in Table 5.4-2.

5.4.3 Scenario 3

The District's five-year average growth pattern was combined with the highest recorded demand per service value for each customer class. Scenario #3 forecasts demand for the Year 2030 at 23,628 AF (without system losses). This scenario provides a top end for the projected demand range. Projected high system demands in 5-year increments, starting in 2010, are shown in Table 5.4-3.

Table 5.4-1: Past, Current, and Projected Water Deliveries for Scenario 1 (Table 12a)

		Water Use Sectors	Single family	Multifamily	Commercial	Industrial	Institutional/Gov.	Landscape/ Agriculture	Other	Total
2000	metered	# of accounts	20,197	136	4,972	134	324	-	14	25,777
		Deliveries AFY	9,352	442	5,846	3,467	1,712	-	10	20,830
	unmetered	# of accounts	-	-	-	-	-	-	-	-
		Deliveries AFY	-	-	-	-	-	-	-	-
2005	metered	# of accounts	20,371	136	4,993	127	331	-	20	25,977
		Deliveries AFY	9,073	432	5,775	1,995	1,586	-	13	18,874
	unmetered	# of accounts	-	-	-	-	-	-	-	-
		Deliveries AFY	-	-	-	-	-	-	-	-
2010	metered	# of accounts	20,512	138	4,982	133	345	-	12	26,122
		Deliveries AFY	8,051	431	4,899	1,420	1,644	-	6	16,451
	unmetered	# of accounts	-	-	-	-	-	-	-	-
		Deliveries AFY	-	-	-	-	-	-	-	-
2015	metered	# of accounts	20,678	139	4,985	133	360	-	12	26,307
		Deliveries AFY	8,117	434	4,902	1,420	1,716	-	6	16,595
	unmetered	# of accounts	-	-	-	-	-	-	-	-
		Deliveries AFY	-	-	-	-	-	-	-	-
2020	metered	# of accounts	20,846	140	4,988	133	376	-	12	26,495
		Deliveries AFY	8,183	437	4,905	1,420	1,792	-	6	16,743
	unmetered	# of accounts	-	-	-	-	-	-	-	-
		Deliveries AFY	-	-	-	-	-	-	-	-
2025	metered	# of accounts	21,016	141	4,991	133	392	-	12	26,685
		Deliveries AFY	8,249	440	4,908	1,420	1,870	-	6	16,894
	unmetered	# of accounts	-	-	-	-	-	-	-	-
		Deliveries AFY	-	-	-	-	-	-	-	-
2030	metered	# of accounts	21,187	142	4,994	133	409	-	12	26,877
		Deliveries AFY	8,316	443	4,910	1,420	1,953	-	6	17,049
	unmetered	# of accounts	-	-	-	-	-	-	-	-
		Deliveries AFY	-	-	-	-	-	-	-	-

Table 5.4-2: Past, Current, and Projected Water Deliveries for Scenario 2 (Table 12b)

		Water Use Sectors	Single family	Multifamily	Commercial	Industrial	Institutional/Gov.	Landscape/ Agriculture	Other	Total
2000	metered	# of accounts	20,197	136	4,972	134	324	-	14	25,777
		Deliveries AFY	9,352	442	5,846	3,467	1,713	-	10	20,830
	unmetered	# of accounts	-	-	-	-	-	-	-	-
		Deliveries AFY	-	-	-	-	-	-	-	-
2005	metered	# of accounts	20,371	136	4,993	127	331	-	20	25,977
		Deliveries AFY	9,073	432	5,775	1,995	1,586	-	13	18,874
	unmetered	# of accounts	-	-	-	-	-	-	-	-
		Deliveries AFY	-	-	-	-	-	-	-	-
2010	metered	# of accounts	20,512	138	4,982	133	345	-	12	26,122
		Deliveries AFY	9,181	469	5,605	2,331	1,956	-	29	19,571
	unmetered	# of accounts	-	-	-	-	-	-	-	-
		Deliveries AFY	-	-	-	-	-	-	-	-
2015	metered	# of accounts	20,678	139	4,985	133	360	-	12	26,307
		Deliveries AFY	9,255	472	5,608	2,331	2,042	-	30	19,739
	unmetered	# of accounts	-	-	-	-	-	-	-	-
		Deliveries AFY	-	-	-	-	-	-	-	-
2020	metered	# of accounts	20,846	140	4,988	133	376	-	12	26,495
		Deliveries AFY	9,331	476	5,611	2,331	2,132	-	30	19,911
	unmetered	# of accounts	-	-	-	-	-	-	-	-
		Deliveries AFY	-	-	-	-	-	-	-	-
2025	metered	# of accounts	21,016	141	4,991	133	392	-	12	26,685
		Deliveries AFY	9,406	479	5,615	2,331	2,226	-	30	20,087
	unmetered	# of accounts	-	-	-	-	-	-	-	-
		Deliveries AFY	-	-	-	-	-	-	-	-
2030	metered	# of accounts	21,187	142	4,994	133	409	-	12	26,877
		Deliveries AFY	9,483	482	5,618	2,331	2,323	-	30	20,268
	unmetered	# of accounts	-	-	-	-	-	-	-	-
		Deliveries AFY	-	-	-	-	-	-	-	-

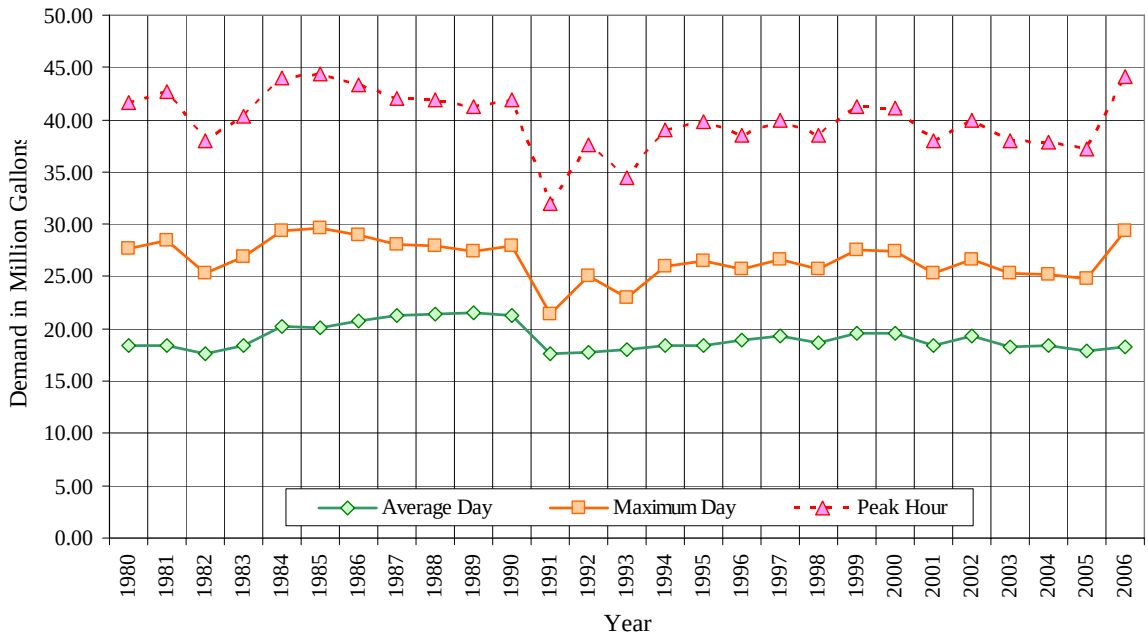
Table 5.4-3: Past, Current, and Projected Water Deliveries for Scenario 3 (Table 12c)

