CITY OF EL SEGUNDO

2010 Urban Water Management Plan

Prepared By:
Risk Management Professionals

TABLE OF CONTENTS

LIST OF APPENDICES

Executive Summary

The Urban Water Management Planning Act (Act) requires every urban water supplier providing water for municipal purposes to more than 3,000 customers, or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an Urban Water Management Plan (UWMP). The Act also requires urban water suppliers to update the UWMP in years ending in five and zero, using a 20 year planning horizon. The City of El Segundo (City), has prepared this UWMP in accordance with all requirements set forth in the State of California Water Code Sections 10610 through 10657.

The City is a retail water supplier to both residential and commercial accounts located within El Segundo's service area. This UWMP addresses the City water system and includes a description of the water supply sources, historical and projected water use, and a comparison of water supply to water demands during normal, single dry, and multiple dry years. This Plan also addresses new water use conservation legislation, including the City's 2015 and 2020 water use targets as required by the Water Conservation Act of 2009 (SBx7-7), and the implementation plan for meeting the City's 2015 and 2020 water use targets.

ES.1 SERVICE AREA OVERVIEW

The City of El Segundo is located in the Los Angeles Basin on the coast approximately 1.5 miles south of Los Angeles International Airport (LAX) and is a semi-arid desert environment receiving less than 14 inches of rainfall annually. The City manages and operates the domestic water system that serves a residential population of approximately 17,050. The residential population of El Segundo is expected to only marginally increase over the next 25 years as the residential areas are virtually built-up with no substantial vacant land available for development.

The water system consists of approximately 57.5 miles of main pipelines and serves potable water to a 5.5 square mile area. El Segundo's water system is comprised of one pump station, two storage reservoirs, and one elevated storage tank. There are currently two available water supply sources; imported water from the Colorado River and State Water Project (delivered via the West Basin Municipal Water District (WBMWD)) and recycled water for landscaping irrigation and industrial use (also supplied by the WBMWD). In addition, there are four interconnections with three neighboring water agencies; Los Angeles Department of Water and

Power (LADWP), City of Manhattan Beach, and California Water Service, that can be activated during emergency situations.

ES.2 SYSTEM DEMANDS

In order to determine the twenty percent per capita water use reduction by the year 2020 required by SBx7-7, the City of El Segundo utilized the California Department of Water Resources (DWR) methods to determine the baseline, interim, and water use target values. The City of El Segundo is part of the WBMWD that has formed a regional alliance, and has thus determined its baseline and target values both individually and as part of the alliance. The regional baseline for the City of El Segundo is 220.6 GPCD, the interim target in 2015 is 198.6 GPCD and the target for 2020 compliance is 176.5 GPCD. The individually calculated baseline for the City is 514 GPCD, the interim target in 2015 is 463 GPCD, and the target for 2020 compliance is 411 GPCD.

Significant growth or increase in water demands are not anticipated in future years as the City is almost completely built-out. The total past, current and future water demands for the City of El Segundo are summarized in Table ES-1, which takes into consideration the required consumption reduction required by SBx7-7.

Table ES-1
Total Water Use

Water Use	2005	2010	2015	2020	2025	2030
Total water deliveries	8,354	9,929	8,515	7,795	8,038	8,289
Sales to other water agencies	N/A	N/A	N/A	N/A	N/A	N/A
Additional water uses and losses	7,976	9,318	9,353	9,302	9,319	9,336
Total	16,330	19,247	17,868	17,097	17,357	17,625

Units: acre-feet per year

ES.3 SYSTEM SUPPLIES

The City of El Segundo utilizes both potable and recycled water. The City is 100% dependent on imported water purchased from WBMWD for its potable water supply and does not anticipate using groundwater as a source of potable water. In addition to distributing potable water, the

City of El Segundo is part of WBMWD's recycled water system. The recycled water is used for industrial applications and irrigation.

Due to the slow rising population and the per capita demand reduction required by SBx7-7, projected needed water supplies are expected to decrease accordingly from 2015 to 2030. The total projected potable and recycled water supplies available to the City through WBMWD are shown in Table ES-2.

Table ES-2
Water Supplies — Current and Projected

Water Supply Sources	2010	2015	2020	2025	2030
West Basin Municipal Water District	9,929	8,515	7,795	8,038	8,289
Supplier-Produced Groundwater	0	0	0	0	0
Supplier-Produced Surface Water	0	0	0	0	0
Transfers In	0	0	0	0	0
Exchanges In	0	0	0	0	0
Recycled Water	8,615	8,883	9,160	9,446	9,741
Desalinated Water	0	0	0	0	0
Total	18,544	17,398	16,955	17,484	18,030

Units: acre-feet per year

ES.4 WATER SUPPLY RELIABILITY AND CONTINGENCY PLANNING

All potable and recycled water supplies are provided through the WBMWD, which is supplied through the Metropolitan Water District of Southern California (MWD) and the State Water Project (SWP). Since the supply is not directly obtained by the City of El Segundo, the determination of reliability is largely determined by WBMWD and MWD analyses to provide a consistent water supply to the City during normal, single dry, and multiple dry years.

Catastrophic failures that put the water supply at risk include fires and earthquakes that could damage the infrastructure to the water distribution system. In the event of a catastrophic event that prevents the City from obtaining water for distribution, WBMWD implements actions and methods to continue supplying water to customers of its member agencies. Water reserves are available to MWD through Diamond Lake, as well as other surface reservoirs, and it is estimated that MWD could provide full supply for up to six months for all of its service areas

(including these to WBMWD) following a catastrophic event that disrupts the supply of water. In addition, methods to ensure that water is continually supplied to the customers include stockpiling emergency pipeline repair materials and coordinating with the California Emergency Management Agency (Cal EMA) and Emergency Operations Center (EOC) in the event of a catastrophic disruption of supply.

Any effect seen by the WBMWD during a catastrophic event would impact the water supply to the City. As a result, the City is subject to the actions and rationing of WBMWD. During any kind of catastrophic event that disrupts the water supply, including a regional power outage or an earthquake, the City of El Segundo in conjunction with WBMWD and MWD are prepared to continue providing a reliable source of water.

ES.5 DEMAND MANAGEMENT MEASURES

The City works with the WBMWD to implement water conservation techniques to reduce the total demand of water throughout the City and WBMWD. Together, the City and WBMWD implement the 13 required Demand Management Measures (DMMs) within the City (DMM 10 is not required as the City is not a wholesale agency). WBMWD is signatory to the California Urban Water Conservation Council (CUWCC) Memorandum of Understanding (MOU) regarding urban water conservation in California. CUWCC represents a diverse group of water supply agencies dedicated to establishing Best Management Practice (BMP) guidelines toward implementing conservation measures and managing supply demands. The following table summarizes the BMPs/DMMs:

Table ES-3
CUWCC BMP Organization and Names (2009 MOU) and UWMP DMMs

Type	Category	BMP #	BMP Name	DMM #	DMM Name
Foundational	Operations Practices	1.1.1	Conservation Coordinator	12	Water Conservation Coordinator
		1.1.2	Water Waste Prevention	13	Water Waste Prohibition

Table ES-3
CUWCC BMP Organization and Names (2009 MOU) and UWMP DMMs

Type	Category	BMP #	BMP Name	DMM #	DMM Name
		1.1.3	Wholesale Agency Assistance Programs	10	Wholesale Agency Programs
		1.2	Water Loss Control	3	System Water Audits, Leak Detection, and Repair
		1.3	Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections	4	Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections
		1.4	Retail Conservation Pricing	11	Conservation Pricing
	Education Programs	2.1	Public Information Programs	7	Public Information Programs
		2.2	School Education Programs	8	School Education Programs
Programmatic	Residential	3.1	Residential Assistance Program	1	Water Survey Programs for Single-Family Residential and Multi-Family Residential Customers
				2	Residential Plumbing Retrofit
		3.2	Landscape Water Survey	1	Water Survey Programs for Single-Family Residential and Multifamily Residential Customers

Table ES-3
CUWCC BMP Organization and Names (2009 MOU) and UWMP DMMs

Type	Category	BMP #	BMP Name	DMM #	DMM Name
		3.3	High-Efficiency Clothes Washing Machine, Financial Incentive Programs	6	High-Efficiency Washing Machine Rebate Programs
		3.4	WaterSense Specification (WSS) toilets	14	Residential Ultra-Low-Flush Toilet Replacement Programs
	Commercial, Industrial, and Institutional	4	Commercial, Industrial, and Institutional	9	Conservation Programs for Commercial, Industrial, and Institutional Accounts
	Landscape	5	Landscape	5	Large Landscape Conservation Programs and Incentives

ES.6 PLAN ADOPTION

The plan was adopted by the City Council on October 4, 2011 as prepared. A copy of the adoption resolution is provided in Appendix B.

The City will implement the strategies set forth in the plan immediately upon adoption by the City Council, which includes the following to reduce water demands in accordance with SBx7-7:

- Increasing public awareness regarding water conservation requirements and efforts that can be easily implemented to conserve water.
- Continuing to promote and expand the water conservation programs currently in place, including the fourteen Demand Management Measures outline in Section 6.0 of this Plan.
- Reducing the number of illegal connections that withdraw water from the City's

distribution system and contribute to the system losses.

The City will submit copies of its 2010 Urban Water Management Plan to the following agencies within 30 days after adoption:

- The California Department of Water Resources
- The California State Library
- The City of El Segundo

Additionally, any amendments or changes to the plan will be submitted to the above agencies within 30 days after adoption.

The City will provide an electronic version of the final 2010 Urban Water Management Plan on its website for public review within 30 days of filing the plan with the California Department of Water Resources. Additionally, a hard copy will be available for review at the City Hall building, located at 350 Main Street, El Segundo, California 90245.

CHAPTER 1: INTRODUCTION & PLAN PREPARATION

1 INTRODUCTION & PLAN PREPARATION

1.1 INTRODUCTION

The California State Legislature passed AB 797, the Urban Water Management Planning Act (Act) of 1983, which became effective January 1, 1984. The Act requires every urban water supplier providing water for municipal purposes to more than 3,000 customers, or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an Urban Water Management Plan (UWMP). The act also requires urban water suppliers to update the UWMP in years ending in five and zero, using a 20 year planning horizon. The City of El Segundo (City), a water purchaser and provider, fits the defined criteria, and has prepared this UWMP addressing all the requirements set forth in the State of California Water Code Sections 10610 through 10657.

Since its passage, many amendments have been added to the Act. These changes are intended to encourage increased regional planning and the cooperative management of California's most precious commodity - water. As a result, UWMPs have evolved to become:

- Foundation documents and sources of information for Water Supply Assessments and Written Verification of Water Supply,
- Long range planning documents for water supply,
- Source data for the development of regional water plans,
- Source documents for cities and counties preparing their General Plans, and
- Key components of Integrated Regional Water Management Plans.

For the City, the benefits of updating the UWMP extend beyond legislative compliance. This document is a reference document intended to compliment other UWMPs by analyzing conservation issues and the water supply available to the City. An effective UWMP aimed at developing a greater level of water conservation, awareness, and reliability requires the coordinated efforts on key tasks by the Department of Water Resources (DWR), West Basin Municipal Water District (WBMWD), and the City of El Segundo residents. This document also summarizes the current and proposed water management activities performed by the City to provide dependable, adequate and safe water. The UWMP further identifies proposed projects with a description of resulting water costs, benefits, and implementation schedule.

Specifically, the goals of this plan are:

- To provide a local perspective on current and proposed water conservation programs,
- To review current conservation programs and efforts,
- To evaluate potential conservation methods and identify improvements, as appropriate to the City programs,
- To provide a general framework for the development of mechanisms for coping with both short-term and long-term deficiencies in regional and/or local water supplies, and
- To serve as a flexible plan that can be updated periodically to reflect changes in regional and local trends, conditions and conservation policies (at least once every five years in accordance with Section 10621 and 10644 of AB 797).

In compliance with the State mandate and accordance with the best practices of water management, the City has prepared this UWMP.

1.2 REGULATORY CHANGES

New to the 2010 "Act" are several additions, the most important of which include:

- The Water Conservation Act of 2009 (SBx7-7)
- Assembly Bill 1420

SBx7-7 established the legislative framework to achieve Governor Schwarzenegger's call for a statewide per capita water use reduction of twenty percent by the year 2020. Urban retail water suppliers are required to report in their 2010 Plans their baseline and target per capita water use reduction values and implementation strategies to assist the state in meeting this goal.

Assembly Bill 1420 conditions a water supplier's eligibility for state-funded grants on implementation of the fourteen Demand Management Measures (DMMs). For DMMs that are not currently implemented, a schedule for implementation must be submitted, including a financing plan and budget in the grant or loan agreement. Alternatively, if a DMM is not locally cost effective, documentation supporting this argument is required. The City addresses the implementation of DMMs in Section 6 of the Plan.

1.3 PLAN ORGANIZATION

The chapters in this UWMP have been organized to correspond to the outline of the California Department of Water Resources' "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan". Additionally, the sequence used to present the information may be different from that shown in the Act in order to present the material in a manner reflecting the unique conditions within the City's service area. This UWMP is organized according to the following chapters:

1 INTRODUCTION & PLAN PREPARATION

Chapter 1 describes organization of the 2010 UWMP, background related to plan preparation, stakeholder involvement and the coordination with key stakeholders.

2 SYSTEM DESCRIPTION

Chapter 2 describes the City's service area, including the climate, demographics, and provides an overview of the water system facilities.

3 SYSTEM DEMANDS

Chapter 3 documents historical water use including use by sector, baseline and target per capita water use reduction values, demand projection calculations and the method used to develop these projections.

4 SYSTEM SUPPLIES

Chapter 4 outlines the sources of water within the City's service area, including documentation regarding wholesale water, groundwater, recycled water, desalination, and transfer and exchange opportunities are considered.

5 WATER SUPPLY RELIABILITY & WATER SHORTAGE CONTINGENCY PLANNING

Chapter 5 outlines the City's Water Shortage Contingency Plan, as well as documentation of the three dry year scenario, mandatory prohibitions, penalties or charges for excessive use, revenue and expenditure impacts, and mechanisms to determine reductions in water use.

6 DEMAND MANAGEMENT MEASURES

Chapter 6 describes the water conservation programs implemented by the City in an effort to reduce water usage in the City of El Segundo.

7 CLIMATE CHANGE

Chapter 7 briefly outlines the impacts of climate change on the availability of supply, as well as the City strategies to minimize emissions contributing to climate change.

1.4 COORDINATION

Urban Water Management Planning Act Requirement:

10620(d)(2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

The City ensured the preparation of the 2010 Urban Water Management Plan was coordinated with the appropriate water and public agencies. The County of Los Angeles and the West Basin Municipal Water District were encouraged to participate in the plan development.

Urban Water Management Planning Act Requirement:

10621(b) Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days prior to the public hearing on the plan required by Section 10642, notify any city of county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.

The City sent notification letters to the following agencies approximately 60 days prior to the public hearing:

- County of Los Angeles
- West Basin Municipal Water District

A copy of the letter is available in Appendix A, as well as the distribution addresses.

Urban Water Management Planning Act Requirement:

10635(b) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.

The City will provide copies of its 2010 Urban Water Management Plan Update to the following

agencies within 60 days of submission of the plan to the California Department of Water Resources (DWR):

- County of Los Angeles
- West Basin Municipal Water District

> ***Urban Water Management Planning Act Requirement:***
> *10642 Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.*

The City realizes the importance different social, cultural, and economic elements within its service area can have on the quality and success of its plan and water conservation efforts. The City encouraged all members of the public to attend the public hearing, and the City solicited written input from the public. Additionally, the City advertised, and provided a draft version of the plan on its website to allow public review and comment.

> ***Urban Water Management Planning Act Requirement:***
> *10642 Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, the notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area.*

A draft of the Urban Water Management Plan was made available on the City's website, and electronic versions of the plan were mailed upon request. A public notice including the time and place of the hearing was advertised in the local newspaper once per week for two consecutive weeks prior to the hearing, according to Government Code Section 6066. A summary of the City's coordination efforts is provided in Table 1.4.1 and 1.4.2.

Table 1.4.1 Coordination with Appropriate Agencies			
Agency	**Participated in UWMP**	**Commented on the Draft**	**Attended Public Meetings**
West Basin Municipal Water District	✓		
Los Angeles County			
City of El Segundo	✓	✓	✓
General Public			✓

Table 1.4.2 Coordination with Appropriate Agencies				
Agency	**Contacted for Assistance**	**Received Copy of Draft**	**Sent Notice of Intention to Adopt**	**Not Involved / No Information**
West Basin Municipal Water District	✓	✓	✓	
Los Angeles County	✓	✓	✓	
City of El Segundo	✓	✓	✓	
General Public	✓	✓	✓	

1.5 PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

Urban Water Management Planning Act Requirement:

10621(c) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).

All amendments to the City's 2010 Urban Water Management Plan shall be adopted and filed consistent with the UWMP "Act" requirements.

Urban Water Management Planning Act Requirement:

10642 After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

The plan was adopted by the City Council on October 4, 2011 as prepared. A copy of the adoption resolution is provided in Appendix B.

Urban Water Management Planning Act Requirement:

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

The City will implement the strategies set forth in the plan immediately upon adoption by the City Council. Details on the implementation of specific sections are detailed in their respective sections of the plan.

Urban Water Management Planning Act Requirement:

10644(a) An urban water supplier shall submit to the department, the California State library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State library, and any city or county within which the supplier provides water supplies within 30 days after adoption.

The City will submit copies of its 2010 Urban Water Management Plan to the following agencies within 30 days after adoption:

- The California Department of Water Resources
- The California State Library
- The City of El Segundo

Additionally, any amendments or changes to the plan will be submitted to the above agencies within 30 days after adoption.

Urban Water Management Planning Act Requirement:

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

The City will provide an electronic version of the final 2010 Urban Water Management Plan on its website for public review within 30 days of filing the plan with the California Department of Water Resources. Additionally, a hard copy will be available for review at the City Hall building, located at 350 Main Street, El Segundo, California 90245.

CHAPTER 2: SYSTEM DESCRIPTION

2 SYSTEM DESCRIPTION

2.1 SERVICE AREA PHYSICAL DESCRIPTION

Urban Water Management Planning Act Requirement:

10631(a) Describe the service area of the supplier.

General Location Overview

El Segundo is located in the Los Angeles Basin on the coast approximately 1.5 miles south of Los Angeles International Airport (LAX). Water is considered a limited natural resource given the climate, with the majority of domestic water imported from as far away as the Colorado River and Northern California. Due to the potential for Colorado River supplies to be reduced because of Federal requirements, the Metropolitan Water District of Southern California (MWD) and its member agencies, including the West Basin Municipal Water District (WBMWD), may need to look to other sources to supply their customers with water.

El Segundo residents and businesses consume an average of 7 million gallons of water per day. Water conservation represents the most cost-effective and environmentally sound way to reduce current and future demand. Reclaimed or recycled water is used for landscape irrigation, park and school ground irrigation, industrial use, and for groundwater recharge. Landscaping with drought-tolerant plants represents another effective method to help conserve water. Gardening is where a large percentage of residential water is used. Drought-tolerant plants, shrubs, and trees are specially adapted to grow well in regions that get little, or infrequent amounts of normal rain. These plants that require less water to live in Southern California's climate and soil tend to be more pest and disease resistant. El Segundo has long promoted efficient water use through education, public information, and municipal water management programs.

Water System Overview

The City of El Segundo manages and operates the domestic water system. El Segundo's water system serves a residential population of approximately 17,050. The system consists of approximately 57.5 miles of main pipelines and serves potable water to a 5.5 square mile area.

El Segundo's water system is comprised of one pump station, two storage reservoirs, and one elevated storage tank. There are currently two available water supply sources; imported water from the Colorado River and State Water Project (delivered via the WBMWD), and recycled water for landscaping irrigation and industrial use (also supplied by the WBMWD). In addition, there are four interconnections with three neighboring water agencies; Los Angeles Department of Water and Power (LADWP), City of Manhattan Beach, and California Water Service, that can be activated during emergency situations. El Segundo obtains approximately 52 percent of its water supply from WBMWD surface water, and 48 percent from recycled water, as is described in their 2005 Water Master Plan. Table 2.1.1 and 2.1.2 summarizes the specifications of the aforementioned facilities, as well as import capacity.

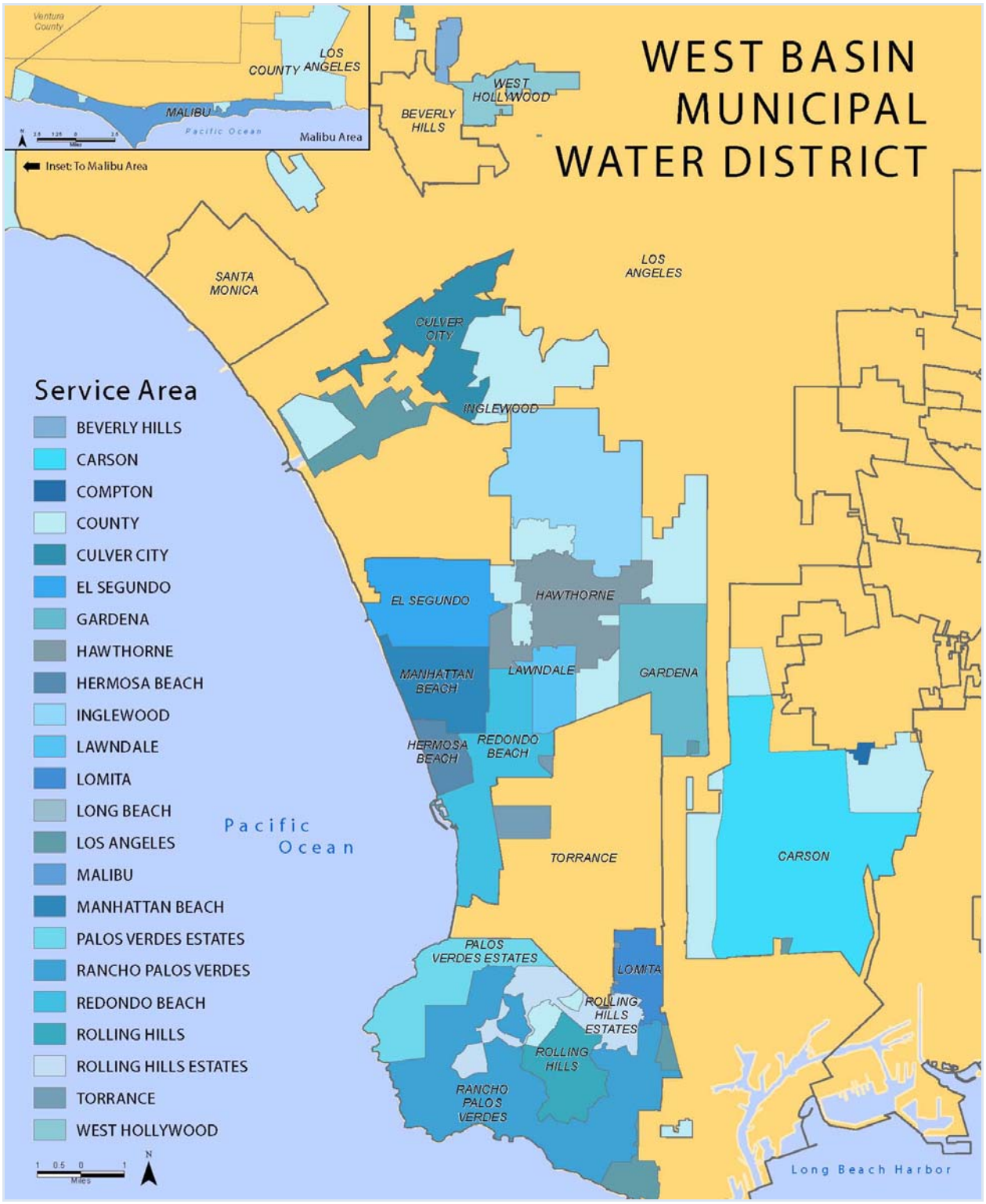
Table 2.1.1
System Facility Summary

RESERVOIRS		BOOSTER PUMP STATIONS	
TYPE	**CAPACITY**	**PUMP**	**TYPE/CAPACITY**
In-ground Reservoir	6.3 & 3 MG	Elevated Tank Pump House	2 Electric Pumps 2000 GPM
Elevated Tank	0.2 MG	Elevated Tank Pump House	Emergency Natural Gas Pump 5000 GPM
Total Reservoir	**9.5 MG**	**Total Pump Capacity**	**7000 GPM**

Table 2.1.2
Import Capacity

WEST BASIN MUNICIPAL WATER DISTRICT		EMERGENCY CONNECTIONS
CONNECTION	**CAPACITY**	LADWP (Imperial Ave. and Sheldon)
West Basin #3 MWD	40 CFS	LADWP (Imperial Highway and Nash)
West Basin #28 MWD	160 CFS	West Basin #3 Interconnection with Manhattan Beach
Total Capacity	**200 CFS**	California Water Service

Figure 2.1.1 – The City of El Segundo Regional Location[1]



[1]From the West Basin Municipal Water District Urban Water Management Plan

2.2 SERVICE AREA CLIMATE

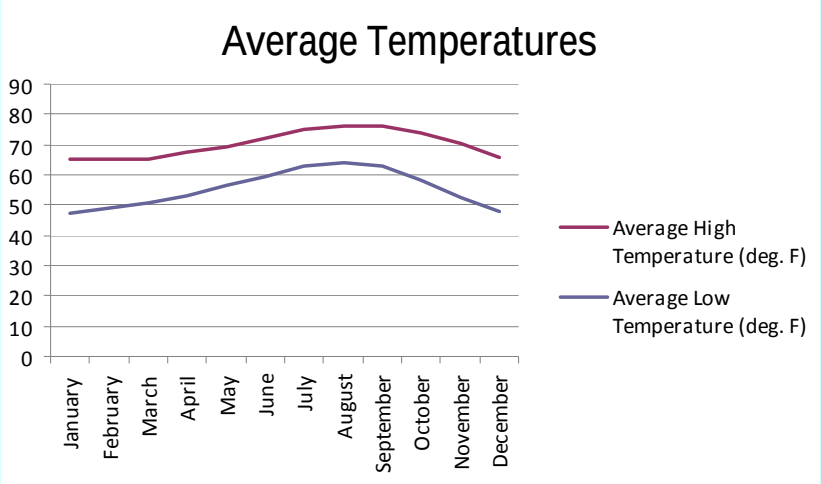
Urban Water Management Planning Act Requirement:

10631(a) Describe the service area – climate.

Temperature

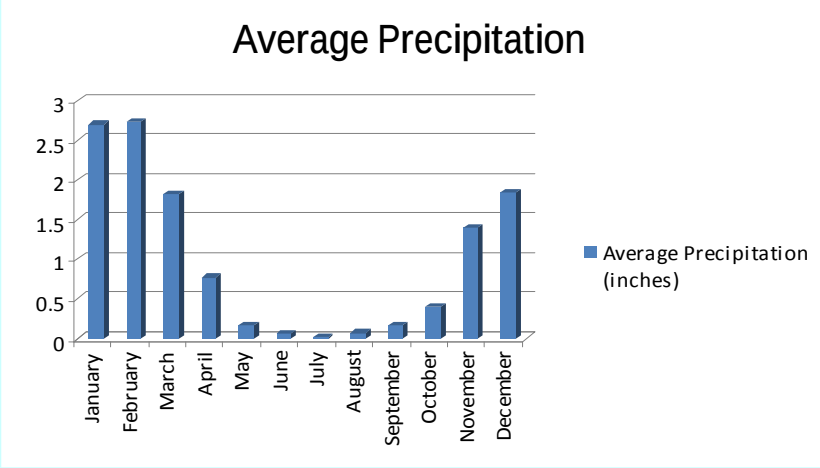
The City of El Segundo, which is a part of the Los Angeles Basin is a semi-arid desert environment. The temperature range is generally moderate as depicted in Figure 2.2.1; the average high temperature is 70 °F and the average minimum annual temperature is 55 °F.

Figure 2.2.1 – Average Temperatures



Precipitation

Figure 2.2.2 – Average Precipitation



The City, like the rest of the basin, receives less than 14 inches of rainfall annually. The average annual monthly precipitation in the City of El Segundo is presented in Figure 2.2.2.

Additionally, seasonal variation in temperature, rainfall, and evapotranspiration rate are illustrated in Table 2.2.1.

Table 2.2.1
Climate Data[1] (Period Record: 8/1/1944 – 12/31/2010)

	Avg. High Temp. (F)	Avg. Low Temp. (F)	Avg. Precipitation	Avg. (ETo)[2]
January	65.1	47.5	2.7	1.79
February	65.3	49	2.73	2.12
March	65.3	50.5	1.82	3.30
April	67.5	53	0.77	4.49
May	69.2	56.4	0.17	4.73
June	71.9	59.7	0.05	5.03
July	75.2	62.9	0.02	5.40
August	76.3	63.8	0.07	5.38
September	76	62.6	0.16	3.94
October	73.6	58.5	0.39	3.40
November	70.3	52.4	1.39	2.42
December	66	47.9	1.84	2.22

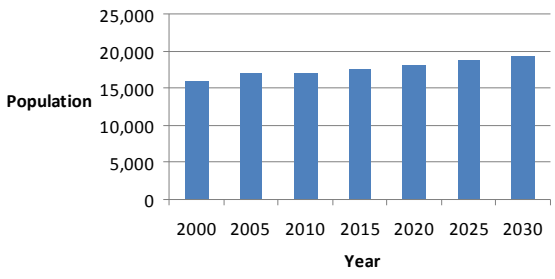
Sources: (1) Western Regional Climate Center: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca5114
(2) CIMIS : http://wwwcimis.water.ca.gov – Santa Monica Station

2.3 SERVICE AREA POPULATION

Urban Water Management Planning Act Requirement:

10631(a) Describe the service area – current and projected population … The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier …(population projections) shall be in five-year increments to 20 years or as far as data is available.

Figure 2.3.1 – Projected Population Growth



The City of El Segundo can be viewed as two distinct elements; the residential area and the commercial/industrial area. At the present time, El Segundo's residential areas are virtually built-up with no substantial vacant land available for development. El Segundo's commercial/industrial areas are over 90

percent developed. Therefore, the residential population of El Segundo is expected to only marginally increase over the next 25 years. Table 2.3-1 details modest residential population growth for El Segundo's service area in 5-year increments, starting from 2010 and projecting to 2030. Additionally, Figure 2.3-1 illustrates the projected population growth for the same time period.

Table 2.3.1
Population — Current and Projected

	2010	2015	2020	2025	2030	Data source
Service Area Population[1]	17,049	17,581	18,129	18,695	19,278	California DOF E-4 Estimates

[1] Service area population is defined as the population served by the distribution system. See Technical Methodology 2: Service Area Population (2010 UWMP Guidebook, Section M).

2.4 OTHER DEMOGRAPHIC FACTORS

Urban Water Management Planning Act Requirement:

10631(a) Describe the service area – other demographic factors affecting the supplier's water management planning

The El Segundo economy has numerous aviation-related and petroleum-related industries and operations. In 1911, Chevron began its second refinery; the name El Segundo, Spanish for "The Second," came from the second oil refinery. The Chevron Refinery is the primary user of recycled water within the City of El Segundo.

In 1930, the Los Angeles International Airport opened north of El Segundo, which has led to the concentration of aerospace and aviation-related firms in the El Segundo area. Many large aerospace companies have facilities in El Segundo, including Boeing, Raytheon, Lockheed Martin, Northrop Grumman, and The Aerospace Corporation, which is headquartered there. It is also home to the Los Angeles Air Force Base and the Space and Missile Systems Center (SMC), which is responsible for space-related acquisition for the military.

CHAPTER 3: SYSTEM DEMANDS

3 SYSTEM DEMANDS

3.1 WATER CONSERVATION BILL OF 2009 - BASELINES AND TARGETS

Urban Water Management Planning Act Requirement:

10608.20(e) An urban retail water supplier shall include in its urban water management plan … due in 2010 the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

In order to improve the Sacramento-San Joaquin Delta, in 2008 Governor Schwarzenegger directed State water agencies to develop a plan to achieve a twenty percent per capita water use reduction by the year 2020. The Water Conservation Act of 2009 (Senate Bill x7-7), passed in November 2009, provides the legislative framework to implement the conservation goals, and requires retail water suppliers to detail their strategy for achieving the reduction requirement in their 2010 Urban Water Management Plan Updates. The Urban Water Management Planning Act and SBx7-7 can be found in Appendices C and D of this document, respectively.

Explicit methodologies were developed by the California Department of Water Resources (DWR) to assist retail water suppliers in complying with the Water Conservation Act of 2009, and they are detailed in the technical document, "Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use." The City of El Segundo utilized the DWR methods when determining its baseline, interim, and water use target values, the steps of which are described in detail in the following sections.

The methodologies laid out by DWR instruct urban water suppliers to determine their baseline and target water use values through performing four main steps, which are as follows:

- Step 1: Determine Base Daily Per Capita Water Use
- Step 2: Determine Urban Water Use Target
- Step 3: Compare Urban Water Use Target to the 5-year Baseline (verification of 95% minimum reduction requirement)

- Step 4: Determine Interim Urban Water Use Target

Water suppliers are given the option of determining their 20x2020 target values either individually, or through a regional alliance. The City of El Segundo is part of the West Basin Municipal Water District that has formed a regional alliance, and has thus determined its baseline and target values both individually and as part of the alliance.

3.1.1 Step 1: Determine Base Daily Per Capita Water Use

Baseline daily per capita water use is defined as an urban water supplier's estimate of its average gross water use, reported in gallons per capita per day (GPCD) and calculated over a continuous base period.

Steps 1A – 1C: Determine Supplier 10- to 15-year, and 5-year Base Periods

Urban retail water suppliers are required to choose a continuous, 10-year baseline period ending no earlier than December 31, 2004 and no later than December 31, 2010 when determining Base Daily Per Capita Water Use. The option to extend the baseline to a 15-year period is given to water suppliers if recycled water accounts for at least 10 percent of their 2008 retail water deliveries. The City of El Segundo's recycled water deliveries were approximately 46 percent of its 2008 total, and therefore the option to extend the baseline to fifteen years was available. However, a 10-year baseline period was chosen for the City; July 1st, 2000 through June 30th, 2010.

The 5-year baseline period is used to determine the retail water supplier's minimum water use reduction, and the period must end no earlier than December 31st, 2007 and no later than December 31st, 2010. July 1st, 2005 through June 30th, 2010 was chosen as the 5-year baseline period for the City of El Segundo. Table 3.1.1 summarizes the City of El Segundo's baseline period selections.

Table 3.1.1
Base Period Ranges

Base	Parameter	Value	Units
10- to 15-year base period	2008 total water deliveries	9,085	*acre-ft*
	2008 total volume of delivered recycled water	7,865	*acre-ft*
	2008 recycled water as a percent of total deliveries	46.4%	percent
	Number of years in base period	10	years
	Fiscal Year beginning base period range	2001	
	Fiscal Year ending base period range	2010	
5-year base period	Number of years in base period	5	years
	Fiscal Year beginning base period range	2006	
	Fiscal Year ending base period range	2010	

Units: acre-feet per year

Steps 1D – 1E: Estimate Service Area Population

The City of El Segundo Water Department's service area encompasses more than 95% of the City's limits. Therefore, the California Department of Finance (DOF) E-4 Population Estimates for the City of El Segundo were used to estimate the service area's total population for the baseline years (2001 – 2010).

Step 1F: Calculate Gross Water Use

The City of El Segundo receives potable water from a sole source; imported water purchased through the West Basin Municipal Water District (WBMWD). Total annual volumes (reported for each fiscal year) of imported water entering the City's distribution system were obtained from City records. A summary of the calculations, highlighting the steps described in DWR's guidance document, is shown in Table 3.1.2.

Table 3.1.2 Gross Water Use Calculations											
Utility Name: City of El Segundo	12-month period from: 1-Jul to 30-Jun				Volume Units: Million Gallons						
		Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**
1	Volume from Own Sources (raw data)	-	-	-	-	-	-	-	-	-	-
2	Volume from Imported Sources (raw data)	4,734	3,041	3,251	2,711	2,767	2,725	2,887	2,960	2,866	3,464
3	***Total Volume Into Distribution System = Line 1 + Line 2***	***4,734***	***3,041***	***3,251***	***2,711***	***2,767***	***2,725***	***2,887***	***2,960***	***2,866***	***3,464***
4	Volume Exported to Other Utilities (raw data)	-	-	-	-	-	-	-	-	-	-
5	Change in Distribution System Storage (+/-)	-	-	-	-	-	-	-	-	-	-
6	***Gross Water Use Before Indirect Recycled Water Use Deductions = Line 3 - Line 4 - Line 5***	***4,734***	***3,041***	***3,251***	***2,711***	***2,767***	***2,725***	***2,887***	***2,960***	***2,866***	***3,464***
7	Indirect Recycled Water Use Deduction	-	-	-	-	-	-	-	-	-	-
8	***Gross Water Use After Indirect Recycled Water Use Deductions = Line 6 - Line 7***	***4,734***	***3,041***	***3,251***	***2,711***	***2,767***	***2,725***	***2,887***	***2,960***	***2,866***	***3,464***
9	*Water Delivered for Agricultural Use (optional deduction)*	-	-	-	-	-	-	-	-	-	-
10	*Process Water Use (optional deduction)*	-	-	-	-	-	-	-	-	-	-
11	**Gross Water Use After Optional Deductions**	***4,734***	***3,041***	***3,251***	***2,711***	***2,767***	***2,725***	***2,887***	***2,960***	***2,866***	***3,464***

Steps 1G – 1I: Determine Annual and Base Daily Per Capita Water Use

Annual daily per capita water use for the City of El Segundo was estimated by dividing the gross water use by the service area's total population for each year of the baseline period. The average of these values over the 10-year baseline was then determined, giving the Base Daily Per Capita Water Use for the City of El Segundo; **514 GPCD**.

Table 3.1.3 summarizes the data used to determine the City's Base Daily Per Capita Water Use.

Table 3.1.3
Base Daily Per Capita Water Use — 10-Year Range

Base period year		Distribution System Population	Daily System Gross Water Use (MGD)	Annual Daily Per Capita Water Use (GPCD)
Sequence Year	Fiscal Year Ending			
Year 1	2001	16,262	12.97	798
Year 2	2002	16,475	8.33	506
Year 3	2003	16,663	8.91	535
Year 4	2004	16,810	7.43	442
Year 5	2005	16,904	7.58	448
Year 6	2006	16,901	7.47	442
Year 7	2007	16,912	7.91	468
Year 8	2008	16,877	8.11	481
Year 9	2009	16,937	7.85	464
Year 10	2010	17,049	9.49	557
			Base Daily Per Capita Water Use	514

3.1.2 Determine Urban Water Use Target

The Water Conservation Act of 2009 provides the retail water supplier the choice of four methods for determining the urban water use target value. The four methods are:

- Method 1: 80% of Base Daily Per Capita Water Use Value
- Method 2: Performance Standards
- Method 3: 95% of the Hydrologic Region 2020 Target Value
- Method 4: Water Savings (developed by DWR)

Method 1 was chosen by the City of El Segundo, as it effectively limits the maximum reduction an individual water supplier is required to achieve to 20 percent. The other three methods imposed reduction targets greater than the 20 percent required by Method 1 and were therefore

dismissed, in order to prevent placing undue burden on the City. Thus, the City of El Segundo's 2020 Urban Water Use Target is **411 GPCD**.

3.1.3 Confirm Urban Water Use Target

The Water Conservation Act of 2009 sets a minimum reduction requirement the water supplier's urban water use target must meet or exceed. The minimum reduction is defined as 95 percent of the 5-year baseline period's Base Daily Per Capita Water Use. Table 3.1.4 provides a summary of the 5-year baseline calculations.

Table 3.1.4
Base Daily Per Capita Water Use — 5-Year Range

Base period year		Distribution System Population	Daily system gross water use (mgd)	Annual daily per capita water use (gpcd)
Sequence Year	Fiscal Year Ending			
Year 1	2006	16,901	7.47	442
Year 2	2007	16,912	7.91	468
Year 3	2008	16,877	8.11	481
Year 4	2009	16,937	7.85	464
Year 5	2010	17,049	9.49	557
			Base Daily Per Capita Water Use	482

The urban water use target of 411 GPCD calculated by Method 1 exceeds the minimum reduction requirement of **458 GPCD** (95% of the 5-year Base Daily Per Capita Water Use), and it is therefore confirmed as the City's Urban Water Use Target.

3.1.4 Determine Interim Urban Water Use Target

The interim urban water use target is defined as the water use goal the water supplier is to achieve and report in the 2015 UWMP Update, and equals half of the target 2020 reduction. The interim urban water use target for the City of El Segundo is **463 GPCD**.

3.1.5 Regional Alliance Calculations

The City of El Segundo is part of the West Basin Municipal Water District that has formed a 20x2020 regional alliance to meet water conservation requirements. Additional members of the alliance include the California Water Service Company Hawthorne; Inglewood, Lomita, Manhattan Beach, and Los Angeles County Waterworks District #19.

The "West Basin Municipal Water District 2010 Urban Water Management Plan" is located in Appendix E of this report and includes all calculations performed on a regional basis. Based upon these calculations the regional interim target in 2015 is **198.6 GPCD** and the target for 2020 compliance is **176.5 GPCD**.

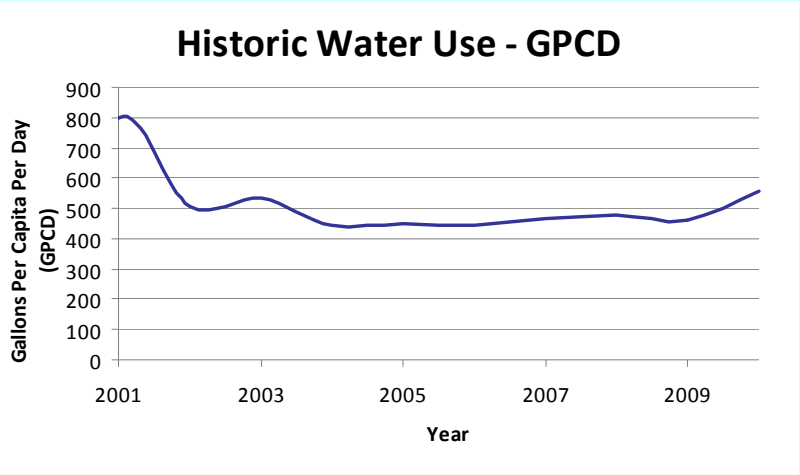
3.2 WATER DEMANDS

Urban Water Management Planning Act Requirement:

10608.20(e)(1)&(2) Quantify, to the extent records are available, past and current water use, and projected water use (over the same five-year increments described in subdivision (a)), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses: (A) Single-family residential; (B) Multifamily; (C) Commercial; (D) Industrial; (E) Institutional and governmental; (F) Landscape; (G) Sales to other agencies; (H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof; (I) Agricultural.

3.2.1 Historic Water Use

Figure 3.2.1 – Historic Water Use



The City of El Segundo's Water System currently serves approximately 17,000 people within its service area. With the City being almost completely built-out, significant growth or increase in water demands are not anticipated in future years.

Key factors that affect water demands are; population growth, increases in land use development, industrial growth and reductions in annual rainfall. For the City of El Segundo, population and rainfall exhibit the greatest influence. Usage of water per capita day for the past ten years is shown in Figure 3.2.1. Consumption has ranged from a low 442 GPCD in 2004 to a maximum of 798 GPCD in 2001. The average use per day during the period from 2001 through 2010 was 514 gallons per person.

Table 3.2.1
Historic Water Use

Fiscal Year	Gross Water Use (MGY)	Population	Usage Per Capita Day (GPCD)
2001	4,734	16,262	798
2002	3,041	16,475	506
2003	3,251	16,663	535
2004	2,711	16,810	442
2005	2,767	16,904	448
2006	2,725	16,901	442
2007	2,887	16,912	468
2008	2,960	16,877	481
2009	2,866	16,937	464
2010	3,464	17,049	557

The City of El Segundo's past water use and number of customer connections for the 2005 calendar year are shown in Table 3.2.2, separated by water use sector.

Table 3.2.2
Water Deliveries — Actual, 2005

	2005				
	Metered		Not Metered		Total
Water Use Sectors	**# of Accounts**	**Volume**	**# of Accounts**	**Volume**	**Volume**
Single family	3,056	3,278	0	0	3,278
Multi-family	680	806	0	0	806
Commercial/Institutional/ Government	378	556	0	0	556
Industrial/Landscape/Other	N/A	3,714	0	0	3,714
Agriculture	0	0	0	0	0
Total	4,114	8,354	0	0	8,354

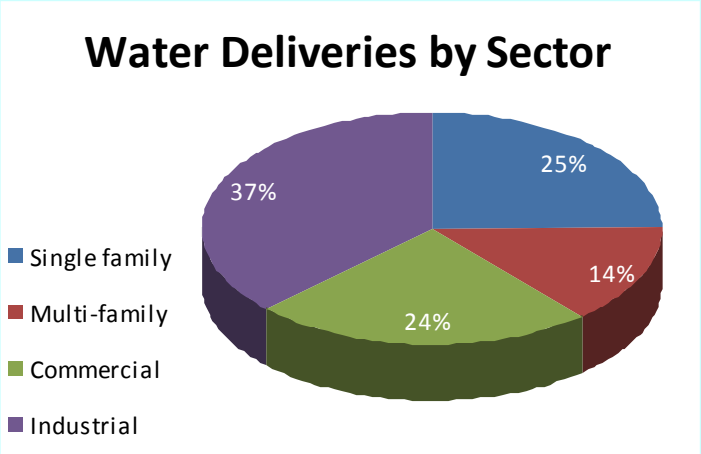
Units: acre-feet per year

3.2.2 Current and Projected Water Use by Sector

In 2010, the City used 9,929 acre-feet of water, as measured by metered sales. Average water deliveries, shown in Figure 3.2.2, are broken down into the following sectors:

- Single Family Residential
- Multi-Family Residential
- Commercial/Institutional/Gov't
- Industrial

Figure 3.2.2 –Water Deliveries



The number of connections and water use are projected for the next 20 years, in five year increments, and are broken down by sector. The future estimations of water use and connections (by sector) are extrapolated based on the current (2010) values, anticipated population growth, and the Interim (2015) and Final (2020) Target Water Use Reduction Goals.

Residential Sector

Tables 3.2.3 – 3.2.6 provide estimates of the current and projected residential water demand for the City of El Segundo. Due to the lack of available space, the City does not have plans for new residential development in the near future. In the next 20 years, some form of residential redevelopment may occur; however, such development is not expected to place a heavy demand on the City's water supply.

Commercial/Institutional/Government Sector

Current and projected water demands for the City's commercial sector are shown in Tables 3.2.3 – 3.2.6.

Industrial Sector

Industrial water demand accounts for a majority of the water use in the City of El Segundo. In 2010, the City distributed approximately 8,615 acre-feet of recycled water to customers within its service area, with industrial users accounting for greater than 95% of the sales. Any new industrial customers would be encouraged to connect to this recycled water line, thereby relieving any large demand on the City's potable water supply.

Landscape Sector

Landscape water use is not separately tracked by the City of El Segundo.

Agricultural Sector

The City of El Segundo does not provide potable water for agricultural uses.

Table 3.2.3
Water Deliveries — Actual, 2010

	2010				
	Metered		Not metered		Total
Water use sectors	# of accounts	Volume	# of accounts	Volume	Volume
Single family	3,279	2,453	0	0	2,453
Multi-family	592	1,363	0	0	1,363
Commercial/Institutional/ Government	479	2,407	0	0	2,407
Industrial	475	3,692	0	0	3,692
Landscape	0	0	0	0	0
Agriculture	0	0	0	0	0
Other	N/A	15	0	0	15
Total	4,825	9,929	0	0	9,929

Units: acre-feet per year

Table 3.2.4
Water Deliveries — Projected, 2015

	2015				
	Metered		Not metered		Total
Water use sectors	# of accounts	Volume	# of accounts	Volume	Volume
Single family	3,381	2,104	0	0	2,104
Multi-family	610	1,169	0	0	1,169
Commercial/Institutional/ Government	494	2,064	0	0	2,064
Industrial	490	3,166	0	0	3,166
Landscape	0	0	0	0	0
Agriculture	0	0	0	0	0
Other	N/A	13	0	0	13
Total	4,976	8,515	0	0	8,515

Units: acre-feet per year

Table 3.2.5
Water Deliveries — Projected, 2020

	2020				
	Metered		Not metered		Total
Water use sectors	# of accounts	Volume	# of accounts	Volume	Volume
Single family	3,487	1,925	0	0	1,925
Multi-family	630	1,070	0	0	1,070
Commercial/Institutional/ Government	509	1,889	0	0	1,889
Industrial	505	2,898	0	0	2,898
Landscape	0	0	0	0	0
Agriculture	0	0	0	0	0
Other	N/A	12	0	0	12
Total	5,131	7,795	0	0	7,795

Units: acre-feet per year

Table 3.2.6
Water Deliveries — Projected 2025 and 2030

	2025		2030	
	metered		metered	
Water use sectors	# of accounts	Volume	# of accounts	Volume
Single family	3,596	1,986	3,708	2,048
Multi-family	649	1,103	669	1,138
Commercial/Institutional/ Government	525	1,948	542	2,009
Industrial	521	2,989	537	3,082
Landscape	0	0	0	0
Agriculture	0	0	0	0
Other	N/A	12	N/A	13
Total	5,291	8,038	5,456	8,289

Units: acre-feet per year

3.2.3. Sales to Outside Agencies

The City of El Segundo does not sell wholesale water to other agencies. Table 3.2.7 is provided to quantify that El Segundo does not intend to sell water to other water agencies within the planning period.

Table 3.2.7
Sales to Other Water Agencies

Water Distributed	2005	2010	2015	2020	2025	2030
Not Applicable	0	0	0	0	0	0
Total	0	0	0	0	0	0

Units: acre-feet per year

3.2.4. Other Water Uses and Losses

Recycled water is delivered to the City by WBMWD through the Edward C. Little Water Recycling Facility (ECLWRF), which treats effluent from the Hyperion Wastewater Treatment Plant, located in Los Angeles. Recycled water is currently used for irrigation and industrial uses. The City of El Segundo does not have plans to expand its current use of recycled water, and total deliveries of recycled water are expected to remain stable throughout the planning period, shown in Table 3.2.8.

Systems losses were estimated by subtracting the total metered deliveries for the year from the total water volume into the system (imported water). The remainder was considered water losses and/or other, unaccounted-for water uses. In 2010, water losses were approximately 6.6%. Projected system losses were estimated based on this average throughout the planning period. The system losses are summarized in Table 3.2.8.

Table 3.2.8
Additional Water Uses and Losses

Water Use	2005	2010	2015	2020	2025	2030
Saline barriers	N/A					
Groundwater recharge	N/A					
Conjunctive use	N/A					
Raw water	N/A					
Recycled water	7,466	8,615	8,750	8,750	8,750	8,750
System losses	510	703	603	552	569	586
Other (define)	N/A					
Total	7,976	9,318	9,353	9,302	9,319	9,336

Units: acre-feet per year

3.2.5 Total Water Demands

The total past, current, and future water demands for the City of El Segundo are summarized in Table 3.2.9.

Table 3.2.9
Total Water Use

Water Use	2005	2010	2015	2020	2025	2030
Total water deliveries (Tables 3.2.2 to 3.2.6)	8,354	9,929	8,515	7,795	8,038	8,289
Sales to other water agencies (Table 3.2.7)	N/A	N/A	N/A	N/A	N/A	N/A
Additional water uses and losses (Table 3.2.8)	7,976	9,318	9,353	9,302	9,319	9,336
Total	16,330	19,247	17,868	17,097	17,357	17,625

Units: acre-feet per year

3.2.6 Lower Income Housing Projections

Urban Water Management Planning Act Requirement:

10631.1(a) The water use projections required by Section 10631 shall include projected water use for single-family and multi-family residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier.

Table 3.2.10 summarizes the lower income water use projections for the City of El Segundo, and the lower income water demands are also included as part of the total residential water demand estimates and projections in Tables 3.2.3 – 3.2.6. The Housing Element Updated of the City of El Segundo's General Plan was used to obtain the lower income housing data, and estimates through 2014 were provided. Demand projections beyond 2014 were estimated based on 2014 values and overall population growth to determine lower income housing needs throughout the entire UWMP planning horizon.

Table 3.2.10
Low-Income Projected Water Demands

Low Income Water Demands	2015	2020	2025	2030
Single-family residential	8	14	21	29
Multi-family residential	8	15	23	31
Total	16	29	44	60

Units: acre-feet per year

3.3 WATER DEMAND PROJECTIONS

Urban Water Management Planning Act Requirement:

10631(k) Urban water suppliers that rely upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for the inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).

The City of El Segundo relies on wholesale water from the West Basin Municipal Water District as its sole source of water. Table 3.3.1 is provided to quantify the district demand projections provided to WBMWD for incorporation into the WBMWD's Urban Water Management Plan.

Table 3.3.1
Retail Agency Demand Projections Provided to Wholesale Suppliers

Wholesaler	2010	2015	2020	2025	2030
WBMWD	9,929	8,515	7,795	8,038	8,289
Total	9,929	8,515	7,795	8,038	8,289

Units: acre-feet per year

3.4 WATER USE REDUCTION PLAN

Urban Water Management Planning Act Requirement:

CWC §10608.29 Urban wholesale water suppliers shall include in the urban water management plans … an assessment of their present and proposed future measures, programs, and policies to help achieve the water use reductions required by this part (10608.36). Urban retail water suppliers are to prepare a plan for implementing the Water Conservation bill of 2009 requirements and conduct a public meeting which includes consideration of economic impacts.

The City of El Segundo has implemented an economical, yet sound, water use reduction plan in order to meet the 20x2020 water use reduction requirements. Options to reduce water demand in the City include:

- Increasing public awareness regarding water conservation requirements and efforts that can be easily implemented to conserve water.
- Continuing to promote and expand the water conservation programs currently in place, including the fourteen Demand Management Measures outline in Section 6.0 of this Plan.
- Reducing the number of illegal connections that withdraw water from the City's distribution system and contribute to the system losses shown in Table 3.2.8.

CHAPTER 4: SYSTEM SUPPLIES

4 SYSTEM SUPPLIES

4.1 WATER SOURCES

Urban Water Management Planning Act Requirement:

10631 (b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a).

The City of El Segundo utilizes both potable and recycled water. The City obtains its potable water from a single source: purchased through the West Basin Municipal Water District (WBMWD), who in turn receives the water through the Metropolitan Water District of Southern California (MWD). In addition to distributing potable water, the City of El Segundo is part of WBMWD's recycled water system. The City delivered 8,615 AF of recycled water in 2010 (calendar year) to 19 customers; however, the majority (over 95%) of this recycled water was distributed to a single customer: the Chevron Refinery located in El Segundo. The City provided a total of 18,544 AF of water to a population of approximately 17,049 in 2010. Due to the slow rising population and the per capita demand reduction required by SBx7-7, projected needed water supplies are expected to decrease accordingly from 2015 to 2030. More information comparing the projected water supply and demand can be found in Chapter 5.

Although the City of El Segundo overlies the West Coast Subbasin, one of the four subbasins of the Coastal Plain of Los Angeles Basin, the City does not anticipate using groundwater as a source of potable water. Currently, the City is 100% dependent on imported water from WBMWD and MWD for its potable water supply. WBMWD's 2010 UWMP identifies a goal to reduce its dependence on imported water by 50% by the year 2020 through diversifying its water sources; namely developing a full scale ocean water desalination plant and expanding recycled water use. Desalination and recycled water will be discussed in more detail below.

The total projected potable and recycled water supplies available to the City through WBMWD are shown in Table 4.1.1. The values reported are based on the demands outlined in Table 3.2.9. Water desalination is not reported in Table 4.1.1 because WBMWD will be the operator of the desalination plant. Although the City of El Segundo may purchase desalinated water, it will be part of the overall purchased water supply from WBMWD, and therefore will be

accounted for in the City's imported water supply and not through desalination.

Table 4.1.1
Water Supplies — Current and Projected

Water Supply Sources	2010	2015	2020	2025	2030
West Basin Municipal Water District	9,929	8,515	7,795	8,038	8,289
Supplier-Produced Groundwater	0	0	0	0	0
Supplier-Produced Surface Water	0	0	0	0	0
Transfers In	0	0	0	0	0
Exchanges In	0	0	0	0	0
Recycled Water	8,615	8,883	9,160	9,446	9,741
Desalinated Water	0	0	0	0	0
Total	18,544	17,398	16,955	17,484	18,030

Units: acre-feet per year

Wholesale Water Supply

Water for use in the City of El Segundo is purchased through the WBMWD. According to its 2010 UWMP, 63% of WBMWD's supply is from imported sources, 21% from groundwater, and the remainder is recycled water, desalination, and conservation efforts. However, WBMWD does not supply groundwater to retail agencies. Rather, agencies within the WBMWD's service area rely on groundwater production to meet a portion of their retail demand.

The majority of water supplied to WBMWD is from MWD as part of the State Water Project (SWP). The SWP is a series of reservoirs, aqueducts, and pumping facilities that convey water from Northern to Southern California. The water for use within the City of El Segundo is collected and delivered to MWD via the SWP and Colorado River and is fully treated at the Weymouth Filtration Plant, where it is then transferred to WBMWD. In 2010, MWD delivered approximately 150,000 AF of water to WBMWD, of which 9,929 AF was sold to the City of El Segundo for distribution.

The City of El Segundo has provided the following estimates for water supplies in order to meet demands. The West Basin Municipal Water District's 2010 Urban Water Management Planned confirmed that the supplies shown in Table 4.1.1 will be available for use by the City of El Segundo.

Table 4.1.1 Wholesale Supplies — Existing and Planned Sources of Water					
Wholesale Sources	**Contracted Volume**	**2015**	**2020**	**2025**	**2030**
West Basin Municipal Water District	Yes	8,515	7,795	8,038	8,289

Units: acre-feet per year

Recycled Water Supply

The City of El Segundo provides recycled water for irrigation throughout the service area. The City of El Segundo's Recycled Water system is discussed in detail in Section 4.5.

4.2 GROUNDWATER

Urban Water Management Planning Act Requirement:

10631 (b)(1) If groundwater is identified as an existing or planned course of water available to the supplier provide…a copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.

10631 (b)(2) If groundwater is identified as an existing or planned course of water available to the supplier provide…a description of any groundwater basin or basins from which the urban water supplier pumps groundwater.

10631 (b)(2) For those basins for which a court or the board has adjudicated the rights to pump groundwater, provide a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree.

10631 (b)(2) For basins that have not been adjudicated, (provide) information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

10631 (b)(3) (Provide a) detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

10631 (b)(4) (Provide a) detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

Groundwater is not a source of potable water to the City of El Segundo, and therefore this section of the UWMP is not applicable. The City of El Segundo leases its 953 AFY of water rights from the adjudicated West Coast Basin to the City of Manhattan Beach, and the City has

no plans to begin pumping groundwater to supplement its supply due to water quality issues resulting from seawater intrusion.

Table 4.2.1 illustrates the amount of groundwater pumped by the El Segundo in the last five years.

Table 4.2.1
Groundwater — Volume Pumped

Basin name(s)	Metered or Unmetered[1]	2006	2007	2008	2009	2010
N/A	N/A	0	0	0	0	0
Total groundwater pumped		0	0	0	0	0
Groundwater as a percent of total water supply		0%	0%	0%	0%	0%

Units: acre-feet per year

4.3 TRANSFER OPPORTUNITIES

Urban Water Management Planning Act Requirement:

10631 (d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

WBMWD and MWD seek out opportunities for water transfer and exchanges to ensure reliability within their respective service areas. Water transfers and exchanges help water suppliers distribute water effectively to areas with limited water supplies. For example, the MWD accepts water through the SWP and Colorado River for distribution throughout Southern California. The City of El Segundo, although not directly involved in the planning of these opportunities, may benefit from additional water supplies as a result of MWD and WBMWD's efforts in securing water transfers and exchanges. Information on new transfer and exchange opportunities to the MWD and WBMWD can be found in the respective 2010 Urban Water Management Plans.

Table 4.3.1
Transfer and Exchange Opportunities

Transfer Agency	Transfer or Exchange	Short Term or Long Term	Proposed Volume
Not Applicable	0	0	0
Total	**0**	0	0

Units: acre-feet per year

4.4 DESALINATED WATER OPPORTUNITIES

Urban Water Management Planning Act Requirement:

10631 (i) Describe the opportunities for development of desalinated water, including but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

The City of El Segundo is not currently exploring the possibility of using desalinated water as a water source independently. However, WBMWD has been testing the feasibility of a seawater desalination plant over the last ten years to determine if desalinated water can be used as a high quality and reliable potable water source. In addition, MWD is also supporting various agencies in determining the feasibility of using desalinated water as a water source. As an end user of water supplied through WBMWD and MWD, the City of El Segundo may receive water, or benefit in other ways (i.e. increased supplies and reliability), as a result of these efforts in discovering the opportunity for seawater desalination. Therefore, a brief description of WBMWD and MWD's efforts in desalination are discussed.

WBMWD Desalination Project

With recent advances in membrane and reverse osmosis technologies, seawater desalination has become cost competitive with MWD imported water, and therefore has become economically feasible. To capitalize on this, WBMWD began a pilot project in 2002 to determine if seawater desalination was technically feasible. The pilot project, which ran for seven years, was located at the El Segundo Power Plant in the City of El Segundo. Using microfiltration pretreatment and reverse osmosis, the plant was capable of desalting approximately 20 gallons per minute of raw ocean water. The goals of the project, as identified by the WBMWD 2010 UWMP, were to identify optimal performance conditions and evaluate the water quality characteristics. Throughout the operation, water quality tests were extensively conducted to determine if the desalinated water met all applicable water quality standards. It was determined that the plant could consistently and reliably produce high quality potable water that met drinking water standards.

The next step towards developing desalinated water was to initiate a full scale project. In 2009, WBMWD received all necessary permits to commence construction on of a full scale desalination plant. Currently, the plant can produce 50,000 gallons per day of potable water (although this is required to be returned to the ocean at this point). This plant will develop a

design basis for future desalination plants that can provide potable water. WBMWD's goal for desalination is to produce 20,000 AFY by 2015.

MWD Desalination Support

In 2001, MWD created the Seawater Desalination Project (SDP) to explore the potential for using seawater as a long term water supply. The SDP provides incentives for its member agencies to develop water through desalination; up to $250 per AF for all produced supplies. Currently, four desalination projects are receiving funding through MWD's SDP program. Each program has been vital in discovering and addressing both the technical and legal challenges associated with constructing a desalination plant. In addition to the WBMWD Desalination Plant described above, the MWD 2010 UWMP reports that the Long Beach and South Orange Desalination Projects are currently in the pilot study process, while the Carlsbad Seawater Desalination Project is in the permitting phase. Table 4.4.1 shows the projected supplies provided by these four water desalination plants. In the coming years, these projects will help to determine the feasibility of using desalinated water for distribution through the City, either by establishing a water desalinating plant or through the purchase of desalinated water through MWD or another source.

Table 4.4.1
Current Desalination Projected Capacities

Project	Member Agency	Projected Capacity (AFY)
Long Beach Seawater Desalination Project	Long Beach Water Department	10,000
South Orange Costal Ocean Desalination Project	Municipal Water District of Orange County	16,000-28,000
Carlsbad Seawater Desalination Project	San Diego County Water Authority	56,000
West Basin Seawater Desalination Project	West Basin Municipal Water District	20,000
Total		102,000-114,000

MWD's current goal is to supply 125,000 AFY of water through seawater desalination by 2025.

4.5 RECYCLED WATER OPPORTUNITIES

Urban Water Management Planning Act Requirement:

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

The City of El Segundo is committed to potable water conservation through the treatment and distribution of recycled water for non-potable uses. This effectively decreases the potable water that must be purchased through WBMWD and MWD, and is a significant part in the statewide effort to conserve and manage potable water resources. Since planning and constructing its recycled water systems in the early 1990's, the West Basin has become an industry leader in water re-use.

The City of El Segundo is part of an integrated water recycling program that includes the retailers and member agencies of the WBMWD. Wastewater is collected from cities throughout the Los Angeles County, including the City of El Segundo, by the Los Angeles County Sanitation District (LACSD). LACSD treats the wastewater from these cities at one of 11 wastewater and water reclamation facilities. Water that meets recycled water standards from these facilities is then sold to various retailers throughout Los Angeles County, or discharged to the ocean.

WBMWD purchases treated wastewater from the Hyperion Wastewater Treatment Plant. Hyperion, located in Los Angles, has served to clean wastewater from Los Angeles County for over 100 years. Throughout its history, Hyperion has been upgraded to meet increasing wastewater treatment demands and all regulatory requirements for treated wastewater. The Hyperion plant does not treat wastewater to recycled water standards; therefore, WBMWD has an agreement to purchased secondary treated wastewater from the Hyperion Plant so that it may be treated further to acceptable recycled water standards. In 2010, WBMWD purchased approximately 38,000 AF of treated wastewater from Hyperion. The wastewater was sent to the Edward C. Little Water Recycling Facility (ECLWRF), a water reclamation plant that can treat effluent from the Hyperion plant to recycled water standards for distribution throughout WBMWD's service area.

The City of El Segundo is part of WBMWD's service area, which includes surrounding Cities in

the Los Angeles County. In 2010, WBMWD distributed 30,384 AF of recycled water. Of this, 63% went to refineries in the area. The remainder went to preserving the seawater barriers and irrigation for parks, schools, golf courses, etc. Over the last ten years, WBMWD has distributed over 270,000 AF of recycled water, preserving potable water supplies for only potable uses.

Urban Water Management Planning Act Requirement:

10633 (a) (Describe) the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

The City of El Segundo maintains its own wastewater division, which is responsible for the collection of wastewater and the maintenance of the sewer system and transportation lines. The sewer system is split into two portions; the portion of the sewer system located to the west of Sepulveda Boulevard flows to the Hyperion Treatment Plant in Los Angeles; while the area to the east of Sepulveda Boulevard flows through the system to Los Angeles County Sanitation District (LACSD) No. 5 and on to LACSD's Carson Treatment Plant. Wastewater is collected and treated by LACSD and WBMWD, and made available to agencies that are capable of utilizing recycled water for beneficial uses.

Upon collection of wastewater from the Cities of Los Angeles County, wastewater initially is sent through bars and screens to remove large solids, such as branches, plastics and rags. Wastewater is then sent to primary treatment. Primary treatment refers to the stage where inorganic particles that could not be removed by the initial screening are removed. In this stage, water is collected in long underground tanks that act similar to a river. Light materials will flow to the top and heavier materials will sink to the bottom. Both the light and heavier materials can be removed and are sent for disposal.

The primary treated water is sent to the second stage: secondary treatment. Secondary treatment acts as a biological treatment step to reproduce what naturally occurs in water treatment in rivers. The same microorganisms that feed on dissolved organic particles during natural water treatment are used in secondary treatment. Cryogenic oxygen from the air is supplied at a concentration of 94% to create an ideal feeding environment for the microorganisms, decreasing the overall time required for treatment. As the microorganisms complete the feeding process, they sink to the bottom and are removed to be reused in another batch of wastewater. After secondary treatment, the wastewater can be discharged to the ocean. The amount discharged from the Hyperion plant is estimated in Table 4.5.2.

Treated wastewater that is not discharged is sent to ECLWRF where it can be treated further to recycled water standards. Here, the wastewater undergoes tertiary treatment, a final stage where water is sent through filters to remove any last suspended particles in the water. The filters contain layers of anthracite coal, sand, and gravel. Once sent through the filters, the water is disinfected. Chlorine from the disinfection process must be removed prior to use. Following the disinfection process and the removal of excess chlorine, water is safe for use and is distributed to the customers of the WBMWD reclaimed water.

Urban Water Management Planning Act Requirement:

10633 (b) (Describe) the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

Once the water is treated, it is either used for recycled water or is discharged to the ocean. The total flow to the Hyperion Wastewater Treatment Plant (including flow from the City of El Segundo) is approximately 340,000 MGD. It is estimated that the water used by the City for non-landscape and irrigation needs will be converted to wastewater, and sent to the Hyperion Wastewater Treatment Plant for treatment. Since El Segundo utilizes recycled water primarily for irrigation, 100% of the potable water used is assumed to be sent to Hyperion for treatment. The projected total wastewater flows for the next 20 years from the City of El Segundo are shown in Table 4.5.1. In addition, Table 4.5.2 shows the amount of treated wastewater expected to be discharged. The Edward C. Little Water Recycling Facility produces approximately 30 MGD, which accounts for approximately 8.8% of the total flow to the Hyperion Wastewater Treatment Plant. The total recycled water collected and treated within the City of El Segundo service area is illustrated in Table 4.5.1 and the non-recycled water disposal is illustrated in Table 4.5.2.

Table 4.5.1
Recycled Water — Wastewater Collection and Treatment

Type of Wastewater	2005	2010	2015	2020	2025	2030
Wastewater collected & treated in service area	8,354	9,929	8,515	7,795	8,038	8,289
Volume that meets recycled water standard	735	874	749	686	707	729

Units: acre feet per year

Table 4.5.2 Recycled Water — Non-Recycled Wastewater Disposal						
Method of Disposal	**Treatment Level**	**2010**	**2015**	**2020**	**2025**	**2030**
Discharge to Ocean	Tertiary	9,055	7,766	7,109	7,331	7,560
	Total	9,055	7,766	7,109	7,331	7,560

Units: acre feet per year

Urban Water Management Planning Act Requirement:

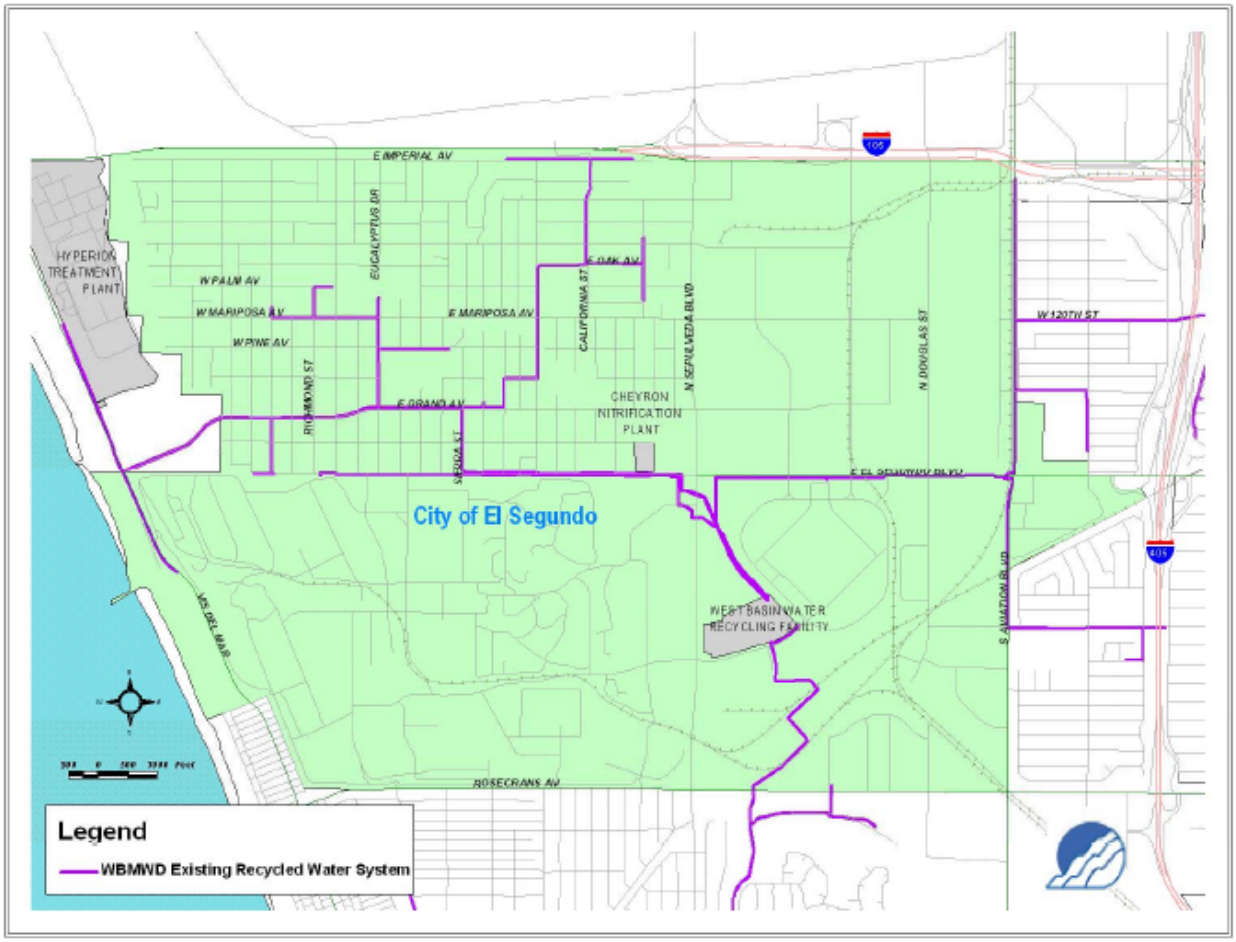
10633 (c) (Describe) the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use

Recycled water is used at 17 sites within the City of El Segundo service area, with a total estimated demand of approximately 8,600 AFY. The largest of these users of recycled water is the El Segundo Chevron Refinery, which uses over 97% of the City of El Segundo's recycled water for irrigation, boiler feed, and cooling towers. The remainder to the recycled water use within the City of El Segundo is used for irrigation of parks, medians, golf courses, etc. Table 4.5.3 shows the City of El Segundo's recycled water customers and the average use of recycled water by percent of total demand. In addition, Figure 4.5.1 shows a map of the recycled water service to the City of El Segundo.

Table 4.5.3 Recycled Water — Potential Future Use (Current Customers)		
Name	**Recycled Water Demand (percent of total)**	**Water use**
Chevron USA	97.43%	Industrial, Irrigation
Equnix Operating., Inc	0.21%	Irrigation
Parks Department	0.46%	Irrigation
City of El Segundo	0.26%	Irrigation
Raytheon	0.25%	Irrigation
El Segundo Power LLC	0.32%	Irrigation
El Segundo Golf Course	0.26%	Irrigation
El Segundo Unified School District	0.17%	Irrigation
Aerospace Corp.	0.24%	Irrigation
Los Angeles Air Force Base	0.14%	Irrigation
Comstock	0.15%	Irrigation

Table 4.5.3 Recycled Water — Potential Future Use (Current Customers)		
Name	**Recycled Water Demand (percent of total)**	**Water use**
El Segundo Association	0.09%	Irrigation
XCEED financial Federal	0.02%	Irrigation
City of El Segundo Fire Station	0.02%	Irrigation
The Edge at Campus El Segundo	0.01%	Irrigation
Khedr Management Co.	0.00%	Irrigation
Park Department Plant #17	0.00%	Irrigation

Figure 4.5.1: City of El Segundo Recycled Water Distribution System



Urban Water Management Planning Act Requirement:

10633 (d) (Describe and quantify) the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

The City of El Segundo does not have any plans to expand its current recycled water system. However, WBMWD released a Capital Implementation Master Plan for Recycled Water Systems in 2009 that identifies expansions to its systems. Although this will not expand the City of El Segundo's recycled water system, it will help increase reliability of both recycled and potable water service in the area, and therefore is briefly discussed below.

The 2009 Master Plan identifies several improvements that can be made to expand WBMWD's recycled water system. These are summarized in WBMWD's 2010 UWMP. Apart from increasing reliability of the distribution system through repairs and corrosion protection, two major expansions are planned that will indirectly help increase reliability to the City of El Segundo. These are:

- ECLWRF Phase V Expansion: Another use of recycled water from ECLWRF is to protect the groundwater supplies from seawater intrusion. This is done by injecting water into near the seawater barrier to maintain its integrity. Today, 75% of water injected to the seawater barrier is recycled water. The Phase V Expansion will expand the capacity of ECLWRF so that 100% recycled water may be used to prevent seawater intrusion. This will reduce the amount of potable water needed, and increase the supply available to WBMWD's purveyors, including the City of El Segundo.
- Hyperion Secondary Effluent Pump Station Expansion: With the increasing demand on ECLWRF, an increase for effluent from Hyperion is also needed. More secondary treated wastewater is necessary to produce recycled water for injection to the West Basin, as well as increased demands through other expansion projects. A pump station expansion at Hyperion would be able to provide a capacity of up to 70 MGD for ECLWRF. Although this project does not increase the supply to the City of El Segundo, it does increase the reliability of supply by ensuring that ECLWRF will be able to produce enough recycled water for its recycled water customers.

The City of El Segundo does not currently plan to expand recycled water use within its service area. This is summarized in Table 4.5.4.

Table 4.5.4
Recycled Water — Potential Future Use

User type	Description	Feasibility	2015	2020	2025	2030
Agricultural irrigation			0	0	0	0
Landscape irrigation			0	0	0	0
Commercial irrigation[3]			0	0	0	0
Golf course irrigation			0	0	0	0
Wildlife habitat			0	0	0	0
Wetlands			0	0	0	0
Industrial reuse			0	0	0	0
Groundwater recharge			0	0	0	0
Seawater barrier			0	0	0	0
Geothermal/Energy			0	0	0	0
Indirect potable reuse			0	0	0	0
Total			0	0	0	0

Units: acre-feet per year

Urban Water Management Planning Act Requirement:

10633 (e) (Describe) the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

Table 4.5.5 compares the 2010 projected recycled water use from the 2005 UWMP to the actual 2010 use. It can be seen that the actual use surpassed the expected use. This is due largely to annual variation in use of recycled water at the Chevron Refinery. Although the 2005 Plan identified a use of 8,100 AF for 2010, it was not broken down by sector, rather lumped together as one recycled water demand. Therefore, these vales cannot be reported. However, the actual 2010 recycled water use by sector is reported, and the total use can be compared.

Table 4.5.5
Recycled Water — 2005 UWMP Use Projection Compared to 2010 Actual

Use type	2010 Actual Use	2005 Projection for 2010
Agricultural irrigation	8,393	-
Landscape irrigation	199	-
Commercial irrigation	0	-
Golf course irrigation	23	-
Wildlife habitat	0	-
Wetlands	0	-
Industrial reuse	0	-
Groundwater recharge	0	-
Seawater barrier	0	-
Geothermal/Energy	0	-
Indirect potable reuse	0	-
Total	8,615	8,100

Units: acre-feet per year

Urban Water Management Planning Act Requirement:

10633 (f) (Describe the) actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.

The City of El Segundo, WBMWD, and MWD encourage recycled water use among its customers. One of the most compelling reason ways to encourage the use of recycled water is through the use of financial incentives. Recycled water is available at anywhere from a 21-25% discount to customers who use it over potable water. This allows financial savings while encouraging water conservation. In addition, the WBMWD also encourages the use of recycle by emphasizing the benefits of recycled water to its customers. Among these benefits include the increased reliability and the use of recycled water being consistent with the statewide goals for water conservation. WBMWD notes that, even during a drought, wastewater will still be produced and must be treated to recycled water standards.

WBMWD will also advance funds necessary for retrofitting existing potable connections for use with recycled water. WBMWD realizes that the capital costs associated with this retrofitting may be unavailable. To prevent this from hindering the use of recycled water at these sites, WBWMD will retrofit the existing system and allow monthly reimbursement for advanced funds.

Although these incentives are available, currently there are no planned expansions for the City of El Segundo's recycled water system. This is shown in Table 4.5.5.

Table 4.5.6
Methods to Encourage Recycled Water Use

Actions	Projected Results				
	2010	2015	2020	2025	2030
Financial Incentives	0	0	0	0	0
Total	0	0	0	0	0

Units: acre-feet per year

In addition to the City of El Segundo and WBMWD incentives, MWD also has an extensive incentive program for encouraging the use of recycled water among its member agencies. Please refer to the Metropolitan Water District of Southern California 2010 UWMP for more information.

Urban Water Management Planning Act Requirement:

10633 (g) (Provide a) plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

The 2009 Capital Implementation Master Plan for Recycled Water Systems describes WBMWD's plans to expand the recycled water system. However, the City of El Segundo does not anticipate expansions to its own recycled water system. WBMWD is currently working on projects (e.g. the ECLWRF Phase V Expansion and the Hyperion Secondary Effluent Pump Station Expansion projects described above) to increase the use and reliability of recycled water within its service area.

4.6 FUTURE WATER PROJECTS

Urban Water Management Planning Act Requirement:

10631 (h) (Describe) all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635.

Currently, the City of El Segundo does not have any planned projects that will diversify or expand the water supply available to the City. The City of El Segundo has determined that with the pumping groundwater is not a viable option for diversifying its water supply. Instead, the City anticipates that all potable water will be provided through WBMWD, which has been determined to be high quality and reliable.

WBMWD is diversifying its water sources to meet its goal of reducing imported water from the region through MWD by 50% by the year 2020. This will be done through the development of ocean water desalination and expanding its recycled water system. For more information on how WBMWD plans to meet this goal, please see the WMBWD 2010 UWMP in Appendix E.

Table 4.6.1
Future Water Supply Projects

Project Name	Start & End Date	Potential Project Constraints	Normal -year supply	Single-dry year supply	Multiple -dry year first year supply[3]	Multiple -dry year second year supply[3]	Multiple -dry year third year supply[3]
N/A	N/A	N/A	0	0	0	0	0
Total			0	0	0	0	0

Units: acre-feet per year

CHAPTER 5: WATER SUPPLY RELIABILITY & WATER SHORTAGE CONTINGENCY PLANNING

5 WATER SUPPLY RELIABILITY & WATER SHORTAGE CONTINGENCY PLANNING

5.1 Water Supply Reliability

Urban Water Management Planning Act Requirement:

10620(f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

Water supply reliability includes the availability of the water purchased through the West Basin Municipal Water District (WBMWD), the availability of supply through the Metropolitan Water District of Southern California (MWD) via the State Water Project (SWP), and the supply and distribution system that makes up the City of El Segundo's recycled water supply. Each of these sources is considered to be a reliable water supply to the City. Currently, the City of El Segundo is not trying to reduce its dependence on imported water from the WBMWD because it does not view pumping water from the West Basin as a reliable source of water. WBMWD imported water is the most reliable supply available to the City for this reason.

Since all of the City of El Segundo's water supply (both potable and recycled) is provided by WBMWD, which in turn is provided through MWD and the SWP, the reliability analysis for this water source will be heavily dependent on the reliability analyses of these agencies. Although the City is dependent on these sources to provide a reliable water supply, the City also works with the WBMWD to ensure water reliability in the future. As it is not feasible for the City of El Segundo to use groundwater as a water source due to quality issues and the adjudication agreement that allows minimal pumping rights to the City, the City of El Segundo will continue to work with WBMWD to ensure that the necessary improvements are made to ensure a high quality and reliable source of water.

Urban Water Management Planning Act Requirement:

10631(c)(2) For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.

Currently, the only source of potable water that the City of El Segundo utilizes is wholesale distributed water through WBMWD. Additional water supplies are obtained by treating wastewater and using it as recycled water for irrigation purposes only.

Table 5.1.1
Factors Resulting in Inconsistency of Supply

Water Supply Sources	Legal	Environmental	Water Quality	Climatic	Additional information
WBMWD Wholesale Water			✓		N/A
Recycled Water			✓		N/A

Units: acre-feet per year

5.1.2 WBMWD Wholesale Water

WBMWD identified that its water supply to the City is considered reliable and sufficient to meet demand. However, the reliability of the supply is dependent on the water quality delivered by the SWP to MWD. In general, the SWP quality has been considered good, with delivered water meeting the state threshold requirements. But as seawater intrusion into the Bay-Delta increases, water quality can be diminished. In addition, as water moves through the Bay-Delta, levels of total organic carbon and bromide are likely to increase. Water quality can also be affected by the amount of wastewater that is disposed, as this provides a means for the transportation of salts and pathogens to clean water supplies. To prevent these water quality issues from affecting the overall reliability of supply, water quality analyses are conducted throughout the delivery process and at the water treatment plants to ensure water is safe prior to delivery. Furthermore, state regulatory factors have included biological assessments affecting the amount of water delivered from the Delta to the SWP system to prevent degradation of water quality from the Delta. MWD, WBMWD, and the City of El Segundo are diligent in identifying poor water quality and acting immediately to ensure it is treated properly to ensure a clean source of potable water. Please see Section 5.3 for more information regarding water quality.

5.1.3 Recycled Water

Recycled Water is treated to the tertiary level, as described in Chapter 4. This water supply is also deemed reliable. Similar to the City of El Segundo's potable water supply, water quality issues have the potential to impact reliability and threaten the supply of recycled water.

The process of treating and distributing wastewater and recycled water can be hazardous due to harmful bacteria and waste contents in the water. Due to this, the industry must meet water quality standards set forth by regulating agencies. These standards are prone to change as new issues develop; in response to these changing standards, recycled water treatment plants must adapt to the regulations and modify the process as necessary to ensure that water can continually be delivered to its customers. The wastewater collection and recycled water distribution systems between the Los Angeles County Sanitation District (LACSD), WBMWD, and the City of El Segundo to deliver recycled water ensures that all aspects of distributing safe and reliable recycled water are met, and that high quality recycled water is delivered to its customers for non-potable use. LACSD and WBMWD are also receptive to any changes that must be made in the treatment or distribution process to ensure compliance with all water quality standards and that water is safe for irrigation use.

5.2 Water Shortage Contingency Planning

Urban Water Management Planning Act Requirement:

10632(c) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.

Catastrophic failures that put the water supply at risk include fires and earthquakes that could damage the infrastructure to the water distribution system. In the event of a catastrophic event that prevents the City from obtaining water for distribution, WBMWD implements actions and methods to continue supplying water to customers of its member agencies. Water reserves are available to MWD through Diamond Lake, as well as other surface reservoirs, and it is estimated that MWD could provide full supply for up to six months for all of its service areas following a catastrophic event that disrupts the supply of water. In addition, methods to ensure that water is continually supplied to the customers include stockpiling emergency pipeline repair materials and coordinating with the California Emergency Management Agency (Cal EMA) and Emergency Operations Center (EOC) in the event of a catastrophic disruption of supply.

Any effect seen by the WBMWD during a catastrophic event would impact the water supply to the City. As a result, the City is subject to the actions and rationing of WBMWD. During any kind of catastrophic event that disrupts the water supply, including a regional power outage or an earthquake, the City of El Segundo in conjunction with WBMWD and MWD are prepared to continue providing a reliable source of water.

5.2.1 Regional Power Outage

The City has identified the possibility of a regional power outage and its effect on the water supply. Currently, the City of El Segundo Water Division does not have back-up generators. If a regional power outage were to occur, then the two electric pumps would become disabled. However, El Segundo has a natural gas pump, which has a greater pumping capacity than both electric pumps combined. The electric pumps operate at a maximum rate of 2000 gallons per minute (GPM), while the natural gas pump operates at 5000 GPM. If a major earthquake or other catastrophic incident caused a regional power outage and a natural gas line break, but the water distribution lines were still intact, the City of El Segundo would be able to provide water to its customers and its emergency interties (i.e. LADWP, City of Manhattan Beach, and California Water Service Company). Water Division operations personnel can change valve positions and directly operate the water system from Metropolitan Water District of Southern California's

(Metropolitan) water pressure. The City of El Segundo is adequately prepared in the event of a regional power outage. Additionally, the City of El Segundo Water Division is planning on purchasing a generator to increase their preparedness for a regional power outage.

In addition, to ensure the imported water supply is made available, MWD has backup generation at its facilities, as well as the ability to employ gravitational flow from regional reservoirs such as Lake Mathews, Castaic Lake, and Silverwood Lake. Mobile generators are also available as needed.

5.2.2 Earthquake

In the event of a catastrophic earthquake, the City can coordinate with MWD and WBMWD to ensure that any damaged lines are repaired as necessary to continue distributing water. In this event, MWD would activate its Emergency Operation Center (EOC) to quickly respond to emergencies and provide emergency services to its customers. The goal of the EOC is to identify leaks and other weaknesses in the system following a catastrophic earthquake, and to quickly isolate the problem in order to reduce wasted water and provide a potable water supply to the population. In a worst-case scenario that caused the City of El Segundo's water reservoirs to rupture, water service could continue by aligning the supply system so that it is supplied by MWD pressure.

With population growth, energy shortages, earthquakes, and the threat of terrorism experienced by California, maintaining the gentle balance between water supply and demand is a complicated task that requires planning and forethought. In the event that a water shortage occurs, simple measures can be implemented to conserve the water supply at a public level. Below, stages are discussed during which various conservation measures will be imposed by the City.

Table 5.2.1
Water Shortage Contingency — Rationing Stages to Address Water Supply Shortages

Stage No.	Water Supply Conditions	% Shortage
Mandatory Water Conservation	Applies at all times, to prevent water waste and unnecessary water use.	0%
Stage 1: Water Watch	Applies during periods when the possibility exists that the City of El Segundo will not be able to meet all of the water demands of its customers.	0%-15%

Table 5.2.1
Water Shortage Contingency — Rationing Stages to Address Water Supply Shortages

Stage No.	Water Supply Conditions	% Shortage
Stage 2: Water Alert	Applies during periods when the probability exists that the City of El Segundo will not be able to meet all of the water demands of its customers.	15%-25%
Stage 3: Water Warning	Applies during periods when the City of El Segundo will not be able to meet all of the water demands of its customers.	25%-35%
Stage 4: Water Emergency	Applies when a major failure of any supply or distribution facility, whether temporary or permanent, occurs in the water distribution system of the State Water Project, Metropolitan Water District of Southern California, West Basin Municipal Water District, or El Segundo facilities	35%-50%

Urban Water Management Planning Act Requirement:

10632(d) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.

10632(e) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.

To prevent water waste and excessive consumption, the City has in place a Water Conservation Ordinance: Ordinance No. 1433. The Water Conservation Ordinance outlines mandatory restrictions on water use within the City of El Segundo, as described below. A copy of Ordinance No. 1433 can be found in Appendix F.

In the event of a significant reduction of water supply, the City has several stages of actions to take and policies to implement to minimize the impacts of water shortage, prepare for an increase in shortage, and attempt to conserve water to prevent further shortage. The City has adopted a Water Shortage Contingency Plan as part of its Municipal Code. The Water Shortage Contingency Plan describes the measures to take in the event of a water shortage, including different stages of action corresponding to different levels of drought. The Water

Shortage Contingency Plan can be found in Appendix G. Table 5.2.2 provides an overview of the mandatory prohibitions and the consumption reduction methods the City will implement to compensate for the water shortage.

Table 5.2.2

Water Shortage Contingency — Mandatory Prohibitions

Examples of Prohibitions	Phase When Prohibition Becomes Mandatory
Mandatory Water Conservation	In effect at all times
Voluntary use reduction	Stage 1
Operating Ornamental Fountains	Stage 2
Watering Lawns and Landscapes	Stage 2
Using Water for Agriculture and Nurseries	Stage 2
Issuing New Meters	Stage 3
Washing Vehicles	Stage 3
Filling Artificial Water Sources	Stage 4
Using Air Conditioning	Stage 4

Mandatory Water Conservation

At all times within the City of El Segundo, regardless of water shortage conditions, the following water conservation measures are in effect:

- **Repair of Plumbing, Sprinkler, and Irrigation System:** Responsible persons must, as soon as practicable, but not later than forty-eight (48) hours after such person first discovers water leaks, commence repair of any leaking pipes, faucets, plumbing fixtures, other water service appliances, sprinklers, watering or irrigation systems, or distribution systems and promptly complete such repair work, unless a waiver is obtained from the City.
- **Watering/Irrigation:** Except as otherwise provided in Section 10-5-5 of the Mandatory Water Conservation Ordinance (see Appendix F), it is unlawful for any person water their lawn or landscaping or permit their lawn or landscaping to be watered between the hours of nine (9.00) AM and five (5:00) PM. It is unlawful for any person to water their lawn or landscaping or permit their lawn or landscaping to be watered for a period longer than fifteen (15) minutes per station each day.

- **Miscellaneous Restrictions:** The following are unlawful for any person:

  A. Allowing grass, lawns, groundcover, shrubbery, and open ground to be watered at any time while it is raining.

  B. Operating landscape irrigation system(s) that allow overspray or excess runoff onto impervious surfaces (such as sidewalks, driveways, v-ditches, gutters, and roadways).

  C. To use a water hose to wash any vehicle including, without limitation, cars, trucks, boats, trailers, recreational vehicles, or campers, or any other aircraft, tractor, or any other vehicle, or portion thereof, unless the hose is equipped with an automatic shutoff nozzle. Except for individual residential vehicle washing, all wash water from vehicle washing/cleaning activity must be prevented from discharging to the stormwater drainage system.

- **Commercial Car Washes:** It is unlawful for commercial car wash facilities to permit the washing of any boat or vehicle in such facility or on its premises, other than by the following methods:

  A. Use of mechanical automatic car was facilities utilizing water recycling equipment or utilizing recycled water;

  B. Use of a hose that operates on a timer for limited time periods and shuts off automatically at the expiration of the time period;

  C. Use of a hose equipped with an automatic shutoff nozzle; or

  D. Use of buck and hand washing

  In addition, all wash/rinse water must be captured and recycled or discharged into the sanitary sewer system. All new commercial conveyor car wash facilities must be equipped with a water recycling system.

- **Washing of Equipment and Machinery:** It is unlawful for any person to use a water hose to wash any type of equipment or machinery, or any portion thereof, unless the hose is equipped with an automatic shutoff nozzle. All wash water from such washing/cleaning activity must be prevented from discharging to the stormwater drainage system.

- **Cleaning of Structures:** It is unlawful for any person to use water through a hose to clean the exterior of any building or structure unless such hose is equipped with a

shutoff nozzle. All wash water from such activity must be prevented from discharing to the strormwater drainage system.

- **Cleaning of Surfaces:** It is unlawful for any person to use water through a hose to clean any sidewalk, driveway, roadway, parking lot, or any other outdoor paved or hard surfaced area, unless all wash water from such activity is prevented from discharging to the stormwater drainage system.
- **Water Spillage:** Every person must minimize water spillage into streets, curbs, or gutters, and minimize runoff beyond the immediate area of use. Every person is deemed to have under his/her control at all times his/her water distribution lines and facilities, and to know the manner and extent of his/her water use and excess runoff.
- **Swimming Pools and Spas:** It is unlawful for any person to empty and refill a swimming pool or spa except to prevent or repair structural damage or to comply with public health regulations. Discharge of pool water, other than directly to the sanitary sewer system, must be consistent with this Code with regard to stormwater. Discharge of pool filter backwash water to the stormwater drainage system is prohibited. All pools and spas must be equipped with a water recirculation device. The use of a pool/spa cover is encouraged to prevent evaporative water loss.
- **Fountains, Decorative Basins, Ponds, Waterways:** It is unlawful for any person to use water to operate or maintain levels in decorative fountains, basins, ponds, and waterways unless a recirculation device is in use. Discharge of water, other than directly to the sanitary sewer system, must be consistent with this Code with regard to stormwater. Discharge of filter backwash water to the stormwater drainage system is prohibited.
- **Cooling Systems:** No single pass cooling systems are permitted in new connections.
- **Commercial Laundry Facilities:** New commercial laundry facilities must be equipped with a water reclamation system for rinse water.
- **Visitor-Serving Facilities:** The owner and manager of each hotel, motel, restaurant, and other visitor-serving facility must ensure that such facility displays, in places visible to all customers, placards or decals approved by the City, promoting public awareness of the need for water conservation and/or advising the public that waste of water is prohibited.
- **Restaurants:** Restaurants in the City cannot serve water to restaurant customers, except upon request of the customer.

- **Construction:**

  A. It is unlawful to use potable water for compacting or dust control purposes in construction activities where there is a reasonably available source of recycled or other non-potable water approved by the California State Department of Health Services and appropriate for such use.

  B. All water hoses used in connection with any construction activities must be equipped with an automatic shutoff nozzle when an automatic shutoff nozzle can be purchased or otherwise obtained for the size or type of hose in use.

- **Use of Hydrants:** It is unlawful for any person to utilize any fire hydrant for any purpose other than fire suppression or emergency aid, without first obtaining written approval from the City Manager, or designee.

- **Indiscriminate Use:** It is unlawful for any person to cause or permit the indiscriminant running of water not otherwise prohibited by the Mandatory Water Conservation Ordinance which is wasteful and without reasonable purpose.

Stage 1 Water Supply Shortage (15% voluntary reduction)

When the City declares a Phase I water supply shortage, it is because it anticipates that, due to drought or other events, the City's water supply is uncertain. A Phase 1 Shortage calls for citizens to voluntarily reduce water consumption by 15%.

Stage 2 Water Supply Shortage (25% reduction)

The following water conservation mechanisms become mandatory when the City of El Segundo declares a Stage 2 Water Supply Shortage:

- Water shall not be used to wash down sidewalks, driveways, parking areas, tennis courts, patios, or other paved areas, except to alleviate immediate fire or sanitation hazards.

- No person shall use water to clean, fill, or maintain levels in decorative fountains, ponds, lakes, or other similar aesthetic structures unless such water is part of a recycling system or from a storm drain system.