		Water Use Sectors	Single family	Multifamily	Commercial	Industrial	Institutional/Gov.	Landscape/ Agriculture	Other	Total
2000	metered	# of accounts	20,197	136	4,972	134	324	-	14	25,777
		Deliveries AFY	9,352	442	5,846	3,467	1,712	-	10	20,830
	unmetered	# of accounts	-	-	-	-	-	-	-	-
		Deliveries AFY	-	-	-	-	-	-	-	-
2005	metered	# of accounts	20,371	136	4,993	127	331	-	20	25,977
		Deliveries AFY	9,073	432	5,775	1,995	1,586	-	13	18,874
	unmetered	# of accounts	-	-	-	-	-	-	-	-
		Deliveries AFY	-	-	-	-	-	-	-	-
2010	metered	# of accounts	20,512	138	4,982	133	345	-	12	26,122
		Deliveries AFY	9,903	534	6,037	3,647	2,621	-	35	22,779
	unmetered	# of accounts	-	-	-	-	-	-	-	-
		Deliveries AFY	-	-	-	-	-	-	-	-
2015	metered	# of accounts	20,678	139	4,985	133	360	-	12	26,307
		Deliveries AFY	9,984	538	6,041	3,647	2,737	-	35	22,982
	unmetered	# of accounts	-	-	-	-	-	-	-	-
		Deliveries AFY	-	-	-	-	-	-	-	-
2020	metered	# of accounts	20,846	140	4,988	133	376	-	12	26,495
		Deliveries AFY	10,065	542	6,045	3,647	2,857	-	36	23,191
	unmetered	# of accounts	-	-	-	-	-	-	-	-
		Deliveries AFY	-	-	-	-	-	-	-	-
2025	metered	# of accounts	21,016	141	4,991	133	392	-	12	26,685
		Deliveries AFY	10,147	546	6,048	3,647	2,982	-	36	23,406
	unmetered	# of accounts	-	-	-	-	-	-	-	-
		Deliveries AFY	-	-	-	-	-	-	-	-
2030	metered	# of accounts	21,187	142	4,994	133	409	-	12	26,877
		Deliveries AFY	10,229	549	6,052	3,647	3,113	-	36	23,628
	unmetered	# of accounts	-	-	-	-	-	-	-	-
		Deliveries AFY	-	-	-	-	-	-	-	-

5.5 Average, Maximum, and Peak Demand

The average day demand (ADD) and maximum day demands (MDD) are shown in the following graph and are based on the historical records for the District. The Peak Hour Demand (PHD) shown in the graph is based on a Peaking Factor of 1.5 times MDD, which is which is typical of other Cal Water Districts.

Figure 5.5-1: Average Day, Maximum Day, and Peak Hour Demand



The ADD, MDD, and PHD data discussed above were, along with the projected services, used to project the different demands until 2030. These projections are based on comparing supply and demand, and not the capacity of the distribution system.

Table 5.5-1 shows the Average Day, Maximum Day, and Peak Hour Demands through 2030 in five year increments.

Table 5.5-1: Average Day, Maximum Day, and Peak Hour Demands			
Projected Year	Average Day	Maximum Day	Peak Hour
	(MGD)	(MGD)	(MGD)
2010			
Scenario 1	15.46	18.73	28.10
Scenario 2	18.70	22.66	33.98
Scenario 3	21.98	26.62	39.93
2015			
Scenario 1	15.60	22.46	33.69
Scenario 2	18.86	27.16	40.74
Scenario 3	22.17	31.93	47.89
2020			
Scenario 1	15.74	22.12	33.17
Scenario 2	19.03	26.74	40.11
Scenario 3	22.37	31.44	47.16
2025			
Scenario 1	15.88	21.94	32.91
Scenario 2	19.19	26.52	39.78
Scenario 3	22.57	31.19	46.79
2030			
Scenario 1	16.02	22.46	33.68
Scenario 2	19.36	27.14	40.71
Scenario 3	22.78	31.93	47.90

5.6 Summary

California Water Service Company does not provide water to other agencies and does not supply water for projects such as saline barriers or groundwater recharge and does not plan to supply water for these purposes in the future.

The district system losses based on average demand projections are summarized in Table 5.6-1.

Table 5.6-1: Additional Water Uses and Losses - AF Year (Table 13 and 14)							
Water Use	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**
Sales to Other Agencies	-	-	-	-	-	-	-
Saline barriers	-	-	-	-	-	-	-
Groundwater recharge	-	-	-	-	-	-	-
Conjunctive use	-	-	-	-	-	-	-
Raw water	-	-	-	-	-	-	-
Recycled	-	-	800	800	800	800	800
Unaccounted-for system losses	1,062	1,227	1,381	1,390	1,400	1,410	1,420
Total	1,062	1,227	2,181	2,190	2,200	2,210	2,220

Past, current, and projected water deliveries based on the average projected consumption rate is presented in Table 5.6-2.

Table 5.6-2: Total Water Use - AF Year (Table 15)							
Water Use	**2000 (Actual)**	**2005 (Actual)**	**2010**	**2015**	**2020**	**2025**	**2030**
Total of Tables 12, 13, 14	21,892	20,101	20,952	21,129	21,311	21,497	21,689

Figure 5.6-1 graphically displays the past, current, and projected water deliveries for all three scenarios including the unaccounted for system losses. Figure 5.6-2 shows the historical and average projected water source by type of source.

Figure 5.6-1: Historical & Projected Demand (system losses incorporated)

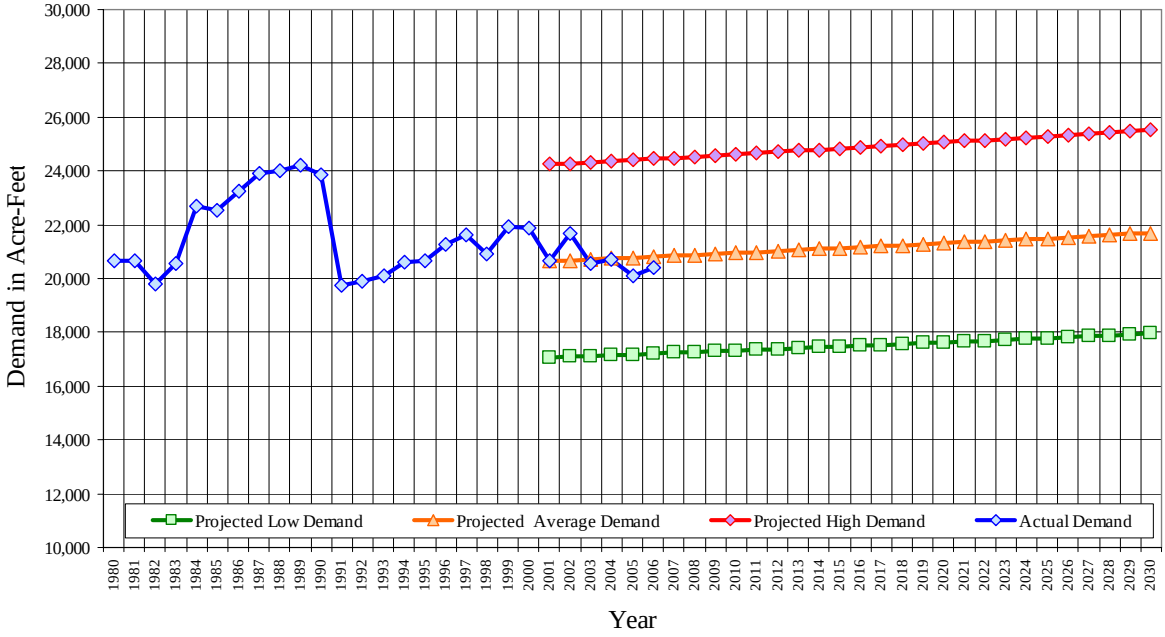


Figure 5.6-2: Historical & Average Projected Sources

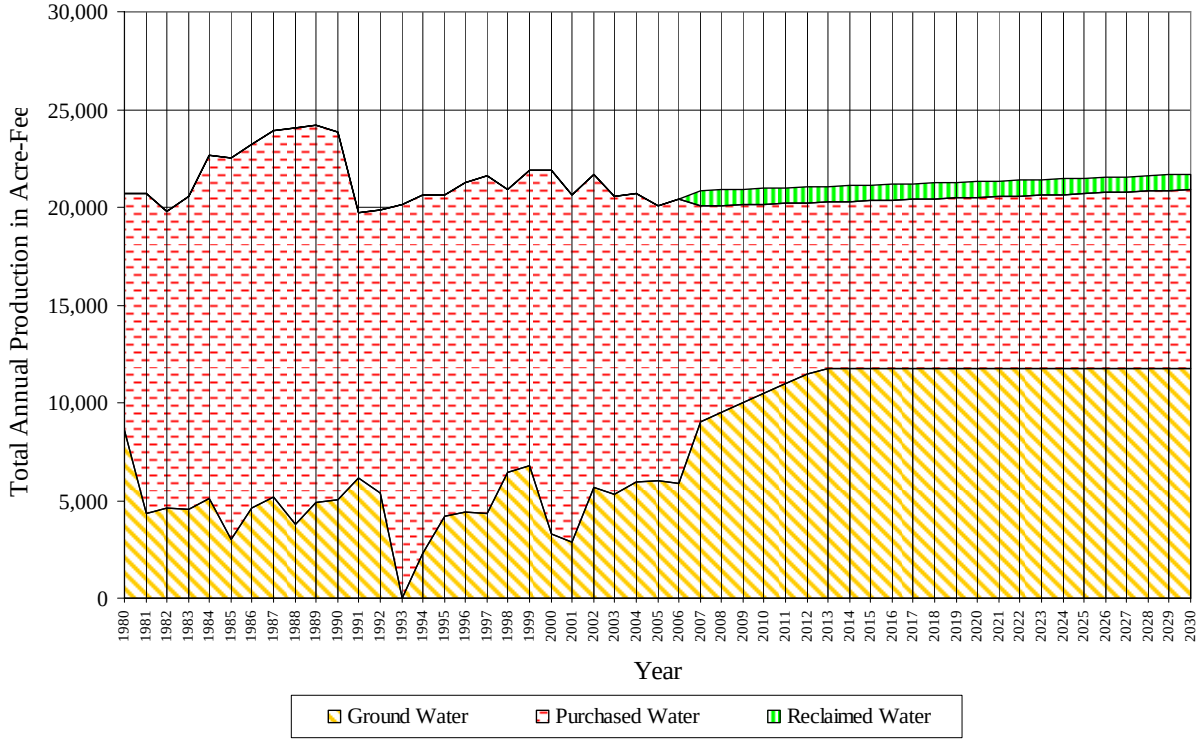


Table 5.6-3 lists the demand projections provided to CBMWD. Table 5.6-4 lists the identified and quantified the existing and planned sources of water. A copy of the purchase agreement is included in Appendix J. The purchase agreement has a five year term which has been renewed on the given term basis.

Table 5.6-3: Demand projections provided to wholesale suppliers – AFY (Table 19)					
Wholesaler	**2010**	**2015**	**2020**	**2025**	**2030**
Central Basin Municipal Water District	17,308	17,308	17,308	17,308	17,308

Table 5.6-4: Wholesaler identified & quantified the planned water sources - AFY (Table 20)					
Wholesaler sources	**2010**	**2015**	**2020**	**2025**	**2030**
Groundwater and Imported Water	17,308	17,308	17,308	17,308	17,308

6 Supply and Demand Comparison

6.1 Normal-Year Comparison

Tables 6.1-1, 6.1-2, and 6.1-3 compare the current and projected water supply and demand based on average consumption (Scenario 2). Cal Water has an allowed pumping allocation (APA) of 11,774 AFY for groundwater withdrawals. Because groundwater is a less expensive source of supply, Cal Water plans to maximize the use of this source each year.

As noted in Section 3.2, for purchased water Cal Water has a base allocation of 17,308 AFY, which together with the groundwater APA gives a total available supply of 29,082 AFY. This supply is not expected to change considerably over time and is used for the duration of the planning horizon.

Comparisons of the supply and demand show that the supply exceeds the demand during normal water years.

Table 6.1-1: Projected Normal Water Supply - AF Year (Table 40)

	2010	2015	2020	2025	2030
CBMWD Purchased Water	17,308	17,308	17,308	17,308	17,308
Cal Water Groundwater Wells	11,774	11,774	11,774	11,774	11,774
Supply Total	29,082	29,082	29,082	29,082	29,082
% of Normal Year	100%	100%	100%	100%	100%

Table 6.1-2: Projected Normal Water Demand - AF Year (Table 41)

	2010	2015	2020	2025	2030
Demand	20,952	21,129	21,311	21,497	21,689
% of year 2005	104%	105%	106%	106%	108%

Table 6.1-3: Projected Supply and Demand Comparison - AF Year (Table 42)

	2010	2015	2020	2025	2030
Supply totals	29,082	29,082	29,082	29,082	29,082
Demand totals	20,952	21,129	21,311	21,497	21,689
Difference	8,130	7,953	7,771	7,585	7,393
Difference as % of Supply	28%	27%	27%	26%	25%
Difference as % of Demand	39%	38%	36%	35%	34%

6.2 Single Dry-Year Comparison

According to operational records, the District's demand increases during a single-dry year as compared to normal years. The water demand would increase due to maintenance of landscape and other high water user that would normally be supplied by precipitation. Tables 6.2-1, 6.2-2, and 6.2-3 compare the current and projected water supply and demand based on high consumption rate (Scenario 3).

Cal Water is limited to groundwater withdrawals of 11,774AFY and purchased water deliveries of 17,308 AFY.

Cal Water plans to maximize the use of groundwater during single dry years. Because of basin adjudication, this source is expected to be fully available in single dry years. Cal Water will expect to make up the remainder of supply for the East Los Angeles District by purchasing water. According to CBMWD's UWMP, normal amounts of purchased water will also be available during this time.

Comparisons of the supply and demand show that the supply exceeds the demand during single dry years.

Table 6.2-1: Projected Single Dry-year Water Supply - AF Year (Table 43)

	2010	2015	2020	2025	2030
CBMWD Purchased Water	17,308	17,308	17,308	17,308	17,308
Cal Water Groundwater Wells	11,774	11,774	11,774	11,774	11,774
Supply total	29,082	29,082	29,082	29,082	29,082
% of Normal Year	100.0%	100.0%	100.0%	100.0%	100.0%

Table 6.2-2: Projected Single Dry-year Water Demand - AF Year (Table 44)

	2010	2015	2020	2025	2030
Demand	24,618	24,834	25,056	25,285	25,520
% of projected normal	117%	118%	118%	118%	118%

Table 6.2-3: Projected Single Dry-year Supply and Demand Comparison - AF Year (Table 45)

	2010	2015	2020	2025	2030
Supply totals	29,082	29,082	29,082	29,082	29,082
Demand totals	24,618	24,834	25,056	25,285	25,520
Difference	4,464	4,248	4,026	3,797	3,562
Difference as % of Supply	15.4%	14.6%	13.8%	13.1%	12.2%
Difference as % of Demand	18.1%	17.1%	16.1%	15.0%	14.0%

6.3 Multiple Dry-Year Comparison

Tables 6.3-1, 6.3-2, and 6.3-3 compare the projected water supply and demand occurring between 2006 and 2010 during an extended drought lasting the full length of this period. During the first three years the projected average demand (Scenario 2) was used. After this time, optional or mandatory water use restrictions are expected to be implemented. Therefore, for years 4-5, the low water demand (Scenario 1) was used.

Cal Water plans to maximize the use of groundwater during multiple dry years. Because of basin adjudication, this source is expected to be fully available during multiple dry years. Cal Water will expect to make up the remainder of supply for the East Los Angeles District by purchasing water. According to CBMWD's UWMP, normal amounts of purchased water will also be available during this time.

Comparisons of the supply and demand show that the supply exceeds the demand during multiple dry years for 2006 to 2010.