- No person shall water any lawn, landscape, or other turf area between the following hours: 7:00 AM – 6:00 PM during PDT and 7:00 AM to 3:00 PM during PST. This restriction does not apply to commercial nurseries, golf courses, and other water-dependent industries.

- No operator or owner of a commercial nursery, golf course, or other water-dependent industry shall water any lawn, landscaping, or other turf area between the hours of 6:00 AM and 6:00 PM. There shall be no restriction on watering with reclaimed water. This restriction does not apply to the watering of plant materials classified to be rare, exceptionally valuable, or essential to the wellbeing of rare animals.

Stage 3 Water Supply Shortage (35% reduction)

In addition to the conservation requirements of a Stage 2 Water Supply Shortage, the following water conservation mechanisms become mandatory when the City of El Segundo declares a Stage 3 Water Supply Shortage:

- New construction meters or permits for unmetered service will not be issued. Construction water shall not be used for earth work or road construction purposes.
- No person shall wash any motor vehicle, trailer, boat, or other type of mobile equipment, except with a hand-held bucket or a hose equipped with a positive shutoff nozzle for quick rinses. Except that washing is permitted at any time on the immediate premises of a commercial car wash. The use of water by all types of commercial car washes not using partially reclaimed or recycled water shall be reduced in volume by 20%. Further, such washing are exempted from these regulations where health, safety, and welfare of the public is contingent upon frequent vehicle cleaning, such as garbage trucks and vehicles used to transport food and perishables.
- No person shall water any residential lawn, landscaping, and other turf areas at any time except by hand-carried bucket. This restriction does not apply to commercial nurseries, golf courses, and other water-dependent industries.
- Irrigation of commercial nurseries, golf courses, or other water-dependent industries shall be restricted to no more than twice during a seven day period. The irrigation shall be prohibited during the hours of 6:00 AM to 6:00 PM. There shall be no restriction on watering with reclaimed water. There shall be no restriction on watering with reclaimed water. This restriction does not apply to the watering of plant materials classified to be rare, exceptionally valuable, or essential to the wellbeing of rare animals.

Stage 4 Water Supply Shortage (50% reduction)

In addition to the conservation requirements of a Stage 3 Water Supply Shortage, the following water conservation mechanisms become mandatory when the City of El Segundo declares a Stage 4 Water Supply Shortage:

- No person shall wash any motor vehicle, trailer, boat, or other type of mobile equipment, except with a hand-held bucket or a hose equipped with a positive shutoff nozzle for quick rinses. Except that washing is permitted at any time on the immediate premises of a commercial car wash. The use of water by all types of commercial car washes not using partially reclaimed or recycled water shall be reduced in volume by 50%. Further, such washing are exempted from these regulations where health, safety, and welfare of the public is contingent upon frequent vehicle cleaning, such as garbage trucks and vehicles used to transport food and perishables.
- Residential landscaping shall be restricted to water only permanent trees and shrubs with a hand carried bucket or drip irrigation system once during a seven day period during the months of June, July, August, and September, and prohibited during the hours of 7:00 AM to 6:00 PM. Residential landscape irrigation shall be restricted to watering only permanent trees and shrubs with a hand carried bucket or drip irrigation system once during a fourteen day period during the months of October, November, December, January, February, March, April, and May, and prohibited during the hours of 7:00 AM to 3:00 PM. This restriction does not apply to commercial nurseries, golf courses, and other water-dependent industries.
- Irrigation of commercial nurseries, golf courses, or other water-dependent industries shall be restricted to once during a seven day period and prohibited during the hours of 6:00 AM to 6:00 PM. There shall be no restriction on watering with reclaimed water. This restriction does not apply to the watering of plant materials classified to be rare, exceptionally valuable, or essential to the wellbeing of rare animals.
- Filling or refilling swimming pools, spas, ponds, and artificial lakes is prohibited.
- No water shall be used for air conditioning purposes.

Water Shortage Allocation

During advanced stages of water shortage, the City of El Segundo places mandatory allocation constraints requiring a percent consumption reduction. Individual allotments are based on a "basic use" as administratively determined by the City Manager. Exceptions are made for residential customers with 5/8", 3/4", or 1" meters which are not required to use less than a set daily equivalent per two month billing period. Reductions for each phase are outlined below:

Stage 2: 20 percent reduction from the set allocation **OR** no more than the daily equivalent of 24 hundred cubic feet (hcf) per two month billing period,

Stage 3: 30 percent reduction from the set allocation **OR** no more than the daily equivalent of 21 hcf per two month billing period,

Stage 4: 50 percent reduction from the set allocation **OR** no more than the daily equivalent of 15 hcf per two month billing period.

Wholesale Water Shortage Contingency Plans

Since the City of El Segundo receives its imported water supplies from the WBMWD and MWD, the City is also subject to the Water Shortage Contingency Plans of these Districts. Each District has water rationing stages and a Water Shortage Contingency Plan that specifies the actions to be taken during a water shortage of 50% or greater. In the event that a water shortage becomes severe and a 50% reduction in use is necessary, the City of El Segundo will comply with the conservation measures as provided by the WBMWD and MWD Water Shortage Contingency Plans. More information on the WBMWD and MWD Water Shortage Contingency Plans can be found in the respective 2010 Urban Water Management Plans of the Districts.

Urban Water Management Planning Act Requirement:

10632(f) Penalties or charges for excessive use, where applicable.

In the case of a water supply shortage, violators of the Mandatory Water Conservation Ordinance and Water Shortage Contingency Plan can face a maximum of fine of $70 for a single violation. Table 5.2.3 describes the penalties associated with single and recurring violations, which are outlined in the ordinance.

Table 5.2.3
Water Shortage Contingency — Penalties and Charges

Violation	Phase When Penalty Takes Effect	Penalty or Charge
1st Failure to Comply	Stage 2	Written Warning
2nd Failure to Comply	Stage 2	$35 and installation of a flow restricting device
3rd Failure to Comply	Stage 2	$70 and discontinued water service

Urban Water Management Planning Act Requirement:

10632(g) An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f) inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

During a water shortage, revenue is expected to decrease due to a reduction in water sales. Furthermore, expenditures would be expected to increase due to the necessary marketing of water conservation methods to reduce water use and potential increases in water purchased from WBMWD and MWD. In the event that expenditures significantly outweigh revenue, the City has the authority to increase water use rates or impose a water fee surcharge during times of drought. The results of this would be two-fold: bringing in additional revenue with similar sales while simultaneously discouraging water waste. The City also has a tiered rate structure for both potable and recycled water use. By this system, consumers rates increase with increased water consumption. These options allow the City to respond quickly to funding issues accompanied with a drought situation.

Urban Water Management Planning Act Requirement:

10632(h) A draft water shortage contingency resolution or ordinance.

Ordinance No. 1433, the Mandatory Water Conservation Ordinance and the Water Shortage Contingency Plan which describes the actions to be taken to conserve water both during times of normal supply and during droughts, can be found in Appendix F and G, respectively.

5.3 Water Quality

Urban Water Management Planning Act Requirement:

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

Each source of water for the City of El Segundo presents its own, unique water quality issues. These issues are presented below.

5.3.1 WBMWD Wholesale Water

The water quality issues associated with the water supply to the City are the same as quality issues experienced by WBMWD, and similar to those experienced by MWD. MWD has identified threats to the water quality of water supplied through the Colorado River and the State Water Project. MWD reports that increased salinity and chemicals (e.g. chromium VI, etc.) in the water it is supplied with, as a theoretical water quality event, will cause at most a 15% reduction in supply. However, MWD also noted if concentrations of these contaminants exceed the potable water quality threshold, tactics such as utilizing only small amounts of the affected water and blending it with potable, processed water would reduce the concentration to treatable and acceptable levels. The MWD has stated that it "anticipates no significant reductions in water supply availability from [the Colorado River, State Water Project, and local groundwater] sources due to water quality concerns over the study period."

The City realizes the importance of constantly assuring that the water it distributes meets potable water stands. Although there are no water quality issues that immediately threaten the supply to the City's customers, the City maintains knowledge of water quality issues to prevent water of poor quality from being distributed. Following are a description of the most pertinent issues of concern.

Salinity

Increased salinity in the water received from the Colorado River has required MWD to utilize one of the tactics described above: blending SWP water with Colorado River water to reduce the overall salinity concentration. Although this has not caused water supply shortages, if salinity levels continue to increase, additional membrane treatment of water from the Colorado

River may be required. This will slow the water purification process down, and could result in up to a 15% reduction in water supply.

To prevent a reduction in supply, MWD has established a Salinity Management Policy, which sets the goal of delivering water with less than 500 mg/L of total dissolved solids (TDS). Generally, this has caused issues with only the Colorado River; the SWP has historically been observed to have significantly lower salinity levels.

Chromium VI (Hexavalent Chromium)

While currently there is no drinking water standard for Chromium VI, the OEHHA established a draft PHG for chromium VI in drinking water. The draft proposes a PHG of 0.02 ppb Chromium VI in drinking water. However, the development of the PHG is indicative of future potential standards for drinking water. MWD utilizes analytical testing to ensure that Chromium VI levels do not exceed the current standard. In the event that the Chromium VI standards are reduced, MWD would not have to change its testing method, as the current minimum threshold for its analytical testing is below the proposed concentration threshold.

MWD records of Chromium VI content reveal that, if more stringent goals are implemented, additional treatment of SWP water may be required as levels have historically been noted to exceed the proposed PHG. The draft released by OEHHA on December, 31 2010 states that the PHG of 0.02 ppb is intended to be a "stringent health-protective goal" as opposed to a "maximum 'safe' level of chromium 6 in drinking water." In contrast to SWP water, water from the Colorado River has historically been recorded as generally having undetectable levels of Chromium IV.

Perchlorate

Another interest MWD is the contamination of perchlorate, a component in solid rocket fuels, which has been detected in water from the Colorado River and its groundwater sources. A chemical manufacturing facility owned by Tronox, Inc. in Henderson, NV was found to be the source of perchlorate contamination in water from the Colorado River. Tronox is responsible for perchlorate remediation ate the site. In addition, perchlorate is present in the groundwater basins in the Southern California area due to solid rocket fuels testing during the 1950's and 1960's. Perchlorate contamination provides challenges due to the difficulty to remove from water, and will always require that additional treatment specifically for perchlorate is performed. Due to clean up activities, MWD has reported a 90% reduction in perchlorate loading of Colorado River water. Perchlorate concentrations are now recorded at less than 2 µg/L since 2006; below the California Department of Public Health (CDPH) threshold of 6 µg/L. Perchlorate has not been observed above contamination levels in the City of El Segundo.

In January 2011, the California Office of Environmental Health Hazard Assessment (OEHHA) released a draft public health goal (PHG) of 1 part per billion (ppb), reduced from 6 pbb, for perchlorate in drinking water, further emphasizing the importance treating the water contaminated with perchlorates.

Table 5.3.1 indicates the potential impacts of water quality on the City's water supply, as identified by WBMWD and MWD.

5.3.2 Recycled Water

In addition to affecting the potable water supply, similar water quality issues also affect the recycled water supply. High levels of contaminants (e.g. TDS) in wastewater may require additional treatment to ensure that safe and reliable recycled is delivered to its users. Since recycled water is used primarily for industrial and irrigational purposes within the service area of both the City of El Segundo and the WBMWD, the effects of poor quality recycled water would be on industrial equipment and crop and plant yields. High contamination levels in industrial water could result in scaling and inefficiencies in the processes for which it is applied. In addition, high levels of contamination in recycled water for irrigation can be harmful to plant life and could prevent growth. If this were to occur, additional and more expensive wastewater treatment may be necessary.

The LACSD and WBMWD do not anticipate any issues with recycled water quality. The WBMWD constantly monitors the water quality of the recycled water sold to end users from ECLWRF to ensure that it meets all standards. Furthermore, the stringent salinity requirements, and other water quality standards for potable water being delivered to customers further reduces the likelihood that poor quality recycled water will be delivered. The City of El Segundo does not anticipate having any issues with recycled water quality that would be harmful, or in any way cause an increase in potable water use.

Table 5.3.1 summarizes the expected impacts of water quality on the reliability of water supply.

Table 5.3.1
Water Quality — Current and Projected Water Supply Impacts

Water source	Description of condition	2010	2015	2020	2025	2030
WBMWD Potable Water	No water quality issues expected	0	0	0	0	0
WBMWD Recycled Water	No water quality issues expected	0	0	0	0	0

Units: acre-feet per year

5.4 Drought Planning

Urban Water Management Planning Act Requirement:

10631(c)(1) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following: (A) an average water year, (B) a single dry water year, (C) multiple dry water years.

All potable water supplies are provided through the WBMWD which is supplied through the MWD and the SWP. Since the supply is not directly obtained by the City of El Segundo, the determination of reliability will largely be determined by WBMWD and MWD analyses to provide a consistent water supply to the City during normal, single dry, and multiple dry years. Although the City of El Segundo does not obtain its water directly from a natural source (e.g. groundwater or surface water), it is committed to reducing water demand during times of drought in order to conserve water and improve reliability for future water supplies.

Table 5.4.1 identifies the normal, single dry, and multiple dry water years chosen to represent the water supply for supply from WBMWD:

Table 5.4.1
Basis of Water Year Data

Water Year Type	Base Year(s)
Average Water Year	1999
Single Dry Water Year	2001
Multiple Dry Water Years	2001-2003

During these years, the percent of supply that was available to the public for use is summarized in Table 5.4.2. Table 5.4.2 represents the total water available through the WBMWD, as reported in the 2010 Urban Water Management Plan.

Table 5.4.2
Supply Reliability — Historic Conditions

Average / Normal Water Year	Single Dry Water Year	Multiple Dry Water Years		
		Year 1	Year 2	Year 3
156,527	162,788	167,050	172,135	177,261
Percent of Average/Normal Year:	104%	107%	110%	113%

In the single dry water year, demand increased and therefore more water was supplied to meet the demand due to increased temperatures, evapotranspiration rates, and a longer growing season. Throughout multiple dry years, the supply available from the WBMWD and MWD increases due to larger demands. It was identified in the MWD 2010 UWMP that surplus supplies are available to meet the increased demands during normal, dry, and multiple dry year scenarios through 2030. Since this results in using more water than is naturally replenished during these years the City of El Segundo, WBMWD, and MWD will enact the measures outlined in their respective Water Shortage Contingency Plans to ensure that water is used as efficiently and minimally as possible. This will help preserve the water supplies available, and ensure continued reliability for the future.

Urban Water Management Planning Act Requirement:

10632(a) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.

In the event of a water supply shortage, the City has in place several stages of action to take. These are listed above in the Water Shortage Contingency Plan Section.

Urban Water Management Planning Act Requirement:

10632(b) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.

Table 5.4.2 shows the minimum water supply available during the next three years with a multiple year hydrology as defined by the 2001-2003 water years. It can be seen that water supplies for the next three years with multiple dry year hydrology are expected to be able to meet 100% of the demand for the City as identified by its water suppliers, WBMWD and MWD. Table 5.4.3 shows the supplies projected to be available to the City of El Segundo in the event that the next three years had the same hydrologic conditions as the multiple dry year scenario identified.

Table 5.4.3 Supply Reliability — Current Water Sources				
Water supply sources	**Average / Normal Water Year Supply**	**Multiple Dry Water Year (2001)**	**Multiple Dry Water Year (2002)**	**Multiple Dry Water Year (2003)**
		Year 2011	**Year 2012**	**Year 2013**
Wholesale – West Basin Municipal Water District	9,929	10,624	10,922	11,220
Percent of normal year:	100%	107%	110%	113%

Units: acre-feet per year

Although the supplies are great enough to be met for the next three years in the event of a drought, continuing to consume such quantities from the water supply may outweigh the water replenished through natural processes in the distribution chain. This could potentially result negative consequences, including overdraft conditions of the groundwater basins. To prevent this from happening, the City of El Segundo is among the many water retailers in California committed to preserving water supplies. In the event of a single dry or multiple dry year scenarios, the City would reduce demand by implementing the water conservation measures described above in the Water Shortage Contingency Plan Section. This, in conjunction with the demand management measures in place, emphasizes the importance of water conservation to the City of El Segundo and its water customers.

It is assumed that recycled water supply will not decrease, as wastewater will still be available during drought years to be treated to recycled water standards and distributed through the LACSD and WBMWD service area. Recycled water is additionally accounted for in the following tables to compare the supply and demand during normal, single dry, and multiple dry year scenarios. The data regarding total demand and supply, including recycled water, is documented in Chapters 3 and 4, respectively.

Urban Water Management Planning Act Requirement:

10632(i) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

As part of the mandatory conservation phase implementation, El Segundo will monitor the projected supply and demand for water by its customers on a daily basis. The City Manager shall determine the extent of the conservation required through the implementation and/or

termination of particular conservation stages in order for El Segundo to prudently plan for and supply water to its customers. Thereafter, the City Manager may order that the appropriate stage of water conservation be implemented or terminated in accordance with the applicable provision of this Water Shortage Contingency Plan.

Actual water use reductions will be monitored using the following mechanisms:

1. **Water Supply Reports**

   Under normal water supply conditions, potable water production figures are recorded daily. Totals are reported monthly to the Water Distribution Supervisor and Finance Department and incorporated into the water supply report. This report is forwarded to the West Basin Municipal Water District, and with such data, it is possible to develop trends for monthly water production and use.

2. **Water Use Records**

   El Segundo maintains water use records on each individual customer account. Exceptionally high usage is identified at the time the meter is read. These accounts are investigated for potential water loss or abuse.

Urban Water Management Planning Act Requirement:

10635(a) Every urban water management supplier shall include, as part of its urban water management plan, an assessment of the reliability of it water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available date from state, regional, or local agency population projections within the service area of the urban water supplier.

The following tables, 5.4.4 through 5.4.6, compare the total supply and demand as identified in Chapters 3 and 4 for normal, single dry, and multiple dry years. It can be seen that the supply available to the City, as estimated based on groundwater pumping and as provided in the WBMWD and MWD 2010 Urban Water Management Plans, meets the total demand, including during multiple dry year scenarios. However, the City of El Segundo is still committed to water

conservation in single dry and multiple dry years to help preserve precious water reserves and supplies.

The data provided for the normal, single dry, and multiple dry year scenarios is provided in the supply portion of the WBMWD 2010 Urban Water Management Plan. The plan identifies that during a single dry year scenario, demand may increase by approximately 4% over a normal year. WBMWD identified that supply was sufficient in a single dry year to meet this increased demand. During a multiple dry year, it was identified that the demand may increase by up to 5% in the third year. However, these demand increases may not actually be seen during multiple dry year scenarios due to conservation measures that will be enacted. This potentially will leave the demand consistent with a normal water year. Conservation measures may offset the predicted increase in demand over a multiple dry year period. WBMWD did not identify any reliability issues with delivering water during a single or multiple dry year period, and identified that supply would be sufficient to meet demand.

Table 5.4.4
Supply and Demand Comparison — Normal Year

	2015	2020	2025	2030
Supply Totals	8,515	7,795	8,038	8,289
Demand Totals	8,515	7,795	8,038	8,289
Difference	0	0	0	0
Difference as % Of Supply	0	0	0	0
Difference as % Of Demand	0	0	0	0

Units are in acre-feet per year.

During a normal year, it can be seen that the City of El Segundo will obtain sufficient supplies from the West Basin Municipal Water District.

Table 5.4.5
Supply and Demand Comparison — Single Dry Year

	2015	2020	2025	2030
Supply Totals	8,856	8,107	8,359	8,620
Demand Totals	8,856	8,107	8,359	8,620
Difference	0	0	0	0
Difference as % of Supply	0	0	0	0
Difference as % of Demand	0	0	0	0

Units are in acre-feet per year.

The demand in a single dry year was estimated to increase by approximately 4%. During a single dry year, the worst-case scenario of experiencing another severe drought would leave the City adequate water supplies, as WBMWD anticipates a 4% surplus during single dry years.

Table 5.4.6
Supply and Demand Comparison — Multiple Dry-Year Events

		2015	2020	2025	2030
Multiple dry year first year supply	**Supply Totals**	9,111	8,341	8,601	8,869
	Demand Totals	8,856	8,107	8,359	8620
	Difference	255	234	242	249
	Difference as % of Supply	2.8%	2.8%	2.8%	2.8%
	Difference as % of Demand	2.9%	2.9%	2.9%	2.9%
Multiple dry year second year supply	**Supply Totals**	9,366	8,575	8,842	9,118
	Demand Totals	8,898	8,146	8,400	8,662
	Difference	469	429	442	456
	Difference as % of Supply	5.0%	5.0%	5.0%	5.0%
	Difference as % of Demand	5.2%	5.2%	5.2%	5.2%
Multiple dry year third year supply	**Supply Totals**	9,622	8,808	9,083	9,367
	Demand Totals	8,941	8,185	8,440	8,703
	Difference	681	623	643	664
	Difference as % of Supply	7.1%	7.1%	7.1%	7.1%
	Difference as % of Demand	7.6%	7.6%	7.6%	7.6%

Units are in acre-feet per year.

During a multiple dry year scenario with hydrology similar to that of 2001-2003, it is anticipated that, based on the supplies outlined in Chapter 4 and the surplus identified in the West Basin Municipal Water District UWMP, the City would be able to meet the demand.

CHAPTER 6: DEMAND MANAGEMENT MEASURES

6 DEMAND MANAGEMENT MEASURES

6.1 DEMAND MANAGEMENT MEASURE IMPLEMENTATION

Urban Water Management Planning Act Requirement:

10631 (f) (1) and (2)(Describe and provide a schedule of implementation for) each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following: (A) water survey programs for single-family residential and multifamily residential customers; (B) residential plumbing retrofit; (C) system water audits, leak detection, and repair; (D) metering with commodity rates for all new connections and retrofit of existing connections; (E) large landscape conservation programs and incentives; (F) high-efficiency washing machine rebate programs; (G) public information programs; (H) school education programs; (I) conservation programs for commercial, industrial, and institutional accounts; (J) wholesale agency programs; (K) conservation pricing; (L) water conservation coordinator; (M) water waste prohibition; (N) residential ultra-low-flush toilet replacement programs

10631 (f)(3)A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented, or described under the plan

10631 (f)(4)).An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand

10631 (g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following: (1) take into account economic and noneconomic factors, including environmental, social, health customer impact,

and technological factors; (2) Include a cost-benefit analysis, identifying total benefits and total costs; (3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost; (4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation

The City of El Segundo (City) works with the West Basin Municipal Water District (WBMWD) to implement water conservation techniques to reduce the total demand of water throughout the City and WBMWD. Together, the City and WBMWD implement the 13 required Demand Management Measures (DMMs) within the City (DMM 10 is not required as the City is not a wholesale agency). WBMWD is signatory to the California Urban Water Conservation Council (CUWCC) Memorandum of Understanding (MOU) regarding Urban Water Conservation in California. CUWCC represents a diverse group of water supply agencies dedicated to establishing guidelines toward implementing conservation measures and managing supply demands. The following table summarizes the BMPs/DMMs:

Table 6.1.1
CUWCC BMP Organization and Names (2009 MOU) and UWMP DMMs

Type	Category	BMP #	BMP Name	DMM #	DMM Name
Foundational	Operations Practices	1.1.1	Conservation Coordinator	12	Water Conservation Coordinator
		1.1.2	Water Waste Prevention	13	Water Waste Prohibition
		1.1.3	Wholesale Agency Assistance Programs	10	Wholesale Agency Programs
		1.2	Water Loss Control	3	System Water Audits, Leak Detection, and Repair

Table 6.1.1
CUWCC BMP Organization and Names (2009 MOU) and UWMP DMMs

Type	Category	BMP #	BMP Name	DMM #	DMM Name
		1.3	Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections	4	Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections
		1.4	Retail Conservation Pricing	11	Conservation Pricing
	Education Programs	2.1	Public Information Programs	7	Public Information Programs
		2.2	School Education Programs	8	School Education Programs
Programmatic	Residential	3.1	Residential Assistance Program	1	Water Survey Programs for Single-Family Residential and Multi-Family Residential Customers
				2	Residential Plumbing Retrofit
		3.2	Landscape Water Survey	1	Water Survey Programs for Single-Family Residential and Multifamily Residential Customers
		3.3	High-Efficiency Clothes Washing Machine, Financial Incentive Programs	6	High-Efficiency Washing Machine Rebate Programs

Table 6.1.1
CUWCC BMP Organization and Names (2009 MOU) and UWMP DMMs

Type	Category	BMP #	BMP Name	DMM #	DMM Name
		3.4	WaterSense Specification (WSS) toilets	14	Residential Ultra-Low-Flush Toilet Replacement Programs
	Commercial, Industrial, and Institutional	4	Commercial, Industrial, and Institutional	9	Conservation Programs for Commercial, Industrial, and Institutional Accounts
	Landscape	5	Landscape	5	Large Landscape Conservation Programs and Incentives

6.2 OPERATIONS PRACTICES

6.2.1 Water Conservation Coordinator (DMM 12)

The City's water conservation coordinator is a function performed mainly by the Water Supervisor, who maintains American Water Works Association (AWWA) conservation certification, working in conjunction with WBMWD. The City stresses water conservation via distribution of conservation handouts at City Hall and information booths at various community fairs. Historical and projected expenditures are unavailable as the cost is included in the salary of each employee involved in the program. The conservation coordinator also implements residential water audits at the request of customers. Table 6.2.1 lists a historical summary for the City's Water Division personnel. All Water Division personnel provide support to the Water Conservation Coordinator.

Table 6.2.1 Actual Water Conservation Coordinator Staff Time and Expenditure				
Year	**Number of Full-Time Positions**	**Number of Part-Time Staff**	**Position Supplied by Other Agency**	**Projected Expenditures ($)**
2006	9	0	0	90,000
2007	9	0	0	90,000
2008	9	0	0	90,000
2009	9	0	0	90,000
2010	9	0	0	90,000

Table 6.2.2 Projected Water Conservation Coordinator Staff Time and Expenditure				
Year	**Number of Full-Time Positions**	**Number of Part-Time Staff**	**Position Supplied by Other Agency**	**Projected Expenditures ($)**
2011	9	0	0	90,000
2012	9	0	0	90,000
2013	9	0	0	90,000
2014	9	0	0	90,000
2015	9	0	0	90,000

6.2.2 Water Waste Prohibition (DMM 13)

The City, in accordance with Assembly Bill 11, adopted a revised "Water Shortage Contingency Plan" as part of the 2005 UWMP, which will be actively enforced in drought situations. Prior to this adoption, the City implemented an ordinance only as necessary, which did not contain adequate citation and violation controls. However, this prior procedure did allow for the patrolling and education of customers. In order to ensure that the water waste prohibitions are followed, the percent of unaccounted for water loss and the consumer water usage will be continuously monitored.

6.2.3 Wholesale Agency Programs (DMM 10)

This DMM is not required as the City is not a wholesale agency.

6.2.4 System Water Audits, Leak Detection, and Repair (DMM 3)

On average, Water Division crews survey approximately 60 miles of main and lateral pipelines per year. Line replacements are made based on a number of factors: a history of leaks in a particular line over a number of years; flow, or lack thereof, as calculated by flow testing the line; and sizing. If a leak is detected, The City Water Division personnel repair the leak in a timely manner.

Table 6.2.3
Actual Distribution Line Surveys

Year	Average Percent of Unaccounted Water (%)	Miles of Distribution Lines Surveyed	Miles of Lines Replaced	Actual Expenditures ($)	Actual Water Savings (AFY)
2006	6.61%	60	<1	N/A	N/A
2007	6.61%	60	<1	N/A	N/A
2008	6.61%	60	<1	N/A	N/A
2009	6.61%	60	<1	N/A	N/A
2010	6.61%	60	<1	N/A	N/A

Table 6.2.4 Projected Distribution Line Surveys					
Year	**Average Percent of Unaccounted Water (%)**	**Miles of Distribution Lines Surveyed**	**Miles of Lines Replaced**	**Actual Expenditures ($)**	**Actual Water Savings (AFY)**
2011	5	60	<1	N/A	N/A
2012	5	60	<1	N/A	N/A
2013	5	60	<1	N/A	N/A
2014	5	60	<1	N/A	N/A
2015	5	60	<1	N/A	N/A

6.2.5 Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections (DMM 4)

Metering with commodity rates by wholesale and retail agencies has been an industry standard; it involves setting water rates based upon the external costs of importing water or producing water from local sources, the internal costs of distribution and service, and establishing the sources for financing or funding these costs. The City has meters in place for all of its customers, including separate meters for single-family residential, multi-family residential, commercial, industrial, and large landscape customer sectors. Water usage is billed based on volume of water consumed; in addition, a fixed monthly or bi-monthly service fee based on meter size is billed separately. Hence, the City utilizes commodity rates and has meters for all accounts since 1970.

6.2.6 Conservation Pricing (DMM 11)

The City currently has a tiered rate structure in place to encourage water conservation. Additionally, the City has a service charge that is calculated by meter size and usage for all customer sectors, which is billed either monthly or bi-monthly. The tiered water rates were updated in the 2004 Ordinance 1376 (Appendix I), which also states that potable water

consumption charges will be increased by the same percentage as WBMWD increases its charges to The City. The table below shows the current rate structure.

Table 6.2.5: Conservation Pricing for Potable Water Rates	
All Water Accounts	**Definition of Conservation Pricing**
First 2,000 CF	$1.2460 / HCF
Next 3,000 CF	$1.3708 / HCF
Next 5,000 CF	$1.4393 / HCF
Over 10,000 CF monthly or 20,000 CF bi-monthly	$1.5082 / HCF

Table 6.2.6: Conservation Pricing for Sewer Rates	
All Sewer Accounts	**Definition of Conservation Pricing (Treatment Charges / Service Charges / Quantity Charges)**
Single Family/Duplex 5/8" and 3/4"	$6.61 / $2.13 / $0.22
Single Family/Duplex 1"	$8.41 / $2.56 / $0.22
Single Family/Duplex 1-1/2"	$9.09 / $2.77 / $0.22
Single Family/Duplex 2"	$9.65 / $2.99 / $0.22
Single Family/Duplex (Lifeline)	$3.305 / $1.065 / $0.11
Multi Family 5/8" x 3/4"	$10.93 / $3.41 / $0.26
Multi Family 1"	$15.31 / $4.80 / $0.26
Multi Family 1-1/2"	$23.35 / $7.25 / $0.26
Multi Family 2"	$52.37 / $16.00 / $0.26
Multi Family 3"	$178.00 / $55.48 / $0.26
Multi Family 4"	$244.93 / $74.68 / $0.26
Commercial West of Sepulveda	
5/8" x 3/4"	$7.80 / $2.35 / $0.31
1"	$19.47 / $6.08 / $0.31
1-1/2"	$35.85 / $10.67 / $0.31

Table 6.2.6: Conservation Pricing for Sewer Rates	
All Sewer Accounts	**Definition of Conservation Pricing (Treatment Charges / Service Charges / Quantity Charges)**
2"	$94.50 / $27.74 / $0.31
3"	$175.16 / $59.75 / $0.31
4"	$748.47 / $224.05 / $0.31
Industrial West of Sepulveda	
5/8" x 3/4"	$6.47 / $2.13 / $0.31
1"	$8.75 / $2.56 / $0.31
1-1/2"	$25.26 / $7.90 / $0.31
2"	$77.12 / $23.47 / $0.31
3"	$193.32 / $59.75 / $0.31
4"	$274.66 / $85.35 / $0.31
Institutional	
5/8" x 3/4"	$6.11 / $2.13 / $0.26
1"	$9.68 / $2.99 / $0.26
1-1/2"	$14.73 / $4.48 / $0.26
2"	$22.34 / $6.40 / $0.26
3"	$55.39 / $17.07 / $0.26
4"	$65.60 / $21.34 / $0.26
6"	$316.82 / $96.02 / $0.26
Chevron	
5/8" x 3/4"	$4.12 / $2.13 / $0.31
1"	$5.87 / $2.35 / $0.31
1-1/2"	$78.04 / $14.94 / $0.31
2"	$496.79 / $149.37 / $0.31
3"	$500.00 / $170.70 / $0.31

Table 6.2.6: Conservation Pricing for Sewer Rates	
All Sewer Accounts	**Definition of Conservation Pricing (Treatment Charges / Service Charges / Quantity Charges)**
Commercial East of Sepulveda	
5/8" x 3/4"	N/A / $2.13 / $0.31
1"	N/A / $2.35 / $0.31
1-1/2"	N/A / $14.94 / $0.31
2"	N/A / $42.68 / $0.31
3"	N/A / $59.75 / $0.31
4"	N/A / $96.02 / $0.31
6"	N/A / $245.39 / $0.31
Industrial East of Sepulveda	
5/8" x 3/4"	N/A / $2.35 / $0.31
1"	N/A / $5.87 / $0.31
1-1/2"	N/A / $10.67 / $0.31
2"	N/A / $23.47 / $0.31
3"	N/A / $96.02 / $0.31
4"	N/A / $149.37 / $0.31
6"	N/A / $405.42 / $0.31

6.3 EDUCATION PROGRAMS

6.3.1 Public Information Programs (DMM 7)

The City promotes water conservation and resource efficiency in conjunction with WBMWD. The City distributes public information through bill inserts, brochures, and many special events every year. Additionally, the City established a World Wide Web home page, which includes information on water conservation, recycling, and other resource issues. As a member of WBMWD, the City participates in the following programs:

- The Public Information Committee (PIC) was formed several years ago. It is made up of Public Information and Public Affairs Officers from cities and water agencies within the WBMWD service area. The purpose is to share information on a variety of topics that would be of interest to customers.
- WBMWD, in cooperation with MW, also provides inspection tours of the Colorado River Aqueduct and the State Water Project to legislators, local elected officials, retail agency staff, and the general public on various dates throughout the year. The purpose of the three-day trips is to give local decision-makers and the general public a better understanding and appreciation of the water supply throughout the State.
- WBMWD, by means of its Speaker's Bureau, provides speakers to local community groups, service clubs, and schools when requested. In addition, WBMWD operates a very successful and aggressive school education program that promotes the importance of conservation and recycled water.
- WBMWD, in October 1999, began the first annual "Water Harvest Festival" located at the West Basin Water Recycling Facility in the City. WBMWD invites children and their parents to participate in a variety of games and to obtain information on water recycling and conservation.
- WBMWD is also active in the California Water Awareness Campaign (CWAC), which is an association that was formed several years ago to coordinate efforts throughout the state during "May is Water Awareness Month." With this effort water agencies throughout the state, large and small, can tap into a large pool of knowledge and materials to promote a water awareness message not only in May, but throughout the year.
- WBMWD also maintains a strong link with the local media through press releases on important subjects and periodic meetings with newspaper editorial boards.

Refer to WBMWD's 2010 *Urban Water Management Plan* for further information on the number of public information programs.

The table below shows the implementation schedule and actual/projected expenditures of certain of the above-listed conservation efforts through 2015:

Table 6.3.1
Public Information Actual Expenditures

Program	2006	2007	2008	2009	2010
Bill Inserts/Newsletters/Brochures	X	X	X	X	X
Demonstration Gardens	X	X	X	X	X
Special Events/Media Events	X	X	X	X	X
Program to Coordinate with other government agencies, industry and public interest groups and media	X	X	X	X	X
Actual Expenditures*	$3,000	$3,000	$3,000	$3,000	$3,000

*Expenditures based on City Estimates.

Table 6.3.2
Public Information Projected Expenditures

Program	2011	2012	2013	2014	2015
Bill Inserts/Newsletters/Brochures	X	X	X	X	X
Demonstration Gardens	X	X	X	X	X
Special Events/Media Events	X	X	X	X	X
Program to Coordinate with other government agencies, industry and public interest groups and media	X	X	X	X	X
Projected Expenditures	$3,000	$3,000	$3,000	$3,000	$3,000

6.3.2 School Education Programs (DMM 8)

The City in conjunction with WBMWD and the local school district, works to promote water conservation and resource efficiency at school facilities and to educate students about these issues. WBMWD provides educational materials for several grade levels; including State and County water system maps, posters, workbooks, interactive computer software, and videos. WBMWD also sponsors Project Water Education for Teachers (WET) training, science fairs, and water conservation contests. Some of the education programs provided for The City by WBMWD include; Planet Protector Water Explorations, Think Earth It's Magic, Conservation Connection, Think Earth Curriculum Kits, Water Awareness Month Poster Contest, Water Wandering: A Journey Through Water, and Sewer Science. Further descriptions of these programs can be found in Section 6 of the 2010 WBMWD UWMP. Table 6.3.3 summarizes the City's historical participation in School Education Programs.

Table 6.3.3
Actual Number of School Presentations

Grades	2006	2007	2008	2009	2010
K-3*	1	1	1	1	1
4-6	2	2	2	2	2
7-8*	1	1	1	1	1
9-12*	1	1	1	1	1

*Education provided through City-sponsored fairs

Table 6.3.3
Projected Number of School Presentations

Grades	2011	2012	2013	2014	2015
K-3*	1	1	1	1	1
4-6	2	1	1	1	2
7-8*	1	1	1	1	1
9-12*	1	1	1	1	1

*Education provided through City-sponsored fairs

6.4 RESIDENTIAL PROGRAMS

6.4.1 Water Survey Programs for Residential Customers (DMM 1)

The City as a member of WBMWD is eligible to receive support and funding for residential survey devices. The City provides surveys to the residents on a requested basis. Single-family surveys take about one hour which include an interior and exterior portion and are conducted by two-member teams. During the interior portion of the survey, the team measures flow rates of existing plumbing fixtures and tests for toilet leakage with dye tablets. The team then offers water saving showerheads and materials on WBMWD's Ultra-Low Flush Toilet (ULFT) replacement program (rebates are offered or toilets are made available). The survey team also provides other energy efficient materials at the time of the survey. The team then conducts an exterior landscape survey, during which, the team shows the customer the location of the water meter and how to read it, tests the sprinkler system for irrigation efficiency and distribution uniformity, teaches the customer how to set the irrigation controller, and recommends sprinkler system repairs or improvements. The team also provides brochures on water efficient landscaping, design, and plants. Multi-family surveys are conducted on a similar basis; however, they require coordination with owners/managers, tenants, and landscaping services. Approximately 368 surveys were performed within the City since 2005.

Table 6.4.1
Actual Completed Surveys for Single and Multi-Families

Year	FY 05-06	FY 06-07	FY 07-08	FY 08-09	FY 09-10
Single Family Surveys Completed	60	56	50	49	51
Multi-Family Surveys Completed	28	15	19	22	18

For each dwelling unit, the survey team reviews the total water use and equipment and facilities in each unit (including number and types of toilets, showers, aerators, and condition of landscape irrigation). This data is then used to evaluate the effectiveness of this program and to analyze the customer's water use. The actual water savings was calculated from the difference in water usage by single family and multi-family consumers from the previous year.

Historical and projected expenditures are unavailable as the surveys are performed by the meter readers and full-time employees of the water division, and therefore, the expenditures are included in their salary and division budget. The projected water survey summary is listed in Table 6.4.2; this table illustrates the number of water surveys expected to be performed over the next 5 years based upon historical survey data.

Table 6.4.2
Projected Completed Surveys for Single and Multi-Families

Year	FY 10-11	FY 11-12	FY 12-13	FY 13-14	FY 14-15
Single Family Surveys Completed	55	55	55	55	55
Multi-Family Surveys Completed	20	20	20	20	20

6.4.2 Residential Plumbing Retrofit (DMM 2)

In conjunction with WBMWD, the City has participated in the distribution of showerheads, aerators, toilet tank leak detection, and Ultra-Low Flush Toilet (ULFT) replacement programs since the 1990s. These conservation kits are distributed at the Water Yard and City Hall upon request. The City emphasizes water use surveys and ULFT replacement programs. The kits are also available to the City customers at WBMWD sponsored festivals and events described in the WBMWD 2010 UWMP. These distributions are not recorded, and therefore, not quantifiable. However, these events continue to provide the consumer with access to information regarding available residential plumbing retrofits, as well as a variety of other water conservation materials.

6.4.3 High Efficiency Washing Machine Rebate Programs (DMM 6)

The City participates in a High-Efficiency Clothes Washer (HECW) Rebate Program as a member of WBMWD. In 2003, WBMWD in conjunction with MWD collaborated on a program through California State and Federal Agency Cooperation (CALFED), which offered rebates to residents who replaced their existing clothes washer with a high efficiency model. This program offered an incentive of 100 dollars per rebate. Prior to this program The City participated in another incentive program, which offered similar rebates; however, data for this previous program is unavailable. The program was so successful that when the CALFED portion of the funding expired MWD continued to provide funding at the request of WBMWD and other member agencies. The new HECWs save 50 percent water, 60 percent electricity, and use less detergent. In 2004, the MWD Board with the support of WBMWD, approved funding to continue the program through 2005. At the same time Metropolitan applied for Proposition 50 funding in an effort to continue the program for another several years. Approximately 350 washing machine rebates were given to residents of the City, based on district-wide records.

Table 6.4.2
High-Efficiency Washing Machine Rebate Summary

Year	FY 05-06	FY 06-07	FY 07-08	FY 08-09	FY 09-10
Rebates Given*	70	70	70	70	70

* Estimates based on WBMWD district-wide numbers.

6.4.4 Residential ULFT Replacement Programs (DMM 14)

In association with WBMWD, the City participates in an Ultra-Low Flush Toilet (ULFT) replacement program. Currently, WBMWD offers rebates up to $50 per replacement. The City is committed to continually working with WBMWD in this conservation effort. As advances in technology create new conservation devices that are more efficient than today's products; the City and WBMWD plan on incorporating them into this program. To illustrate the ULFT Program's adoption by the City, Table 6.4.3 details the history of residential rebates and distributions of ULFTs within the City's service area. For all replacements made, water savings total 23.4 gallons per day per device. The annual water savings were calculated incorporating devices installed in previous years.

Table 6.4.3 ULFT Distribution		
Fiscal Year Ending in June of	**Number of ULFTs Rebates**	**Number of ULFT Distributions**
2000	8	0
2001	2	225
2002	3	6
2003	4	0
2004	0	0
2005	0	2
2006*	30	0
2007*	30	0
2008*	30	0
2009*	30	0
2010*	30	0

*Estimates based on WBMWD district-wide numbers.

6.5 COMMERCIAL, INDUSTRIAL, AND INSTITUTIONAL PROGRAMS

6.5.1 Commercial, Industrial, and Institutional Programs (DMM 9)

The City, in participation with WBMWD, promotes rebates to businesses, schools, and facilities throughout its service area. Rebates are offered for commercial clothes washers, waterbrooms, cooling tower conductivity controllers, pre-rinse spray nozzles, x-ray machine recirculation devices, and commercial toilets and urinals. Table 6.1-12 demonstrates the City's participation in the installation of retrofit devices.

Table 6.5.1 Commercial, Industrial, and Institutional Retrofit Device Distribution		
Fiscal Year Ending in June of	**Devices Installed**	**ULFTs Installed**
2001	1	0
2002	2	0
2003	2	8
2004	3	1
2005	25	0
2006*	40	29
2007*	40	29
2008*	40	29
2009*	40	29
2010*	40	29

*Estimates based on WBMWD district-wide numbers.

6.6 LANDSCAPE PROGRAMS

6.6.1 Large Landscape Conservation Programs and Incentives (DMM 5)

The City in conjunction with WBMWD offers programs to assist retail agencies and their large landscape customers to use water efficiently. The programs offered are as follows:

Irrigation Survey and Water Budget

The surveys are generally conducted by a team which calculates a water budget that identifies the amount of water necessary for the site based on the size of the landscape and the climate. The water budget would then be used as the water allotment for that site. During a drought, any water use that exceeds the water budget is billed at a higher rate. However, most large landscape areas within the City are already irrigated with reclaimed water.

Irrigation Controller Program

WBMWD has been working with the Project Advisory Committee (PAC) to develop a new Weather-Based Irrigation Controller (WBIC) Program. The City recognizes the water savings potential, and as a member of WBMWD will benefit from their current testing of weather-based irrigation controllers in sites that use potable water. WBMWD plans to use the new controllers in areas where recycled water is inaccessible. The funding incentives provided vary on the number of stations and acreage at each site. The funding is used to help pay for the hardware and to help motivate involvement from the community.

Protector Del Aqua Irrigation Program

The City partners with WBMWD and MWD on the "Protector Del Aqua" landscape classes. Classes are offered to residents as a way to teach them about various topics that help to conserve water and reduce runoff, including the use of native plants and weather-based irrigation controllers. Over 50 percent of the potable water used in Southern California is used to maintain landscaping; therefore, offering these classes is an ideal way to reduce outdoor water waste. By educating the public on properly maintaining the irrigation system, problems such as over-watering can be solved without additional funding.

Ocean Friendly Gardens

In 2005, The City in conjunction with WBMWD formed a partnership with the Surfrider Foundation to develop "Ocean Friendly Garden" workshops and demonstration gardens. WBMWD obtained state grant funding to finance courses focusing on planting ocean friendly plants and installing weather-based irrigation controllers as a way to reduce urban runoff. The use of water efficient plants and installation of efficient sprinkler controllers can conserve between 20 percent and 50 percent of current water use and reduce water runoff by up to 70 percent.

The City does not record the attendance at these events, and therefore, this information is not quantifiable.

CHAPTER 7: CLIMATE CHANGE

7 CLIMATE CHANGE

7.1 INTRODUCTION

Although not specifically included in the UWMP Act, the City of El Segundo has opted to address the potential impacts of climate change on the water system. It is noted in the *Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan* that "inclusion of potential climate change impacts in a water supply planning document is consistent with other water supply programs and environmental requirements being implemented in California."

Due to the fact that this section does not require specific information or topics to be discussed, the following topics will be covered:

- General Overview of Climate Change
- Effects of Climate Change
- Minimizing the Effects of Climate Change

Each of these sections will discuss the long term impact (outside of the 20 year scope identified in the prior sections).

7.2 CLIMATE CHANGE OVERVIEW

Although there is still some debate about the causes and effects of climate change, and even whether or not it exists, the general consensus among the scientific community is that climate change is a threat to our global climate. Climate change is a major environmental threat that is expected to result in a multitude of long-term weather changes and short term weather events. The specific impacts of climate change vary greatly by region and current climate. Due to the unpredictable nature of climate change, general statements will be made in accordance with recent observations and predictions made by climate scientists.

It is generally accepted that the leading factor resulting in climate change is the emissions of greenhouse gases (GHGs). GHGs include nitrous oxides, chlorofluorocarbons, carbon oxides, and methane, among many others. Due to the large amounts of carbon dioxide emitted in

electricity production by coal and transportation based on combustion of petroleum, effects and trends of carbon dioxide levels in the atmosphere on climate characteristics are studied heavily.

An increase in GHGs is expected to lead to climate change through a process called the Greenhouse Gas Effect. As radiation from the sun is emitted to earth, a portion of it is absorbed; the rest bounces off the surface and, in a natural process, is emitted to space. The Greenhouse gas effect describes the process where the radiation that would typically be emitted back to space is reabsorbed in the atmosphere by the chemicals known as Greenhouse Gases. When the radiation is reabsorbed, it is consequently reemitted back to the earth. This additional radiation that would have otherwise been emitted to space is generally accepted as the source of what we know as climate change. The GHGs emitted by the population serve as a "blanket" that holds in the suns radiation, and ultimately causes heat to become trapped with long term impacts on the climate.

7.3 EFFECTS OF CLIMATE CHANGE

Climate change is expected to have a wide variety of both short and long term impacts. These impacts will vary greatly based on geographical location and current climate. Some areas are expected to see decreases in average temperature and an increase in rainfall, while others are expected to experience the opposite. There is some debate about where the State of California will fall in these patterns; however it has been observed that average temperatures are increasing and weather events are becoming more intense. The Department of Water Resources has completed extensive studies on climate change and what impacts it may have on the water supply. Some of the findings about what has been already observed as a possible result of climate change, as well as what is expected in the coming years is summarized below.

Wet Weather Events

Two extremes are expected, and have been observed, when looking at the possibility of climate change. The first of these extremes is the occurrence of wet weather events such as storms and floods. These are expected to increase in both intensity and frequency. This not only impacts the water supply by overwhelming storage, it can impact infrastructure as well. California has a series of natural and manmade flood barriers that serve to protect the population and infrastructure while simultaneously assisting to help store some of the runoff water. However, as floods increase in intensity, due partially to the increased rate of melting snow (a large, natural water source for California's water), flood protection can be overwhelmed.

In addition to floods, severe storms are likely to be an effect of climate change. While these

pose similar threats to the water supply and infrastructure as floods by cause large amount of water flow at one time, they also increase the likelihood of events such as mudslides that are known to cause high property damage and, in some cases, loss of life.