Table 6.3-1: Projected Supply During Multiple Dry Year To 2010 (Table 46)
AFY

	2006	2007	2008	2009	2010
CBMWD Purchased Water	17,308	17,308	17,308	17,308	17,308
Cal Water Groundwater Wells	11,774	11,774	11,774	11,774	11,774
Supply total	29,082	29,082	29,082	29,082	29,082
% of Normal Year	100.0%	100.0%	100.0%	100.0%	100.0%

Table 6.3-2: Projected Demand Multiple Dry Year To 2010 (Table 47)
AFY

	2006	2007	2008	2009	2010
Demand	20,813	20,848	20,882	17,293	17,323
% of projected normal	100%	100%	100%	83%	83%

Table 6.3-3: Projected Supply And Demand Comparison To 2010 (Table 48)
During Multiple Dry Year Period - AFY

	2006	2007	2008	2009	2010
Supply totals	29,082	29,082	29,082	29,082	29,082
Demand totals	20,813	20,848	20,882	17,293	17,323
Difference	8,269	8,234	8,200	11,789	11,759
Difference as % of Supply	28.4%	28.3%	28.2%	40.5%	40.4%
Difference as % of Demand	39.7%	39.5%	39.3%	68.2%	67.9%

Tables 6.3-4, 6.3-5, and 6.3-6 compare the projected water supply and demand between years 2011 and 2015.

Supply figures are based on the assumption that no reduction will occur during multiple dry years as discussed in the beginning of this section.

Demand is considered average (Scenario 2) for years 1, 2 and 3 and then is reduced by 17%, which is the lowest demand (Scenario 2) from the historical record for the District for years 4 and 5.

Comparisons of the supply and demand show that the supply exceeds the demand during multiple dry years for 2011 to 2015.

Table 6.3-4: Projected Supply During Multiple Dry Year To 2015 (Table 49)
AFY

	2011	2012	2013	2014	2015
CBMWD Purchased Water	17,308	17,308	17,308	17,308	17,308
Cal Water Groundwater Wells	11,774	11,774	11,774	11,774	11,774
Supply total	29,082	29,082	29,082	29,082	29,082
% of Normal Year	100.0%	100.0%	100.0%	100.0%	100.0%

Table 6.3-5: Projected Demand Multiple Dry Year To 2015 (Table 50)
AFY

	2011	2012	2013	2014	2015
Demand	20,987	21,022	21,058	17,353	17,382
% of projected normal	100%	100%	100%	83%	83%

Table 6.3-6: Projected Supply And Demand Comparison To 2015 (Table 51)
During Multiple Dry Year Period - AFY

	2011	2012	2013	2014	2015
Supply totals	29,082	29,082	29,082	29,082	29,082
Demand totals	20,987	21,022	21,058	17,443	17,473
Difference	8,095	8,060	8,024	11,639	11,609
Difference as % of Supply	27.8%	27.7%	27.6%	40.0%	39.9%
Difference as % of Demand	38.6%	38.3%	38.1%	66.7%	66.4%

Tables 6.3-7, 6.3-8, and 6.3-9 compare the projected water supply and demand between years 2016 and 2020.

Supply is assumed that no reduction will occur during multiple dry years as discussed in the beginning of this section.

Demand is considered average (Scenario 2) for years 1, 2 and 3 and then is reduced by 17%, which is the lowest demand (Scenario 2) from the historical record for the District for years 4 and 5.

Comparisons of the supply and demand show that the supply exceeds the demand during multiple dry years for 2016 to 2020.

Table 6.3-7: Projected Supply During Multiple Dry Year To 2020 (Table 52)
AFY

	2016	2017	2018	2019	2020
CBMWD Purchased Water	17,308	17,308	17,308	17,308	17,308
Cal Water Groundwater Wells	11,774	11,774	11,774	11,774	11,774
Supply total	29,082	29,082	29,082	29,082	29,082
% of Normal Year	100.0%	100.0%	100.0%	100.0%	100.0%

Table 6.3-8: Projected Demand Multiple Dry Year To 2020 (Table 53)
AFY

	2016	2017	2018	2019	2020
Demand	21,165	21,201	21,238	17,595	17,627
% of projected normal	100%	100%	100%	83%	83%

Table 6.3-9: Projected Supply And Demand Comparison To 2020 (Table 54)
During Multiple Dry Year Period - AFY

	2016	2017	2018	2019	2020
Supply totals	29,082	29,082	29,082	29,082	29,082
Demand totals	21,165	21,201	21,238	17,595	17,627
Difference	7,917	7,881	7,844	11,487	11,455
Difference as % of Supply	27.2%	27.1%	27.0%	39.5%	39.4%
Difference as % of Demand	37.4%	37.2%	36.9%	65.3%	65.0%

Tables 6.3-10, 6.3-11, and 6.3-12 compare the projected water supply and demand between years 2016 and 2020.

Supply is assumed that no reduction will occur during multiple dry years as discussed in the beginning of this section.

Demand is considered average (Scenario 2) for years 1, 2 and 3 and then is reduced by 17%, which is the lowest demand (Scenario 2) from the historical record for the District for years 4 and 5.

Comparisons of the supply and demand show that the supply exceeds the demand during multiple dry years for 2021 to 2025.

Table 6.3-10: Projected Supply During Multiple Dry Year To 2025 (Table 55)
AFY

	2021	2022	2023	2024	2025
CBMWD Purchased Water	17,308	17,308	17,308	17,308	17,308
Cal Water Groundwater Wells	11,774	11,774	11,774	11,774	11,774
Supply total	29,082	29,082	29,082	29,082	29,082
% of Normal Year	100.0%	100.0%	100.0%	100.0%	100.0%

Table 6.3-11: Projected Demand Multiple Dry Year To 2025 (Table 56)
AFY

	2021	2022	2023	2024	2025
Demand	21,348	21,385	21,422	17,752	17,784
% of projected normal	100%	100%	100%	83%	83%

Table 6.3-12: Projected Supply And Demand Comparison To 2025 (Table 57)
During Multiple Dry Year Period - AFY

	2021	2022	2023	2024	2025
Supply totals	29,082	29,082	29,082	29,082	29,082
Demand totals	21,348	21,385	21,422	17,752	17,784
Difference	7,734	7,697	7,660	11,330	11,298
Difference as % of Supply	26.6%	26.5%	26.3%	39.0%	38.8%
Difference as % of Demand	36.2%	36.0%	35.8%	63.8%	63.5%

Tables 6.3-13, 6.3-14, and 6.3-15 compare the projected water supply and demand between years 2026 and 2030.

Supply is assumed that no reduction will occur during multiple dry years as discussed in the beginning of this section.

Demand is considered average (Scenario 2) for years 1, 2 and 3 and then is reduced by 17%, which is the lowest demand (Scenario 2) from the historical record for the District for years 4 and 5.

Comparisons of the supply and demand show that the supply exceeds the demand during multiple dry years for 2026 to 2030.

Table 6.3-13: Projected Supply During Multiple Dry Year To 2030 (Table 55)
AFY

	2026	2027	2028	2029	2030
CBMWD Purchased Water	17,308	17,308	17,308	17,308	17,308
Cal Water Groundwater Wells	11,774	11,774	11,774	11,774	11,774
Supply total	29,082	29,082	29,082	29,082	29,082
% of Normal Year	100.0%	100.0%	100.0%	100.0%	100.0%

Table 6.3-14: Projected Demand Multiple Dry Year To 2030 (Table 56)
AFY

	2026	2027	2028	2029	2030
Demand	21,535	21,573	21,612	17,913	17,946
% of projected normal	100%	100%	100%	83%	83%

Table 6.3-15: Projected Supply And Demand Comparison To 2030 (Table 57)
During Multiple Dry Year Period - AFY

	2026	2027	2028	2029	2030
Supply totals	29,082	29,082	29,082	29,082	29,082
Demand totals	21,535	21,573	21,612	17,913	17,946
Difference	7,547	7,509	7,470	11,169	11,136
Difference as % of Supply	26.0%	25.8%	25.7%	38.4%	38.3%
Difference as % of Demand	35.0%	34.8%	34.6%	62.3%	62.1%

7 Water Demand Management

7.1 California Urban Water Conservation Council

California Water Service Company is a California Urban Water Conservation Council (CUWCC) member. The CUWCC was created to increase efficient water use statewide through partnerships among urban water agencies, public interest organizations, and private entities. The Council's goal is to integrate urban water conservation Best Management Practices (BMP) into the planning and management of California's water resources. Annual reports filed with the CUWCC are attached in Appendix G. The reports are considered complete according to the CUWCC website.

7.2 Water Conservation Best Management Practices

Implementation of these water conservation BMPs will help limit water demand from customers within the District's service area. This will result in a reduction of water supply requirements for Cal Water's East Los Angeles District, while also reducing the impact of water use statewide. This chapter presents an analysis of urban water conservation BMPs and a description of the methods used to conduct the analysis.

The unpredictable water supply and ever increasing demand on California's complex water resources have resulted in a coordinated effort by the Department of Water Resources (DWR), water utilities, environmental organizations, and other interested groups to develop a list of urban BMPs for conserving water. This consensus-building effort resulted in a Memorandum of Understanding Regarding Urban Water Conservation in California (MOU), as amended March 9, 2005, among parties, which formalizes an agreement to implement these BMPs and makes a cooperative effort to reduce the consumption of California's water resources. The MOU is administered by the CUWCC and is its primary tool for encouraging efficient water use throughout the State.

As a signatory of the MOU, Cal Water has agreed to implement the BMPs as defined in Exhibit 1 of the MOU that are cost beneficial, and complete such implementation in accordance with the schedule assigned to each BMP. The MOU requires that a water utility implement only the BMPs that are economically beneficial. If a BMP is not economically feasible, the water utility may request an economic exemption for that BMP. The BMPs as defined in the MOU are generally recognized as standard definitions of water conservation measures. Table 7.2-1 presents the BMPs as defined by the MOU. BMP economic analysis assumption can be found in Appendix H.

Table 7.2-1: Water Conservation Best Management Practices	
No.	**BMP Name**
1	Water survey programs for single-family residential and multi-family residential connections
2	Residential plumbing retrofit
3	System water audits, leak detection and repair
4	Metering with commodity rates for all new connections and retrofit of existing connections
5	Large landscape conservation programs and incentives
6	High-efficiency washing machine rebate programs
7	Public information programs
8	School education programs
9	Conservation programs for commercial, industrial, and institutional accounts
10	Wholesale agency assistance programs
11	Conservation pricing
12	Conservation coordinator
13	Water waste prohibition
14	Residential ULFT replacement programs

7.3 Economic Analysis Methodology

An economic analysis was conducted for six of the 14 BMPs that are described in the MOU (i.e. BMP nos. 1, 2, 5b, 6, 9, and 14). Economic analyses were not done for BMPs 3, 7, 8, 10, 11, 12, and 13 because they are essentially non-quantifiable, but often critical to the success of those BMPs that are quantifiable. All residential services in the East Los Angeles District are metered, therefore BMP4 does not apply. Analysis was also not performed for BMP 5a because Cal Water does not currently distinguish between services with dedicated irrigation meters and those with mixed use meters.

The cost-effectiveness economic analyses were performed using spreadsheet models developed by the CUWCC. In some cases, the models were modified to more closely represent the types of programs that Cal Water would actually be implementing. Each BMP model projects the dollar values of the benefits and costs that would result from implementing a particular BMP. The benefit and cost figures are based on the number of interventions to be completed in accordance with CUWCC coverage requirements, in what is typically a three year implementation schedule. This three year time frame was chosen to coincide both with Cal Water's Urban Water Management Plan submittal schedule for the East Los Angeles District, and its PUC rate case filings.

For BMP 5b, large landscape surveys, Cal Water considered a three year implementation schedule unrealistic and planned a longer five year implementation schedule instead. To be consistent with the other BMP's, the economic analysis of only the first three years are included in the tables below. However, the cumulative water savings data represents full implementation.

Because the models do not account for multiple year implementation schedules, each BMP model was run individually for each year from 2007 to 2009, with values adjusted for inflation as appropriate. BMPs with positive benefit to cost ratios are considered economically feasible and should be implemented as described in the MOU. The results of the economic analysis are discussed in the following section.

Important terms and formulas that are common to all the worksheets in the model are defined in Table 7.3-1.

Table 7.3-1: Definition of Terms Used in the Economic Analysis

Term	Definition	Comments
Present Value Benefits:	The total dollar value saved due to conservation resulting from BMP implementation.	Includes both water agency and societal benefits.
Present Value Costs:	The total implementation costs per BMP program.	Includes both water agency and societal costs.
Net Present Value:	Total benefits minus total costs without discounting for time.	A value greater than zero indicates an economically justifiable BMP.
Benefit-Cost Ratio:	The sum of the total benefits divided by the sum of the total costs.	A value greater than one indicates an economically justifiable BMP.
Simple Unit Supply Cost:	The cost per unit (AF) for conserved water.	A value less than CWSC's current marginal cost indicates a less expensive source of supply for conserved water.

7.4 Economic Analysis Results

Table 7.4-1 summarizes the results of the economic analysis.

Table 7.4-1: Benefit-Cost Analysis Summary

BMP 1: Residential Surveys						
	2007		2008		2009	
Perspective	Agency	Society	Agency	Society	Agency	Society
Program Costs	$242,479	$242,479	$250,581	$250,581	$256,501	$256,501
Total Benefits	$58,553	$95,653	$60,464	$98,734	$61,675	$100,749
Net Present Value	($183,926)	($146,826)	($190,117)	($151,847)	($194,826)	($155,752)
Benefit-Cost Ratio	0.24	0.39	0.24	0.39	0.24	0.39
Unit Supply Cost ($/AF)	$5,580	$5,580	$5,766	$5,766	$5,902	$5,902

BMP 2: Residential Plumbing Retrofits						
	2007		2008		2009	
Perspective	Agency	Society	Agency	Society	Agency	Society
Program Costs	$92,860	$92,860	$95,866	$95,866	$97,830	$97,830
Total Benefits	$105,603	$172,266	$109,028	$177,791	$111,175	$181,383
Net Present Value	$12,743	$79,406	$13,162	$81,925	$13,345	$83,553
Benefit-Cost Ratio	1.14	1.86	1.14	1.85	1.14	1.85
Unit Supply Cost ($/AF)	$1,270	$1,270	$1,311	$1,311	$1,338	$1,338

BMP 5b: Large Landscape Surveys						
	2007		2008		2009	
Perspective	Agency	Society	Agency	Society	Agency	Society
Program Costs	$159,409	$681,585	$168,890	$708,286	$174,274	$724,658
Total Benefits	$1,057,551	$1,233,082	$1,091,859	$1,273,084	$1,113,373	$1,298,169
Net Present Value	$898,142	$551,497	$922,969	$564,798	$939,099	$573,511
Benefit-Cost Ratio	6.63	1.81	6.46	1.80	6.39	1.79
Unit Supply Cost ($/AF)	$203	$869	$215	$903	$222	$924

BMP 6: High Efficiency Washing Machine Rebates						
	2007		2008		2009	
Perspective	Agency	Society	Agency	Society	Agency	Society
Program Costs	$49,298	$263,798	$49,662	$264,162	$49,868	$264,368
Total Benefits	$99,092	$326,550	$102,307	$336,858	$104,322	$344,050
Net Present Value	$49,794	$62,752	$52,645	$72,696	$54,454	$79,682
Benefit-Cost Ratio	2.01	1.24	2.06	1.28	2.09	1.30
Unit Supply Cost ($/AF)	$599	$3,209	$604	$3,214	$606	$3,216