Dry Weather Events

In the long term, dry weather events are likely to have the most impact on the lives of California residents. Droughts are a natural occurrence in the State of California, characterized by short term (approximately 1-3 years) of warmer than average temperatures and reduced rainfall. Droughts have a devastating impact on the water supply reliability. Furthermore, as water storage is continually tapped at a rate higher than water replenishment is available, decreasing availability of a clean source of water becomes a threat. The general populations' lives are directly impacted by these events, requiring normal water use patterns to decrease sharply.

In additional to a reduction in water supply, droughts are also known to cause an increase in water demand due to warmer temperatures and extended growing seasons. These water demands, in addition to a growing population (as summarized in Chapter 3) are likely to cause additional strain on the already dwindling resources.

Decreased Snowpack

Among the effects that a drought is expected to have on the overall water supply, the possibility of decreased Sierra Nevada snowpack is a long term water supply issue. The Sierra Nevada snowpack is the largest water "reservoir" for the State, providing an annual average of 15 million AF of water. The snowpack is released as temperatures increase in the spring and summer months and melt the snow. Climate change affects this process in two ways. First, the snowpack is reduced due to warming temperatures causing less snow to fall. Instead, the precipitation is released as rain, and potentially cannot be captured and stored in reservoirs. Precipitation as water reduces the total stored water as snow in the Sierra Nevada and available to California. The DWR predicts a 25% to 40% decrease in snowpack in the Sierra Nevada by 2050. Furthermore, as temperatures rise, the snow that is stored is released at an accelerated pace. The DWR notes that water infrastructure was designed to handle the predicted the pace of the snowmelt. However, as snowmelt rates increase, water may overwhelm the system and be lost.

Sea level rise

The melting of the ice caps is a strong contributing factor to the increasing level in the rising of the sea level. The immediate consequences of this are recognized at the coastal California cities, where the impacts from flooding and storms are amplified. More significant to the City of El Segundo is the possibility of seawater intrusion into the groundwater basins. Seawater intrusion immediately impacts the groundwater quality and increases the need for further water purification and development of supplies.

Water Quality

Water Quality effects due to climate change are predicted to occur due to two extremes.

Flooding and higher runoff at any given time has been predicted to increase erosion and, therefore, increase the amount of sediment and contaminants in the water supply. This has the potential to increase the strain on water suppliers due to the increased need for water purification.

Droughts and lower runoff have the potential to increase the concentration of chemicals that may be present in water streams. Streams of water collect chemicals that exist in the environment. As water runoff decreases, the same quantities of these chemicals are collected in smaller amounts of water, increasing the overall concentration. As the chemical concentrations rise, the purification requirements rise with each gallon of water, and increase the risk for dangerous fluctuations.

7.4 MINIMIZING THE EFFECTS OF CLIMATE CHANGE

Many of the potential impacts of climate change have already been observed. In addition, models show that current GHG levels will continue amplify the effect of climate change over the next few hundred years, even if all GHG production were to cease today. In order to combat the impacts of climate change, innovative solutions must be developed. These solutions fall within two categories. The first strategy is mitigation. When applying to water suppliers, this is the ability to reduce GHG emissions. The second is adaptation; the strategy of adjusting our water supply system to meet water demands as a result of permanent climate change.

Mitigation

In addressing climate change, mitigation is the effort to increase efficiency and reduce the output of GHGs. Although no individual industry is fully responsible for implementing mitigation efforts in an attempt to eliminate GHG production, each industry can develop its own techniques

help reduce the impacts that climate change may have. The common goal throughout the world's population is in regards to mitigation is to eliminate production of GHGs. Currently, this is being done by exploring ways to increase efficiency, decrease demand, and develop alternative and renewable energy sources that will reduce the impact of burning fossil fuels.

For the water distribution sector, mitigation can be done by minimizing the transportation of water. Water is a dense liquid that requires a substantial amount of energy to move around. Because of this, distribution systems are complicated, and require large pumps. Electrical devices such as these pumps have an associate level of GHG emissions associated with the energy input they require. To mitigate the GHG associated with this, the City of El Segundo can minimize the amount of water required for distribution by encouraging demand reduction. Current demand reduction efforts are discussed in Chapter 6. Maximizing the efficiency of the water used not only preserves water supply, but can help in reducing the overall impacts and severity that is expected in the coming years as a result of climate change.

The State of California has taken an initiative in mitigating the long term effects of climate change by adopting Assembly Bill 32 (AB 32). AB 32 establishes a greenhouse gas emissions reduction goal for 2020, identified as reducing total emissions to 1990 levels by 2020. The California Air Resources Board (ARB) has developed specific requirements to help achieve this goal, including direct and required regulations, alternative compliance mechanisms, voluntary actions, and market-based mechanisms such as a cap and trade system.

To assist in meeting the goals of AB 32, Senate Bill 375 (SB 375) was passed in 2008. SB 375 requires the ARB to develop greenhouse gas reduction targets for 2020 and 2035 specifically for passenger vehicles, which are one of the leading greenhouse gas emissions sources in the State of California. Emissions reduction goals will be set for each one of the State's 18 metropolitan planning organizations (MPOs). Additionally, SB 375 sets goals for efficient land use within the MPOs to further reduce greenhouse gas emissions. In order to help meet the requirements of SB 375 and the greenhouse gas reduction goal for AB 32 and SB 375, the City of El Segundo intends to comply with the ARB's policies. Currently, the ARB is working to develop policies for reducing passenger vehicle use and efficient land use. Among these policies are:

- Transit Services
- Bicycle and Pedestrian Strategies
- Telecommuting
- Traffic Incident Clearance Programs

- Voluntary Travel Behavior Change Programs
- Residential Density
- Regional Accessibility
- Job-Housing Balance

More information on these policies, as well as additional policies and updated information about the progress of ARB's efforts in meeting the requirements of AB 32 and SB 375 can be found on the ARB website.

Adaptation

Adaptation is the strategy employed to adjust to the environmental impacts of climate change. Although not a desirable solution, this is necessary as the impacts of climate change are already beginning to take effect. Adaptation can help the population continue to thrive and minimize the potential negative consequences that result from climate change.

General adaptation strategies to increase water reliability have been identified by the State of California. These include adjusting designed flow rates of SWP infrastructure to ensure that all water is captured and able to be utilized with increased snowmelt and more intense precipitation periods.

Other adaptation strategies proposed by the State of California that may help in increasing the reliability of supply to the City of El Segundo regardless of climate change include:

- Fully developing Integrated Regional Water Management planning to evaluate supply and demand, and encourage water districts to work together to ensure that a broad water supply is available, increasing water reliability.
- Promoting integrated flood management to decrease the impacts of floods and utilizing natural flood plains where available. Adapting to climate change in response to the threat of floods increases the economic and social wellbeing of the State, especially those in high risk zones.
- Assisting to sustain ecosystems which provide clean and reliable water. Maintaining diverse ecosystems and preventing the potential destruction of these water sources will help increase their predictability and reliability.
- Focusing on impacts at the Bay-Delta. The Bay-Delta is the source of water for a majority of Californians. Ensuring that a healthy ecosystem and that water quality at the Bay-Delta are maintained despite the effects of climate change is imperative towards continuing to use this as a source of water.

- Planning for rises in the sea level. As sea water intrusion to water resources becomes a threat to water quality, establishing a reliable system of levees and flood management programs is necessary to maintain water supplies and ensure the safety of the State's population.

A PUBLIC NOTIFICATION LETTERS

May 26, 2011

Subject: City of El Segundo 2010 Urban Water Management Plan Update

To Whom It May Concern:

California's Urban Water Management Planning Act requires the update of Urban Water Management Plans (UWMP) every five years. (Additional information regarding UWMPs can found at http://www.water.ca.gov/urbanwatermanagement/). Accordingly, the City of El Segundo is in the process of preparing its 2010 UWMP.

The UWMP outlines how the City will meet current and projected water demands within its service area, with emphasis on water conservation and the continued use of imported and recycled water to provide its customers a reliable, high quality supply of water. It also outlines the strategy for meeting the interim (2015) and final (2020) urban water use reduction targets, as required by Senate Bill X7-7. The 2010 UWMP will form the basis of analysis for available water supplies relative to urban planning for potential developments.

The Draft 2010 UWMP is expected to be available for public review and comment in the beginning of June of 2011. There will be a public review period and a public hearing to receive comments on the draft document prior to consideration by the City Council.

In the interim the City is accepting suggested strategies it should consider to meet current and future customer needs. Comments on development of the Draft 2010 UWMP should be directed to:

Maryam Jonas
Principal Engineer
City of El Segundo
Public Works Department
310-524-2361

B UWMP ADOPTION RESOLUTION

C URBAN WATER MANAGEMENT PLANNING ACT

Established: AB 797, Klehs, 1983
Amended: AB 2661, Klehs, 1990
AB 11X, Filante, 1991
AB 1869, Speier, 1991
AB 892, Frazee, 1993
SB 1017, McCorquodale, 1994
AB 2853, Cortese, 1994
AB 1845, Cortese, 1995
SB 1011, Polanco, 1995
AB 2552, Bates, 2000
SB 553, Kelley, 2000
SB 610, Costa, 2001
AB 901, Daucher, 2001
SB 672, Machado, 2001
SB 1348, Brulte, 2002
SB 1384, Costa, 2002
SB 1518, Torlakson, 2002
AB 105, Wiggins, 2004
SB 318, Alpert, 2004

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

CHAPTER 1. GENERAL DECLARATION AND POLICY

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

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

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

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

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

(4) As part of its long-range planning activities, every urban water supplier should make every effort to ensure the appropriate level of reliability in

its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry water years.

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

(6) Implementing effective water management strategies, including groundwater storage projects and recycled water projects, may require specific water quality and salinity targets for meeting groundwater basins water quality objectives and promoting beneficial use of recycled water.

(7) Water quality regulations are becoming an increasingly important factor in water agencies' selection of raw water sources, treatment alternatives, and modifications to existing treatment facilities.

(8) Changes in drinking water quality standards may also impact the usefulness of water supplies and may ultimately impact supply reliability.

(9) The quality of source supplies can have a significant impact on water management strategies and supply reliability.

(b) This part is intended to provide assistance to water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies to meet existing and future demands for water.

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

(a) The management of urban water demands and efficient use of water shall be actively pursued to protect both the people of the state and their water resources.

(b) The management of urban water demands and efficient use of urban water supplies shall be a guiding criterion in public decisions.

(c) Urban water suppliers shall be required to develop water management plans to actively pursue the efficient use of available supplies.

CHAPTER 2. DEFINITIONS

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

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

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

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

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

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

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

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

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

CHAPTER 3. URBAN WATER MANAGEMENT PLANS
Article 1. General Provisions

10620.

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

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

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

(d)

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

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

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

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

10621.

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

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

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

Article 2. Contents of Plans

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

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

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

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a). If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:

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

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

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

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

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

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

(1) An average water year.
(2) A single dry water year.
(3) Multiple dry water years.

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

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

(e)

(1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors including, but not necessarily limited to, all of the following uses:

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

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

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

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

(A) Water survey programs for single-family residential and multifamily residential customers.

(B) Residential plumbing retrofit.

(C) System water audits, leak detection, and repair.

(D) Metering with commodity rates for all new connections and retrofit of existing connections.

(E) Large landscape conservation programs and incentives.

(F) High-efficiency washing machine rebate programs.

(G) Public information programs.

(H) School education programs.

(I) Conservation programs for commercial, industrial, and institutional accounts.

(J) Wholesale agency programs.

(K) Conservation pricing.

(L) Water conservation coordinator.

(M) Water waste prohibition.

(N) Residential ultra-low-flush toilet replacement programs.

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

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

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

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

(1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors.

(2) Include a cost-benefit analysis, identifying total benefits and total costs.

(3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost.

(4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.

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

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

(j) Urban water suppliers that are members of the California Urban Water Conservation Council and submit annual reports to that council

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

(k) Urban water suppliers that rely upon a wholesale agency for a source of water, shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier’s plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c), including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

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

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

(a) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.

(b) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.

(c) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including,

but not limited to, a regional power outage, an earthquake, or other disaster.

(d) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.

(e) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.

(f) Penalties or charges for excessive use, where applicable.

(g) An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

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

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

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

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

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

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

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

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

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

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

Article 2.5 Water Service Reliability

10635.

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

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

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

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

Articl 3. Adoption and Implementation of Plans

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

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

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

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

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

10644.

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

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

also prepare reports and provide data for any legislative hearings designed to consider the effectiveness of plans submitted pursuant to this part.

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

CHAPTER 4. MISCELLANEOUS PROVISIONS

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

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

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

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

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

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

or regulations after the effective date of this part, and which substantially meets the requirements of this part, or by any existing urban water management plan which includes the contents of a plan required under this part.

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

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

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

10657.

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

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

D SBx7-7

Senate Bill No. 7

CHAPTER 4

An act to amend and repeal Section 10631.5 of, to add Part 2.55 (commencing with Section 10608) to Division 6 of, and to repeal and add Part 2.8 (commencing with Section 10800) of Division 6 of, the Water Code, relating to water.

[Approved by Governor November 10, 2009. Filed with Secretary of State November 10, 2009.]

LEGISLATIVE COUNSEL'S DIGEST

SB 7, Steinberg. Water conservation.

(1) Existing law requires the Department of Water Resources to convene an independent technical panel to provide information to the department and the Legislature on new demand management measures, technologies, and approaches. "Demand management measures" means those water conservation measures, programs, and incentives that prevent the waste of water and promote the reasonable and efficient use and reuse of available supplies.

This bill would require the state to achieve a 20% reduction in urban per capita water use in California by December 31, 2020. The state would be required to make incremental progress towards this goal by reducing per capita water use by at least 10% on or before December 31, 2015. The bill would require each urban retail water supplier to develop urban water use targets and an interim urban water use target, in accordance with specified requirements. The bill would require agricultural water suppliers to implement efficient water management practices. The bill would require the department, in consultation with other state agencies, to develop a single standardized water use reporting form. The bill, with certain exceptions, would provide that urban retail water suppliers, on and after July 1, 2016, and agricultural water suppliers, on and after July 1, 2013, are not eligible for state water grants or loans unless they comply with the water conservation requirements established by the bill. The bill would repeal, on July 1, 2016, an existing requirement that conditions eligibility for certain water management grants or loans to an urban water supplier on the implementation of certain water demand management measures.

(2) Existing law, until January 1, 1993, and thereafter only as specified, requires certain agricultural water suppliers to prepare and adopt water management plans.

This bill would revise existing law relating to agricultural water management planning to require agricultural water suppliers to prepare and adopt agricultural water management plans with specified components on or before December 31, 2012, and update those plans on or before December

31, 2015, and on or before December 31 every 5 years thereafter. An agricultural water supplier that becomes an agricultural water supplier after December 31, 2012, would be required to prepare and adopt an agricultural water management plan within one year after becoming an agricultural water supplier. The agricultural water supplier would be required to notify each city or county within which the supplier provides water supplies with regard to the preparation or review of the plan. The bill would require the agricultural water supplier to submit copies of the plan to the department and other specified entities. The bill would provide that an agricultural water supplier is not eligible for state water grants or loans unless the supplier complies with the water management planning requirements established by the bill.

(3) The bill would take effect only if SB 1 and SB 6 of the 2009–10 7th Extraordinary Session of the Legislature are enacted and become effective.

The people of the State of California do enact as follows:

SECTION 1. Part 2.55 (commencing with Section 10608) is added to Division 6 of the Water Code, to read:

PART 2.55. SUSTAINABLE WATER USE AND DEMAND REDUCTION

Chapter 1. General Declarations and Policy

10608. The Legislature finds and declares all of the following:

(a) Water is a public resource that the California Constitution protects against waste and unreasonable use.

(b) Growing population, climate change, and the need to protect and grow California's economy while protecting and restoring our fish and wildlife habitats make it essential that the state manage its water resources as efficiently as possible.

(c) Diverse regional water supply portfolios will increase water supply reliability and reduce dependence on the Delta.

(d) Reduced water use through conservation provides significant energy and environmental benefits, and can help protect water quality, improve streamflows, and reduce greenhouse gas emissions.

(e) The success of state and local water conservation programs to increase efficiency of water use is best determined on the basis of measurable outcomes related to water use or efficiency.

(f) Improvements in technology and management practices offer the potential for increasing water efficiency in California over time, providing an essential water management tool to meet the need for water for urban, agricultural, and environmental uses.

(g) The Governor has called for a 20 percent per capita reduction in urban water use statewide by 2020.

(h) The factors used to formulate water use efficiency targets can vary significantly from location to location based on factors including weather, patterns of urban and suburban development, and past efforts to enhance water use efficiency.

(i) Per capita water use is a valid measure of a water provider's efforts to reduce urban water use within its service area. However, per capita water use is less useful for measuring relative water use efficiency between different water providers. Differences in weather, historical patterns of urban and suburban development, and density of housing in a particular location need to be considered when assessing per capita water use as a measure of efficiency.

10608.4. It is the intent of the Legislature, by the enactment of this part, to do all of the following:

(a) Require all water suppliers to increase the efficiency of use of this essential resource.

(b) Establish a framework to meet the state targets for urban water conservation identified in this part and called for by the Governor.

(c) Measure increased efficiency of urban water use on a per capita basis.

(d) Establish a method or methods for urban retail water suppliers to determine targets for achieving increased water use efficiency by the year 2020, in accordance with the Governor's goal of a 20-percent reduction.

(e) Establish consistent water use efficiency planning and implementation standards for urban water suppliers and agricultural water suppliers.

(f) Promote urban water conservation standards that are consistent with the California Urban Water Conservation Council's adopted best management practices and the requirements for demand management in Section 10631.

(g) Establish standards that recognize and provide credit to water suppliers that made substantial capital investments in urban water conservation since the drought of the early 1990s.

(h) Recognize and account for the investment of urban retail water suppliers in providing recycled water for beneficial uses.

(i) Require implementation of specified efficient water management practices for agricultural water suppliers.

(j) Support the economic productivity of California's agricultural, commercial, and industrial sectors.

(k) Advance regional water resources management.

10608.8. (a) (1) Water use efficiency measures adopted and implemented pursuant to this part or Part 2.8 (commencing with Section 10800) are water conservation measures subject to the protections provided under Section 1011.

(2) Because an urban agency is not required to meet its urban water use target until 2020 pursuant to subdivision (b) of Section 10608.24, an urban retail water supplier's failure to meet those targets shall not establish a violation of law for purposes of any state administrative or judicial proceeding prior to January 1, 2021. Nothing in this paragraph limits the use of data reported to the department or the board in litigation or an

administrative proceeding. This paragraph shall become inoperative on January 1, 2021.

(3) To the extent feasible, the department and the board shall provide for the use of water conservation reports required under this part to meet the requirements of Section 1011 for water conservation reporting.

(b) This part does not limit or otherwise affect the application of Chapter 3.5 (commencing with Section 11340), Chapter 4 (commencing with Section 11370), Chapter 4.5 (commencing with Section 11400), and Chapter 5 (commencing with Section 11500) of Part 1 of Division 3 of Title 2 of the Government Code.

(c) This part does not require a reduction in the total water used in the agricultural or urban sectors, because other factors, including, but not limited to, changes in agricultural economics or population growth may have greater effects on water use. This part does not limit the economic productivity of California's agricultural, commercial, or industrial sectors.

(d) The requirements of this part do not apply to an agricultural water supplier that is a party to the Quantification Settlement Agreement, as defined in subdivision (a) of Section 1 of Chapter 617 of the Statutes of 2002, during the period within which the Quantification Settlement Agreement remains in effect. After the expiration of the Quantification Settlement Agreement, to the extent conservation water projects implemented as part of the Quantification Settlement Agreement remain in effect, the conserved water created as part of those projects shall be credited against the obligations of the agricultural water supplier pursuant to this part.

Chapter 2. Definitions

10608.12. Unless the context otherwise requires, the following definitions govern the construction of this part:

(a) "Agricultural water supplier" means a water supplier, either publicly or privately owned, providing water to 10,000 or more irrigated acres, excluding recycled water. "Agricultural water supplier" includes a supplier or contractor for water, regardless of the basis of right, that distributes or sells water for ultimate resale to customers. "Agricultural water supplier" does not include the department.

(b) "Base daily per capita water use" means any of the following:

(1) The urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous 10-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

(2) For an urban retail water supplier that meets at least 10 percent of its 2008 measured retail water demand through recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier, the urban retail water supplier may extend the calculation described in paragraph (1) up to an additional five years to a maximum of

a continuous 15-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

(3) For the purposes of Section 10608.22, the urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous five-year period ending no earlier than December 31, 2007, and no later than December 31, 2010.

(c) "Baseline commercial, industrial, and institutional water use" means an urban retail water supplier's base daily per capita water use for commercial, industrial, and institutional users.

(d) "Commercial water user" means a water user that provides or distributes a product or service.

(e) "Compliance daily per capita water use" means the gross water use during the final year of the reporting period, reported in gallons per capita per day.

(f) "Disadvantaged community" means a community with an annual median household income that is less than 80 percent of the statewide annual median household income.

(g) "Gross water use" means the total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier, excluding all of the following:

(1) Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier.

(2) The net volume of water that the urban retail water supplier places into long-term storage.

(3) The volume of water the urban retail water supplier conveys for use by another urban water supplier.

(4) The volume of water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24.

(h) "Industrial water user" means a water user that is primarily a manufacturer or processor of materials as defined by the North American Industry Classification System code sectors 31 to 33, inclusive, or an entity that is a water user primarily engaged in research and development.

(i) "Institutional water user" means a water user dedicated to public service. This type of user includes, among other users, higher education institutions, schools, courts, churches, hospitals, government facilities, and nonprofit research institutions.

(j) "Interim urban water use target" means the midpoint between the urban retail water supplier's base daily per capita water use and the urban retail water supplier's urban water use target for 2020.

(k) "Locally cost effective" means that the present value of the local benefits of implementing an agricultural efficiency water management practice is greater than or equal to the present value of the local cost of implementing that measure.

(*l*) "Process water" means water used for producing a product or product content or water used for research and development, including, but not limited to, continuous manufacturing processes, water used for testing and maintaining equipment used in producing a product or product content, and

water used in combined heat and power facilities used in producing a product or product content. Process water does not mean incidental water uses not related to the production of a product or product content, including, but not limited to, water used for restrooms, landscaping, air conditioning, heating, kitchens, and laundry.

(m) "Recycled water" means recycled water, as defined in subdivision (n) of Section 13050, that is used to offset potable demand, including recycled water supplied for direct use and indirect potable reuse, that meets the following requirements, where applicable:

(1) For groundwater recharge, including recharge through spreading basins, water supplies that are all of the following:

(A) Metered.

(B) Developed through planned investment by the urban water supplier or a wastewater treatment agency.

(C) Treated to a minimum tertiary level.

(D) Delivered within the service area of an urban retail water supplier or its urban wholesale water supplier that helps an urban retail water supplier meet its urban water use target.

(2) For reservoir augmentation, water supplies that meet the criteria of paragraph (1) and are conveyed through a distribution system constructed specifically for recycled water.

(n) "Regional water resources management" means sources of supply resulting from watershed-based planning for sustainable local water reliability or any of the following alternative sources of water:

(1) The capture and reuse of stormwater or rainwater.

(2) The use of recycled water.

(3) The desalination of brackish groundwater.

(4) The conjunctive use of surface water and groundwater in a manner that is consistent with the safe yield of the groundwater basin.

(o) "Reporting period" means the years for which an urban retail water supplier reports compliance with the urban water use targets.

(p) "Urban retail water supplier" means a water supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre-feet of potable water annually at retail for municipal purposes.

(q) "Urban water use target" means the urban retail water supplier's targeted future daily per capita water use.

(r) "Urban wholesale water supplier," means a water supplier, either publicly or privately owned, that provides more than 3,000 acre-feet of water annually at wholesale for potable municipal purposes.

Chapter 3. Urban Retail Water Suppliers

10608.16. (a) The state shall achieve a 20-percent reduction in urban per capita water use in California on or before December 31, 2020.

(b) The state shall make incremental progress towards the state target specified in subdivision (a) by reducing urban per capita water use by at least 10 percent on or before December 31, 2015.

10608.20. (a) (1) Each urban retail water supplier shall develop urban water use targets and an interim urban water use target by July 1, 2011. Urban retail water suppliers may elect to determine and report progress toward achieving these targets on an individual or regional basis, as provided in subdivision (a) of Section 10608.28, and may determine the targets on a fiscal year or calendar year basis.

(2) It is the intent of the Legislature that the urban water use targets described in subdivision (a) cumulatively result in a 20-percent reduction from the baseline daily per capita water use by December 31, 2020.

(b) An urban retail water supplier shall adopt one of the following methods for determining its urban water use target pursuant to subdivision (a):

(1) Eighty percent of the urban retail water supplier's baseline per capita daily water use.

(2) The per capita daily water use that is estimated using the sum of the following performance standards:

(A) For indoor residential water use, 55 gallons per capita daily water use as a provisional standard. Upon completion of the department's 2016 report to the Legislature pursuant to Section 10608.42, this standard may be adjusted by the Legislature by statute.

(B) For landscape irrigated through dedicated or residential meters or connections, water efficiency equivalent to the standards of the Model Water Efficient Landscape Ordinance set forth in Chapter 2.7 (commencing with Section 490) of Division 2 of Title 23 of the California Code of Regulations, as in effect the later of the year of the landscape's installation or 1992. An urban retail water supplier using the approach specified in this subparagraph shall use satellite imagery, site visits, or other best available technology to develop an accurate estimate of landscaped areas.

(C) For commercial, industrial, and institutional uses, a 10-percent reduction in water use from the baseline commercial, industrial, and institutional water use by 2020.

(3) Ninety-five percent of the applicable state hydrologic region target, as set forth in the state's draft 20x2020 Water Conservation Plan (dated April 30, 2009). If the service area of an urban water supplier includes more than one hydrologic region, the supplier shall apportion its service area to each region based on population or area.

(4) A method that shall be identified and developed by the department, through a public process, and reported to the Legislature no later than December 31, 2010. The method developed by the department shall identify per capita targets that cumulatively result in a statewide 20-percent reduction in urban daily per capita water use by December 31, 2020. In developing urban daily per capita water use targets, the department shall do all of the following:

(A) Consider climatic differences within the state.

(B) Consider population density differences within the state.

(C) Provide flexibility to communities and regions in meeting the targets.

(D) Consider different levels of per capita water use according to plant water needs in different regions.

(E) Consider different levels of commercial, industrial, and institutional water use in different regions of the state.

(F) Avoid placing an undue hardship on communities that have implemented conservation measures or taken actions to keep per capita water use low.

(c) If the department adopts a regulation pursuant to paragraph (4) of subdivision (b) that results in a requirement that an urban retail water supplier achieve a reduction in daily per capita water use that is greater than 20 percent by December 31, 2020, an urban retail water supplier that adopted the method described in paragraph (4) of subdivision (b) may limit its urban water use target to a reduction of not more than 20 percent by December 31, 2020, by adopting the method described in paragraph (1) of subdivision (b).

(d) The department shall update the method described in paragraph (4) of subdivision (b) and report to the Legislature by December 31, 2014. An urban retail water supplier that adopted the method described in paragraph (4) of subdivision (b) may adopt a new urban daily per capita water use target pursuant to this updated method.

(e) An urban retail water supplier shall include in its urban water management plan required pursuant to Part 2.6 (commencing with Section 10610) due in 2010 the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

(f) When calculating per capita values for the purposes of this chapter, an urban retail water supplier shall determine population using federal, state, and local population reports and projections.

(g) An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6 (commencing with Section 10610).

(h) (1) The department, through a public process and in consultation with the California Urban Water Conservation Council, shall develop technical methodologies and criteria for the consistent implementation of this part, including, but not limited to, both of the following:

(A) Methodologies for calculating base daily per capita water use, baseline commercial, industrial, and institutional water use, compliance daily per capita water use, gross water use, service area population, indoor residential water use, and landscaped area water use.

(B) Criteria for adjustments pursuant to subdivisions (d) and (e) of Section 10608.24.

(2) The department shall post the methodologies and criteria developed pursuant to this subdivision on its Internet Web site, and make written copies

available, by October 1, 2010. An urban retail water supplier shall use the methods developed by the department in compliance with this part.

(i) (1) The department shall adopt regulations for implementation of the provisions relating to process water in accordance with subdivision (*l*) of Section 10608.12, subdivision (e) of Section 10608.24, and subdivision (d) of Section 10608.26.

(2) The initial adoption of a regulation authorized by this subdivision is deemed to address an emergency, for purposes of Sections 11346.1 and 11349.6 of the Government Code, and the department is hereby exempted for that purpose from the requirements of subdivision (b) of Section 11346.1 of the Government Code. After the initial adoption of an emergency regulation pursuant to this subdivision, the department shall not request approval from the Office of Administrative Law to readopt the regulation as an emergency regulation pursuant to Section 11346.1 of the Government Code.

(j) An urban retail water supplier shall be granted an extension to July 1, 2011, for adoption of an urban water management plan pursuant to Part 2.6 (commencing with Section 10610) due in 2010 to allow use of technical methodologies developed by the department pursuant to paragraph (4) of subdivision (b) and subdivision (h). An urban retail water supplier that adopts an urban water management plan due in 2010 that does not use the methodologies developed by the department pursuant to subdivision (h) shall amend the plan by July 1, 2011, to comply with this part.

10608.22. Notwithstanding the method adopted by an urban retail water supplier pursuant to Section 10608.20, an urban retail water supplier's per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use as defined in paragraph (3) of subdivision (b) of Section 10608.12. This section does not apply to an urban retail water supplier with a base daily per capita water use at or below 100 gallons per capita per day.

10608.24. (a) Each urban retail water supplier shall meet its interim urban water use target by December 31, 2015.

(b) Each urban retail water supplier shall meet its urban water use target by December 31, 2020.

(c) An urban retail water supplier's compliance daily per capita water use shall be the measure of progress toward achievement of its urban water use target.

(d) (1) When determining compliance daily per capita water use, an urban retail water supplier may consider the following factors:

(A) Differences in evapotranspiration and rainfall in the baseline period compared to the compliance reporting period.

(B) Substantial changes to commercial or industrial water use resulting from increased business output and economic development that have occurred during the reporting period.

(C) Substantial changes to institutional water use resulting from fire suppression services or other extraordinary events, or from new or expanded operations, that have occurred during the reporting period.

(2) If the urban retail water supplier elects to adjust its estimate of compliance daily per capita water use due to one or more of the factors described in paragraph (1), it shall provide the basis for, and data supporting, the adjustment in the report required by Section 10608.40.

(e) When developing the urban water use target pursuant to Section 10608.20, an urban retail water supplier that has a substantial percentage of industrial water use in its service area, may exclude process water from the calculation of gross water use to avoid a disproportionate burden on another customer sector.

(f) (1) An urban retail water supplier that includes agricultural water use in an urban water management plan pursuant to Part 2.6 (commencing with Section 10610) may include the agricultural water use in determining gross water use. An urban retail water supplier that includes agricultural water use in determining gross water use and develops its urban water use target pursuant to paragraph (2) of subdivision (b) of Section 10608.20 shall use a water efficient standard for agricultural irrigation of 100 percent of reference evapotranspiration multiplied by the crop coefficient for irrigated acres.

(2) An urban retail water supplier, that is also an agricultural water supplier, is not subject to the requirements of Chapter 4 (commencing with Section 10608.48), if the agricultural water use is incorporated into its urban water use target pursuant to paragraph (1).

10608.26. (a) In complying with this part, an urban retail water supplier shall conduct at least one public hearing to accomplish all of the following:

(1) Allow community input regarding the urban retail water supplier's implementation plan for complying with this part.

(2) Consider the economic impacts of the urban retail water supplier's implementation plan for complying with this part.

(3) Adopt a method, pursuant to subdivision (b) of Section 10608.20, for determining its urban water use target.

(b) In complying with this part, an urban retail water supplier may meet its urban water use target through efficiency improvements in any combination among its customer sectors. An urban retail water supplier shall avoid placing a disproportionate burden on any customer sector.

(c) For an urban retail water supplier that supplies water to a United States Department of Defense military installation, the urban retail water supplier's implementation plan for complying with this part shall consider the United States Department of Defense military installation's requirements under federal Executive Order 13423.

(d) (1) Any ordinance or resolution adopted by an urban retail water supplier after the effective date of this section shall not require existing customers as of the effective date of this section, to undertake changes in product formulation, operations, or equipment that would reduce process water use, but may provide technical assistance and financial incentives to those customers to implement efficiency measures for process water. This section shall not limit an ordinance or resolution adopted pursuant to a declaration of drought emergency by an urban retail water supplier.

(2) This part shall not be construed or enforced so as to interfere with the requirements of Chapter 4 (commencing with Section 113980) to Chapter 13 (commencing with Section 114380), inclusive, of Part 7 of Division 104 of the Health and Safety Code, or any requirement or standard for the protection of public health, public safety, or worker safety established by federal, state, or local government or recommended by recognized standard setting organizations or trade associations.

10608.28. (a) An urban retail water supplier may meet its urban water use target within its retail service area, or through mutual agreement, by any of the following:

(1) Through an urban wholesale water supplier.

(2) Through a regional agency authorized to plan and implement water conservation, including, but not limited to, an agency established under the Bay Area Water Supply and Conservation Agency Act (Division 31 (commencing with Section 81300)).

(3) Through a regional water management group as defined in Section 10537.

(4) By an integrated regional water management funding area.

(5) By hydrologic region.

(6) Through other appropriate geographic scales for which computation methods have been developed by the department.

(b) A regional water management group, with the written consent of its member agencies, may undertake any or all planning, reporting, and implementation functions under this chapter for the member agencies that consent to those activities. Any data or reports shall provide information both for the regional water management group and separately for each consenting urban retail water supplier and urban wholesale water supplier.

10608.32. All costs incurred pursuant to this part by a water utility regulated by the Public Utilities Commission may be recoverable in rates subject to review and approval by the Public Utilities Commission, and may be recorded in a memorandum account and reviewed for reasonableness by the Public Utilities Commission.

10608.36. Urban wholesale water suppliers shall include in the urban water management plans required pursuant to Part 2.6 (commencing with Section 10610) an assessment of their present and proposed future measures, programs, and policies to help achieve the water use reductions required by this part.

10608.40. Urban water retail suppliers shall report to the department on their progress in meeting their urban water use targets as part of their urban water management plans submitted pursuant to Section 10631. The data shall be reported using a standardized form developed pursuant to Section 10608.52.

10608.42. The department shall review the 2015 urban water management plans and report to the Legislature by December 31, 2016, on progress towards achieving a 20-percent reduction in urban water use by December 31, 2020. The report shall include recommendations on changes to water efficiency standards or urban water use targets in order to achieve

the 20-percent reduction and to reflect updated efficiency information and technology changes.

10608.43. The department, in conjunction with the California Urban Water Conservation Council, by April 1, 2010, shall convene a representative task force consisting of academic experts, urban retail water suppliers, environmental organizations, commercial water users, industrial water users, and institutional water users to develop alternative best management practices for commercial, industrial, and institutional users and an assessment of the potential statewide water use efficiency improvement in the commercial, industrial, and institutional sectors that would result from implementation of these best management practices. The taskforce, in conjunction with the department, shall submit a report to the Legislature by April 1, 2012, that shall include a review of multiple sectors within commercial, industrial, and institutional users and that shall recommend water use efficiency standards for commercial, industrial, and institutional users among various sectors of water use. The report shall include, but not be limited to, the following:

(a) Appropriate metrics for evaluating commercial, industrial, and institutional water use.

(b) Evaluation of water demands for manufacturing processes, goods, and cooling.

(c) Evaluation of public infrastructure necessary for delivery of recycled water to the commercial, industrial, and institutional sectors.

(d) Evaluation of institutional and economic barriers to increased recycled water use within the commercial, industrial, and institutional sectors.

(e) Identification of technical feasibility and cost of the best management practices to achieve more efficient water use statewide in the commercial, industrial, and institutional sectors that is consistent with the public interest and reflects past investments in water use efficiency.

10608.44. Each state agency shall reduce water use on facilities it operates to support urban retail water suppliers in meeting the target identified in Section 10608.16.

Chapter 4. Agricultural Water Suppliers

10608.48. (a) On or before July 31, 2012, an agricultural water supplier shall implement efficient water management practices pursuant to subdivisions (b) and (c).

(b) Agricultural water suppliers shall implement all of the following critical efficient management practices:

(1) Measure the volume of water delivered to customers with sufficient accuracy to comply with subdivision (a) of Section 531.10 and to implement paragraph (2).

(2) Adopt a pricing structure for water customers based at least in part on quantity delivered.

(c) Agricultural water suppliers shall implement additional efficient management practices, including, but not limited to, practices to accomplish all of the following, if the measures are locally cost effective and technically feasible:

(1) Facilitate alternative land use for lands with exceptionally high water duties or whose irrigation contributes to significant problems, including drainage.

(2) Facilitate use of available recycled water that otherwise would not be used beneficially, meets all health and safety criteria, and does not harm crops or soils.

(3) Facilitate the financing of capital improvements for on-farm irrigation systems.

(4) Implement an incentive pricing structure that promotes one or more of the following goals:

(A) More efficient water use at the farm level.

(B) Conjunctive use of groundwater.

(C) Appropriate increase of groundwater recharge.

(D) Reduction in problem drainage.

(E) Improved management of environmental resources.

(F) Effective management of all water sources throughout the year by adjusting seasonal pricing structures based on current conditions.

(5) Expand line or pipe distribution systems, and construct regulatory reservoirs to increase distribution system flexibility and capacity, decrease maintenance, and reduce seepage.

(6) Increase flexibility in water ordering by, and delivery to, water customers within operational limits.

(7) Construct and operate supplier spill and tailwater recovery systems.

(8) Increase planned conjunctive use of surface water and groundwater within the supplier service area.

(9) Automate canal control structures.

(10) Facilitate or promote customer pump testing and evaluation.

(11) Designate a water conservation coordinator who will develop and implement the water management plan and prepare progress reports.

(12) Provide for the availability of water management services to water users. These services may include, but are not limited to, all of the following:

(A) On-farm irrigation and drainage system evaluations.

(B) Normal year and real-time irrigation scheduling and crop evapotranspiration information.

(C) Surface water, groundwater, and drainage water quantity and quality data.

(D) Agricultural water management educational programs and materials for farmers, staff, and the public.

(13) Evaluate the policies of agencies that provide the supplier with water to identify the potential for institutional changes to allow more flexible water deliveries and storage.

(14) Evaluate and improve the efficiencies of the supplier’s pumps.

(d) Agricultural water suppliers shall include in the agricultural water management plans required pursuant to Part 2.8 (commencing with Section 10800) a report on which efficient water management practices have been implemented and are planned to be implemented, an estimate of the water use efficiency improvements that have occurred since the last report, and an estimate of the water use efficiency improvements estimated to occur five and 10 years in the future. If an agricultural water supplier determines that an efficient water management practice is not locally cost effective or technically feasible, the supplier shall submit information documenting that determination.

(e) The data shall be reported using a standardized form developed pursuant to Section 10608.52.

(f) An agricultural water supplier may meet the requirements of subdivisions (d) and (e) by submitting to the department a water conservation plan submitted to the United States Bureau of Reclamation that meets the requirements described in Section 10828.

(g) On or before December 31, 2013, December 31, 2016, and December 31, 2021, the department, in consultation with the board, shall submit to the Legislature a report on the agricultural efficient water management practices that have been implemented and are planned to be implemented and an assessment of the manner in which the implementation of those efficient water management practices has affected and will affect agricultural operations, including estimated water use efficiency improvements, if any.

(h) The department may update the efficient water management practices required pursuant to subdivision (c), in consultation with the Agricultural Water Management Council, the United States Bureau of Reclamation, and the board. All efficient water management practices for agricultural water use pursuant to this chapter shall be adopted or revised by the department only after the department conducts public hearings to allow participation of the diverse geographical areas and interests of the state.

(i) (1) The department shall adopt regulations that provide for a range of options that agricultural water suppliers may use or implement to comply with the measurement requirement in paragraph (1) of subdivision (b).

(2) The initial adoption of a regulation authorized by this subdivision is deemed to address an emergency, for purposes of Sections 11346.1 and 11349.6 of the Government Code, and the department is hereby exempted for that purpose from the requirements of subdivision (b) of Section 11346.1 of the Government Code. After the initial adoption of an emergency regulation pursuant to this subdivision, the department shall not request approval from the Office of Administrative Law to readopt the regulation as an emergency regulation pursuant to Section 11346.1 of the Government Code.

Chapter 5. Sustainable Water Management

10608.50. (a) The department, in consultation with the board, shall promote implementation of regional water resources management practices through increased incentives and removal of barriers consistent with state and federal law. Potential changes may include, but are not limited to, all of the following:

(1) Revisions to the requirements for urban and agricultural water management plans.

(2) Revisions to the requirements for integrated regional water management plans.

(3) Revisions to the eligibility for state water management grants and loans.

(4) Revisions to state or local permitting requirements that increase water supply opportunities, but do not weaken water quality protection under state and federal law.

(5) Increased funding for research, feasibility studies, and project construction.

(6) Expanding technical and educational support for local land use and water management agencies.

(b) No later than January 1, 2011, and updated as part of the California Water Plan, the department, in consultation with the board, and with public input, shall propose new statewide targets, or review and update existing statewide targets, for regional water resources management practices, including, but not limited to, recycled water, brackish groundwater desalination, and infiltration and direct use of urban stormwater runoff.

Chapter 6. Standardized Data Collection

10608.52. (a) The department, in consultation with the board, the California Bay-Delta Authority or its successor agency, the State Department of Public Health, and the Public Utilities Commission, shall develop a single standardized water use reporting form to meet the water use information needs of each agency, including the needs of urban water suppliers that elect to determine and report progress toward achieving targets on a regional basis as provided in subdivision (a) of Section 10608.28.

(b) At a minimum, the form shall be developed to accommodate information sufficient to assess an urban water supplier's compliance with conservation targets pursuant to Section 10608.24 and an agricultural water supplier's compliance with implementation of efficient water management practices pursuant to subdivision (a) of Section 10608.48. The form shall accommodate reporting by urban water suppliers on an individual or regional basis as provided in subdivision (a) of Section 10608.28.

Chapter 7. Funding Provisions

10608.56. (a) On and after July 1, 2016, an urban retail water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier complies with this part.

(b) On and after July 1, 2013, an agricultural water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier complies with this part.

(c) Notwithstanding subdivision (a), the department shall determine that an urban retail water supplier is eligible for a water grant or loan even though the supplier has not met the per capita reductions required pursuant to Section 10608.24, if the urban retail water supplier has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for achieving the per capita reductions. The supplier may request grant or loan funds to achieve the per capita reductions to the extent the request is consistent with the eligibility requirements applicable to the water funds.

(d) Notwithstanding subdivision (b), the department shall determine that an agricultural water supplier is eligible for a water grant or loan even though the supplier is not implementing all of the efficient water management practices described in Section 10608.48, if the agricultural water supplier has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for implementation of the efficient water management practices. The supplier may request grant or loan funds to implement the efficient water management practices to the extent the request is consistent with the eligibility requirements applicable to the water funds.

(e) Notwithstanding subdivision (a), the department shall determine that an urban retail water supplier is eligible for a water grant or loan even though the supplier has not met the per capita reductions required pursuant to Section 10608.24, if the urban retail water supplier has submitted to the department for approval documentation demonstrating that its entire service area qualifies as a disadvantaged community.

(f) The department shall not deny eligibility to an urban retail water supplier or agricultural water supplier in compliance with the requirements of this part and Part 2.8 (commencing with Section 10800), that is participating in a multiagency water project, or an integrated regional water management plan, developed pursuant to Section 75026 of the Public Resources Code, solely on the basis that one or more of the agencies participating in the project or plan is not implementing all of the requirements of this part or Part 2.8 (commencing with Section 10800).

10608.60. (a) It is the intent of the Legislature that funds made available by Section 75026 of the Public Resources Code should be expended, consistent with Division 43 (commencing with Section 75001) of the Public Resources Code and upon appropriation by the Legislature, for grants to implement this part. In the allocation of funding, it is the intent of the

Legislature that the department give consideration to disadvantaged communities to assist in implementing the requirements of this part.

(b) It is the intent of the Legislature that funds made available by Section 75041 of the Public Resources Code, should be expended, consistent with Division 43 (commencing with Section 75001) of the Public Resources Code and upon appropriation by the Legislature, for direct expenditures to implement this part.

Chapter 8. Quantifying Agricultural Water Use Efficiency

10608.64. The department, in consultation with the Agricultural Water Management Council, academic experts, and other stakeholders, shall develop a methodology for quantifying the efficiency of agricultural water use. Alternatives to be assessed shall include, but not be limited to, determination of efficiency levels based on crop type or irrigation system distribution uniformity. On or before December 31, 2011, the department shall report to the Legislature on a proposed methodology and a plan for implementation. The plan shall include the estimated implementation costs and the types of data needed to support the methodology. Nothing in this section authorizes the department to implement a methodology established pursuant to this section.

SEC. 2. Section 10631.5 of the Water Code is amended to read:

10631.5. (a) (1) Beginning January 1, 2009, the terms of, and eligibility for, a water management grant or loan made to an urban water supplier and awarded or administered by the department, state board, or California Bay-Delta Authority or its successor agency shall be conditioned on the implementation of the water demand management measures described in Section 10631, as determined by the department pursuant to subdivision (b).

(2) For the purposes of this section, water management grants and loans include funding for programs and projects for surface water or groundwater storage, recycling, desalination, water conservation, water supply reliability, and water supply augmentation. This section does not apply to water management projects funded by the federal American Recovery and Reinvestment Act of 2009 (Public Law 111-5).

(3) Notwithstanding paragraph (1), the department shall determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if the urban water supplier has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for implementation of the water demand management measures. The supplier may request grant or loan funds to implement the water demand management measures to the extent the request is consistent with the eligibility requirements applicable to the water management funds.

(4) (A) Notwithstanding paragraph (1), the department shall determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if an urban water supplier submits to the department for approval documentation demonstrating that a water demand management measure is not locally cost effective. If the department determines that the documentation submitted by the urban water supplier fails to demonstrate that a water demand management measure is not locally cost effective, the department shall notify the urban water supplier and the agency administering the grant or loan program within 120 days that the documentation does not satisfy the requirements for an exemption, and include in that notification a detailed statement to support the determination.

(B) For purposes of this paragraph, "not locally cost effective" means that the present value of the local benefits of implementing a water demand management measure is less than the present value of the local costs of implementing that measure.

(b) (1) The department, in consultation with the state board and the California Bay-Delta Authority or its successor agency, and after soliciting public comment regarding eligibility requirements, shall develop eligibility requirements to implement the requirement of paragraph (1) of subdivision (a). In establishing these eligibility requirements, the department shall do both of the following:

(A) Consider the conservation measures described in the Memorandum of Understanding Regarding Urban Water Conservation in California, and alternative conservation approaches that provide equal or greater water savings.

(B) Recognize the different legal, technical, fiscal, and practical roles and responsibilities of wholesale water suppliers and retail water suppliers.

(2) (A) For the purposes of this section, the department shall determine whether an urban water supplier is implementing all of the water demand management measures described in Section 10631 based on either, or a combination, of the following:

(i) Compliance on an individual basis.

(ii) Compliance on a regional basis. Regional compliance shall require participation in a regional conservation program consisting of two or more urban water suppliers that achieves the level of conservation or water efficiency savings equivalent to the amount of conservation or savings achieved if each of the participating urban water suppliers implemented the water demand management measures. The urban water supplier administering the regional program shall provide participating urban water suppliers and the department with data to demonstrate that the regional program is consistent with this clause. The department shall review the data to determine whether the urban water suppliers in the regional program are meeting the eligibility requirements.

(B) The department may require additional information for any determination pursuant to this section.

(3) The department shall not deny eligibility to an urban water supplier in compliance with the requirements of this section that is participating in a multiagency water project, or an integrated regional water management plan, developed pursuant to Section 75026 of the Public Resources Code, solely on the basis that one or more of the agencies participating in the project or plan is not implementing all of the water demand management measures described in Section 10631.

(c) In establishing guidelines pursuant to the specific funding authorization for any water management grant or loan program subject to this section, the agency administering the grant or loan program shall include in the guidelines the eligibility requirements developed by the department pursuant to subdivision (b).

(d) Upon receipt of a water management grant or loan application by an agency administering a grant and loan program subject to this section, the agency shall request an eligibility determination from the department with respect to the requirements of this section. The department shall respond to the request within 60 days of the request.

(e) The urban water supplier may submit to the department copies of its annual reports and other relevant documents to assist the department in determining whether the urban water supplier is implementing or scheduling the implementation of water demand management activities. In addition, for urban water suppliers that are signatories to the Memorandum of Understanding Regarding Urban Water Conservation in California and submit biennial reports to the California Urban Water Conservation Council in accordance with the memorandum, the department may use these reports to assist in tracking the implementation of water demand management measures.