Table 7.4-1 Continued: Benefit-Cost Analysis Summary (cont)						
BMP 9: CII Surveys						
	2007		**2008**		**2009**	
Perspective	**Agency**	**Society**	**Agency**	**Society**	**Agency**	**Society**
Program Costs	$66,501	$194,781	$66,716	$198,476	$66,852	$199,332
Total Benefits	$858,973	$1,257,409	$886,808	$1,296,346	$904,269	$1,321,676
Net Present Value	$792,472	$1,062,628	$820,092	$1,097,870	$837,417	$1,122,344
Benefit-Cost Ratio	12.92	6.46	13.29	6.53	13.53	6.63
Unit Supply Cost ($/AF)	$101	$295	$101	$300	$101	$301
BMP 14: ULFT Replacement Program						
	2007		**2008**		**2009**	
Perspective	**Agency**	**Society**	**Agency**	**Society**	**Agency**	**Society**
Program Costs	$174,928	$401,661	$174,955	$409,131	$174,973	$406,776
Total Benefits	$1,633,725	$2,028,735	$1,686,629	$2,094,598	$1,720,018	$2,136,304
Net Present Value	$1,458,797	$1,627,074	$1,511,674	$1,685,467	$1,545,045	$1,729,528
Benefit-Cost Ratio	9.34	5.05	9.64	5.12	9.83	5.25
Unit Supply Cost ($/AF)	$118	$270	$118	$275	$118	$274

According to the analysis, BMPs 2, 5b, 6, 9, and 14 have a positive Net Present Value from both the water agency and society perspectives and thus exhibit a benefit/cost ratio over 1.0, as shown in Table 7.4-1. Several cost sharing opportunities are available through the Central Basin Municipal Water District. The economic analysis for BMPs 6, 9, and 14 were designed to include these opportunities, and are reflected in the results.

Cal Water proposes adding the implementation of BMPs 2, 5b, 6, 9, and 14 to the existing programs beginning in 2007. The implementation of these BMPs will result in a total water savings of 10,827 AF over a 30-year period and will cost a total of $2,021,723. The potential annual water savings for all BMPs is shown graphically on Figure 7.4-1 and the proposed annual water savings is shown on Figure 7.4-2. The total water savings resulting from this level of coverage is also summarized in Tables 7.4-2 and 7.4-3.

Figure 7.4-1: Potential Water Savings

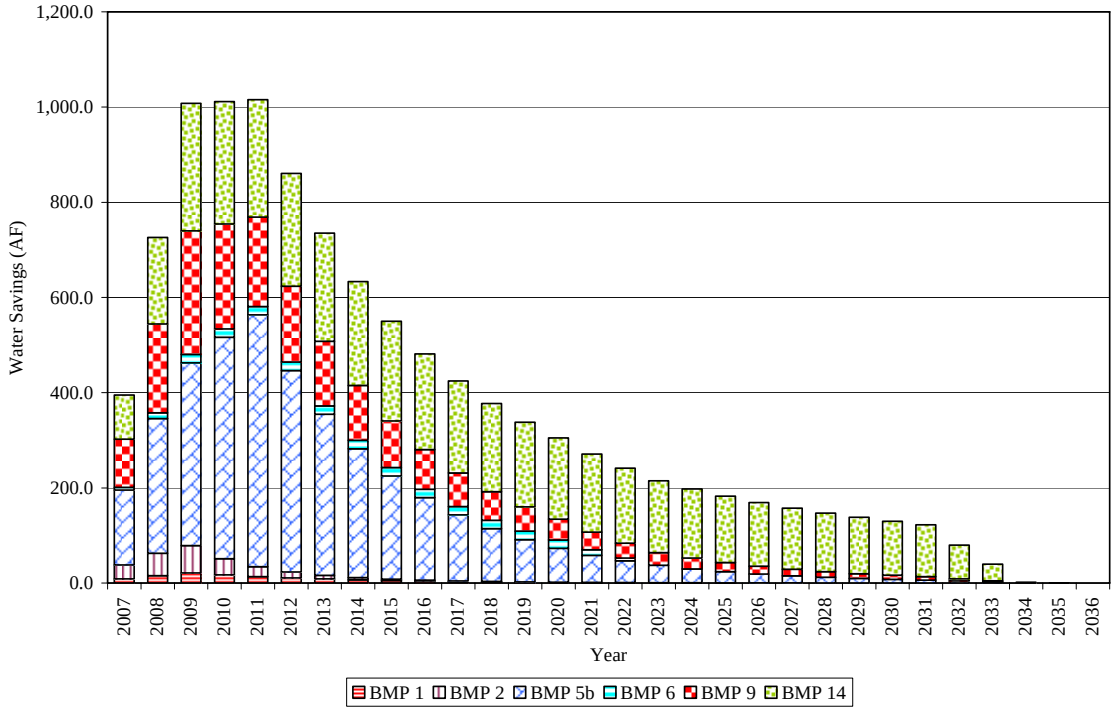


Figure 7.4-2: Proposed Water Savings

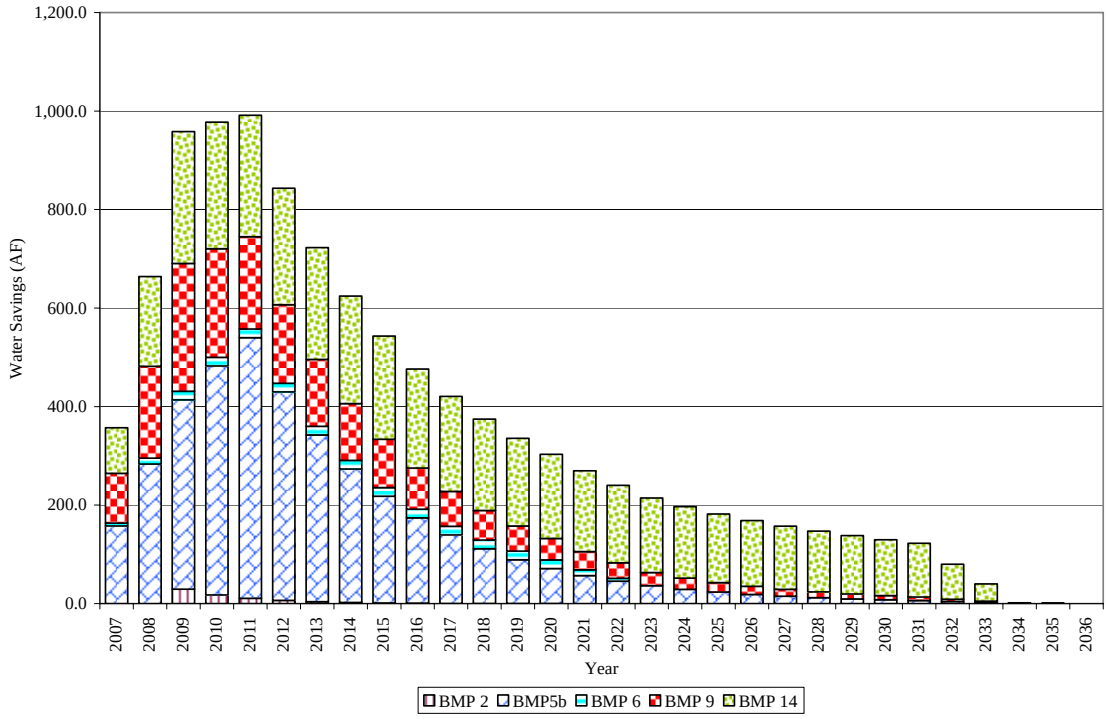


Table 7.4-2: Water Savings and Implementation Costs				
BMP	**Total Interventions**	**Potential Water Savings (AF)**	**Proposed Water Savings (AF)**	**Total Implementation Costs**
BMP 1	3,351	130	0	$0
BMP 2	11,397	219	219	$286,556
BMP 5b	820	3,921	3,921	$861,414
BMP 6	1,287	247	247	$148,828
BMP 9	360	1,984	1,984	$200,069
BMP 14	10,446	4,456	4,456	$524,856
Total:	27,661	10,957	10,827	$2,021,723

Figures 7.4-1 and 7.4-2 and Table 7.4-2 do not include the water savings and costs associated with BMPs 3, 7, 8, 10, 11, 12, and 13 since no specific level of effort is defined in the MOU for these BMPs. BMP 13 is covered by CPUC General Order 103, and has no cost unless triggered by a water shortage condition.