(f) This section shall remain in effect only until July 1, 2016, and as of that date is repealed, unless a later enacted statute, that is enacted before July 1, 2016, deletes or extends that date.

SEC. 3. Part 2.8 (commencing with Section 10800) of Division 6 of the Water Code is repealed.

SEC. 4. Part 2.8 (commencing with Section 10800) is added to Division 6 of the Water Code, to read:

PART 2.8. AGRICULTURAL WATER MANAGEMENT PLANNING

Chapter 1. General Declarations and Policy

10800. This part shall be known and may be cited as the Agricultural Water Management Planning Act.

10801. The Legislature finds and declares all of the following:

(a) The waters of the state are a limited and renewable resource.

(b) The California Constitution requires that water in the state be used in a reasonable and beneficial manner.

(c) Urban water districts are required to adopt water management plans.

(d) The conservation of agricultural water supplies is of great statewide concern.

(e) There is a great amount of reuse of delivered water, both inside and outside the water service areas.

(f) Significant noncrop beneficial uses are associated with agricultural water use, including streamflows and wildlife habitat.

(g) Significant opportunities exist in some areas, through improved irrigation water management, to conserve water or to reduce the quantity of highly saline or toxic drainage water.

(h) Changes in water management practices should be carefully planned and implemented to minimize adverse effects on other beneficial uses currently being served.

(i) Agricultural water suppliers that receive water from the federal Central Valley Project are required by federal law to prepare and implement water conservation plans.

(j) Agricultural water users applying for a permit to appropriate water from the board are required to prepare and implement water conservation plans.

10802. The Legislature finds and declares that all of the following are the policies of the state:

(a) The conservation of water shall be pursued actively to protect both the people of the state and the state's water resources.

(b) The conservation of agricultural water supplies shall be an important criterion in public decisions with regard to water.

(c) Agricultural water suppliers shall be required to prepare water management plans to achieve conservation of water.

Chapter 2. Definitions

10810. Unless the context otherwise requires, the definitions set forth in this chapter govern the construction of this part.

10811. "Agricultural water management plan" or "plan" means an agricultural water management plan prepared pursuant to this part.

10812. "Agricultural water supplier" has the same meaning as defined in Section 10608.12.

10813. "Customer" means a purchaser of water from a water supplier who uses water for agricultural purposes.

10814. "Person" means any individual, firm, association, organization, partnership, business, trust, corporation, company, public agency, or any agency of that entity.

10815. "Public agency" means any city, county, city and county, special district, or other public entity.

10816. "Urban water supplier" has the same meaning as set forth in Section 10617.

10817. "Water conservation" means the efficient management of water resources for beneficial uses, preventing waste, or accomplishing additional benefits with the same amount of water.

Chapter 3. Agricultural Water Management Plans

Article 1. General Provisions

10820. (a) An agricultural water supplier shall prepare and adopt an agricultural water management plan in the manner set forth in this chapter on or before December 31, 2012, and shall update that plan on December 31, 2015, and on or before December 31 every five years thereafter.

(b) Every supplier that becomes an agricultural water supplier after December 31, 2012, shall prepare and adopt an agricultural water management plan within one year after the date it has become an agricultural water supplier.

(c) A water supplier that indirectly provides water to customers for agricultural purposes shall not prepare a plan pursuant to this part without the consent of each agricultural water supplier that directly provides that water to its customers.

10821. (a) An agricultural water supplier required to prepare a plan pursuant to this part shall notify each city or county within which the supplier provides water supplies that the agricultural water supplier will be preparing the plan or reviewing the plan and considering amendments or changes to the plan. The agricultural water supplier may consult with, and obtain comments from, each city or county that receives notice pursuant to this subdivision.

(b) The amendments to, or changes in, the plan shall be adopted and submitted in the manner set forth in Article 3 (commencing with Section 10840).

Article 2. Contents of Plans

10825. (a) It is the intent of the Legislature in enacting this part to allow levels of water management planning commensurate with the numbers of customers served and the volume of water supplied.

(b) This part does not require the implementation of water conservation programs or practices that are not locally cost effective.

10826. An agricultural water management plan shall be adopted in accordance with this chapter. The plan shall do all of the following:

(a) Describe the agricultural water supplier and the service area, including all of the following:

(1) Size of the service area.

(2) Location of the service area and its water management facilities.

(3) Terrain and soils.

(4) Climate.

(5) Operating rules and regulations.
(6) Water delivery measurements or calculations.
(7) Water rate schedules and billing.
(8) Water shortage allocation policies.

(b) Describe the quantity and quality of water resources of the agricultural water supplier, including all of the following:

(1) Surface water supply.
(2) Groundwater supply.
(3) Other water supplies.
(4) Source water quality monitoring practices.
(5) Water uses within the agricultural water supplier's service area, including all of the following:
(A) Agricultural.
(B) Environmental.
(C) Recreational.
(D) Municipal and industrial.
(E) Groundwater recharge.
(F) Transfers and exchanges.
(G) Other water uses.
(6) Drainage from the water supplier's service area.
(7) Water accounting, including all of the following:
(A) Quantifying the water supplier's water supplies.
(B) Tabulating water uses.
(C) Overall water budget.
(8) Water supply reliability.

(c) Include an analysis, based on available information, of the effect of climate change on future water supplies.

(d) Describe previous water management activities.

(e) Include in the plan the water use efficiency information required pursuant to Section 10608.48.

10827. Agricultural water suppliers that are members of the Agricultural Water Management Council, and that submit water management plans to that council in accordance with the "Memorandum of Understanding Regarding Efficient Water Management Practices By Agricultural Water Suppliers In California," dated January 1, 1999, may submit the water management plans identifying water demand management measures currently being implemented, or scheduled for implementation, to satisfy the requirements of Section 10826.

10828. (a) Agricultural water suppliers that are required to submit water conservation plans to the United States Bureau of Reclamation pursuant to either the Central Valley Project Improvement Act (Public Law 102-575) or the Reclamation Reform Act of 1982, or both, may submit those water conservation plans to satisfy the requirements of Section 10826, if both of the following apply:

(1) The agricultural water supplier has adopted and submitted the water conservation plan to the United States Bureau of Reclamation within the previous four years.

(2) The United States Bureau of Reclamation has accepted the water conservation plan as adequate.

(b) This part does not require agricultural water suppliers that are required to submit water conservation plans to the United States Bureau of Reclamation pursuant to either the Central Valley Project Improvement Act (Public Law 102-575) or the Reclamation Reform Act of 1982, or both, to prepare and adopt water conservation plans according to a schedule that is different from that required by the United States Bureau of Reclamation.

10829. An agricultural water supplier may satisfy the requirements of this part by adopting an urban water management plan pursuant to Part 2.6 (commencing with Section 10610) or by participation in areawide, regional, watershed, or basinwide water management planning if those plans meet or exceed the requirements of this part.

Article 3. Adoption and Implementation of Plans

10840. Every agricultural water supplier shall prepare its plan pursuant to Article 2 (commencing with Section 10825).

10841. Prior to adopting a plan, the agricultural water supplier shall make the proposed plan available for public inspection, and shall hold a public hearing on the plan. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned agricultural water supplier pursuant to Section 6066 of the Government Code. A privately owned agricultural water supplier shall provide an equivalent notice within its service area and shall provide a reasonably equivalent opportunity that would otherwise be afforded through a public hearing process for interested parties to provide input on the plan. After the hearing, the plan shall be adopted as prepared or as modified during or after the hearing.

10842. An agricultural water supplier shall implement the plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan, as determined by the governing body of the agricultural water supplier.

10843. (a) An agricultural water supplier shall submit to the entities identified in subdivision (b) a copy of its plan no later than 30 days after the adoption of the plan. Copies of amendments or changes to the plans shall be submitted to the entities identified in subdivision (b) within 30 days after the adoption of the amendments or changes.

(b) An agricultural water supplier shall submit a copy of its plan and amendments or changes to the plan to each of the following entities:

(1) The department.

(2) Any city, county, or city and county within which the agricultural water supplier provides water supplies.

(3) Any groundwater management entity within which jurisdiction the agricultural water supplier extracts or provides water supplies.

(4) Any urban water supplier within which jurisdiction the agricultural water supplier provides water supplies.

(5) Any city or county library within which jurisdiction the agricultural water supplier provides water supplies.

(6) The California State Library.

(7) Any local agency formation commission serving a county within which the agricultural water supplier provides water supplies.

10844. (a) Not later than 30 days after the date of adopting its plan, the agricultural water supplier shall make the plan available for public review on the agricultural water supplier's Internet Web site.

(b) An agricultural water supplier that does not have an Internet Web site shall submit to the department, not later than 30 days after the date of adopting its plan, a copy of the adopted plan in an electronic format. The department shall make the plan available for public review on the department's Internet Web site.

10845. (a) The department shall prepare and submit to the Legislature, on or before December 31, 2013, and thereafter in the years ending in six and years ending in one, a report summarizing the status of the plans adopted pursuant to this part.

(b) The report prepared by the department shall identify the outstanding elements of any plan adopted pursuant to this part. The report shall include an evaluation of the effectiveness of this part in promoting efficient agricultural water management practices and recommendations relating to proposed changes to this part, as appropriate.

(c) The department shall provide a copy of the report to each agricultural water supplier that has submitted its plan to the department. The department shall also prepare reports and provide data for any legislative hearing designed to consider the effectiveness of plans submitted pursuant to this part.

(d) This section does not authorize the department, in preparing the report, to approve, disapprove, or critique individual plans submitted pursuant to this part.

Chapter 4. Miscellaneous Provisions

10850. (a) Any action or proceeding to attack, review, set aside, void, or annul the acts or decisions of an agricultural water supplier on the grounds of noncompliance with this part shall be commenced as follows:

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

(2) Any action or proceeding alleging that a plan, or action taken pursuant to the plan, does not comply with this part shall be commenced within 120 days after submitting the plan or amendments to the plan to entities in accordance with Section 10844 or the taking of that action.

(b) In an action or proceeding to attack, review, set aside, void, or annul a plan, or an action taken pursuant to the plan by an agricultural water supplier, on the grounds of noncompliance with this part, the inquiry shall extend only to whether there was a prejudicial abuse of discretion. Abuse

of discretion is established if the agricultural water supplier has not proceeded in a manner required by law, or if the action by the agricultural water supplier is not supported by substantial evidence.

10851. The California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) does not apply to the preparation and adoption of plans pursuant to this part. This part does not exempt projects for implementation of the plan or for expanded or additional water supplies from the California Environmental Quality Act.

10852. An agricultural water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier complies with this part.

10853. No agricultural water supplier that provides water to less than 25,000 irrigated acres, excluding recycled water, shall be required to implement the requirements of this part or Part 2.55 (commencing with Section 10608) unless sufficient funding has specifically been provided to that water supplier for these purposes.

SEC. 5. This act shall take effect only if Senate Bill 1 and Senate Bill 6 of the 2009–10 Seventh Extraordinary Session of the Legislature are enacted and become effective.

O

WEST BASIN MUNICIPAL WATER DISTRICT 2010
URBAN WATER MANAGEMENT PLAN

West Basin Municipal Water District
2010 Urban Water Management Plan

Prepared by:

RMC
Water and Environment

June 2011

MESSAGE FROM THE BOARD OF DIRECTORS

Since its formation in 1947, West Basin has remained steadfast in its commitment to ensure a safe and reliable water supply for the region. Through the years, West Basin has grown and transformed seeking innovative and viable solutions to meet the changing needs of its communities. All of us at West Basin continue to expand our efforts to meet the growing water demand while preserving our limited and precious water resources. Through our Water Reliability 2020 Program, including recycling, conservation and desalination, West Basin will continue to diversify its local water supplies to ensure a reliable supply of water for future generations.

We are proud to submit this 2010 Urban Water Management Plan to the State Department of Water Resources. The Plan reports all current and projected water supplies and demands within West Basin's service area, demonstrates water reliability for the next 25 years and provides a comprehensive overview of West Basin's various programs.

"Through various programs and projects, West Basin ensures that its customer agencies have a safe and reliable supply of water to provide to the residents, businesses and industries within its service area."

Directors

Division 1 (Director Ronald C. (Ron) Smith): Cities of Carson, Palos Verdes Estates, Rancho Palos Verdes, Rolling Hills Estates, Rolling Hills and portions of San Pedro;

Division 2 (Director Gloria D. Gray): Cities of Inglewood, South Ladera Heights, a portion of Lennox and Athens, Howard and Ross-Sexton;

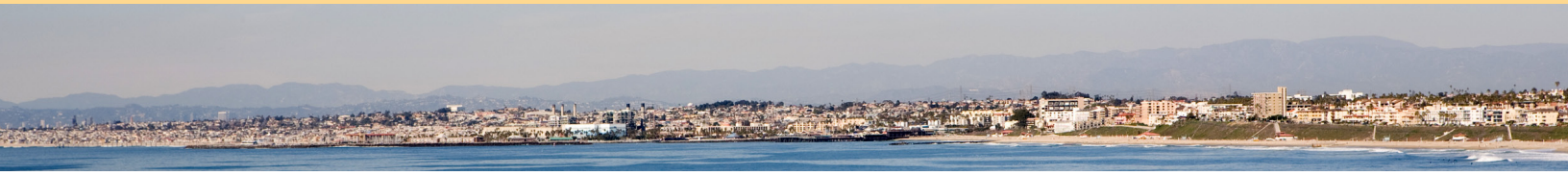
Division 3 (Director Carol W. Kwan): Cities of Hermosa Beach, Lomita, Manhattan Beach, Redondo Beach and a portion of Torrance;

Division 4 (Director Edward C. Little): Cities of Culver City, El Segundo, Malibu, and West Hollywood, Lennox, North Ladera Heights, Del Aire, Topanga, View Park and Windsor Hills; and

Division 5 (Director Donald L. Dear): Cities of Gardena, Hawthorne, Lawndale and portions of El Camino Village.

Mission Statement

"To provide a safe and reliable supply of high-quality water to the communities we serve."



This page intentionally blank

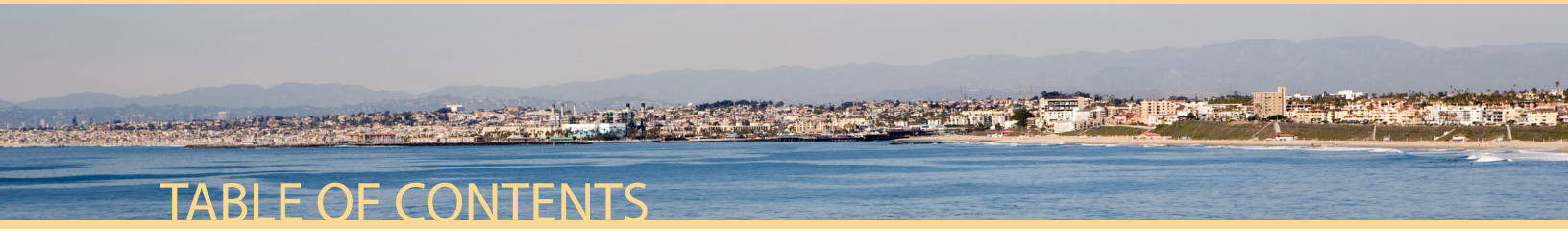
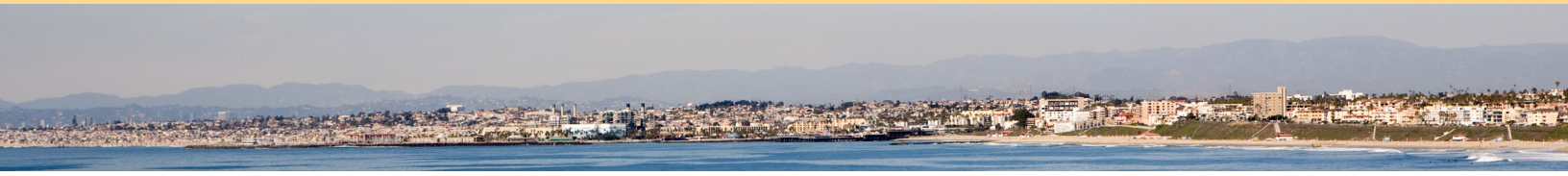
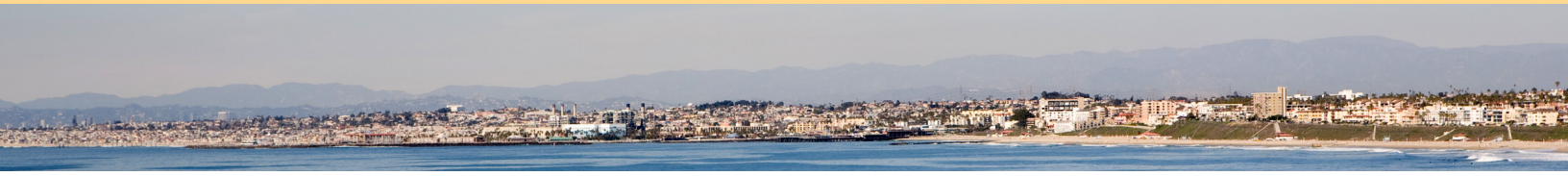
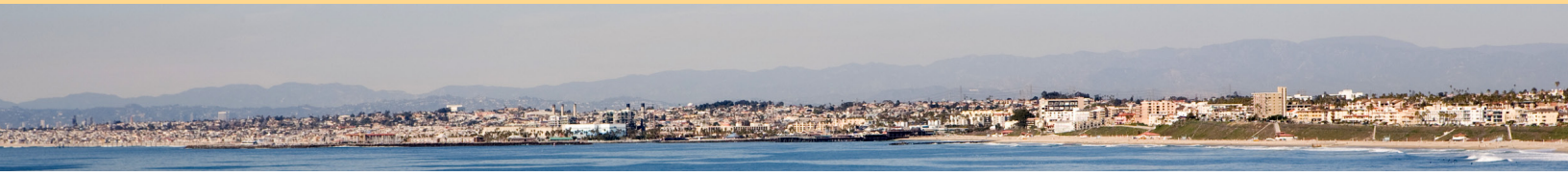
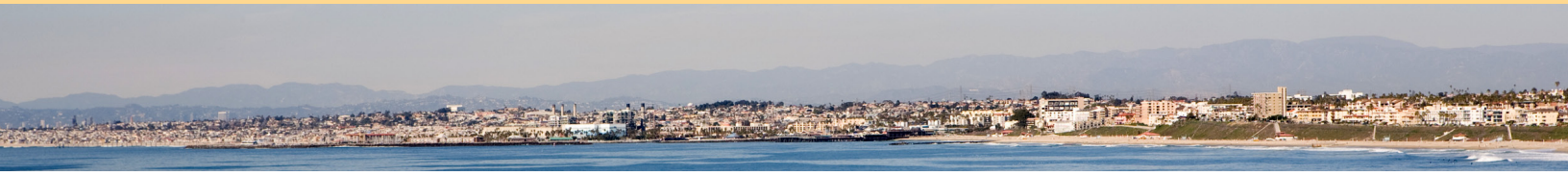


TABLE OF CONTENTS



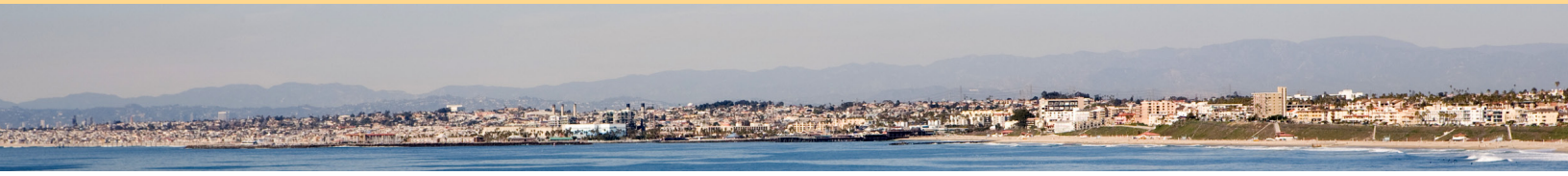


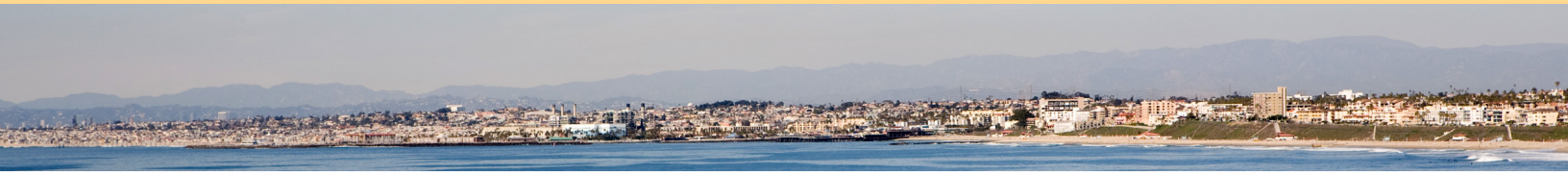




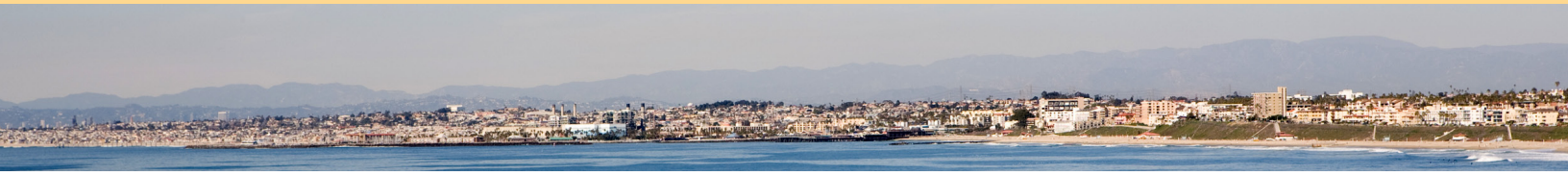
Appendices

List of Tables





List of Figures



Executive Summary

2010

EXECUTIVE SUMMARY

1 West Basin's Mission

West Basin Municipal Water District (West Basin) was established in 1947 to help mitigate the over pumping of groundwater by providing imported water from the Metropolitan Water District of Southern California (MWD) as replenishment supplies. Today, this imported water is also provided to supplement local supplies including groundwater, desalination, and recycled supplies developed by West Basin or by retailer agencies operating within West Basin's service area. In addition, a combination of recycled water and imported water is introduced into local aquifers through the West Coast Seawater Barrier to both protect the groundwater supplies from seawater contamination and replace, or replenish, what is pumped.

In January 2008, the West Basin Board adopted a Strategic Business Plan to address water supply issues that plague Southern California by focusing on producing new sources of local water, improving its environmentally-sound and innovative technologies, and emphasizing customer service and satisfaction. With a goal to decrease its service area's dependence on imported water by 50 percent between now and 2020, West Basin is expanding its recycled water customer base, exploring the feasibility of taking its ocean-water desalination project to the next level, and broadening its water use efficiency programs and outreach. Through various programs and projects, West Basin ensures that its customer agencies have a safe and reliable supply of water to provide to the residents, businesses and industries within its service area.

2 West Basin's 2010 Urban Water Management Plan

West Basin's 2010 Urban Water Management Plan (UWMP) revises the 2005 UWMP prepared by West Basin and incorporates changes enacted by legislation since 2005. Since 2005, several amendments have been added to the Urban Water Management Act. The most significant being the requirements mandated through the passing of Senate Bill (SB) X7-7 that seeks a 20 percent statewide reduction in urban per capita water use in California by December 31, 2020 and for agencies to calculate individual water use reduction targets to help achieve this goal.

As a water wholesaler, West Basin is not required to provide these targets. However, given its' role as a regional water provider, West Basin has elected, in cooperation with a portion of its customer agencies, to use its 2010 UWMP as a regional alliance UWMP. Although each of West Basin's customer agencies must prepare individual 2010 UWMPs, West Basin's 2010 UWMP provides a regional target that will allow these retailers and West Basin to collaborate on the most effective and efficient programs that will ensure the targeted reductions in demand can be met.

3 West Basin Service Area Demands

While demand in the West Basin service area has historically increased due to increased population growth, recent years have shown a decrease in overall system demand. This decrease has been attributed to aggressive conservation program implementation due to drought conditions in 2007-8, an economic downturn resulting in less consumption beginning in 2009, and subsequent wet seasons in 2009 and 2010.

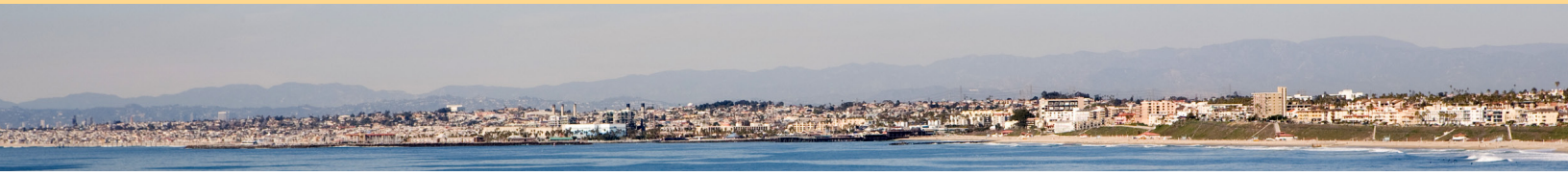


Table ES-1 indicates that although West Basin's service area population is projected to increase, the overall potable demand in acre-feet per year (AFY) is expected to decrease given further water use efficiency and recycled water program implementation.

Table ES-1: Projected West Basin Service Area Demand (AFY)

Year	2010	2015	2020	2025	2030	2035
Baseline Demand[1]	168,987	192,134	198,218	197,408	197,451	197,275
Planned Conservation[2]	14,000	15,119	21,039	21,640	22,971	23,632
Final Total Retail Demand	**154,987**	**177,015**	**177,179**	**175,768**	**174,480**	**173,643**
Recycled Water Demand[3]	14,182	16,368	33,882	33,882	37,382	37,382
Final Potable Demand	**140,805**	**160,647**	**143,297**	**141,886**	**137,098**	**136,261**

[1] Projections based on Water Demand Forecasting Model, 2010
[2] Water Use Efficiency Plan, Alliance for Water Efficiency Model, 2010
[3] Projections based on the Capital Implementation Master Plan, 2009

In terms of per capita use (in gallons per capita day (gpcd)), the West Basin Regional Alliance baseline and targeted water use for 2015 and 2020 are shown in table ES-2.

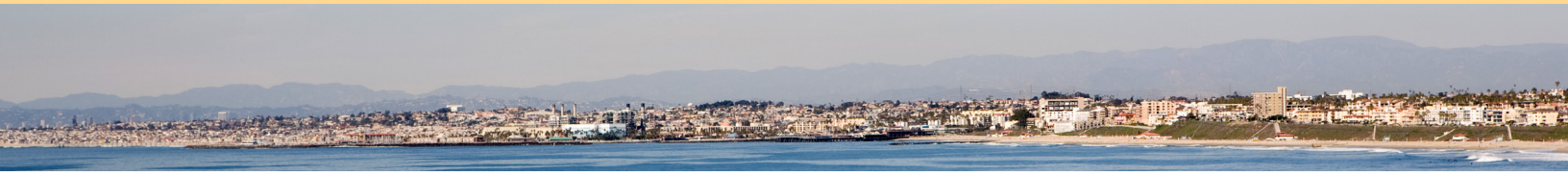
Table ES-2: Regional Alliance 2015 Interim and 2020 Targets (gpcd)

Member	10-Year Base Water Use	Calculated Water Use Targets		Maximum Allowable Target	Final Targets	
		Method	Target		2015	2020
California Water Service Company Hawthorne	96.5	3	141.6	N/A	119.0	141.6
City of El Segundo	220.6	1	176.5	182.2	198.6	176.5
City of Inglewood	105.3	3	141.6	N/A	123.4	141.6
City of Lomita	123.4	3	141.6	116.2	119.8	116.2
City of Manhattan Beach	175.7	3	141.6	144.9	158.6	141.6
Los Angeles County Waterworks District #29	319.4	1	255.5	298.2	287.5	255.5
Regional Alliance	**227.7**	**1**	**182.2**	**160.5**	**194.1**	**160.5**

Note: Highlighted cells indicate target to be used

4 West Basin Service Area Supplies

West Basin has been able to support the diversification of supplies available to its customer agencies by providing access to imported water supplies from MWD as well as through the development of recycled water supplies. These supplies are served directly to its customer agencies and indirectly as the replenishment supplies necessary to maximize groundwater production. As table ES-3 shows, West Basin is projecting to more than double current recycled water supplies as well as invest in over 20,000



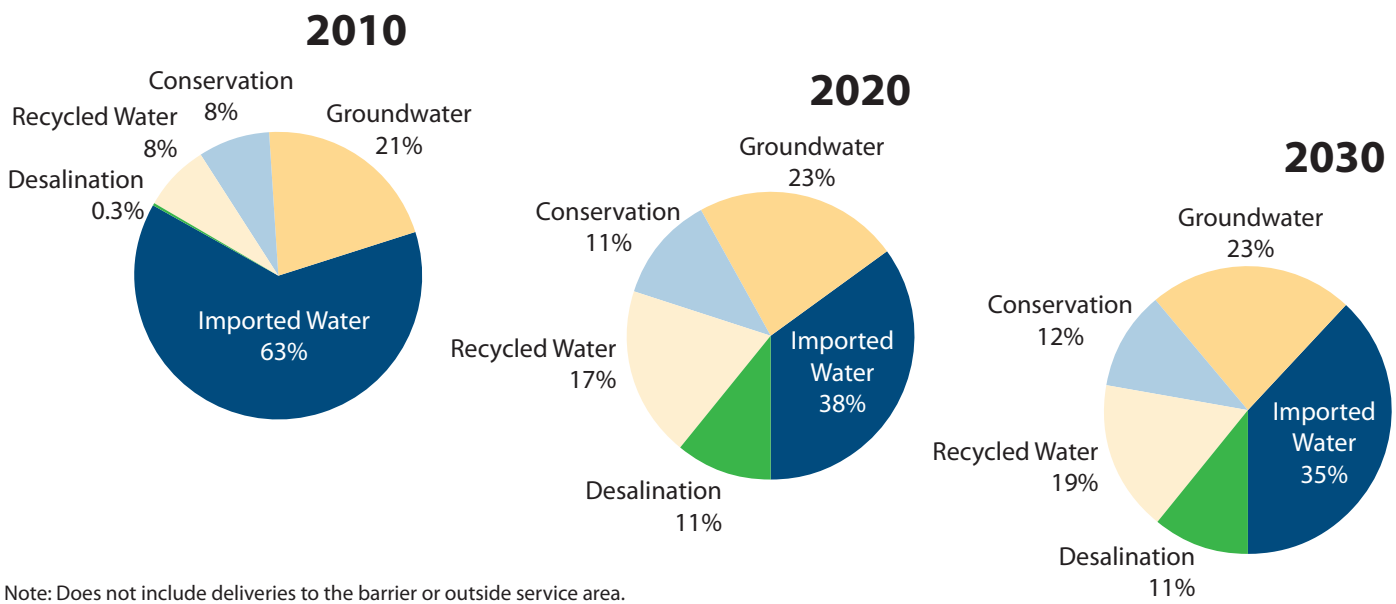
AFY of ocean-water desalination supply. Coupled with an additional doubling of conserved supply through water use efficiency programs, the overall imported water use is expected to be cut nearly in half by 2035 as shown in Figure ES-1.

Table ES-3 West Basin's Service Area Projected Water Supply (AFY)

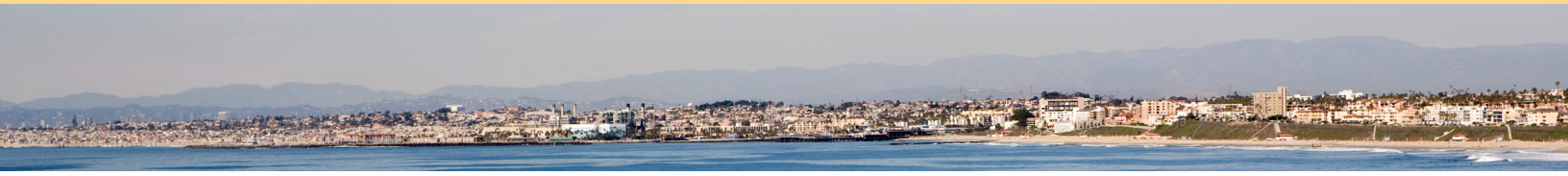
Supplies	2010	2015	2020	2025	2030	2035
Groundwater[1]	35,320	45,000	45,000	45,000	45,000	45,000
Imported Water[2]	104,985	114,647	76,797	75,386	70,598	69,761
Recycled Water[3]	14,182	16,368	33,882	33,882	37,382	37,382
Desalination[4]	500	1,000	21,500	21,500	21,500	21,500
Total	**154,987**	**177,015**	**177,179**	**175,768**	**174,480**	**173,643**
Conservation[5]	14,000	15,119	21,039	21,640	22,971	23,632
Total	**168,987**	**192,134**	**198,218**	**197,408**	**197,451**	**197,275**

[1] Groundwater production within West Basin service area only.
[2] Imported retail use only; does not include replenishment deliveries (i.e. Barrier).
[3] Recycled water does not include replenishment deliveries (i.e. Barrier) and deliveries outside the service area.
[4] Desalination includes both brackish and ocean-water.
[5] Conservation consists of Active and Passive savings according to West Basin's projected estimates.

Figure ES-1: West Basin Service Area Projected Water Supplies



Note: Does not include deliveries to the barrier or outside service area.



5 Water Reliability

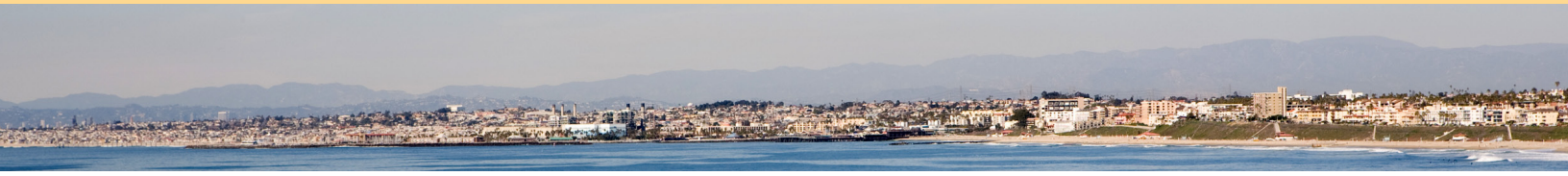
West Basin's supply reliability can be greatly impacted by many factors including changes in the availability of supplies due to climatic or infrastructure changes as well as the ability to use those supplies more efficiently in both average and dry periods. Therefore, West Basin has completed comprehensive water shortage contingency planning to provide reliability during these situations. West Basin's water shortage contingency analysis includes MWD's Water Surplus and Drought Management Plan (WSDM) and Water Supply Allocation Plan (WSAP). The WSDM plan provides MWD with a sequence of resource management actions to execute during surpluses and shortages to minimize the probability of severe shortages and reduce the possibility of extreme shortages and shortage allocations. The WSAP provides MWD with a method for determining imported water allocations for its member agencies, including West Basin, relative to the amount of supplies available.

As part of its water shortage contingency planning, West Basin is moving forward with its plans to expand its water use efficiency programs, further develop recycled water, and add ocean-water desalination supplies to improve its immediate, near- and long-term reliability of supplies. Additionally, West Basin's contingency planning includes a comprehensive plan to provide reliable water supplies under normal, single dry and multiple dry year hydrologies for current and projected supplies. Under single dry and multiple dry year conditions, West Basin plans to meet its annual increases in demand by purchasing imported water supplies. West Basin does not anticipate any shortages and will be able to provide reliable water supplies under both single dry year and multiple dry year conditions. Any shortfall in supplies will be met through imported water so long as MWD manages its supply and demand balance through its WSDM and WSAP.

Maintaining imported water reliability will continue to remain a challenge however with the development of local resources as well as furthering existing conservation to meet the Water Conservation Act of 2009 targets, MWD will be able to provide a supply buffer for its member agencies, including West Basin, to rely upon in times of drought and longer-term climatic changes.

6 Maintaining the Quality of Water Supplies

Compliance with water quality regulations is a regional water management priority and a shared responsibility. West Basin is responsible for the quality of the desalination and recycled water supplies generated at the C. Marvin Brewer Desalter and Edward C. Little Water Recycling Facility (ECLWRF) and its satellite facilities: Carson Water Recycling Facility, Chevron Nitrification Plant and Exxon-Mobil Nitrification Plant. MWD is responsible for complying with State and Federal drinking water regulations on its imported potable water sold to West Basin. West Basin's retail customer agencies are responsible for ensuring compliance in their individual distribution systems and at the customer tap.



West Basin has a dedicated program and budget to constantly engage in research projects that evaluate water quality, efficient operations and new pollution prevention technology and methods. Research projects close the environmental loop by addressing both final product water as well as source control issues to prevent pollution and the need for cleanup technology. West Basin leverages its research dollars by participating on the Boards of water industry research organizations such as WateReuse, American Water Works Associations, National Water Research Institute, Salinity Management Coalition as well as participating with academic institutions in water quality research.

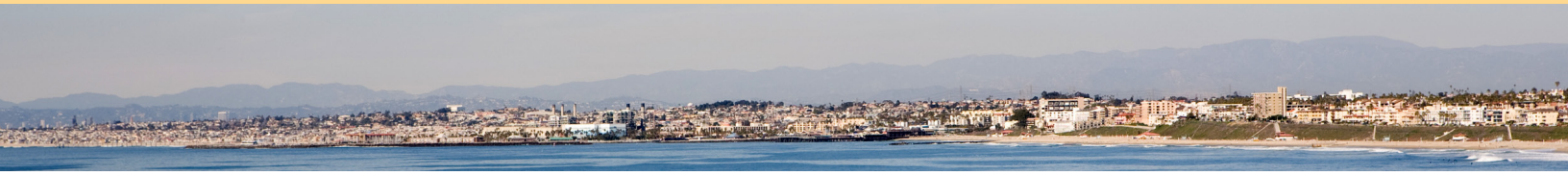
7 Reducing Demand through Water Use Efficiency Planning

Since the severe drought of the early 1990s, West Basin has been a leader implementing aggressive water conservation programs to help limit water demand within its service area. West Basin programs have included a strong emphasis on education and the distribution of rebate incentives and plumbing retrofit hardware. The results of these programs, in conjunction with passive conservation measures such as modifications to city ordinances, have resulted in significant reductions in retail water use within West Basin's service area. By current estimates, demand management from West Basin's active and passive conservation efforts have saved over 4.5 billion gallons of imported water (14,000 AF) since 1991, which is equivalent to the average annual water use of almost 28,000 households.

In order to further increase conservation and meet the 2020 and interim 2015 water use targets, West Basin has recently collaborated with its Regional Alliance agencies to develop and implement the future water use efficiency measures shown in Table ES-4.

Table ES-4: West Basin and Retailer Program Participation

Programs	West Basin	Los Angeles County Water-works District #29	City of El Segundo	City of Manhattan Beach	City of Hawthorne	City of Lomita	City of Inglewood
MWD							
Residential Rebate Program	X	X	X	X	X	X	X
Save A Buck Rebate Program	X	X	X	X	X	X	X
West Basin							
High-Efficiency Toilet (HET) Distribu-tion Events	X	X	X	X	X	X	X
Green Living for Apartments and Condos (Direct HET Installations)	X	X	X	X	X	X	X
Ocean Friendly Landscape Program	X	X	X	X	X	X	X
Complete Restroom Retrofit Program	X	X	X	X	X	X	X



Programs	West Basin	Los Angeles County Water-works District #29	City of El Segundo	City of Manhattan Beach	City of Hawthorne	City of Lomita	City of Inglewood
Recirc & Save Program	X	X	X	X	X	X	X
Cash for Kitchens	X	X	X	X	X	X	X
Education Programs	X	X	X	X	X	X	X
West Basin Programs (Funding Pending)							
High-Efficiency Nozzle Program	X	X	X	X	X	X	X
Water Star Schools Pilot Program	X	X	X	X	X	X	X
Water & Energy Efficiency in the Motel/Hotel and Schools Sectors	X	X	X	X	X	X	X
Other Water Retailer							
Turf Removal Program	N/A	X	-	-	-	-	-
HET Rebates (CII)	N/A	X	-	-	-	-	-
Landscape Surveys	N/A	X	-	-	-	-	-
Education Programs	N/A	X	-	-	-	-	-
Landscape Incentives	N/A	X	-	-	-	-	-

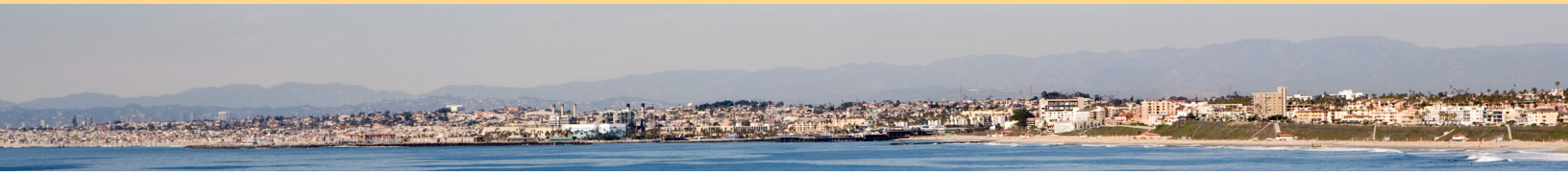
8 Water Rates and Charges

As a water wholesale agency, West Basin does not directly charge residential and other end-use customers for supplies. Instead, West Basin's customer agencies purchase water from West Basin and then combine it with other supplies to deliver to their retail customers at a variety of rates.

West Basin's current potable water rates are primarily based upon the costs of imported supplies purchased from MWD. Imported water purchased by West Basin from MWD carries not only the cost of acquiring, importing, treating and distributing the water throughout the region, but also these costs associated with maintaining MWD reliability and "readiness to serve". The total West Basin rate structure must include the value-added costs associated with distributing to customer agencies the MWD and locally-produced recycled and desalinated groundwater supplies.

9 Recycled Water Development

Since planning and constructing its recycled water system in the early 1990s, West Basin has become an industry leader in water reuse. West Basin's recycled water supply is sold to customers for non-potable applications such as landscape irrigation, commercial and industrial processes, and indirect potable uses through groundwater



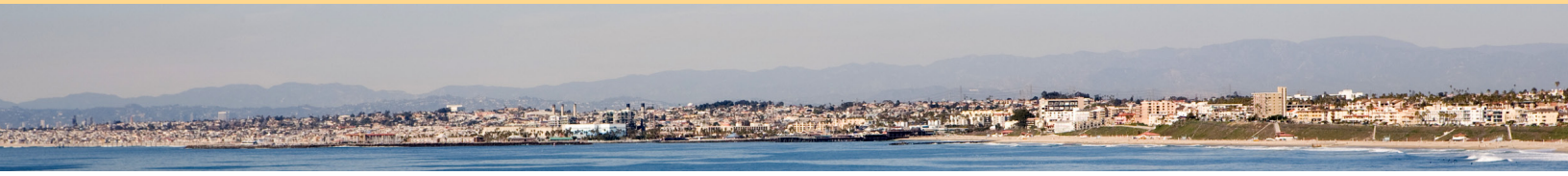
replenishment. While serving to offset imported water supplies, recycled water use also results in less ocean discharge of lesser-treated wastewater into the Santa Monica Bay.

In fiscal year 2009-10, West Basin delivered about 30,400 AF of recycled water to sites inside and outside its service area, saving enough potable water to serve roughly 61,000 households. Within West Basin's service area, municipal and industrial recycled water use totaled about 15,500 AF and seawater barrier about 7,796 AF, which is about 13 percent of the District's current total water supplies. It is projected that recycled water sales could represent 19 percent of total water supplies by 2035.

10 Ocean-Water Desalination Development

In late 2010, West Basin dedicated its Ocean-Water Desalination Demonstration Facility and Water Education Center. West Basin used the data acquired from the pilot project in the planning and development of the demonstration facility that produces 50,000 gallons per day of drinking water. This Ocean-Water Desalination Demonstration Facility will test the viability of a future, full-scale Ocean-Water Desalination Facility capable of providing up to 20,000 AFY, or enough to supply 40,000 families for a year.

West Basin will perform a Desalination Program Master Plan in 2011 that will evaluate potential siting opportunities within West Basin's service area that could accommodate a full-scale facility. Pending the findings from the demonstration facility, the Master Plan, and subsequent environmental review process, West Basin anticipates permitting, financing, and constructing a full-scale facility by 2017.



This page intentionally blank

SECTION ONE

Plan Preparation

2010

SECTION 1 Plan Preparation

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

In describing the importance of the Act, the legislature declared that waters of the State are a limited and renewable resource, subject to ever increasing demands as well as the following tenets:

- That the conservation and efficient use of urban water supplies are of statewide concern;
- That successful implementation of plans is best accomplished at the local level;
- That conservation and efficient use of water shall be actively pursued to protect both the people of the State and their water resources;
- That conservation and efficient use of urban water supplies shall be a guiding criterion in public decisions; and
- That urban water suppliers shall be required to develop water management plans to achieve conservation and efficient use.

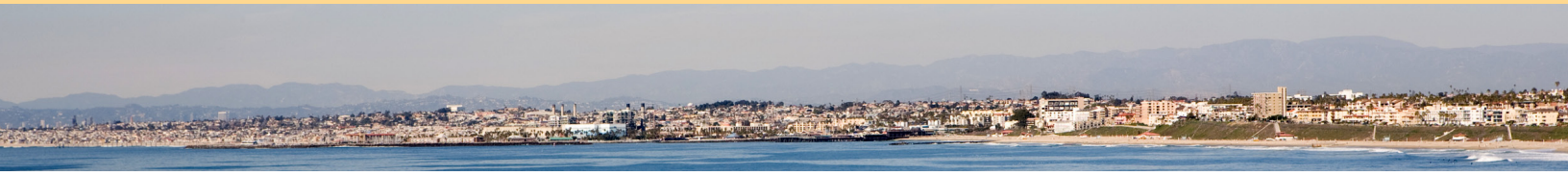
West Basin Municipal Water District's (West Basin) 2010 UWMP has been prepared in compliance with the requirements of the Act, as amended to 2009 (Appendix A), and includes the following:

- West Basin's Service Area
- Water Demand
- Water Supply
- Water Reliability
- Water Quality
- Water Use Efficiency
- Water Rates & Charges
- Water Recycling
- Desalination

1.1 Urban Water Management Planning Requirements

West Basin's 2010 UWMP revises the 2005 UWMP prepared by West Basin and incorporates changes enacted by legislation since 2005. The UWMP also incorporates water use efficiency efforts West Basin has implemented or is considering implementing pursuant to the Memorandum of Understanding Regarding Urban Water Conservation in California (MOU)[1]. West Basin was one of the first agencies to become signatory to the MOU in September 1991.

1 The Memorandum of Understanding Regarding Urban Water Conservation in California (MOU) was adopted in September 1991 by a large number of water suppliers, public advocacy organizations and other interested groups. It created the California Urban Water Conservation Council and established 16 Best Management Practices (BMPs) for urban water conservation, recently refined to 14 BMPs. West Basin became signatory to the MOU in September 1991.



The sections in this UWMP correspond to the outline of the Act, specifically Article 2, Contents of Plans, Sections 10631, 10632, and 10633. The sequence used for the required information, however, differs slightly in order to present information in a manner reflecting the unique characteristics of West Basin. The most recent version of the Department of Water Resources' (DWR) UWMP Checklist has been completed, which identifies the location of Act requirements in this UWMP and is included as Appendix B.

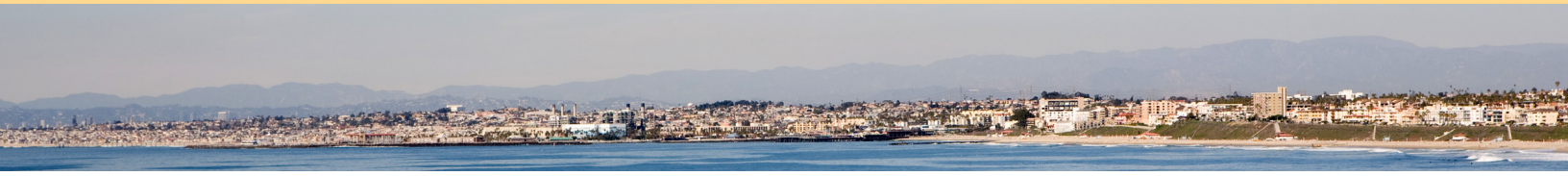
Since 2005, several amendments have been added to the Urban Water Management Act. The major changes to the Act impacting preparation of the 2010 UWMPs include the following:

- Requirement of at least 60 days advance public notice to city or county prior to public hearing on UWMP;
- Requirement that the UWMP includes water use projects for single-family and multi-family residential housing needed for low income and affordable households (retailers only); and
- Requirement that "indirect potable reuse" of recycled water be described and quantified in the UWMP, including a determination with regard to the technical and economic feasibility of serving those uses.

The most significant impact on 2010 UWMPs was the requirements mandated through the passing of Senate Bill (SB) X7-7. On November 10, 2009, the state legislature passed SB X7-7 (or the Water Conservation Bill of 2009) as a water conservation component to the Delta legislative package that seeks a 20 percent statewide reduction in urban per capita water use in California by December 31, 2020. SB X7-7 requires that each retail agency preparing a 2010 UWMP must calculate a baseline water use as well as an interim (for 2015) and final (for 2020) water use reduction target. The methodologies used to calculate both the baseline and targets were outlined in the Draft and Final UWMP guidelines published by DWR in December 2010 and March 2011. Since final guidelines were not released until March 2011, the deadline for retailer UWMP adoption and submittal has been extended to July 1, 2011. In September 2010, SB 1478 was signed by the Governor of California to extend the 2010 UWMP deadline to July 1, 2011 for wholesale agencies as well as retailers.

1.2 Regional Alliance UWMP

As a water wholesaler, West Basin is not required to provide SB X7-7 water use reduction targets. However, given its role as a regional water provider, West Basin has elected, in cooperation with a portion of its customer agencies, to use its 2010 UWMP as a regional alliance UWMP. According to DWR's 2010 UWMP guidelines, a regional demand reduction target can be developed by a regional alliance of multiple agencies to show compliance with SB X7-7. Although each of West Basin's customer agencies must prepare individual 2010 UWMPs with individual baseline and target calculations, West Basin's 2010 UWMP provides a regional target that will allow these



retailers and West Basin to collaborate on the most effective and efficient programs that will ensure that the targeted reductions in demand can be met. Additional information is described in Section 3: Water Demand.

1.3 Plan Adoption

The draft 2010 UWMP was completed in April 2011 and available for a 45 day-public review. The UWMP was available on West Basin's web site to facilitate the involvement of various social, cultural and economic elements of the population. Once finalized, the UWMP was adopted by a Resolution of the West Basin Board of Directors in May 2011, following a public hearing. The UWMP was then submitted to DWR within 30 days of Board approval. Copies of the Notice of Public Hearing and the Resolution of Plan Adoption are included in Appendices C and D, respectively.

The UWMP is intended to serve as a general, flexible, and open-ended document that periodically can be updated to reflect changes in the region's water supply trends, and conservation and water use efficiency policies. This UWMP, along with West Basin's other planning documents, will be used by West Basin staff to guide it's service area's water use and management efforts through the year 2015, when the UWMP is required to be updated next.

1.4 Agency Coordination

To facilitate the preparation of the draft UWMP, West Basin concurrently developed the West Basin Water Demand Forecasting Model as well as a Water Use Efficiency Master Plan for use by West Basin and its customer agencies. During this process, West Basin staff met with all of its customer agencies to discuss the demand model, calculation of SB X7-7 baseline and targets and the 2010 UWMP and offered to provide assistance when requested. West Basin also hosted a stakeholder workshop during the draft UWMP public review period. At the workshop, West Basin provided its customer agencies with consistent information for use in the development of their 2010 UWMPs.

West Basin is a water wholesaler and is fully dependent on the Metropolitan Water District of Southern California (MWD) for its imported water supplies. Therefore, West Basin provided comments and information during development of MWD's Draft Regional Urban Water Management Plan (RUWMP) which was distributed on June 4, 2010. West Basin staff also attended a June 2010 information meeting for stakeholders and the public from within MWD's service area.

As a summary of West Basin's agency coordination, Table 1-1 describes the coordination among West Basin, its customer agencies, the County of Los Angeles and MWD during the review of the draft UWMP.

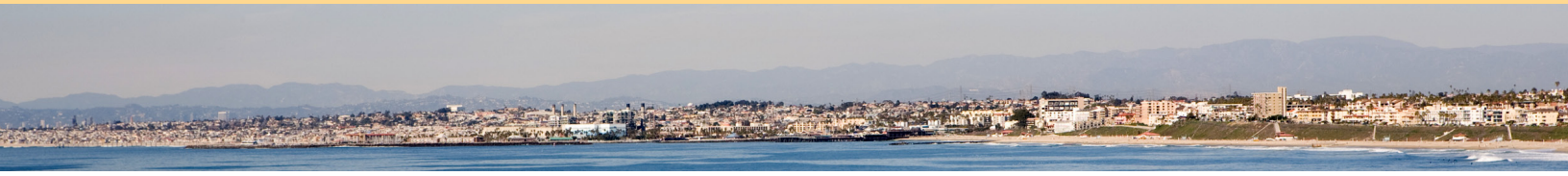


Table 1-1: Coordination with Appropriate Agencies

Agency	Participation in Regional Alliance	Received Copy of Draft	Attended Customer Workshop	Commented on Draft	Sent Notice of Intention to Adopt
County of Los Angeles - Water Resources		X			X
Metropolitan Water District of Southern California		X		X	X
California American Water Company		X	X		X
California Water Service Company - Hawthorne	X	X			X
City of El Segundo	X	X	X		X
City of Inglewood	X	X			X
City of Lomita	X	X			X
City of Manhattan Beach	X	X	X		X
Golden State Water Company		X	X		X
LA County Waterworks District #29	X	X	X	X	X
Water Replenishment District of Southern California		X			X

SECTION TWO

Service Area

SECTION 2 West Basin's Service Area

Today, West Basin's service area covers approximately 185-square miles and wholesale potable water is distributed to 17 cities, investor-owned utilities and water districts in Los Angeles County.

In addition, West Basin supplies recycled water to over 300 customer sites for municipal, commercial and industrial use as well as for injection into the West Coast Basin Seawater Barrier to halt seawater intrusion and replenish the aquifers.

These facilities and West Basin's service area are shown in Figure 2-1. Several of West Basin's customer agencies also pump groundwater supplies from the underlying West Coast Groundwater Basin to help meet their demands. A small amount of water is also used in the California Water Service Company's service area from West Basin's C. Marvin Brewer Desalter, which treats brackish groundwater from the West Coast Groundwater Basin for drinking water use.

Approximately 1 million people are served within West Basin's service area which is governed by a five member elected Board of Directors. The Board of Directors guides the mission and policy of West Basin and each director serves a four-year term once elected.

2.1 West Basin's Regional Relationship

West Basin was established by a vote of the people in 1947 to help mitigate the over pumping in the West Coast Groundwater Basin (WCGB). West Basin's founders realized they would have to curtail the use of groundwater by providing the growing region with imported water. Therefore, West Basin also became a member agency of the MWD in 1948 to purchase, on a wholesale level, potable water imported from the Colorado River and the State Water Project to sell to local municipalities, investor-owned utilities and smaller water districts.

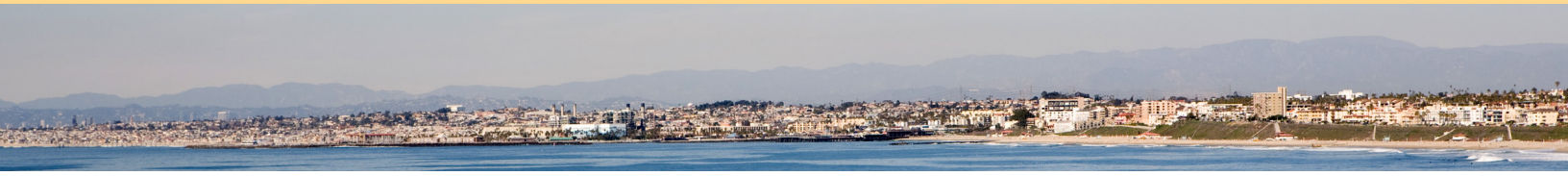
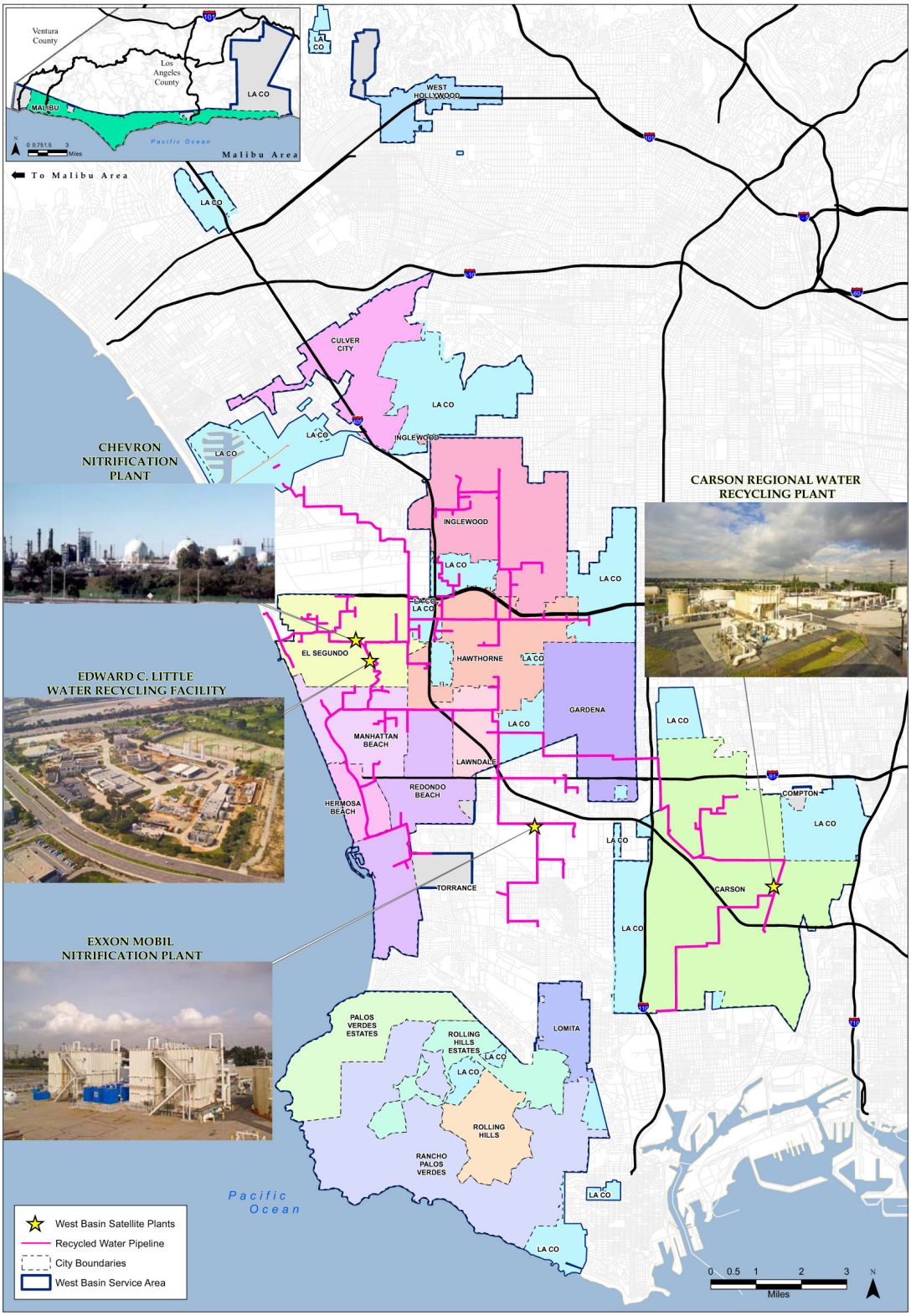
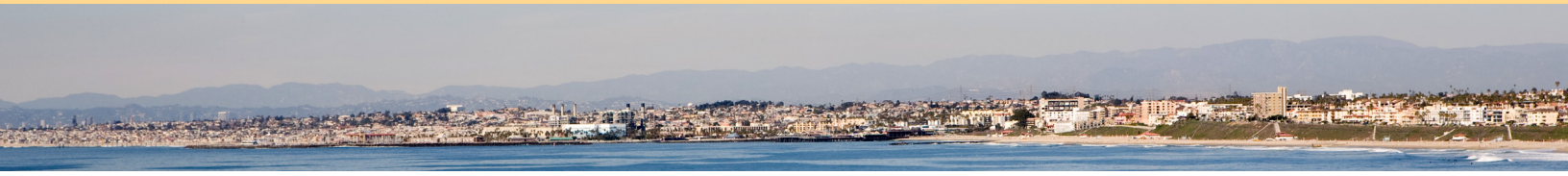


Figure 2-1: West Basin Service Area and Recycled Water Facilities





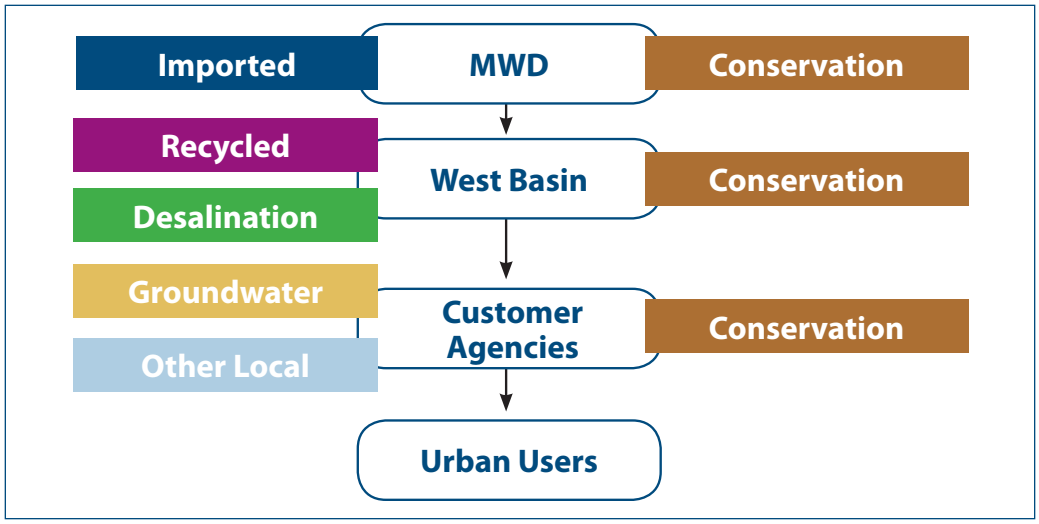
Today, West Basin imports water to supplement local supplies including groundwater, brackish desalination, and recycled water developed by both West Basin and its retail agencies operating within West Basin's service area. In addition, a blend of recycled and imported water is injected into the West Coast Basin Seawater Barrier to both protect the groundwater supplies from seawater contamination and replenish the aquifers. West Basin remains one of the largest member agencies in MWD's family of water agencies and representation on the MWD Board is critical to making West Basin's customer's voices heard at MWD to shape favorable outcomes on regional water issues. West Basin's Board of Directors appoints two representatives to serve on the 37-member MWD Board of Directors.

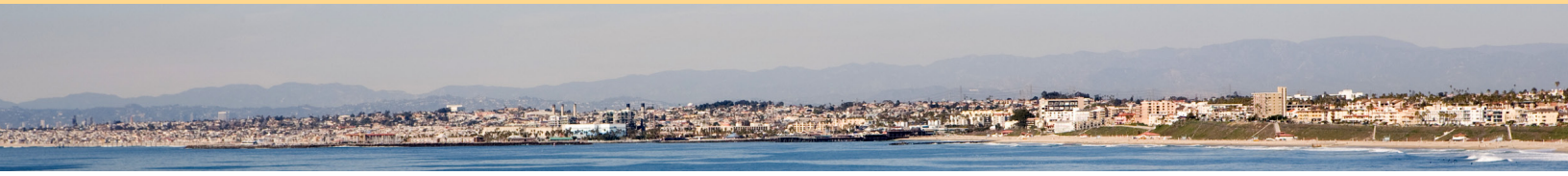
In January 2008, the West Basin Board adopted a Strategic Business Plan to address water supply issues that plague Southern California by focusing on producing new sources of local water, improving its environmentally-sound and innovative technologies, and emphasizing customer service and satisfaction. West Basin affirmed this new vision as an independent agency after concluding its joint operating agreement with Central Basin Municipal Water District, allowing West Basin to focus on the unique needs of its service area.

With a goal to decrease its service area's dependence on imported water by 50 percent between now and 2020, West Basin is implementing a Water Reliability 2020 Program (WR 2020) that will double its recycled water customer base, explore the feasibility of taking its ocean-water desalination demonstration project to the next level, and double its water use efficiency programs and outreach. Through WR 2020, West Basin ensures that its customer agencies have a safe and reliable supply of water to provide to the residents, businesses and industries within its service area.

Figure 2-2 illustrates the relationship West Basin has between MWD and its customer agencies to provide the region with diversified and integrated water supplies.

Figure 2-2: West Basin Service Area Water Supplies





2.2 Climate Characteristics

West Basin's service area lies in the heart of Southern California's coastal plain. The climate is Mediterranean, characterized by typically warm, dry summers and wet, cool winters with an average precipitation level of approximately 12.23 inches per year. The combination of mild climate and low rainfall makes the area a popular residential destination, which creates challenges for water agencies to provide for increased water demands with a tight water supply.

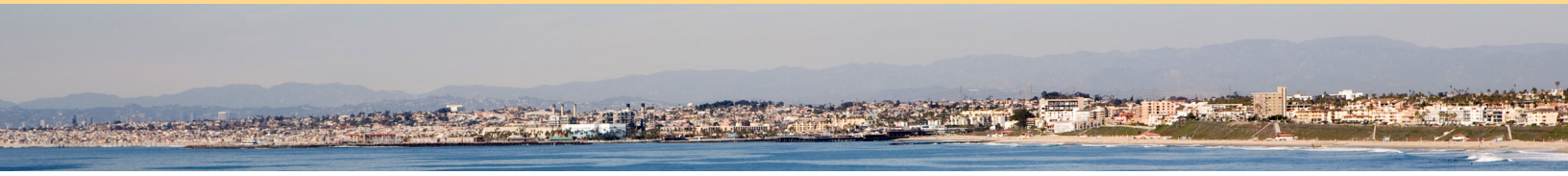
Areas with low precipitation, such as Southern California, are typically vulnerable to droughts. Historically, West Basin has experienced patterns of multiple dry years that have resulted in severe drought periods as was experienced in 1977-78, 1989-92, 1999-2004, and most recently 2007-2009. Excessively dry conditions increase the local demand given that less natural precipitation is available to meet landscaping irrigation needs. Drought conditions typically result in shortages given that this increase in demand is coupled with a decrease in natural supply.

Table 2-1 illustrates the historical average climate conditions for the overall Los Angeles and West Basin region. The potential for changes to the local climate and the resulting impacts are further discussed in Section 4: Water Supply.

Table 2-1: West Basin Average Climate Characteristics

	Standard Monthly Average Eto (inches)	Average Rainfall (inches)	Average Temperature (Fahrenheit)
January	1.83	2.72	65.1
February	2.03	2.75	65.4
March	3.48	1.93	65.2
April	4.21	0.78	67.5
May	4.62	0.17	69.2
June	4.54	0.05	72
July	5.37	0.02	75.2
August	5.06	0.08	76.4
September	4.21	0.16	76.1
October	2.94	0.37	73.6
November	1.83	1.46	70.3
December	1.46	1.74	66.1
Annual	3.47	12.23	70.2

Sources: Temperature and Precipitation: Western Climate Center's web site at the Los Angeles WSO Airport Station between 1/1/1914 and 12/31/2005 http://wrcc.dri.edu/cgi-bin/cliMAIN.pl?calosa. Eto data: California Irrigation Management Information System (CIMIS) at the Long Beach Station for the Los Angeles Region between 1/1/2000 and 12/31/2010. http://wwwcimis.water.ca.gov/cimis/welcome.jsp



2.3 Demographics

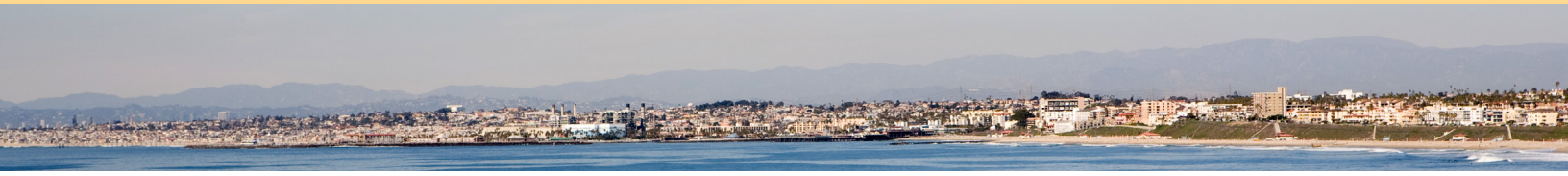
West Basin's service area encompasses 185 square miles in southwest Los Angeles County and includes 17 cities and several unincorporated areas. Given the dense urban nature of West Basin's service area, population has and was expected to rise over time. However, current projections show that population is expected to increase minimally through 2035.

Table 2-2 displays the current and projected population within West Basin's service area over the next 25 years. This population projection shows a more conservative increase in population relative to the projection provided in West Basin's 2005 UWMP.

Table 2-2: West Basin Service Area Current and Projected Population

Year (FY)	2010	2015	2020	2025	2030	2035
Total Population (# of persons)	**853,377**	**874,219**	**892,116**	**909,498**	**926,592**	**942,893**
Single Family (# of households)	169,843	172,738	175,181	176,760	178,248	179,274
Multi-Family (# of households)	117,020	121,023	124,544	127,360	130,222	132,678
Total Household	286,863	293,761	299,725	304,120	308,470	311,952
Persons Per Household	2.95	2.95	2.95	2.96	2.97	2.99
Employment	386,070	392,203	396,123	400,471	405,666	410,341

Source: Population data from the Department of Finance and Southern California Association of Governments (SCAG) and West Basin Demand Forecasting Model, 2010



This page intentionally blank

SECTION THREE

Water Demand

2010

SECTION 3 Water Demand

With an estimated current population of approximately 850,000 as well as dense commercial and industrial areas, the total retail water demand within West Basin's service area is currently about 157,000 AFY. West Basin is responsible for meeting both the direct retail demand from its customer agencies through imported (potable) and recycled water, as well as groundwater replenishment / seawater intrusion barrier demand from the Water Replenishment District of Southern California (WRD).

While demand in the West Basin service area has historically increased due to increased population growth, recent years have shown a decrease in overall system demand. West Basin's 2005 UWMP projected a 2010 demand of nearly 40,000 AFY more than what was experienced this past year. This decrease has been attributed to aggressive conservation program implementation due to drought conditions in 2007-09, an economic downturn resulting in less consumption beginning in 2009, and subsequent wet seasons in 2009 and 2010.

These decreases have been experienced throughout Southern California and have come at a time when California has implemented new legislation calling for an overall 20 percent decrease in per capita water use by the year 2020. West Basin's 2010 UWMP provides a regional alliance target for per capita water use reductions by 2020 with an interim target for 2015 that is in compliance with the State's Water Conservation Bill of 2009.

This section will explore in greater detail West Basin's historical, current and projected water demands. As a water wholesaler in the region, West Basin will also provide a regional baseline and demand reduction targets for its customer agencies that are part of the regional alliance.

3.1 Historical Water Demands

Total water use within West Basin's service area includes retail demand for potable and recycled water, and groundwater replenishment. Retail demand is defined as a population's direct consumption - or all municipal (residential, firefighting, parks, etc.) and industrial uses. Replenishment demand is the supply needed to maintain the groundwater operations in the basin and are not used directly by residences, municipalities or industries.

3.1.1 Historical Retail Demand

Historically, within the West Basin service area, increases in population have not resulted in increases in overall water demand as shown in Figure 3-1. In fact, within the last five years, demand has decreased relative to population increases. This is because other factors such as climate, economics/water rates and conservation programming also impact demand. Water use efficiency is more aggressive in drought years resulting in decreases in demand during those periods. Once severe droughts have passed, demand will often begin to slightly rise again. While these patterns may represent a fluctuation in per capita usage, the fact that total demand has not risen along with the overall population indicates increases in water use efficiency in average or wet years.

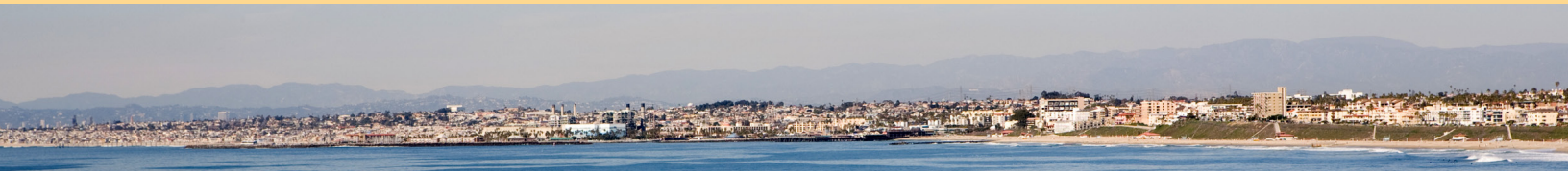
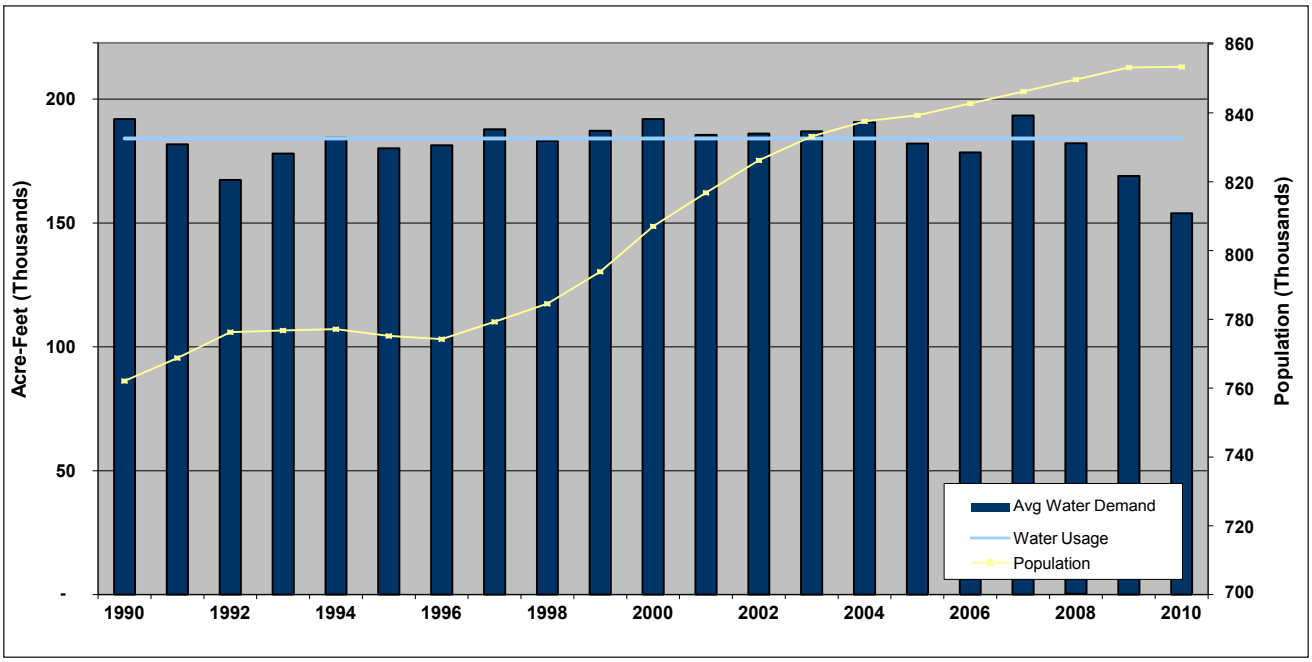


Figure 3-1: West Basin Service Area Historical Retail Water Demand vs. Population



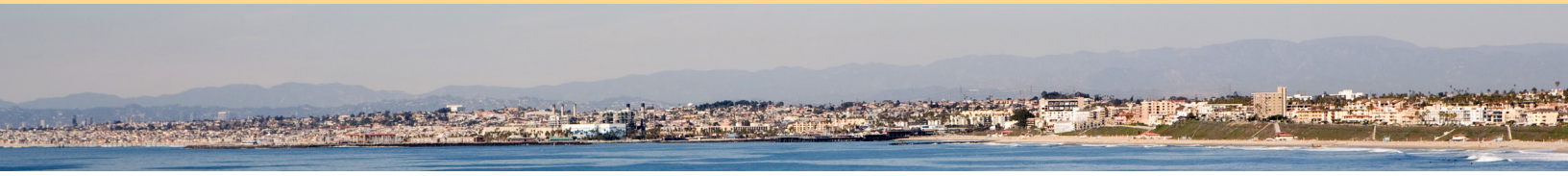
Source: Population data from the Department of Finance and Southern California Association of Governments (SCAG). Water usage data from actual water sales.

Table 3-1 shows the historical demand of each of West Basin's retail agencies as reported to West Basin by those agencies. Although some agencies have seen some dramatic shifts in water demand, there is an overall decrease of retail agency demand by 5 percent in the last five years relative to 2001-2005.

Table 3-1: Historical Water Demand per West Basin Customer Agency

Retail Agency	2001-2005	2006-2010	% Change
California American Water Co.	3,943	3,896	-1%
Cal Water Service Co.- Dominguez	38,398	38,402	0%
Cal Water Service Co. - Hermosa/Redondo	16,143	14,450	-10%
Cal Water Service Co.- Palos Verdes	20,907	21,524	3%
Cal Water Service Co.- Hawthorne	5,132	4,616	-10%
City of El Segundo	16,742	17,577	5%
City of Inglewood	12,440	11,667	-6%
City of Lomita	2,755	2,460	-11%
City of Manhattan Beach	7,169	6,366	-11%
L.A. County Waterworks District #29	9,897	9,738	-2%
Golden State Water	39,916	34,184	-14%
Total	**173,442**	**164,880**	**-5%**

Source: Based upon actual water use sales.
Note: California American Water Co. and California Water Service Co - Dominguez include pumping from the Central Groundwater Basin into the West Basin service area.



3.1.2 Historical Replenishment Demand

The West Coast Groundwater Basin is reliant upon replenishment supplies to not only meet demand but also to maintain water quality levels. Groundwater in this basin is annually extracted beyond the natural level of replenishment, and as a result, seawater begins to intrude into the basin along the coast. The current method in preventing seawater from contaminating the groundwater basin is by injecting freshwater supplies into the West Coast and Dominguez Gap Seawater Intrusion Barriers.

While the Los Angeles County Department of Public Works (LACDPW) maintains these barriers, WRD is responsible for acquiring the supply necessary to meet the protection and replenishment demands. As the wholesaler in the region, West Basin sells treated imported and recycled water to WRD to inject into the seawater barriers. As Table 3-2 shows, WRD's demands over the last five years average about 19,000 AF annually from West Basin. Water demands at the barriers usually do not shift dramatically due to the limited groundwater production each customer is allowed annually. The LACDPW determines the quantity of injection based on the need to maintain protective elevations along the barrier system. Generally however, less groundwater production from the aquifers translates into less demand for barrier injection.

Table 3-2: Historical Replenishment Demand (AFY)

Retailer	2001-2005	2006-2010
Water Replenishment District	22,295	19,011

Source: Based upon actual water use sales.

3.2 Current and Projected Water Demands

One of the objectives of this plan is to provide some insight into West Basin's expected water demands for the next 25 years. The predictability of water usage is an important element in planning future water supplies. In 2010, West Basin completed the Water Demand Forecasting Model that was used to project demand through 2035 for West Basin's entire service area. The water demand forecasting model produces various scenarios depending on the level of conservation activities anticipated, change in the cost of water, economic recovery and weather changes. These scenarios can be adjusted to determine different projected demand outcomes based on the change in conditions described above.

For example, the model was also used to show the anticipated decrease in demand that could be achieved as a result of the implementation of planned conservation programs by both West Basin and its retail customer agencies. West Basin then used the Alliance for Water Efficiency tracking tool to calculate the gallons per capita per day baseline usage and conservation targets. This per capita analysis for the regional alliance members follows the guidelines for the Water Conservation Bill of 2009 compliance.

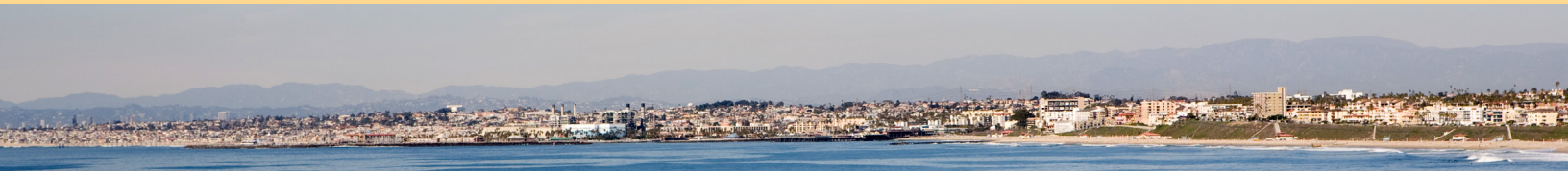
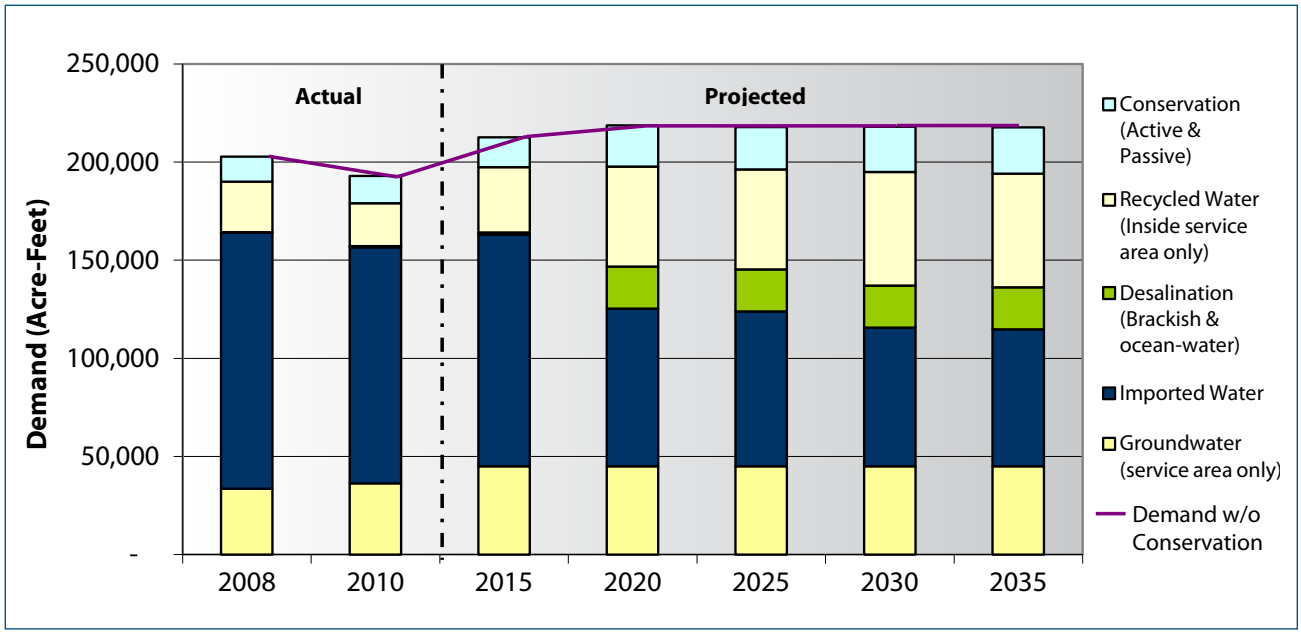


Figure 3-2 provides an overview of the anticipated demands divided into supply sources (including conservation as a means to meet the anticipated demand). This figure also reflects the recent decrease in demand since 2008 and the anticipated future increase in natural demand as the economy improves. However, given planned conservation activities as described at the close of this section, conserved supply will actually offset this demand, maintaining a static level of overall demand of less than 200,000 AFY from 2015 through 2035.

Figure 3-2: Historical and Projected West Basin Demands for Each Supply Resource (AFY)



3.2.1 Current and Projected Retail Demand

Table 3-3 provides the projected total retail demand and potable retail demands net recycled water within West Basin's service area. This table reflects both the baseline demand anticipated if no additional conservation were implemented as well as the final total demand after planned conservation is implemented. A final potable demand is provided that removes the portion of the total demand that is to be met with recycled water supplies as planned and described in Section 4.

Table 3-3 does not include groundwater basin replenishment demands so as not to double count groundwater extraction by West Basin customer agencies. These replenishment demands are captured in Table 3-5. The demand projections shown in Table 3-3 and Table 3-4 include projected water use for lower income single-family and multifamily residential housing within West Basin's service area. As these household demands are served through West Basin's retail customer agencies, the details about those demands are contained within the individual customer agency UWMPs.

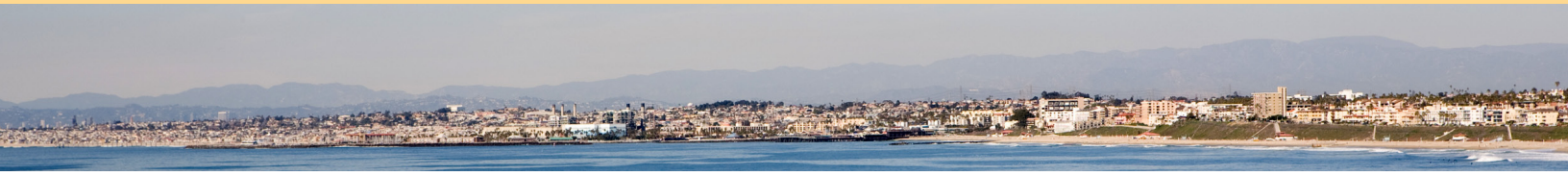


Table 3-3: Projected West Basin Service Area Demand (AFY)

Year	2010	2015	2020	2025	2030	2035
Baseline Demand[1]	168,987	192,134	198,218	197,408	197,451	197,275
Planned Conservation[2]	14,000	15,119	21,039	21,640	22,971	23,632
Final Total Retail Demand	**154,987**	**177,015**	**177,179**	**175,768**	**174,480**	**173,643**
Recycled Water Demand[3]	14,182	16,368	33,882	33,882	37,382	37,382
Final Potable Demand	**140,805**	**160,647**	**143,297**	**141,886**	**137,098**	**136,261**

[1] Projections based on Water Demand Forecasting Model, 2010
[2] Water Use Efficiency Master Plan, Alliance for Water Efficiency Model, 2010
[3] Projections based on the Capital Implementation Master Plan, 2009

Table 3-4 lists the water use projections for each of West Basin's retail customer agencies net of conservation. These projected demands were estimated by analyzing historical water use for each customer agency and then pro-rated for each projected total demand for their service areas. They may not coincide with the individual retail agency UWMPs.

Table 3-4: Projected Retail Water Demand by West Basin Customer Agency (AFY)

Retail Agency	2010	2015	2020	2025	2030	2035
California American Water Co.	4,384	4,952	4,960	4,896	4,837	4,793
Cal Water Service Co.- Dominguez	34,033	38,446	38,501	38,011	37,553	37,206
Cal Water Service Co.- Hawthorne	5,136	5,802	5,811	5,737	5,668	5,615
Cal Water Service Co. - Hermosa/Redondo	14,179	16,017	16,040	15,836	15,645	15,501
Cal Water Service Co.- Palos Verdes	20,264	22,892	22,925	22,633	22,360	22,154
City of El Segundo	16,570	18,719	18,745	18,507	18,284	18,115
City of Inglewood	11,053	12,487	12,504	12,345	12,196	12,084
City of Lomita	3,142	3,549	3,554	3,509	3,467	3,435
City of Manhattan Beach	6,583	7,436	7,447	7,352	7,264	7,197
L.A. County Waterworks District #29[2]	8,289	11,293	11,220	11,922	12,608	13,266
Golden State Water Company	31,355	35,421	35,472	35,020	34,598	34,278
Total[1]	**154,987**	**177,015**	**177,179**	**175,768**	**174,480**	**173,643**

[1] Total projections based on water demand forecasting model [2] Provided by L.A. County Waterworks District #29

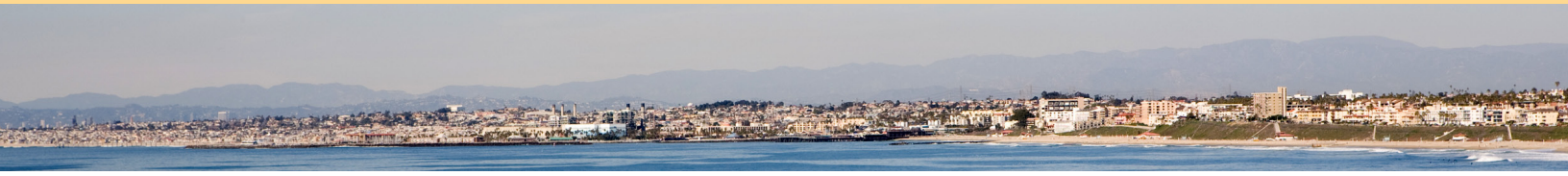
3.2.2 Current and Projected Additional Water Uses and Losses

West Basin's replenishment demands (the same as seawater intrusion barrier demands) are captured in Table 3-5. Water system losses and other factors are not included in West Basin's UWMP but are instead described by the retail customer agencies.

Table 3-5: West Basin Additional Water Uses: Replenishment (AFY)

	2010	2015	2020	2025	2030	2035
Imported Water	15,274	3,500	3,500	3,500	-	-
Recycled Water	7,706	16,980	16,980	16,980	20,480	20,480
Total	**22,980**	**20,480**	**20,480**	**20,480**	**20,480**	**20,480**

Source: Projections based on the Capital Implementation Master Plan, 2009.



3.2.3 Projected Sales to Other Agencies

West Basin also sells recycled water supplies to agencies outside of its service area to meet external non-potable demands. These demands are summarized in Table 3-6.

Table 3-6: West Basin Water Sales to External Agencies (AFY)

	2010	2015	2020	2025	2030	2035
City of Los Angeles	719	6,650	6,650	6,650	6,650	6,650
City of Torrance	6,248	10,700	10,700	10,700	10,700	10,700
Total	**6,967**	**17,350**	**17,350**	**17,350**	**17,350**	**17,350**

Source: West Basin Water Demand Forecasting Model, 2010
Note: Sales are only recycled water

3.3 Regional Alliance Baseline and Target Demands

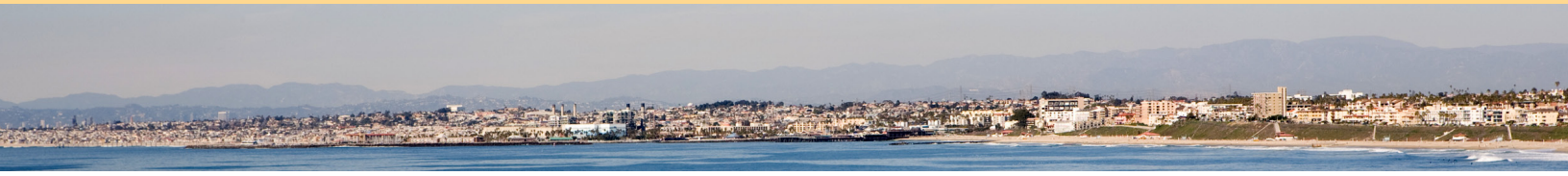
The Water Conservation Bill of 2009 (often referred to as SB X7-7 legislation) requires individual retail water suppliers to set water conservation targets for 2015 and 2020 to support an overall state goal of reducing urban potable per capita water use by 20 percent by 2020. Individual supplier conservation targets must be determined using one of four methods that are based upon a baseline of use that is calculated using the specific guidelines described in DWR's Guidebook to Assist Water Suppliers to Prepare a 2010 Urban Water Management Plan (DWR Guidebook).

As a regional water supply wholesale agency, West Basin is not required to report baseline or target demands in keeping with the Water Conservation Act of 2009. However, as a regional supplier, West Basin has elected to use its 2010 UWMP as the reporting mechanism for a regional alliance formed by some of its retail customer agencies to meet the per capita baseline and target reporting requirements of the Water Conservation Bill of 2009. Since not all of West Basin's retail agencies elected to participate in the regional alliance, the overall historical and projected demand within West Basin's service area described in Section 3.1 and 3.2 will be greater than the regional alliance per capita baseline described in this Section 3.3.

The decision for the investor-owned companies (California American Water Company, California Water Service Company, and Golden State Water Company) to not participate in the regional alliance is because much of their jurisdictions are outside West Basin's service area. Therefore, they each elected to comply as their own agency including their respective service areas across the State.

3.3.1 Regional Alliance Membership

The West Basin regional alliance members include the following West Basin retail customer agencies:



- California Water Service Company (Hawthorne region)
- City of El Segundo
- City of Inglewood
- City of Lomita
- City of Manhattan Beach
- Los Angeles County Waterworks District #29

As a regional alliance, these agencies worked with West Basin to establish a regional baseline of water use and conservation targets for 2015 and 2020. They will also collaborate on implementing the recycled water and conservation programs and projects that will be required to meet these targets.

3.3.2 Regional Alliance Base Use

The regional alliance members used the step by step process called out in the DWR Guidebook to determine the base daily water use for each member. That process and the resulting calculations are described in this section.

Step 1: Determine Supplier Base Period Year Ranges

Table 3-7 provides the recycled water deliveries in 2008 for each member of the regional alliance. The resulting analysis shows that the cities of El Segundo, Inglewood and Manhattan Beach meet over 10 percent of their demand through recycled water deliveries. Therefore these cities are allowed to use a range of 10 to 15 years from which to calculate their baseline water use. However, all members at the regional alliance chose to use a 10-year range. Since California Water Service Company (Hawthorne), City of Lomita and Los Angeles County Waterworks District #29 have less than 10 percent of their supply met with recycled water deliveries; they can only use a 10 year range to calculate their baseline use.

Table 3-7: Regional Alliance Recycled Water Deliveries (2008)

Regional Alliance Members	Total Water Deliveries	Total Recycled Water Deliveries	% Recycled Water Deliveries
California Water Service Company - Hawthorne	4,682	94	2%
City of El Segundo	12,765	8,986	70%
City of Inglewood	11,716	2,621	22%
City of Lomita	2,501	7	0%
City of Manhattan Beach	6,697	848	13%
Los Angeles County Waterworks District #29	10,310	0	0%
Regional Alliance Total	**57,394**	**12,556**	**22%**

Table 3-8 shows the resulting 10- to 15-year base period and Table 3-9 shows the five-year base period that will be used for each regional alliance member. The base periods were selected by determining the most appropriate set of years to represent each regional alliance member's baseline use given the methodologies available through DWR.

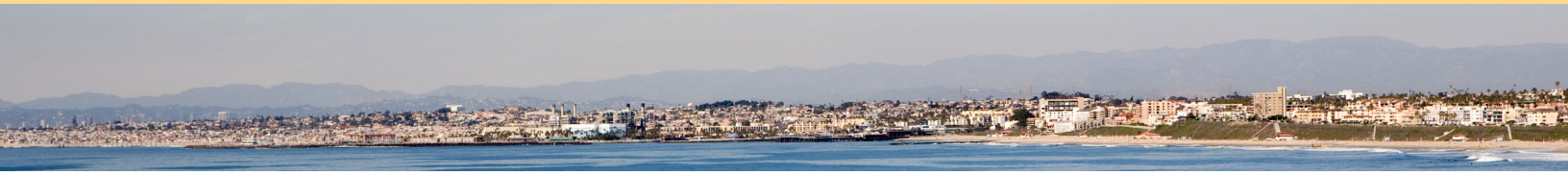


Table 3-8: Regional Alliance 10- to 15-Year Base Periods

Regional Alliance Members	Number of Years in Base Period	Beginning Year	Ending Year
California Water Service Company - Hawthorne	10	1995	2004
City of El Segundo	10	1995	2004
City of Inglewood	10	1995	2004
City of Lomita	10	1998	2007
City of Manhattan Beach	10	1995	2004
Los Angeles County Waterworks District #29	10	1999	2008

Table 3-9: Regional Alliance 5-Year Base Period

Regional Alliance Members	Number of Years in Base Period	Beginning Year	Ending Year
California Water Service Company - Hawthorne	5	2003	2007
City of El Segundo	5	2005	2009
City of Inglewood	5	2003	2007
City of Lomita	5	2003	2007
City of Manhattan Beach	5	2003	2007
Los Angeles County Waterworks District #29	5	2005	2009

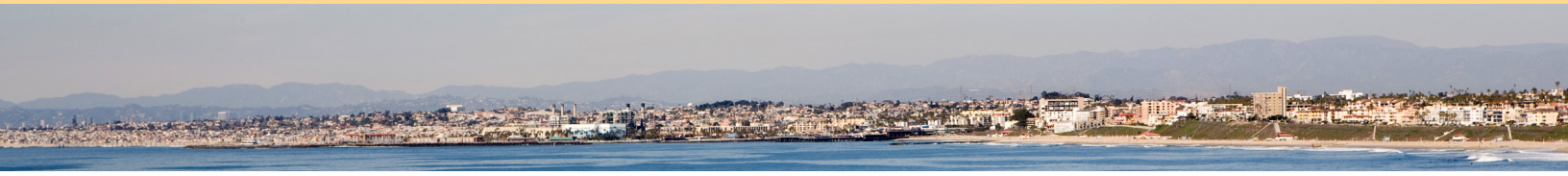
Step 2: Estimate Distribution System Area and Population

The composition of the regional alliance member distribution system boundaries does not match West Basin's entire service area. Therefore, the distribution service area descriptions and maps for each member of the regional alliance are provided as part of their individual agency 2010 UWMPs and not within West Basin's 2010 UWMP.