Table 7.4-3: Annual Water Savings

Year	BMP 1				BMP 2				BMP 5b					
	Incremental Savings (AF)			Annual Savings (AF)	Incremental Savings (AF)			Annual Savings (AF)	Incremental Savings (AF)					Annual Savings (AF)
	2007	2008	2009		2007	2008	2009		2007	2008	2009	2010	2011	
2007	8.7			8.7	29.3			29.3	157.4					157.4
2008	7.0	8.7		15.7	17.6	29.3		46.8	126.0	157.4				283.4
2009	5.6	7.0	8.7	21.3	10.5	17.6	29.3	57.3	100.8	126.0	157.4			384.2
2010	4.5	5.6	7.0	17.0	6.3	10.5	17.6	34.4	80.6	100.8	126.0	157.4		464.8
2011	3.6	4.5	5.6	13.6	3.8	6.3	10.5	20.6	64.5	80.6	100.8	126.0	157.4	529.3
2012	2.9	3.6	4.5	10.9	2.3	3.8	6.3	12.4	51.6	64.5	80.6	100.8	126.0	423.4
2013	2.3	2.9	3.6	8.7	1.4	2.3	3.8	7.4	41.3	51.6	64.5	80.6	100.8	338.7
2014	1.8	2.3	2.9	7.0	0.8	1.4	2.3	4.5	33.0	41.3	51.6	64.5	80.6	271.0
2015	1.5	1.8	2.3	5.6	0.5	0.8	1.4	2.7	26.4	33.0	41.3	51.6	64.5	216.8
2016	1.2	1.5	1.8	4.5	0.3	0.5	0.8	1.6	21.1	26.4	33.0	41.3	51.6	173.4
2017	0.9	1.2	1.5	3.6	0.2	0.3	0.5	1.0	16.9	21.1	26.4	33.0	41.3	138.7
2018	0.7	0.9	1.2	2.9	0.1	0.2	0.3	0.6	13.5	16.9	21.1	26.4	33.0	111.0
2019	0.6	0.7	0.9	2.3	0.1	0.1	0.2	0.3	10.8	13.5	16.9	21.1	26.4	88.8
2020	0.5	0.6	0.7	1.8	0.0	0.1	0.1	0.2	8.7	10.8	13.5	16.9	21.1	71.0
2021	0.4	0.5	0.6	1.5	0.0	0.0	0.1	0.1	6.9	8.7	10.8	13.5	16.9	56.8
2022	0.3	0.4	0.5	1.2	0.0	0.0	0.0	0.1	5.5	6.9	8.7	10.8	13.5	45.5
2023	0.2	0.3	0.4	0.9	0.0	0.0	0.0	0.0	4.4	5.5	6.9	8.7	10.8	36.4
2024	0.2	0.2	0.3	0.7	0.0	0.0	0.0	0.0	3.5	4.4	5.5	6.9	8.7	29.1
2025	0.2	0.2	0.2	0.6	0.0	0.0	0.0	0.0	2.8	3.5	4.4	5.5	6.9	23.3
2026	0.1	0.2	0.2	0.5	0.0	0.0	0.0	0.0	2.3	2.8	3.5	4.4	5.5	18.6
2027	0.1	0.1	0.2	0.4	0.0	0.0	0.0	0.0	1.8	2.3	2.8	3.5	4.4	14.9
2028	0.1	0.1	0.1	0.3	0.0	0.0	0.0	0.0	1.5	1.8	2.3	2.8	3.5	11.9
2029	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.0	1.2	1.5	1.8	2.3	2.8	9.5
2030	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.9	1.2	1.5	1.8	2.3	7.6
2031	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.7	0.9	1.2	1.5	1.8	6.1
2032		0.0	0.1	0.1		0.0	0.0	0.0		0.7	0.9	1.2	1.5	4.3
2033			0.0	0.0			0.0	0.0			0.7	0.9	1.2	2.8
2034				0.0				0.0				0.7	0.9	1.7
2035				0.0				0.0					0.7	0.7
2036				0.0				0.0						0.0
Total:				130.4				219.4						3,921.1

Table 7.4-3: Annual Water Savings (continued)

Year	BMP 6				BMP 9				BMP 14				Potential Annual Savings (AF)	Proposed Annual Savings (AF)
	Incremental Savings (AF)			Annual Savings (AF)	Incremental Savings (AF)			Annual Savings (AF)	Incremental Savings (AF)			Annual Savings (AF)		
	2007	2008	2009		2007	2008	2009		2007	2008	2009			
2007	5.9			5.9	100.9			100.9	92.9			92.9	395.1	386.4
2008	5.9	5.9		11.7	85.8	100.9		186.7	89.2	92.9		182.1	726.4	710.7
2009	5.9	5.9	5.9	17.6	72.9	85.8	100.9	259.6	85.6	89.2	92.9	267.7	1,007.7	986.4
2010	5.9	5.9	5.9	17.6	62.0	72.9	85.8	220.7	82.2	85.6	89.2	257.0	1,011.5	994.4
2011	5.9	5.9	5.9	17.6	52.7	62.0	72.9	187.6	78.9	82.2	85.6	246.7	1,015.4	1,001.8
2012	5.9	5.9	5.9	17.6	44.8	52.7	62.0	159.5	75.7	78.9	82.2	236.8	860.6	849.7
2013	5.9	5.9	5.9	17.6	38.1	44.8	52.7	135.5	72.7	75.7	78.9	227.3	735.4	726.6
2014	5.9	5.9	5.9	17.6	32.4	38.1	44.8	115.2	69.8	72.7	75.7	218.2	633.5	626.5
2015	5.9	5.9	5.9	17.6	27.5	32.4	38.1	97.9	67.0	69.8	72.7	209.5	550.1	544.5
2016	5.9	5.9	5.9	17.6	23.4	27.5	32.4	83.2	64.3	67.0	69.8	201.1	481.5	477.0
2017	5.9	5.9	5.9	17.6	19.9	23.4	27.5	70.8	61.8	64.3	67.0	193.1	424.7	421.2
2018	5.9	5.9	5.9	17.6	16.9	19.9	23.4	60.1	59.3	61.8	64.3	185.4	377.6	374.7
2019	5.9	5.9	5.9	17.6	14.4	16.9	19.9	51.1	56.9	59.3	61.8	177.9	338.1	335.8
2020	5.9	5.9	5.9	17.6	12.2	14.4	16.9	43.5	54.6	56.9	59.3	170.8	305.0	303.1
2021		5.9	5.9	11.7	10.4	12.2	14.4	36.9	52.4	54.6	56.9	164.0	271.1	269.6
2022			5.9	5.9	8.8	10.4	12.2	31.4	50.4	52.4	54.6	157.4	241.4	240.2
2023				0.0	7.5	8.8	10.4	26.7	48.3	50.4	52.4	151.1	215.2	214.2
2024				0.0	6.4	7.5	8.8	22.7	46.4	48.3	50.4	145.1	197.6	196.9
2025				0.0	5.4	6.4	7.5	19.3	44.5	46.4	48.3	139.3	182.5	181.9
2026				0.0	4.6	5.4	6.4	16.4	42.8	44.5	46.4	133.7	169.2	168.7
2027				0.0	3.9	4.6	5.4	13.9	41.1	42.8	44.5	128.4	157.6	157.2
2028				0.0	3.3	3.9	4.6	11.8	39.4	41.1	42.8	123.2	147.3	147.0
2029				0.0	2.8	3.3	3.9	10.1	37.8	39.4	41.1	118.3	138.2	137.9
2030				0.0	2.4	2.8	3.3	8.6	36.3	37.8	39.4	113.6	130.0	129.8
2031				0.0	2.0	2.4	2.8	7.3	34.9	36.3	37.8	109.0	122.6	122.4
2032				0.0		2.0	2.4	4.4		34.9	36.3	71.2	80.0	79.9
2033				0.0			2.0	2.0			34.9	34.9	39.8	39.7
2034				0.0				0.0				0.0	1.7	1.7
2035				0.0				0.0				0.0	0.7	0.7
2036				0.0				0.0				0.0	0.0	0.0
Total:				246.7				1,983.9				4,455.7	10,957.3	10,826.9

7.5 Additional Issues

Non-economic factors including environmental, social, technological, health, and customer impacts, are not thought to be significant in deciding which BMPs to implement in the East Los Angeles District. No water supply projects are currently planned that would supply water at a higher unit cost. Cal Water has the legal authority to implement the BMPs. However, the costs of implementing these BMPs are subject to CPUC approval.