The service area population for each agency was determined independently as part of the demand forecasting model development. The service area populations used came from the Southern California Association of Government and Department of Finance projections based upon 2000 census data and predicted economic growth. The population for each regional alliance member for each of the base years is provided in Table 3-10 through Table 3-17.

Step 3: Calculate Gross Water Use

Gross water use for each year within the base year range was provided by each agency. The gross water use for each alliance member was calculated using DWR's Methodology 1 and is described in more detail within each of the alliance member 2010 UWMPs.



Step 4: Calculate Base Per Capita Demand

An annual per capita use was determined by dividing the actual potable water produced for each regional alliance member by the corresponding service area populations that were determined in Step 3 for each of the base year ranges. A final base gross water use is calculated by taking the average per capita use for all years within the selected 10-year range. These calculations are shown in Table 3-10 through Table 3-17.

The five-year base range was used to calculate average gross water use more recently to determine if any regional alliance members are already below the DWR 100 gpcd threshold. Those members with use lower than 100 gpcd would not be required to meet any further demand reductions.

Table 3-10: California Water Service Company (Hawthorne)
Base Daily Per Capita Water Use

Year	Calendar Year	Population	Gross Water Use (mgd*)	Per Capita Use (gpcd**)
1	1995	42,503	4.2	99.9
2	1996	42,784	4.1	95.4
3	1997	43,065	4.4	101.6
4	1998	42,980	4.3	99.4
5	1999	42,957	4.1	96.0
6	2000	43,088	4.3	98.9
7	2001	46,217	4.2	91.2
8	2002	46,175	4.2	91.4
9	2003	45,147	4.3	95.4
10	2004	46,175	4.4	95.7
10 Year Base Daily Per Capita Use				**96.5**
1	2003	45,147	4.3	96.0
2	2004	46,175	4.6	98.9
3	2005	46,190	4.2	91.2
4	2006	46,174	4.2	91.4
5	2007	46,199	4.4	95.4
5 Year Base Daily Per Capita Use				**94.6**

* mgd = millions of gallons per day
** gpcd = gallons per capita per day

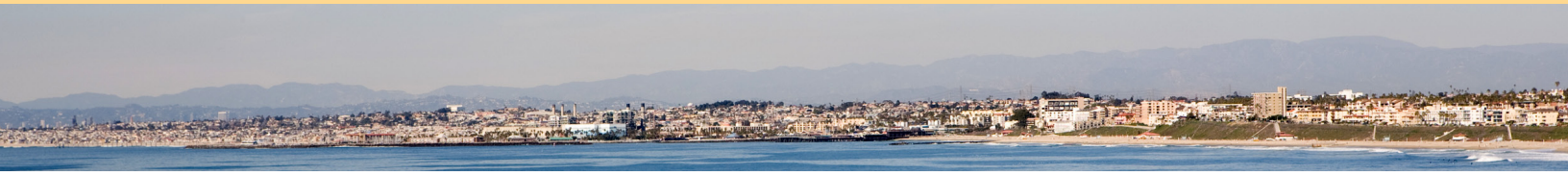


Table 3-11: City of El Segundo -Base Daily Per Capita Water Use

Year	Calendar Year	Population	Gross Water Use (mgd)	Per Capita Use (gpcd)
1	1995	15,525	3.8	241.9
2	1996	15,497	3.7	238.0
3	1997	15,543	3.8	241.5
4	1998	15,636	3.7	236.0
5	1999	15,766	3.7	233.9
6	2000	16,033	3.7	228.3
7	2001	16,292	3.4	209.2
8	2002	16,475	3.2	195.6
9	2003	16,663	3.2	191.5
10	2004	16,810	3.2	190.5
10 Year Base Daily Per Capita Use				**220.6**
1	2005	16,904	3.0	178.5
2	2006	16,901	3.1	186.2
3	2007	16,912	3.2	188.4
4	2008	16,877	3.4	199.9
5	2009	16,937	3.5	206.3
5 Year Base Daily Per Capita Use				**191.8**

Table 3-12: City of Inglewood - Base Daily Per Capita Water Use

Year	Calendar Year	Population	Gross Water Use (mgd)	Per Capita Use (gpcd)
1	1995	89,156	11.1	124.8
2	1996	89,432	10.2	114.0
3	1997	89,709	10.1	112.2
4	1998	89,987	8.3	92.0
5	1999	90,266	8.6	95.7
6	2000	90,545	9.4	103.6
7	2001	90,545	8.8	97.1
8	2002	90,545	9.1	100.2
9	2003	90,545	9.6	106.4
10	2004	90,545	9.7	106.7
10 Year Base Daily Per Capita Use				**105.3**
1	2003	90,545	9.6	106.4
2	2004	90,545	9.7	106.7
3	2005	94,212	9.4	100.2
4	2006	94,704	9.0	94.7
5	2007	95,199	8.2	86.2
5 Year Base Daily Per Capita Use				**98.8**

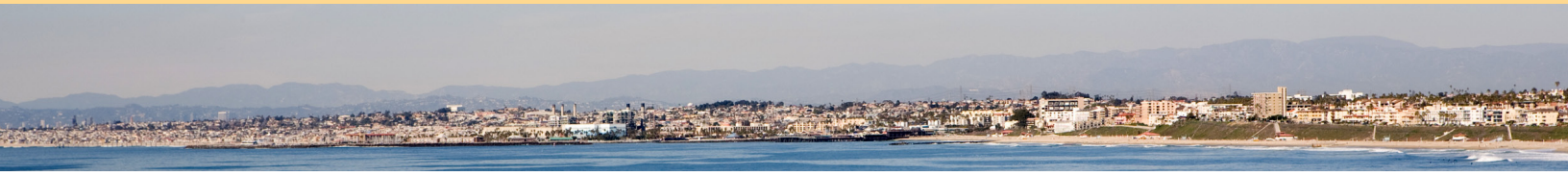


Table 3-13: City of Lomita - Base Daily Per Capita Water Use

Year	Calendar Year	Population	Gross Water Use (mgd)	Per Capita Use (gpcd)
1	1998	19,416	2.3	119.0
2	1999	19,477	2.4	125.7
3	2000	19,538	2.5	126.5
4	2001	19,538	2.4	122.5
5	2002	19,538	2.5	129.2
6	2003	19,538	2.5	128.1
7	2004	19,538	2.5	127.5
8	2005	19,830	2.4	119.0
9	2006	19,867	2.3	116.6
10	2007	19,905	2.4	120.3
10 Year Base Daily Per Capita Use				**123.4**
1	2003	19,538	2.5	128.1
2	2004	19,538	2.5	127.5
3	2005	19,830	2.4	119.0
4	2006	19,867	2.3	116.6
5	2007	19,905	2.4	120.3
5 Year Base Daily Per Capita Use				**122.3**

Table 3-14: City of Manhattan Beach - Base Daily Per Capita Water Use

Year	Calendar Year	Population	Gross Water Use (mgd)	Per Capita Use (gpcd)
1	1995	32,516	5.7	175.6
2	1996	32,399	7.6	233.1
3	1997	32,656	5.9	179.6
4	1998	32,806	5.5	166.9
5	1999	32,981	5.9	179.1
6	2000	33,852	5.8	172.3
7	2001	34,557	5.6	163.2
8	2002	35,427	5.8	163.1
9	2003	36,198	5.8	160.0
10	2004	36,464	6.0	164.2
10 Year Base Daily Per Capita Use				**175.7**
1	2003	36,198	5.8	160.0
2	2004	36,464	6.0	164.2
3	2005	36,581	5.5	151.5
4	2006	36,364	5.3	144.6
5	2007	36,240	5.2	142.1
5 Year Base Daily Per Capita Use				**152.5**

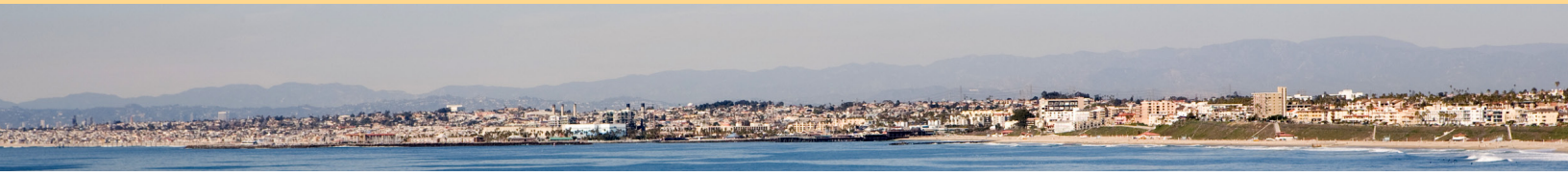
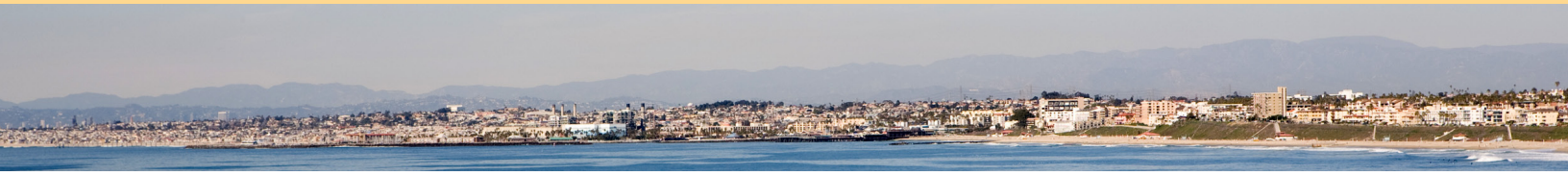


Table 3-15: Los Angeles County Waterworks District #29 - Base Daily Per Capita Water Use

Year	Calendar Year	Population	Gross Water Use (mgd)	Per Capita Use (gpcd)
1	1999	27,200	8.3	306.6
2	2000	27,473	8.4	307.1
3	2001	27,473	8.2	298.3
4	2002	27,473	9.0	327.4
5	2003	27,473	9.0	328.3
6	2004	27,473	9.4	341.4
7	2005	27,650	8.6	310.5
8	2006	28,056	8.8	315.1
9	2007	28,467	9.7	340.8
10	2008	28,885	9.2	318.6
10 Year Base Daily Per Capita Use				**319.4**
1	2005	27,650	8.6	310.5
2	2006	28,056	8.8	315.1
3	2007	28,467	9.7	340.8
4	2008	28,885	9.2	318.6
5	2009	29,308	8.3	284.7
5 Year Base Daily Per Capita Use				**313.9**

Table 3-16: Combined West Basin Regional Alliance - Base Daily Per Capita Water Use

Year	Calendar Year	Population	Gross Water Use (mgd)	Per Capita Use (gpcd)
1	1995	225,069	56.2	249.6
2	1996	225,804	59.7	264.5
3	1997	226,990	57.1	251.5
4	1998	227,755	53.8	236.4
5	1999	228,647	54.8	239.6
6	2000	230,529	54.0	234.2
7	2001	234,622	51.1	217.7
8	2002	235,633	49.9	211.8
9	2003	235,564	43.2	183.5
10	2004	237,005	44.6	188.2
10 Year Base Daily Per Capita Use				**227.7**
1	2003	235,564	43.2	183.5
2	2004	237,005	44.6	188.2
3	2005	241,367	43.0	178.3
4	2006	242,067	41.7	172.2
5	2007	242,923	42.5	175.1
5 Year Base Daily Per Capita Use				**179.5**



3.3.3 Regional Alliance Water Use Targets

The regional alliance water use targets were calculated by first determining which of the four allowable target calculation methods would be used for each member of the regional alliance. These methods are:

- Method 1: 80 percent of ten-year baseline per capita use
- Method 2: Applying performance standards
- Method 3: 95 percent of the DWR South Coast Region target of 149 gpcd
- Method 4: Applying savings by water sector

These selected methods were applied to the 10-year base per capita water use calculated in Tables 3-10 through 3-16 to determine a target per capita water use level for 2020. Once these targets were determined, they were confirmed by comparing them against DWR's maximum allowable target. The maximum allowable target is equivalent to 95 percent of each alliance member's five-year base per capita use calculated in Tables 3-10 through 3-16.

If the five-year base per capita use was less than 100 gpcd, then there is no maximum target for that supplier since they would be considered by DWR to be sufficiently efficient in water use. Only two suppliers, California Water Service Company - Hawthorne, and the City of Inglewood, have a five-year base per capita water use less than 100 gpcd, therefore under DWR they are sufficiently efficient in their water use. If the 2020 calculated target is greater than the maximum allowable target, then the maximum allowable target must be used instead of the calculated 10-year base targets.

Table 3-17 provides the final per capita targets for each member of the Regional Alliance as well as the overall targets for the combined Regional Alliance. Cells highlighted in gold indicate whether the calculated or maximum allowable target was used to determine the final 2020 target. Once the final 2020 water use target has been calculated, then an interim target is created by calculating the median between the 10-year base per capita use and the final 2020 target.

Table 3-17: Regional Alliance 2015 Interim and 2020 Targets (gpcd)

Member	10-Year Base Water Use	Calculated Water Use Targets		Maximum Allowable Target	Final Targets	
		Method	Target		2015[1]	2020
California Water Service Company-Hawthorne[2]	96.5	3	141.6	N/A	119.0	141.6
City of El Segundo	220.6	1	176.5	182.2	198.6	176.5
City of Inglewood[2]	105.3	3	141.6	N/A	123.4	141.6
City of Lomita	123.4	3	141.6	116.2	119.8	116.2
City of Manhattan Beach	175.7	3	141.6	144.9	158.6	141.6
Los Angeles County Waterworks District #29	319.4	1	255.5	298.2	287.5	255.5
Regional Alliance	**227.7**	**1**	**182.2**	**160.5**	**194.1**	**160.5**

[1] 2015 interim target was determined by calculating the median between the 10-year base per capita use and the final 2020 target.
[2] Five year base per capita water use was less than 100 gpcd (listed as N/A), supplier is currently sufficiently efficient according to DWR.

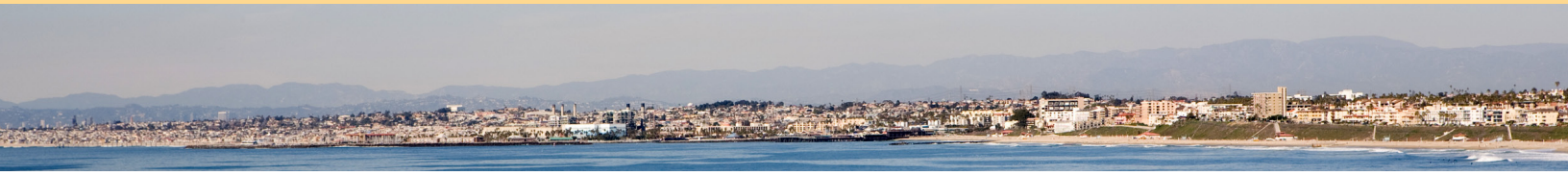
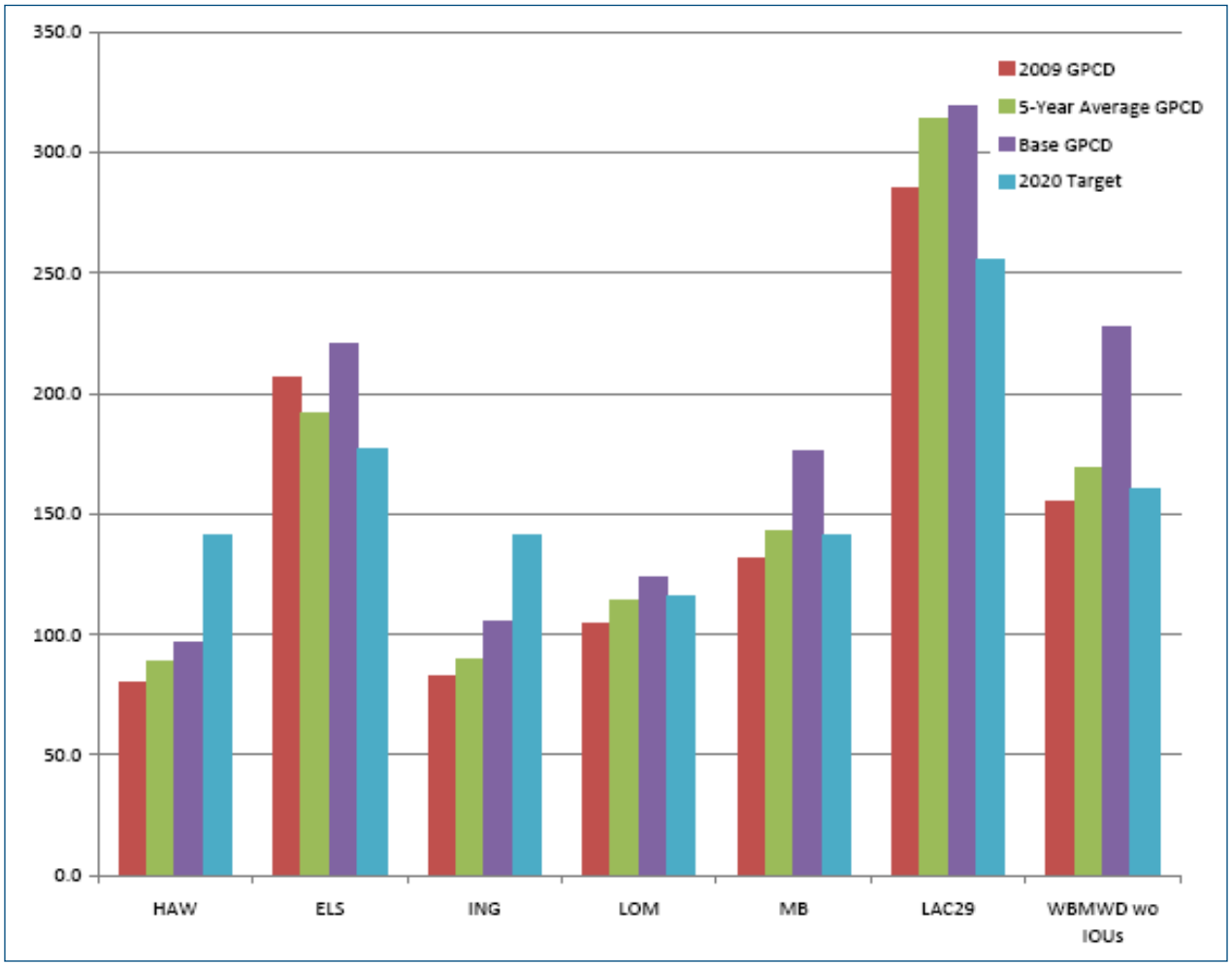


Figure 3-3 represents a comparison of the 2009, 5-year base, 10-year base and 2020 target water use for each regional alliance member.

Figure 3-3: Regional Alliance Base and Target Use Summary



3.4 Water Use Reduction Plan

In order to meet the 2020 and interim 2015 water use targets calculated in Table 3-17, West Basin has collaborated with its regional alliance agencies to develop individual Water Use Efficiency Master Plans. These plans are anticipated to be completed in May 2011. Table 3-18 identifies several key programs already identified for implementation that will help the regional alliance achieve or even go beyond the required water use targets.

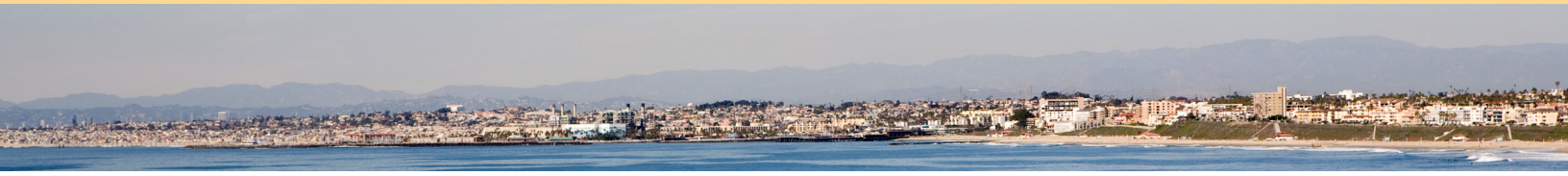
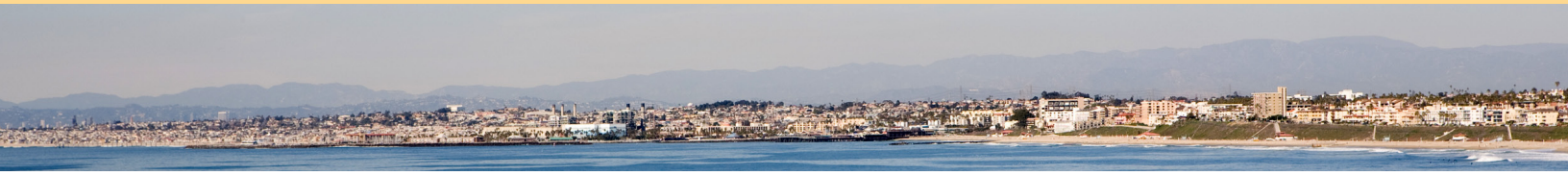


Table 3-18: West Basin and Retailer Conservation Program Participation

Programs	West Basin	Los Angeles County Waterworks District #29	City of El Segundo	City of Manhattan Beach	City of Hawthorne	City of Lomita	City of Inglewood
MWD							
Residential Rebate Program	X	X	X	X	X	X	X
Save A Buck Rebate Program	X	X	X	X	X	X	X
West Basin							
High-Efficiency Toilet (HET) Distribution Events	X	X	X	X	X	X	X
Green Living for Apartments and Condos (Direct HET Installations)	X	X	X	X	X	X	X
Ocean Friendly Landscape Program	X	X	X	X	X	X	X
Complete Restroom Retrofit Program	X	X	X	X	X	X	X
Recirc & Save Program	X	X	X	X	X	X	X
Cash for Kitchens	X	X	X	X	X	X	X
Education Programs	X	X	X	X	X	X	X
West Basin Programs (Funding Pending)							
High-Efficiency Nozzle Program	X	X	X	X	X	X	X
Water Star Schools Pilot Program	X	X	X	X	X	X	X
Water & Energy Efficiency in the Motel/Hotel and Schools Sectors	X	X	X	X	X	X	X
Other Water Retailer							
Turf Removal Program	N/A	X	-	-	-	-	-
HET Rebates (CII)	N/A	X	-	-	-	-	-
Landscape Surveys	N/A	X	-	-	-	-	-
Education Programs	N/A	X	-	-	-	-	-
Landscape Incentives	N/A	X	-	-	-	-	-



This page intentionally blank

SECTION FIVE

Water Reliability

SECTION 5 Water Reliability

West Basin's supply reliability can be greatly impacted by many factors including changes in the availability of supplies due to climatic or infrastructure changes as well as the ability to use those supplies more efficiently in both average and dry periods. These factors can result in immediate (facility failures), near-term (SWP limitations), or long-term (climate change) impacts to reliability and must therefore be considered in future planning.

The impacts of these factors on reliability increase under single dry and multiple dry year hydrologic patterns. Historically, dry years result in increases in demands as well as decreases in surface supplies that result in shortages if not managed effectively. Although not all shortages can be prevented, West Basin's WR 2020 goal to expand and further diversify its supply portfolio is the most important step toward improving the immediate, near- and long-term reliability of supplies. If shortages do occur, West Basin has completed comprehensive water shortage contingency planning to provide reliability during these situations.

5.1 Potential Impacts to Reliability

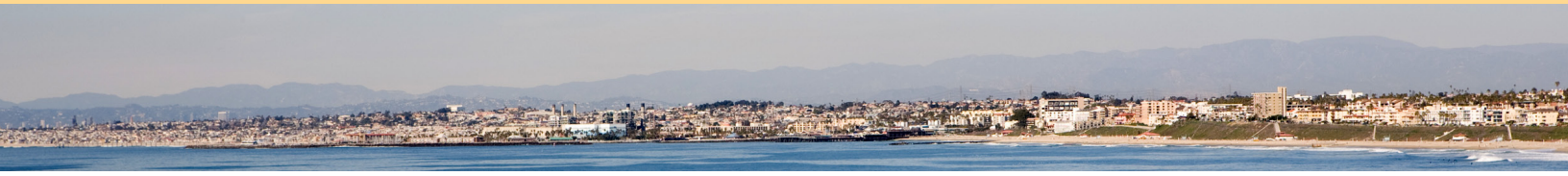
Reliability within the West Basin service area is a composite of the reliability of each source of supply. Table 5-1 summarizes the factors that impact each resource's supply reliability. Of all of the supplies shown in Table 5-1, imported supply has the greatest number of factors that will impact its reliability. It is because of this, that West Basin is moving forward with its plans to expand water use efficiency, further develop recycled water and add ocean-desalination supplies. Further explanation of each impact category on reliability is described in the subsections below.

Table 5-1: Factors Resulting in Impacts to Reliability

Water Sources	Legal	Environmental	Water Quality	Climatic
Imported Water	X	X	X	X
Groundwater	X		X	X
Recycled Water			X	
Ocean-Water Desalination			X	

5.1.1 Imported Water Reliability

As discussed in Section 4, MWD has and will continue to contend with considerable challenges to maintaining a reliable source of imported supply for its member agencies. After learning from the droughts of 1977-78 and 1989-92, MWD instituted a resources planning process that has resulted in the following documents:

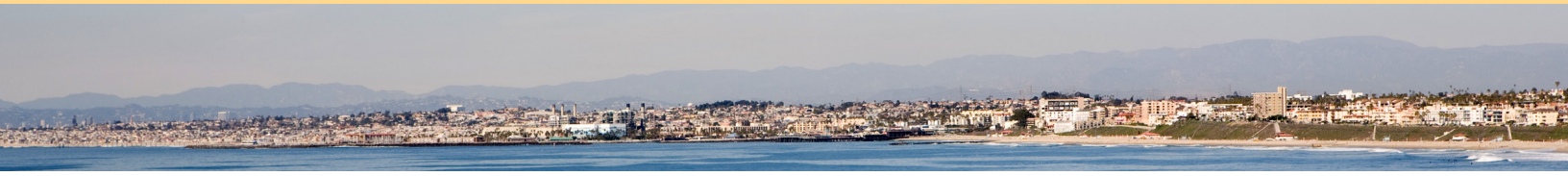


- **1996, 2004 and 2010 Integrated Resources Plans (IRP):** MWD's IRP process assessed potential future regional demand projections based upon anticipated population and economic growth as well as conservation potential. The IRP also includes regional supply strategies and implementation plans to better manage resources, meet anticipated demand, and increase overall system reliability.
- **1999 Water Surplus and Drought Management Plan (WSDM):** The WSDM provides the policy guidance to manage the region's water supplies to achieve the reliability goals of the IRP. This is achieved by integrating the operating activities of surplus and shortage supplies through a series of stages and principles.
- **2008 Water Supply Allocation Plan (WSAP):** The WSAP includes the specific formula for calculating member agency supply allocations and the key implementation elements needed for administering the allocation. The need for the WSAP arose after the 2008 Bay-Delta biological opinions and rulings that limited SWP supplies to its contractors including MWD. The WSAP formula seeks to balance the impacts of a shortage at the retail level while maintaining equity on the wholesale level for shortages of MWD supplies up to 50%.

Since the 2008 Bay-Delta reductions, MWD has been using the WSAP formulas to contend with the reduction in available imported supplies. Although it is anticipated that the WSAP will continue to be in effect in the near–term, MWD states in its 2010 Draft UWMP that there will be sufficient supply to meet member agency demands in single and multiple dry years from 2015 through 2035. This is assuming that MWD storage levels are at or above average levels prior to those cycles.

MWD also is planning as part of the 2010 IRP to further support member agency local resource development as well as investigate potentially generating its own local resources for distribution to member agencies. The development of local resources as well as furthering existing conservation goals to meet the Water Conservation Act of 2009 targets are anticipated to provide a supply buffer for member agencies to rely upon in times of drought and longer-term climatic changes.

The factors affecting reliability for imported water supplies include legal, environmental, water quality and climatic. The legal factor includes policies and contracts on the SWP with the Department of Water Resources and on the Colorado River system with the Department of the Interior and other Colorado River basin states. Legal actions can impact supplies from these two sources in various ways as experienced recently with a federal district court decision limiting SWP supplies due to perceived impacts on specific fish in the Delta estuary. This example also shows how environmental factors such as endangered species, their habitat, and other related concerns must be taken into account in decisions that can curtail supplies. Likewise, the quality of these imported source waters can impact availability of supplies due to treatment, remediation or otherwise to ensure drinking water standards are fully met. In terms of impacts from climatic factors, imported water supplies rely heavily on runoff from rainfall and



snowpack in the State Water Project and Colorado River watersheds. If the amount of snowpack and rainfall changes significantly in these two water supply systems, the quantity of water in any given year is subject to fluctuations. With the uncertainty of the impacts from long-term climate changes, imported water supplies may become more or less reliable in the future, depending on the availability of storage.

5.1.2 Groundwater Reliability

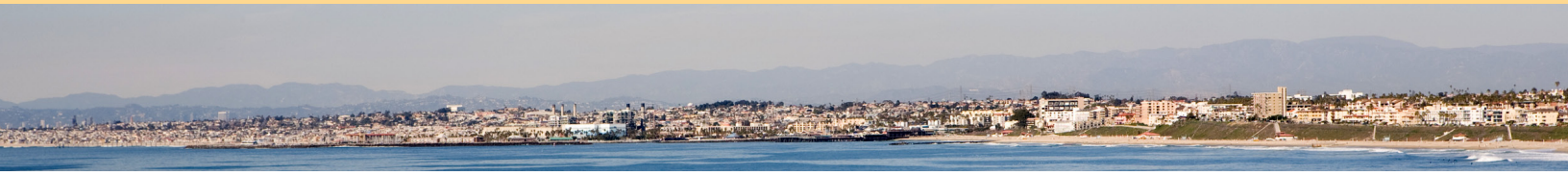
The reliability of groundwater supplies dictates how much supplemental supply West Basin will need to provide its customer agencies to meet their demands. Groundwater is traditionally considered a highly reliable supply since it is not immediately susceptible to changes in climate and surface flows. However, the two main factors that impact the reliability of groundwater supplies are legal and water quality.

Because the WCGB is an adjudicated basin, pumping rights are established for particular entities. However, changes to basin operation including allocation of pumping rights, opportunities to utilize the basin in other ways including storage, remediation of contaminated plumes, and pumping expansion for further extraction, are all considered legal impacts because it would require addressing the existing court-ordered judgment.

The LACDPW owns and maintains the seawater barrier system. They also monitor and work with WRD to determine how much barrier injection water is required in order to maintain protective levels to protect the aquifer from seawater intrusion. WRD also determines how much water is needed to replenish the WCGB to support pumping and orders this amount of water from West Basin who then delivers a combination of recycled and imported water.

The water quality of groundwater supplies is a factor in its reliability because the water needs to meet drinking water standards and sometimes requires expensive treatment at each pumping location.

During the time in which groundwater pumping was exceeding recharge and replenishment, seawater intruded into the WCGB. Once the intrusion barriers were brought on-line, the intrusion was stopped, but a large plume of saline water has remained trapped within the basin. The groundwater supply projections have already considered the presence of the plume and therefore anticipate no change in supply reliability as a result of its existence. The saline plume and the methods being employed by West Basin and its customer and neighboring agencies to manage the plume are further discussed in Section 6: Water Quality.



5.1.3 Recycled Water and Ocean-Water Desalination Reliability

Edward C. Little Water Recycling Facility

Recycled water is often considered as having one of the highest reliabilities of any supply given that there is a consistent source of supply for treatment. Ocean-water desalination is a newer form of supply in California but is also considered highly reliable given the abundance of ocean-water adjacent to West Basin's service area. West Basin has completed a pilot study and is now operating a demonstration facility to further determine environmental safeguards, energy and cost savings possible prior to a full scale program slated for completion by 2017. The planned recycled water and ocean-water desalination projects that West Basin is intending to use to meet future demand are further detailed in Sections 9 and 10 respectively.

5.1.4 Climate Change

Climate change adds its own new uncertainties to the challenges of planning. As a MWD member agency, West Basin is contributing to MWD's activities to better understand and plan for potential long-term climate change impacts.

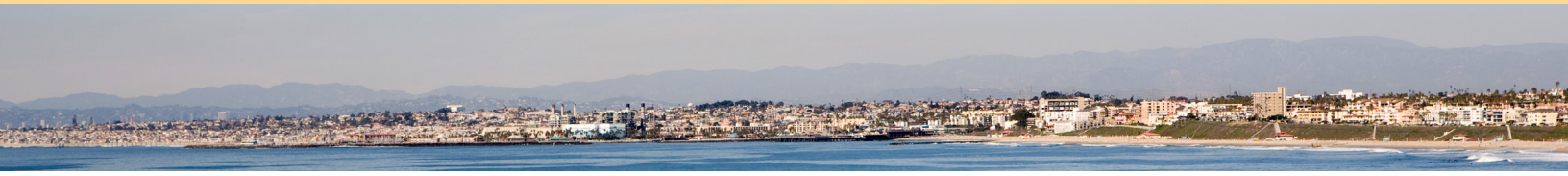
According to the MWD RUWMP, MWD uses historical hydrological data to forecast both the frequency and the severity of future drought conditions, as well as the frequency and abundance of above-normal rainfall. However, weather patterns can be expected to shift dramatically and unpredictably in a climate driven by increased concentrations of carbon dioxide in the atmosphere. MWD is committed to performing its due diligence with respect to climate change.

While uncertainties remain regarding the exact timing, magnitude, and regional impacts of these temperature and precipitation changes, researchers have identified several areas of concern for California water planners. These include:

- Reduction in Sierra Nevada snowpack
- Increased intensity and frequency of extreme weather events
- Rising sea levels resulting in:
  - Increased risk of damage from storms, high-tide events, and the erosion of levees
  - Potential pumping cutbacks on the SWP and Central Valley Project
  - Increased threats to coastal groundwater basins

Other important issues of concern due to global climate change include:

- Changes in urban and agricultural demand levels and patterns
- Impacts to human health from water-borne pathogens and water quality degradation
- Declines in ecosystem health and function
- Alterations to power generation and pumping regimes



In March 2002, the MWD Board adopted policy principles on global climate change as related to water resource planning. The Principles stated in part that MWD supports further research into the potential water resource and quality effects of global climate change, and supports flexible "no regret" solutions that provide water supply and quality benefits while increasing the ability to manage future climate change impacts. To date MWD has completed the following actions to meet these Principles:

- Membership in the Water Utility Climate Alliance that has resulted in completion of several activities including:
  - Letter of support for Western Water Assessment's continued funding as a Regional Integrated Sciences and Assessments team under the National Oceanic and Atmospheric Administration (NOAA)
  - Letter of support for the 2009 Kerry-Boxer Water Utilities Mitigation and Adaptation Partnerships congressional bill addendum
  - Regular communication and consultations with federal agencies on the U.S. Environmental Protection Agency's Climate Ready Water Utility Working Group
  - NOAA Climate Service and January 2010 International Climate Change Forum
  - Released "Options for Improving Climate Modeling to Assist Water Utility Planning for Climate Change"
- Working with local water supply agencies, state and federal agencies and non-governmental organizations to collaborate on climate change related planning issues.
- Using MWD's IRP process to incorporate climate change science into regional plans by providing adaptive management strategies, creating buffer supplies, and encouraging the more efficient use of existing supplies.

5.2 Projected Supply Reliability

West Basin has experienced several examples of single dry and multiple dry year cycles within its historical hydrologic record. For the purposes of this UWMP, West Basin will use the years called out in Table 5-2 as the best representative examples of the single and multiple dry years. Table 5-3 provides an estimate of current (2010) water supply reliability from all four of West Basin's water sources. The table estimates supply reliability for 2011 if it were a single dry year and through a multiple dry period from 2011 to 2013. The average year supply projections shown in Table 5-4 are the average of all years within the 100 year hydrologic record and were previously reported in Section 4: Water Supply.

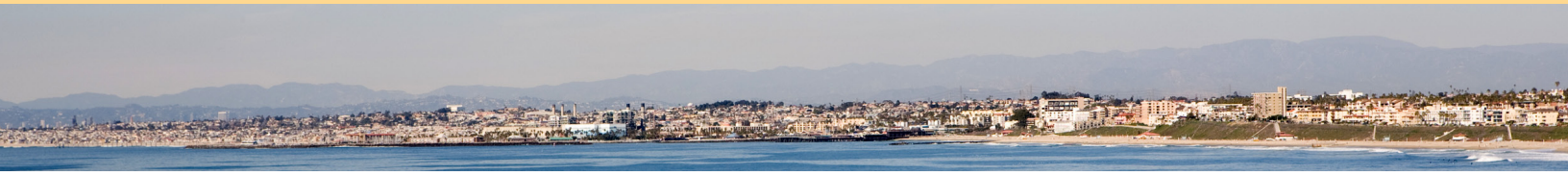


Table 5-2: Basis of Water Years and Historic Conditions

	Single Dry Water Year	Normal Water Year	Multiple Dry Water Years		
	Year 1		Year 1	Year 2	Year 3
	2001	1999	2001	2002	2003
Percent of Normal Year	4%	0%	4%	4.5%	5.0%

Table 5-3: Supply Reliability- Current Water Sources

Water Supply Sources[1]	Average/Normal Water Year Supply (2010)	Single Dry Water Year Supply (2011)	Multiple Dry Water Years Supply		
			2011	2012	2013
Groundwater	35,320	36,360	38,088	39,816	41,544
Imported Water	104,985	111,246	113,342	116,262	119,223
Recycled Water	14,182	14,182	14,619	15,056	15,494
Desalination	500	1,000	1,000	1,000	1,000
Total Supply	154,987	162,788	167,050	172,135	177,261
Percent of Normal Year	0%	4%	4%	4.5%	5%

[1]Supply reliability covers only retail water demand; does not include replenishment/barrier deliveries.

Table 5-4: Projected Average Year Supply and Demand

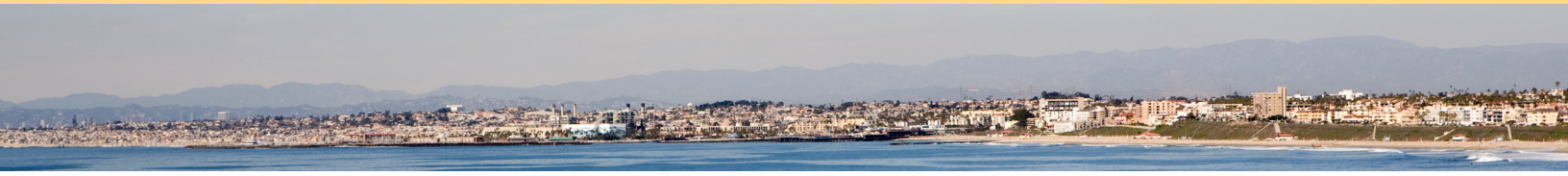
Supplies[1]	2010	2015	2020	2025	2030	2035
Groundwater[1]	35,320	45,000	45,000	45,000	45,000	45,000
Imported Water[2]	104,985	114,647	76,797	75,386	70,598	69,761
Recycled Water[3]	14,182	16,368	33,882	33,882	37,382	37,382
Desalination[4]	500	1,000	21,500	21,500	21,500	21,500
Total Supply	**154,987**	**177,015**	**177,179**	**175,768**	**174,480**	**173,643**
Total Demand	**154,987**	**177,015**	**177,179**	**175,768**	**174,480**	**173,643**
Surplus/(Shortage)	0	0	0	0	0	0

[1] Groundwater production within West Basin service area only.
[2] Imported retail use only; does not include replenishment deliveries (i.e. Barrier).
[3] Recycled water does not include replenishment deliveries (i.e. Barrier) and deliveries outside the service area.
[4] Desalination includes both brackish and ocean-water.

5.2.1 Single Dry Year

Table 5-5 shows the projected reliability of water supplies under single dry year conditions for five year increments between 2010 and 2035.

The overall demand is estimated to increase by 4 percent over average year to account for increases in irrigation needs. The scenario selected in the demand forecasting model projects that demands will increase by 4 percent in a single dry year based on the following set of assumptions:



- Economic cycle and restrictions (4-year rebound)
- Growth in connections (normal)
- Population (normal)
- Effects of price of water (MWD projected increases)
- Long-term climate change conditions (normal)
- Water use efficiency (doubling current efforts)
- Short-term weather changes (hot and dry)

The extra demand can readily be met with a slight increase in imported water purchases given that West Basin is gradually reducing its dependence on imported supplies in an average year and therefore should have imported water allocations available to meet these slight increases in demand.

Table 5-5: Projected Single-Dry Year Supply and Demand (AF)

Supplies[1]	2010	2015	2020	2025	2030	2035
Groundwater	35,320	45,000	45,000	45,000	45,000	45,000
Imported Water	111,246	121,728	83,884	82,417	77,577	76,707
Recycled Water	14,182	16,368	33,882	33,882	37,382	37,382
Desalination	500	1,000	21,500	21,500	21,500	21,500
Total Supply	**161,248**	**184,096**	**184,266**	**182,799**	**181,459**	**180,589**
Total Demand[2]	**161,248**	**184,096**	**184,266**	**182,799**	**181,459**	**180,589**
Surplus/(Shortage)	0	0	0	0	0	0

[1] Supply reliability covers only retail water demand; does not include replenishment/barrier deliveries.
[2] Reflects demand after planned conservation and assumes a 4% increase in demand from average year.

5.2.2 Multiple Dry Years

Table 5-6 through 5-10 show the projected reliability of supplies under multiple (three-year) dry year conditions for five year increments between 2010 and 2035. It was assumed in all tables that demand will increase by 5 percent over the average year in the third year of multiple dry year conditions. This projected increase was determined through the assumptions used in the demand forecasting model process and in previous dry-year conditions.

As under single dry year conditions, imported supplies will be purchased to meet any annual increase in demand. As a result, there are no anticipated shortages under any multiple dry year scenarios. Any shortfall in supplies will be met through imported water so long as MWD manages its supply and demand balance through its Water Surplus and Drought Management Plan, which includes specific actions such as storage withdrawals and implications of their WSAP. This is discussed in further detail in section 5.3.1.

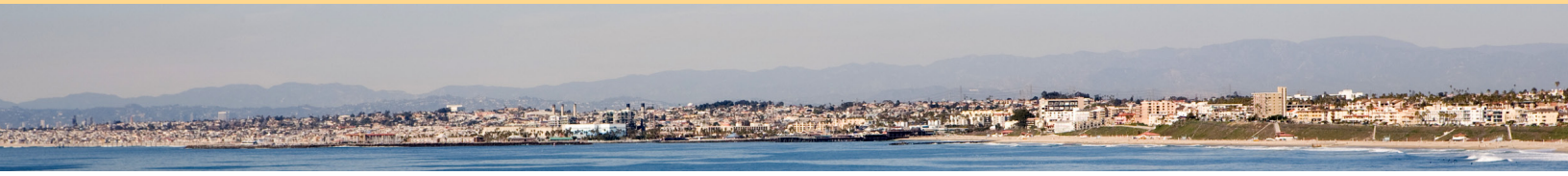


Table 5-6: Projected Multiple Dry-Year (2013-2015) Supply and Demand (AF)

Supplies	2013	2014	2015
Groundwater	40,700	42,850	45,000
Imported Water	117,501	115,788	114,078
Recycled Water	15,494	15,931	16,368
Desalination	1,000	1,000	1,000
Total Supply[1]	**174,695**	**175,569**	**176,446**
Total Demand[2]	**174,695**	**175,569**	**176,446**
Surplus/(Shortage)	0	0	0

[1] Supply reliability covers only retail water demand; does not include replenishment/barrier deliveries.
[2] Reflects demand after conservation and assumes a 5% increase from average to dry year 3.

Table 5-7: Projected Water Multiple Dry-Year (2018-2020) Supply and Demand (AF)

Supplies	2018	2019	2020
Groundwater	45,000	45,000	45,000
Imported Water	99,022	92,340	85,662
Recycled Water	26,876	30,379	33,882
Desalination	13,300	17,400	21,500
Total Supply[1]	**184,198**	**185,119**	**186,044**
Total Demand[2]	**184,198**	**185,119**	**186,044**
Surplus/(Shortage)	0	0	0

[1] Supply reliability covers only retail water demand; does not include replenishment/barrier deliveries.
[2] Reflects demand after conservation and assumes a 5% increase from average to dry year 3.

Table 5-8: Projected Water Multiple Dry-Year (2023-2025) Supply and Demand (AF)

Supplies	2023	2024	2025
Groundwater	45,000	45,000	45,000
Imported Water	83,003	83,920	84,842
Recycled Water	33,882	33,882	33,882
Desalination	21,500	21,500	21,500
Total Supply[1]	**183,385**	**184,302**	**185,224**
Total Demand[2]	**183,385**	**184,302**	**185,224**
Surplus/(Shortage)	0	0	0

[1] Supply reliability covers only retail water demand; does not include replenishment/barrier deliveries.
[2] Reflects demand after conservation and assumes a 5% increase from average to dry year 3.

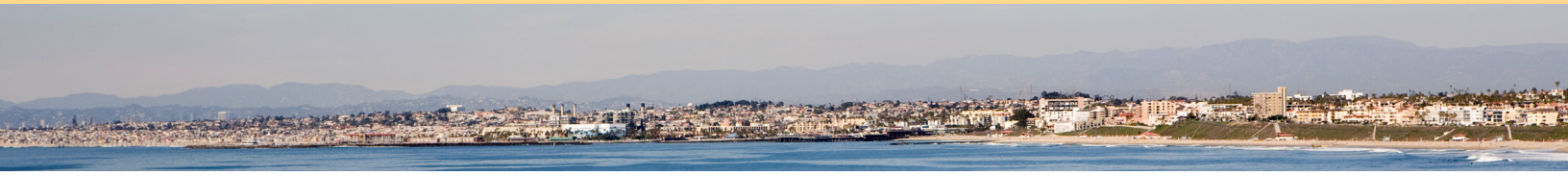


Table 5-9: Projected Water Multiple Dry-Year (2028-2030) Supply and Demand (AF)

Supplies	2028	2029	2030
Groundwater	45,000	45,000	45,000
Imported Water	79,513	79,723	79,937
Recycled Water	35,982	36,682	37,382
Desalination	21,500	21,500	21,500
Total Supply[1]	**181,995**	**182,905**	**183,819**
Total Demand[2]	**181,995**	**182,905**	**183,819**
Surplus/(Shortage)	0	0	0

[1] Supply reliability covers only retail water demand; does not include replenishment/barrier deliveries.
[2] Reflects demand after conservation and assumes a 5% increase from average to dry year 3.

Table 5-10: Projected Water Multiple Dry-Year (2033-2035) Supply and Demand (AF)

Supplies	2033	2034	2035
Groundwater	45,000	45,000	45,000
Imported Water	77,055	77,960	78,869
Recycled Water	37,382	37,382	37,382
Desalination	21,500	21,500	21,500
Total Supply[1]	**180,937**	**181,842**	**182,751**
Total Demand[2]	**180,937**	**181,842**	**182,751**
Surplus/(Shortage)	0	0	0

[1] Supply reliability covers only retail water demand; does not include replenishment/barrier deliveries.
[2] Reflects demand after conservation and assumes a 5% increase from average to dry year 3.