7.6 Previous Water Demand Management Program Accomplishments

The Company believes that managing demand is an important element in the overall management of water supply and has made efforts to promote conservation through educational, informational, and customer assistance activities. Cal Water had been conducting conservation programs in the East Los Angeles District for several years. However, as a result of the February 1994 CPUC Decision 94-02-1-043 ordering that conservation memorandum accounts be closed, conservation activities have been significantly curtailed in all Cal Water districts.

7.6.1 External Measures to Achieve Public Support

Environmental organizations are seeking expanded water conservation programs and accomplishments by regulated water companies, including more effective and equitable price signals for water consumers and additional cost-effective investments in water efficiency measures by the companies and their customers. Such improvements in water efficiency measures will serve generally to reduce diversions from California's rivers, protect and restore the State's aquatic ecosystems, and reduce energy consumption. Cost-effective efficiency measures will also help mitigate the rising costs of water, wastewater, and energy utility service for consumers and communities.

In 2006 Cal Water participated in a collaborative effort to seek support from the CPUC to increase conservation activities in all districts. Cal Water, California American Water Company, and Golden State Water Company, along with the Mono Lake Committee and the Natural Resources Defense Council provided Joint Recommendations for water conservation to the CPUC. These Recommendations, which are endorsed by eight additional environmental organizations, present a framework for increasing water use efficiency state-wide. Based on these recommendations, Cal Water is proposing an increase in conservation spending to at least 1.5 percent of revenues. A copy of the Joint Water Conservation Recommendations is included in Appendix F.

In addition, Cal Water participates in cooperative conservation activities with the local community. Table 7.6-1 indicates the status of current BMP programs in the East Los Angeles service area.

Table 7.6-1: Conservation Measures		
Conservation Measure	Date Implemented	Program End Date
BMP 02 Plumbing Retrofit	Proposed	2009
BMP 5b Large Landscape Survey	Proposed	2011
BMP 06 Washing Machines	Proposed	2009
BMP 07 Public Information	1994	Ongoing
BMP 08 School Programs	1994	Ongoing
BMP 09 CII Surveys	Proposed	2009
BMP 14 Toilet Rebates	Proposed	2009

7.6.2 Internal Measures to Achieve Efficient Water Management

Cal Water currently implements internal measures that are intended to achieve efficient water management; these are discussed below:

Distribution System Water Audit and Leak Detection Program

Cal Water implemented an in-house water audit and leak detection program for its distribution systems. The program was administered by a company employee equipped with state-of-the-art leak detection equipment and trained in the methodology described in the American Water Works Association's *Manual of Water Supply Practices: Water Audits and Leak Detection*. It was expected that each district would be audited once every three years. After realizing initial success, this program was suspended as the rate of leak repair outpaced the rate of new leaks being found.

Water Efficient Landscape Guidelines

In 1992, water efficient landscape guidelines were developed (See Appendix F). These guidelines apply to all landscapes designed for Cal Water properties including renovations. For ease of adoption by districts with a multitude of climates and microclimates, the guidelines are generic. They do, however, adhere to water efficient landscape (Xeriscape) principles.

7.7 Overall District Goals

Cal Water recognizes the importance of conservation in managing its own water resources. While economic and regulatory constraints of integrating conservation into supply management have proven challenging, Cal Water is participating in efforts to develop demand management strategies, standards, and criteria by working with the California Urban Water Conservation Council. This Council was formed as part of the MOU primarily to oversee the implementation of the BMPs and to improve water conservation practices and analyses. Cal Water is committed to this process and the development of an integrated resource plan.

Cal Water's conservation programs are intended to assist customers in their efforts to use water efficiently as well as to educate them about their water supply overall. This will lead them to make informed decisions concerning the efficient use of water and enable them to better respond to required reductions in water use should a water shortage or emergency occur. During periods of water shortages, the Company's conservation programs can be expanded and may include more restrictive measures such as mandatory reductions, rationing, and penalties.

7.8 Implementation

For the next three years Cal Water's conservation program is planning to coordinate the implementation of six BMPs in East Los Angeles. The current budget amounts are listed in Table 7.8-1 below. For those BMPs for which a cost effectiveness analysis was performed, BMPs 2, 5b, 6, 9, and 14 were deemed cost effective. However, the BMPs listed below are already included in the approved conservation budget. The budget amounts listed below represent a lesser degree of implementation than was used in cost effective analysis. The budget amounts necessary to reach the full coverage requirements and schedule as specified in the MOU are listed in Table 7.8-2.

Table 7.8-1: Current Annual Conservation Program Budget 2007 – 2009

Program		2007	2008	2009	Total
BMP-2	Plumbing Retrofits	$17,831	$17,831	$17,831	$53,493
BMP-5b	Large Landscape Surveys	$46,240	$46,240	$46,240	$138,720
BMP-7	Public Information Campaign	$15,000	$15,000	$15,000	$45,000
BMP-8	School Programs	$45,000	$45,000	$45,000	$135,000
BMP-9	Commercial, Industrial, and Institutional Audits	$5,712	$5,712	$5,712	$17,136
BMP-14	ULFT Replacement Programs	$95,097	$95,097	$95,097	$285,291
Total Per Year		$225,060	$225,060	$225,060	$675,180

According to the MOU Cal Water is required to implement only those BMPs that are cost effective. The cost effectiveness analysis found BMPs 2, 5b, 6, 9, and 14 to be economically feasible. BMPs 7 and 8 are ongoing and are essential to the success of the entire program but no cost effective analysis has been performed for them. Cal Water recognizes the importance of maintaining a comprehensive conservation strategy and has included the remaining BMPs to support this goal in its program. The budget amounts listed below represent the estimated funding required to implement these BMPs according to the coverage level and schedule described in the MOU. Before implementing these BMPs Cal Water must receive approval from the CPUC.

Table 7.8-2: Current Annual Conservation Program Budget 2007 – 2009					
Program		2007	2008	2009	Total
BMP-2	Plumbing Retrofits	$92,860	$95,866	$97,830	$286,556
BMP-5b	Large Landscape Surveys	$159,409	$168,890	$174,274	$502,573
BMP-6	High Efficiency Washing Machine Rebates	$49,794	$49,662	$49,868	$149,324
BMP-7	Public Information Campaign	$15,000	$15,000	$15,000	$45,000
BMP-8	School Programs	$45,000	$45,000	$45,000	$135,000
BMP-9	Commercial, Industrial, and Institutional Audits	$66,501	$66,716	$66,852	$200,069
BMP-14	ULFT Replacement Programs	$174,928	$174,955	$174,973	$524,856
Total Per Year		$603,492	$616,089	$623,797	$1,843,378

8 References

[1] LandView 5 and MARPLOT ® software, US Census Bureau/Environmental Protection Agency, downloaded from: http://www.census.gov/geo/landview/lv5/lv5.html, http://www.epa.gov/ceppo/cameo/marplot.htm

[2] Groundwater Management Plan, Zone 7 Water Agency 2006, downloaded from http://www.zone7water.com/docs/annualreport06/annual-report-06.pdf

[3] California Irrigation Management Information System (CIMIS), EvapoTranspiration (Eto) Zones Map - Zone 8, http://wwwcimis.water.ca.gov/cimis/welcome.jsp

[4] California's Ground Water Bulletin 118, 2003; San Francisco Hydrologic Region; Livermore Valley Groundwater Basin; Groundwater Basin Number: 2-10

[5] ASL Consulting Engineers. 2000. CBMWD Water Recycling Program Master Plan, Draft Submittal. January 18, 2000.