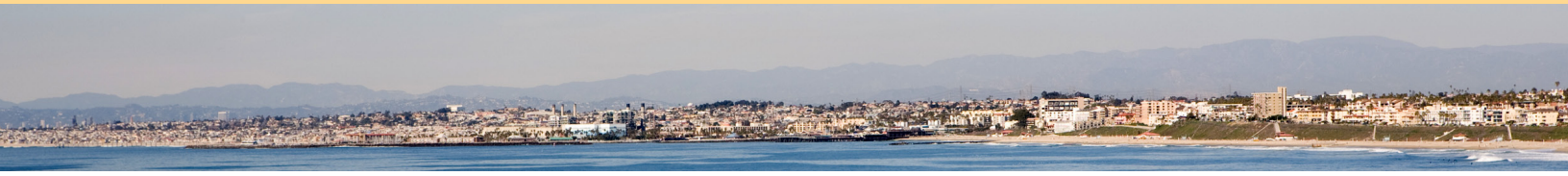
5.3 Water Shortage Contingency Plan

DWR requires that each urban water supplier provide a water shortage contingency analysis within its UWMP. West Basin completed its WSAP in 2008 as a result of MWD's WSAP. West Basin's WSAP is only implemented after MWD reaches the appropriate stage. MWD has captured this planning in its WSDM Plan which guides MWD's planning and operations during both shortage and surplus conditions. Furthermore, MWD developed their WSAP which provides a standardized methodology for allocating supplies during times of shortage.

Dated: June 2009

5.3.1 MWD Water Surplus and Drought Management Plan

In April 1999, MWD's Board adopted the WSDM Plan. It provides policy guidance for managing regional water supplies to achieve the reliability goals of the IRP and identifies the expected sequence of resource management actions that MWD will execute during surpluses and shortages to minimize the probability of severe shortages and reduce the possibility of extreme shortages and shortage allocations. Unlike MWD's previous shortage management plans, the WSDM Plan recognizes the link between surpluses and shortages, and it integrates planned operational actions with respect to both conditions.



WSDM Plan Implementation

Each year, MWD evaluates the level of supplies available and existing levels of water in storage to determine the appropriate management stage. Each stage is associated with specific resource management actions designed to (1) avoid an Extreme Shortage to the maximum extent possible and (2) minimize adverse impacts to retail customers if an Extreme Shortage occurs. The current sequencing outlined in the WSDM Plan reflects anticipated responses based on detailed modeling of MWD's existing and expected resource mix.

Surplus Stages

MWD's supply situation under the WSDM Plan is considered to be in surplus as long as net annual deliveries can be made to water storage programs. The WSDM Plan further defines five surplus management stages that guide the storage of surplus supplies in MWD's storage portfolio. Deliveries for storage in the Diamond Valley Lake and in the State Water Project terminal reservoirs continue through each surplus stage provided there is available storage capacity. Withdrawals from Diamond Valley Lake for regulatory purposes or to meet seasonal demands may occur in any stage. Deliveries to other storage facilities may be interrupted, depending on the amount of the surplus.

Shortage Stages

The WSDM Plan distinguishes between Shortages, Severe Shortages, and Extreme Shortages. Within the WSDM Plan, these terms have specific meaning relating to Metropolitan's ability to deliver water to its customers.

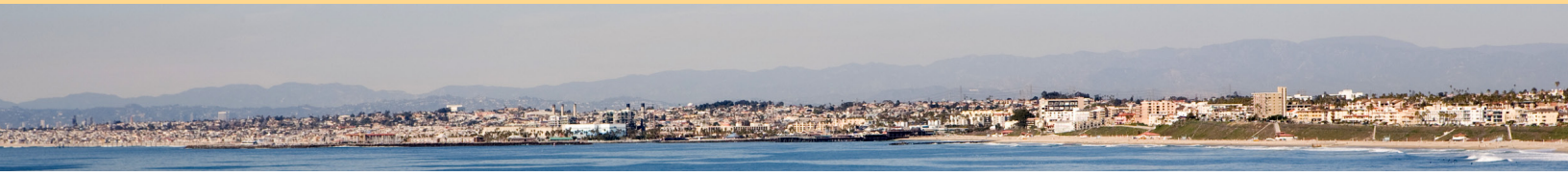
***Shortage*:** MWD can meet full-service demands and partially meet or fully meet interruptible demands, using stored water or water transfers as necessary.

***Severe Shortage*:** MWD can meet full service demands only by using stored water, transfers, and possibly calling for extraordinary conservation. In a Severe Shortage, MWD may have to curtail Interim Agricultural Water Program deliveries.

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

The WSDM Plan also defines seven shortage management stages to guide resource management activities. These stages are not defined merely by shortfalls in imported water supply, but also by the water balances in MWD's storage programs. Thus, a ten percent shortfall in imported supplies could be a stage one shortage if storage levels are high. If storage levels are already depleted, the same shortfall in imported supplies could potentially be defined as a more severe shortage.

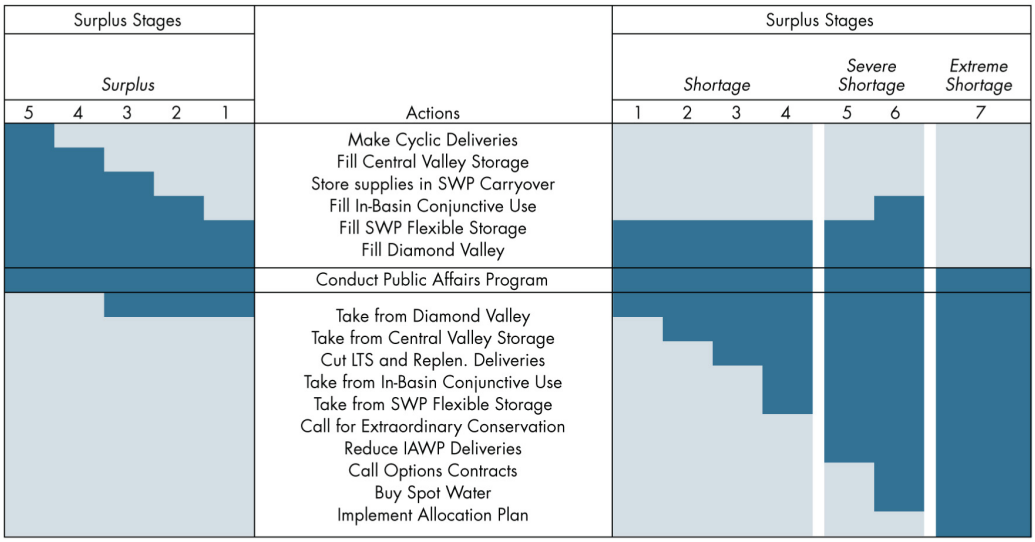
When MWD must make net withdrawals from storage to meet demands, it is considered to be in a shortage condition. Under most of these stages, it is still able to meet all end-use demands for water. For shortage stages 1 through 4, MWD will meet demands by withdrawing water from storage. At shortage stages 5 through 7, MWD may undertake additional shortage management steps, including issuing public calls



for extraordinary conservation, considering curtailment of Interim Agricultural Water Program deliveries in accordance with their discounted rates, exercising water transfer options, or purchasing water on the open market.

Figure 5-1 shows the actions under surplus and shortage stages when a Water Supply Allocation Plan would be necessary to enforce mandatory cutbacks. The overriding goal of the WSDM Plan is to never reach Shortage Stage 7, an Extreme Shortage. At shortage stage 7 MWD will implement its Water Supply Allocation Plan to allocate available supply fairly and efficiently to full-service customers.

Figure 5-1: MWD Surplus and Shortage Stages



Source: MWD 2010 UWMP

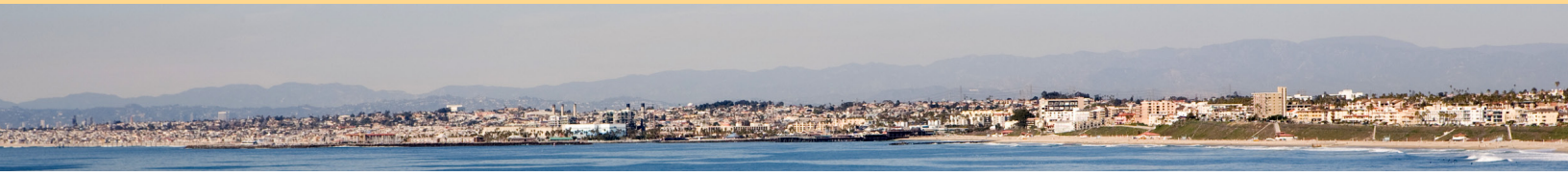
5.3.2 Drought Management Plan

When MWD is operating under a shortage stage, West Basin would take the following stages of action:

***Stage 1*:** West Basin would request for a voluntary effort among its customers to reduce imported water deliveries. In addition, West Basin would pursue an aggressive Public Awareness Campaign to encourage residents and industries to reduce their usage of water.

Stage 2: In addition to the stage above, West Basin would work with its customer agencies to review and update as needed water waste prohibitions and ordinances to discourage unnecessary water usage.

***Stage 3*:** In addition to all the stages above, West Basin would implement its adopted Water Shortage Allocation Plan which calls for a curtailment of imported water for each of its customer agencies. This plan includes an adopted allocation methodology and is enforced by a penalty structure. A draft resolution is included in Appendix F.



5.3.3 West Basin's Water Shortage Allocation Plan

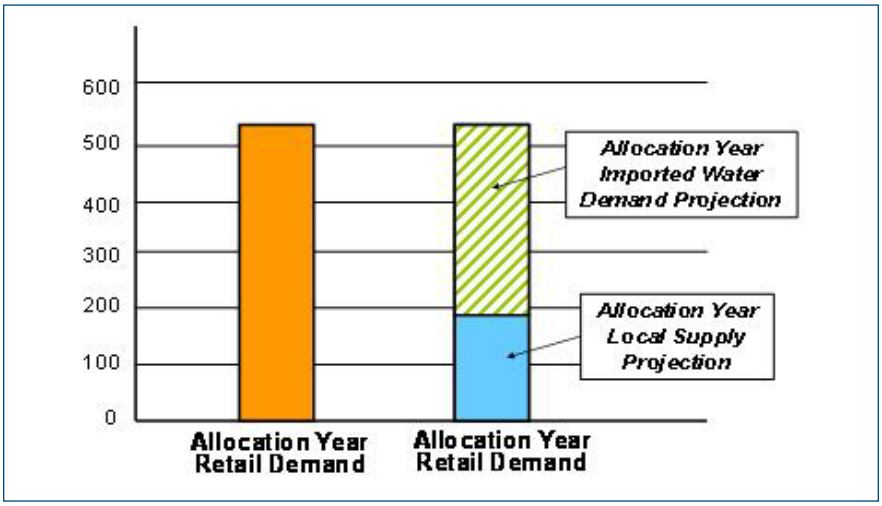
The purpose of West Basin's WSAP is to provide a method for determining allocations for its member agencies relative to the amount of supplies available when MWD has implemented its WSAP to determine West Basin's imported supply allocation. Like MWD, West Basin is a regional wholesaler and can't enforce end user restrictions – it can only impose allocations relative to its supply. Each of West Basin's member agencies must then determine how to meets its WSAP allocation of imported water to avoid over-use penalties.

This section provides an overview of West Basin's allocation formula and the requirements contained within its 2010 WSAP. The full 2010 WSAP is attached as Appendix F.

Establishing Retail Customer Agency Allocations

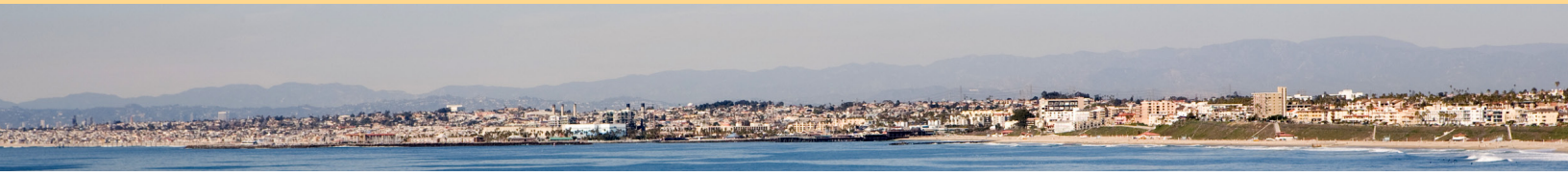
West Basin first calculates each customer agencies' baseline use by taking the average of total supply use (including both local and imported supplies) over a longer period of 1997-2007 (prior to the implementation of the Plan). The baseline is then projected forward to reflect changes in demand from population trends. This becomes the agency's allocation year demand and is shown in Figure 5-2.

Figure 5-2: Example of Allocation Year Imported Water Demand Projection



As shown in Table 5-11 and Figure 5-3, the projected imported water demand is what is allocated according to the declared MWD regional shortage level (Level 2 for the FY 2010-11 Allocation). The following concepts help explain the allocation further:

- **Regional Shortage Levels:** Each level from one to ten represents a five percent increment of Regional Shortage Percentage from 5 to 50 percent.
- **Regional Shortage Percentage:** The percentage difference between available supplies and allocation year demands, in 5 percent increments from 5 to 50.

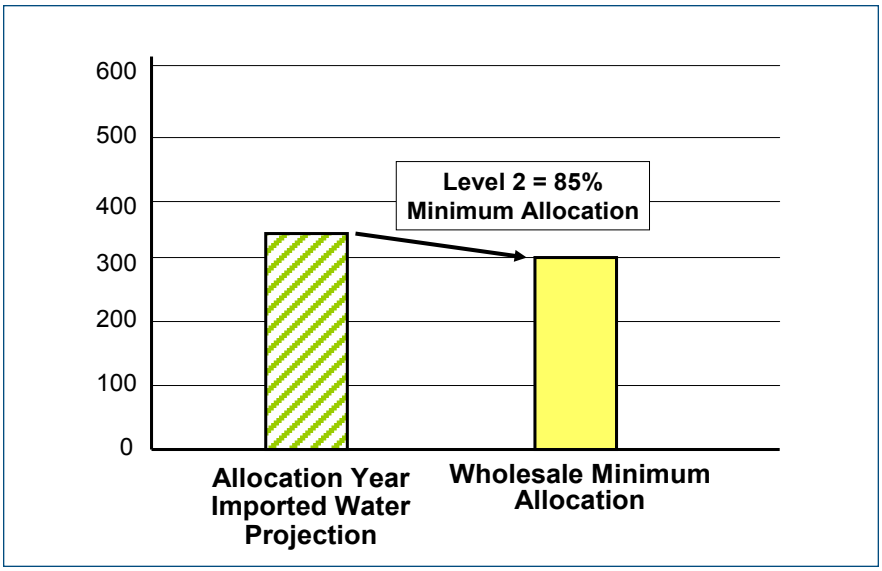


- **Wholesale Minimum Allocation:** Ensures that customer agencies will not experience shortages on the wholesale level (from West Basin) that are greater than one-and-a-half times the Regional Shortage Percentage, according to Table 5-11.

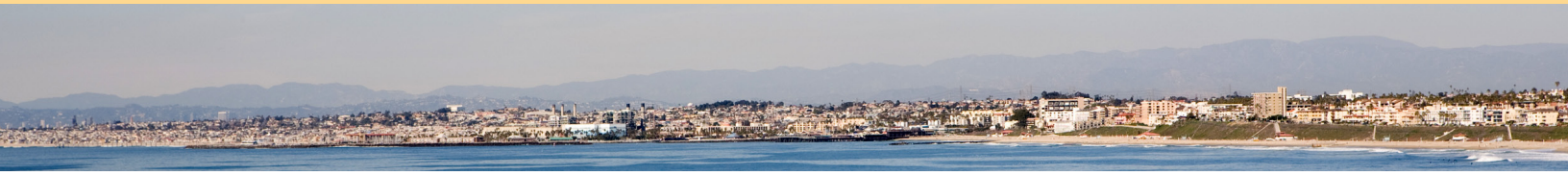
Table 5-11: Example of Initial Minimum Allocation

Regional Shortage Level	Regional Shortage Percentage	Wholesale Minimum Allocation
1	5%	92.5%
2	10%	85.0%
3	15%	77.5%
4	20%	70.0%
5	25%	62.5%
6	30%	55.0%
7	35%	47.5%
8	40%	40.0%
9	45%	32.5%
10	50%	25.0%

Figure 5-3: Example of Initial Minimum Allocation



Unequal impacts of an across-the-board allocation at the retail level can be dramatic depending primarily on the amount of local supplies, if any, held by each customer agency. That is why the allocation methodology assigns additional water supplies based on the following adjustments and credits:



- **Retail Impact Adjustment:** Previously used only in Regional Shortage Level 3 and above, the addition of this adjustment to Levels 1 and 2 was made, to ensure that customer agencies with a high level of dependence on imported water do not experience disparate shortages at the retail level compared to other agencies. Agencies that are 100% dependent on imported water, for example, are allocated at the Regional Shortage Percentage instead of the Wholesale Minimum Percentage.
- **Conservation:** Based on each customer agency's pro-rated share of MWD's modeled estimate of West Basin's conservation in 2006, including active, passive and avoided system losses. It is preferable to use the most recent year, rather than a three-year average, for demand hardening considerations.
- **Qualifying Conservation Rate Structure:** Additional credit added to those customer agencies that have a conservation rate structure. To qualify, a retail customer agency's rate structure must have at least two tiers of volumetric rates, with a price differential between the top and bottom tiers of at least 10 percent. Upon verification of the retail rate structures by MWD, West Basin is given a credit of 0.5% for the total volume subject to these rate structures.

As a member agency of MWD, West Basin is provided the opportunity to request changes to its allocation through an appeals process. Likewise, customer agencies of West Basin are provided the opportunity to appeal to their individual allocations from West Basin based on new or corrected information. Grounds for requesting a change can include, but are not limited to:

- Errors in historical data used in base period calculations
- Unforeseen losses or gains in local supplies
- Extraordinary increases in local supplies
- Adjustments in credits for conservation, including qualifying conservation water rates

In some cases, West Basin has no flexibility to change a customer agency's allocation unless it results in a change to West Basin's total allocation with MWD. West Basin staff will, however, work with customer agencies to determine whether appeals to MWD are warranted, and if so, to prepare an appeal for review by MWD.

Allocation Penalty Rates

West Basin will enforce customer agency allocations through a penalty rate structure similar to what West Basin is subject to in MWD's allocation plan. Penalty rates will only be assessed to the extent that an agency's total annual usage exceeds its total annual allocation. No billing or assessment of penalty rates will take place until the end of the twelve-month allocation period. Penalty rates are in addition to the base rate of the water purchased. The most recent change to the fiscal year 2010-11 WSAP is that there are two penalty rate scenarios.

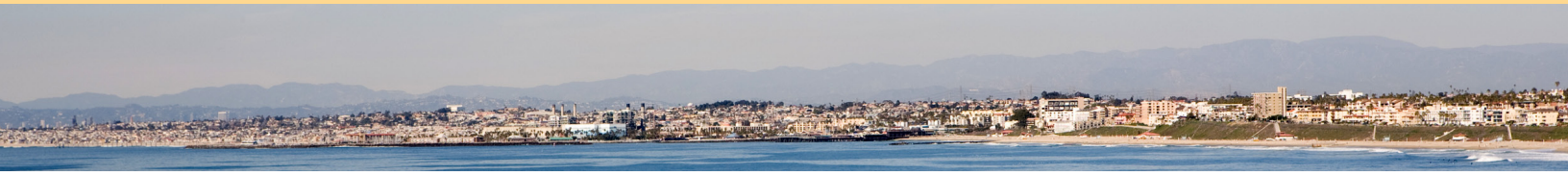


Table 5-12 demonstrates the two penalty rate structure scenarios. If West Basin is under its MWD allocation but a customer agency is over its individual allocation, it will be assessed the penalty structure reflected in Column B. However, if West Basin is over its allocation to MWD, West Basin will assess penalties reflected in Column C to those customer agencies that exceed their individual allocation.

Table 5-12: West Basin Allocation Penalty Rates

A	B	C
	Customer Agency Penalties*	
	West Basin Under Allocation to MWD	**West Basin Over Allocation to MWD**
Customer Agency up to 15% above allocation	1 x Tier 2	1 x Tier 2
Customer Agency over 15% above allocation	1 x Tier 2	3 x Tier 2

* The Tier 2 penalty rate excludes the Treatment Surcharge ("Full Service Untreated Tier 2 Rate")

The actual penalty rates shall be based on the official MWD Untreated Tier 2 water rate in effect the last day in June of the twelve-month allocation period.

Use of Penalty Revenues

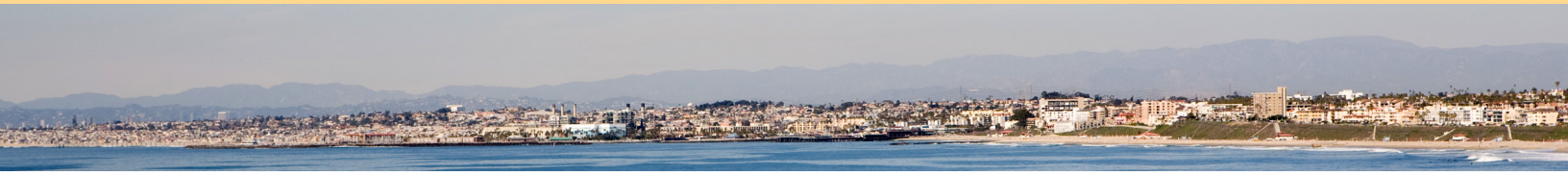
According to the WSAP policy adopted by the West Basin Board, any penalty funds collected by West Basin from customer agencies will first be applied to any penalty owed to MWD. Any "net penalty revenues" remaining can then be applied towards investments in water reliability projects and programs that benefit the West Basin service area as a whole, as approved by the board.

5.3.4 Catastrophic Supply Interruption

In the event imported water supplies are interrupted from a catastrophic event, West Basin, through coordination with MWD, can respond at both a regional and a local level.

In the event that an emergency such as an earthquake, system failure, or regional power outage, etc. affected the entire southern California region, MWD would take the lead and activate its Emergency Operation Center (EOC). The EOC coordinates MWD's and West Basin's responses to the emergency and concentrate efforts to ensure the system can begin distributing potable water in a timely manner.

If circumstances render the Southern California's aqueducts to be out of service, MWD's Diamond Valley Lake can provide emergency storage supplies for its entire service area's firm demand for up to six months. With few exceptions, MWD can deliver this emergency supply throughout its service area via gravity, thereby eliminating dependence on power sources that could also be disrupted. Furthermore, should additional



supplies be needed, MWD also has surface reservoirs and groundwater conjunctive use storage accounts that can be drawn upon to meet additional demands. The WSDM plan guides MWD's management of available supplies and resources during an emergency to minimize the impacts of a catastrophic event.

Locally, West Basin has the Member Agency Response System (MARS) to immediately contact its customer agencies and MWD during an emergency about potential interruption of services and the coordination of critical resources to respond to the emergency, also known as mutual aid. The MARS is a radio communication system developed by MWD and its member agencies to provide an alternative means of communication in extreme circumstances. West Basin is currently in the process of enhancing its communication system in order to provide a more rapid response. Additionally, a contingency plan has been developed for both planned and unplanned electrical outages which includes back-up generation for all water treatment plants, transporting mobile generators to key locations, and maintaining water supply through gravity feed in regional reservoirs (i.e. Lake Mathews, Castaic Lake, and Silverwood Lake).

SECTION SIX

Water Quality

2010

SECTION 6 Water Quality

Providing a safe drinking water supply to consumers is a task of paramount importance to West Basin. All prudent actions are taken to ensure that water delivered throughout its service area meets or surpasses drinking water standards set by the California Department of Public Health (CDPH).

Compliance with water quality regulations is a regional water management priority and a shared responsibility. West Basin is responsible for the quality of the desalination and recycled water supplies generated at the C. Marvin Brewer Desalter and Edward C. Little Water Recycling Facility (ECLWRF) and its satellite facilities: Carson Water Recycling Facility, Chevron Nitrification Plant and Exxon-Mobil Nitrification Plant. MWD is responsible for complying with State and Federal drinking water regulations on its imported potable water sold to West Basin. West Basin's retail customer agencies are responsible for ensuring compliance in their individual distribution systems and at the customer tap. As a result of these measures, there are no anticipated water quality impacts that will decrease the supply available for use.

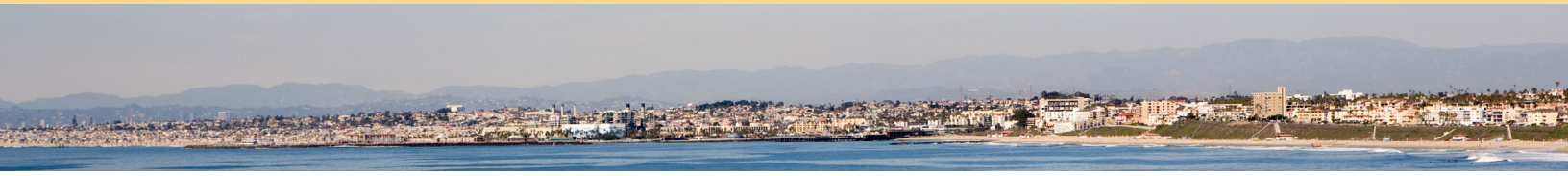
6.1 Imported Water

West Basin's imported water comes from the SWP and Colorado River via MWD pipelines and aqueducts. MWD is proactive in its water quality efforts, protecting its water quality interests through active participation in the regulatory arena and in treatment processes that provide the highest water quality from both sources. MWD has one of the most advanced laboratories in the country where water quality staff can examine the efficacy of existing treatment by performing tests and reviewing results as well as researching new treatment technologies. MWD tests its water for microbial, organic, inorganic, and radioactive contaminants as well as pesticides, herbicides and emerging contaminants of concern. Although not required, MWD also monitors for constituents that are not yet regulated but have captured scientific and/or public interest.

MWD has a strong record of identifying water quality issues early on and developing the water management strategies to minimize their impact on water supplies through their involvement in the following programs as described in MWD's 2010 Regional UWMP.

6.1.1 Source Water Protection

Source water protection is the first step in a multi-barrier approach to provide safe and reliable drinking water. In accordance with California's Surface Water Treatment Rule, Title 22 of the California Code of Regulations, CDPH requires large utilities delivering surface water to complete a Watershed Sanitary Survey every five years to identify possible sources of drinking water contamination, evaluate source and treated water quality, and recommend watershed management activities that will protect and improve source water quality. The most recent sanitary surveys for MWD's water sources were completed in 2005 and 2006.



The next Sanitary Surveys for the watersheds of the Colorado River and the SWP will report on water quality issues and monitoring data through 2010. MWD has an active source water protection program and continues to advocate on behalf of numerous SWP and Colorado River water quality protection issues.

6.1.2 DWR SWP Water Quality Programs

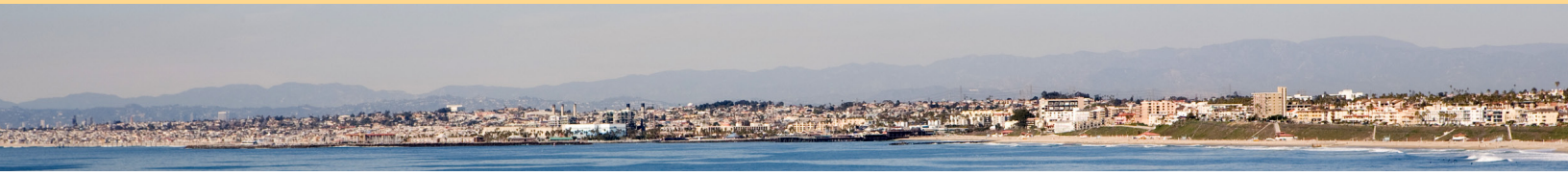
MWD supports DWR's policies and programs aimed at maintaining or improving the quality of SWP water delivered to MWD. In particular, MWD supported the DWR policy to govern the quality of non-project water conveyed by the California Aqueduct. In addition, MWD has supported the expansion of DWR's Municipal Water Quality Investigations Program beyond its Bay-Delta core water quality monitoring and studies to include enhanced water quality monitoring and forecasting of the Delta and SWP. These programs are designed to provide early warning of water quality changes that will affect treatment plant operations both in the short-term (hours to weeks) as well as seasonally. The forecasting model is currently suitable for use in a planning mode. It is expected that with experience and model refinement, it will be suitable to use as a tool in operational decision making.

6.1.3 Water Quality Exchanges

MWD has implemented selective withdrawals from the Arvin-Edison storage program and exchanges with the Kern Water Bank to improve water quality. Although these programs were initially designed to provide dry-year supply reliability, they can also be used to store SWP water at periods of better water quality so the stored water may be withdrawn at times of lower water quality, thus diluting SWP water deliveries. Although elevated arsenic levels have been a particular concern in one groundwater banking program, there are also short-term water quality benefits that can be realized through other storage programs, such as groundwater pump-ins into the California Aqueduct with lower total organic carbon (TOC) levels, as well as lower bromide and total dissolved solids (TDS), in some programs.

6.1.4 Water Supply Security

Changes in national and international security have led to increased concerns about protecting the nation's water supply. In coordination with its member agencies, MWD added new security measures in 2001 and continues to upgrade and refine procedures. Changes have included an increase in the number of water quality tests conducted each year (MWD now conducts over 300,000 analytical tests on samples collected within its service area and source waters), as well as the development of contingency plans that coordinate with the Homeland Security Office's multicolored tiered risk alert system.



6.2 Groundwater

Although West Basin does not serve traditional groundwater supplies, it works to support its customer agencies and WRD to protect and promote the quality of groundwater supplies within its service area.

6.2.1 West Basin and Customer Retail Agency Programs

As part of West Basin's customer service, the Water Quality Department works closely with regulatory agencies to assist retail agencies in meeting State and Federal drinking water regulations through the *Cooperative Basin-Wide Title 22 Groundwater Quality Monitoring Program*. Title 22 refers to the section of the California Code of Regulations pertaining to both domestic drinking water and recycled water standards.

This voluntary program offers water quality testing to customer agencies and is funded through an annual assessment. Three agencies in West Basin's service area participate in the monitoring program. West Basin's water quality staff coordinates wellhead and reservoir water quality testing at approximately eight groundwater wells in the service area to ensure high quality of the local supply of drinking water. Under the program, a contract laboratory provides sampling as well as analytical and reporting services. Laboratory results are reported to West Basin, retail agencies, and the CDPH. The program helps retail agencies save time and expense while providing a valuable service for public health.

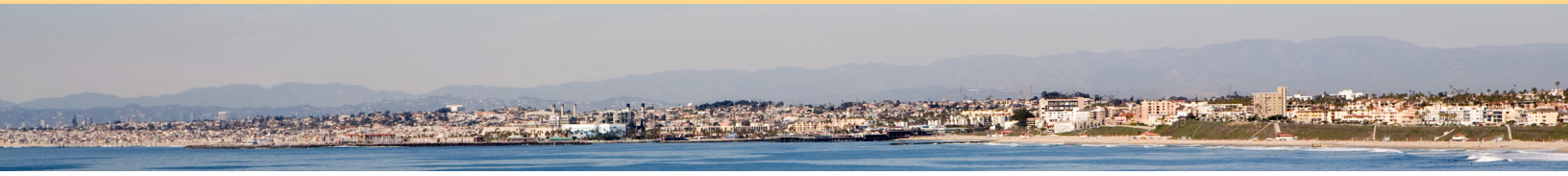
Another service provided under the program is the production of an annual Customer Water Quality report if requested by a customer agency. The Customer Water Quality Report is required by State and Federal law and West Basin's water quality staff has prepared them for several agencies for over 15 years.

6.2.2 Water Replenishment District Programs

As the regional groundwater management agency for the Central and West Coast Groundwater Basins, WRD has several active programs to monitor, evaluate and mitigate water quality issues.

Groundwater Quality Program: WRD continually evaluates current and proposed water quality compliance in agency production wells, monitoring wells, and recharge/injection waters of the groundwater basins. If non-compliance is identified, WRD staff develops a recommended course of action and associated cost estimates to address the problem and to achieve compliance. WRD also monitors and evaluates the impacts of pending drinking water regulations and proposed legislation.

Regional Groundwater Monitoring Program: This program has a network of over 250 WRD and USGS-installed monitoring wells at nearly 50 locations throughout West Basin's service area. Monitoring well data is supplemented with information from production wells to capture the most accurate information available. WRD staff, comprised



of certified hydrogeologists and registered engineers, provides the in-house capability to collect, analyze and report groundwater data. This information is stored in WRD's GIS database and provides the basis to better understand the characteristics of the Central and WCGB.

Safe Drinking Water Program: This program is intended to promote the cleanup of groundwater resources at specific well locations. Through the installation of wellhead treatment facilities at existing production wells, WRD hopes to remove contaminants from the underground supply and deliver the extracted water for potable purposes. Projects implemented through the program are accomplished through direct input and coordination with well owners. The current program focuses on the removal of volatile organic compounds (VOCs) and offers financial assistance for the design and equipment of the selected treatment facility.

WRD provides extensive information on groundwater quality in its Engineering and Survey Reports as well as Regional Groundwater Monitoring Reports. Both reports have a section devoted solely to groundwater quality management, and can be accessed through WRD's website, www.wrd.org.

6.3 Brackish Desalination

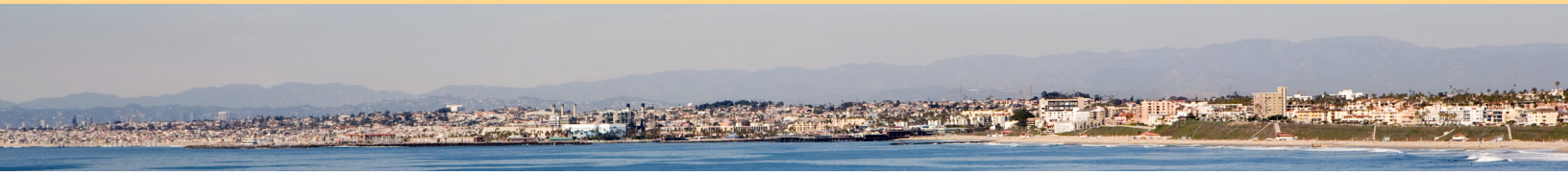
Although construction of seawater barriers was effective in halting the intrusion of seawater into the WCGB, historic plumes of brackish water still remain in the WCGB behind the barriers. In the early 1990s, West Basin completed the C. Marvin Brewer Desalter facility as a demonstration project for removing and treating the brackish water using two existing drinking water wells that were impacted by the seawater intrusion. In 2005, enhancements were made to the desalter program that replaced the two wells with a new, more productive well. This well has the capability to pump 1,600 to 2,400 AFY of brackish groundwater to be treated at the desalting facility for use by West Basin's customers.

Since 2002, WRD has also been operating the Robert W. Goldsworthy Desalter, located adjacent to West Basin's desalter. Product water from the Goldsworthy Desalter is delivered for potable use to the City of Torrance's water distribution system.

6.4 Recycled Water

West Basin's ECLWRF, located in El Segundo, has been in continuous operation since 1995 and has conserved over 120 billion gallons of imported water by serving reliable supplies of recycled water for a wide variety of non-potable uses. A full description of West Basin's recycled water program is provided in the Water Recycling section of this report.

West Basin is committed to monitoring and maintaining the high quality of recycled water produced for injection at the West Coast Seawater Barrier and the surrounding groundwater from migrating contamination sources. In addition, groundwater quality



within the aquifer is monitored through more than a dozen monitoring wells inland of the Barrier. These wells represent the quality of the groundwater down-gradient of the Barrier and are essential in providing critical water quality data for the surrounding groundwater. Annual water quality data reports and groundwater modeling are submitted to both the CDPH and the Los Angeles Regional Water Quality Control Board to ensure compliance and security.

6.5 Ocean-Water Desalination

West Basin has been actively researching the feasibility of an ocean water desalination program as part of the drinking water supply. From 2002 to 2009, West Basin operated the Desalination Pilot Project, which marked the first use of microfiltration as a pretreatment to reverse osmosis for ocean-water desalination.

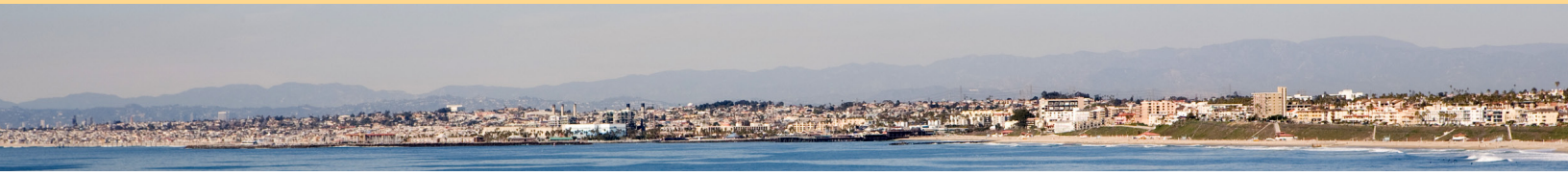
To ensure that this process was effectively treating the ocean water, West Basin performed extensive water quality research at the pilot plant. The water produced at the pilot project consisted of approximately 350 parts per million (ppm) of salt, lower than typical tap water in southern California. The pilot project's analytical test results indicated that the quality of the desalinated ocean water meets current State and Federal drinking water standards set by CDPH and the Environmental Protection Agency (EPA). Along with 500 analytical tests that were performed monthly, additional water quality studies were completed under the auspices of the American Water Works Association Research Foundation.

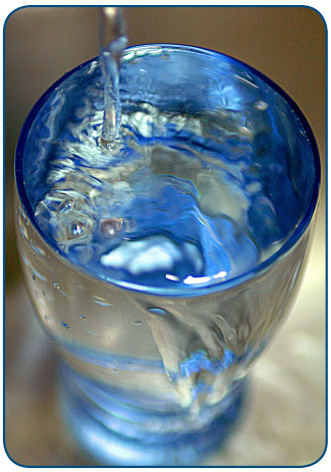
The research and testing conducted at the Pilot Project informed the design of the Ocean-Water Desalination Demonstration Facility, dedicated in November 2010. The Demonstration Facility will be operational for a minimum of two years while West Basin evaluates the feasibility of permitting and siting of a full-scale desalination plant capable of providing 20,000 AFY of potable water, enough to supply 40,000 families for a year.

While the Demonstration Facility is operational, West Basin will pursue a program master plan in partnership with MWD. The master plan effort will evaluate all water quality and other aspects necessary to develop a full-scale desalination facility with the option of integrating product water into the MWD distribution system. More information on West Basin's ocean-water desalination efforts is included in Section 10.

6.6 Research and Development

West Basin has a dedicated program and budget to constantly engage in research projects that evaluate water quality, efficient operations and new pollution prevention technology and methods. Research projects close the environmental loop by addressing both final product water as well as source control issues to prevent pollution and the need for cleanup technology. West Basin leverages its research dollars by participating on the Boards of water industry research organizations such as WateReuse, American Water Works Associations, National Water Research Institute, Salinity Management Coalition as well as participating with academic institutions in water quality research.





6.7 Effects on Water Management Strategies

Retail water agencies in densely populated southern California are acutely aware of the economic impact of water quality on a public water system. Management strategies must be developed to maintain a safe, reliable supply at reasonable cost without jeopardizing water quality and public health. Water quality, pressure, and supply are maintained through operational practices that can include wellhead treatment for contaminated groundwater sources, or blending down contaminated groundwater with purchased imported surface water from MWD or high quality groundwater from adjacent purveyors.

6.8 Effects on Supply Reliability

Poor water quality makes a water source unreliable, affects overall supply and increases the cost of serving water to the public. More importantly, it results in a loss of customer confidence, which can be very difficult to overcome, even after water quality is restored. A water source that fails drinking water regulations must be taken out of service. The source can be restored through treatment or other management strategies.

Groundwater can become impaired through leaching of contaminants into an aquifer, or by excessive concentrations of naturally-occurring constituents that impact quality, such as arsenic. Surface water sources become contaminated from human activities in the watershed or through deliberate contamination.

SECTION SEVEN

Water Use Efficiency

2010

SECTION 7 Water Use Efficiency

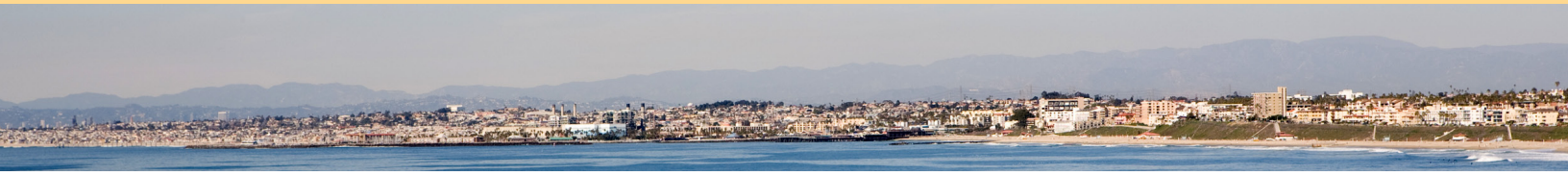
Water Use Efficiency (WUE), or conservation, continues to play an important role in West Basin's water supply portfolio. Between 2005 and 2010, there were several new key developments that occurred in the area of water use efficiency policy.

- In 2008, as a result of State Water Project supply limitations and multiple year drought conditions, MWD instituted water supply allocations (or imposed conservation) that sought to reduce member agencies' imported water demand.
- In 2008, the California Urban Water Conservation Council (CUWCC) began restructuring its 14 BMPs and reporting process.
- In 2009, AB 1420 came into effect requiring agencies to provide up-to-date information on CUWCC BMP compliance as part of grant or loan applications to the State DWR.
- In 2009, the Governor of the State of California signed into law SBX 7-7, which calls for a state-wide 20 percent reduction in per capita water use by 2020. Individual agencies are required to provide water use reduction targets of gallons per capita per day as part of the 2010 UWMP update.
- In 2009, a key piece of water efficiency legislation called AB 1881 was entered into law that updated the Model Landscape Ordinance AB 325 of 1990. This new law stated that as of January 1, 2010, all local cities were required to adopt the new Model Landscape Ordinance or stricter versions of it. West Basin, along with other stakeholders, provided input to DWR for the development of the new ordinance.

At the local level, in 2008 West Basin launched a new program to help meet these challenges, called WR 2020 Program. The main goal of this program is to increase local water supplies by doubling recycled water production, doubling water conservation savings and by bringing responsible ocean-water desalination on-line.

7.1 Historical Water Conservation Efforts

Since the severe drought of the early 1990s, West Basin has been a leader implementing aggressive water conservation programs to help limit water demand within its service area. West Basin programs have included a strong emphasis on plumbing retrofit hardware, education and the distribution of rebate incentives. The results of these programs, in conjunction with passive conservation measures such as modifications to city ordinances, have resulted in significant reductions in retail water use within West Basin's service area. By current estimates, demand management from West Basin's active and passive conservation efforts have saved over 4.5 billion gallons of imported water (14,000 AF) since 1991, which is equivalent to the average annual water use of almost 28,000 households. This section will present the past and current water conservation efforts West Basin has undertaken since the last update to this plan in 2005.



West Basin's conservation efforts have been comprised of a wide array of cost-effective programs that contribute to conserving water, improving water quality, reducing imported water needs and increasing the region's water supply reliability.

West Basin prides itself in the partnerships it has created with Federal, State, and local entities to offer water efficiency programs. By developing integrated programs with its partners, West Basin has been able to leverage funding and resources to provide effective programs throughout its region. As a result, West Basin has been successful in obtaining more than $4 million in local, state and federal grant funds for conservation program implementation since 2005. Due to its successes with acquiring grants, West Basin has leveraged its funding and today provides $7 worth of programs to the public for every $1 it invests.

The effect of Water Conservation is defined by two main elements: *Active* and *Passive*. Below is a brief description of these two.

Active Conservation: Water savings produced from incentive based programs: rebates, giveaways, retrofits, etc.

Passive Conservation: Water savings produced from building and plumbing codes, consumer behavioral changes, and responses to price shifts.

West Basin's current conservation programs target water conservation efforts in the residential, commercial, industrial, institutional and large landscape areas. These programs were identified as part of the 2006 Conservation Master Plan and are available to residents, businesses, and institutional customers within West Basin's service area. Below is a list of the conservation programs that were launched over the last five years:

- Region-Wide Residential Rebate Program
- Ocean Friendly Landscape Program
- Green Living for Apartments & Condos
- Green Garden Program
- Complete Restroom Retrofit Program
- Region-Wide Commercial Rebates
- High-Efficiency Toilet Distribution Events
- Cash for Kitchens Program
- Recirc & Save Program
- School Kit Program
- Zero Run-off Street Median Program
- School Education Programs
- Public Outreach Program
- Water Star Program

It is estimated that West Basin has distributed and installed over 300,000 devices from 1990 to 2010. As a result, it is estimated that West Basin currently saves, from active and passive (code-based) conservation combined, over 14,000 AF (4.5 billion gallons), or eight percent annually, of West Basin's total water demand. Figure 7-1 shows the total Active and Passive Savings from 1990- to 2010 on an annual basis.

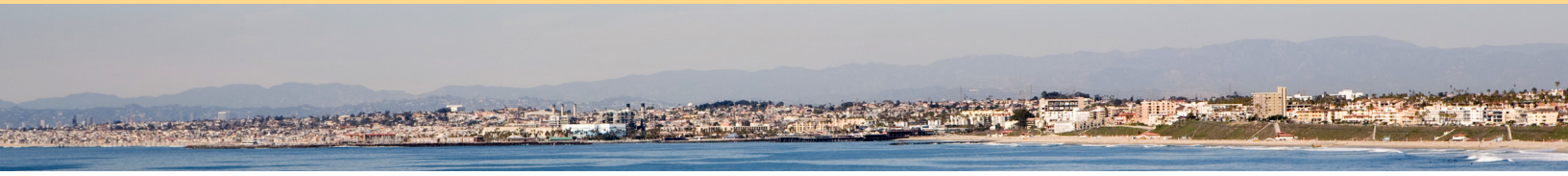
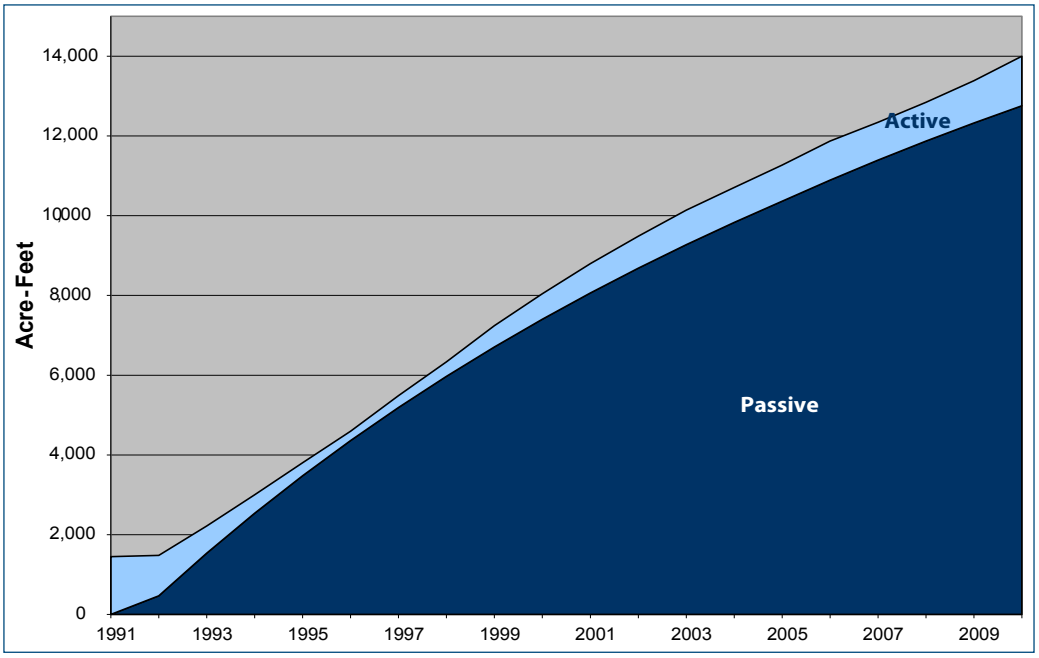


Figure 7-1: West Basin Conservation Water Savings (1990 – 2010)



Source: Estimated total active and passive water savings from West Basin's Alliance for Water Efficiency Tracking Tool, 2011.

Conservation savings can further be verified by comparing West Basin's water usage versus population. As shown in Figure 7-2, average water demand has remained relatively consistent while population has escalated by an annual average of 1%.

7.2 West Basin and Customer Agency Water Conservation Master Plans

In 2006, West Basin developed its first Conservation Master Plan (CMP). In developing the CMP, West Basin worked closely with its water retailers, local cities, environmental groups and others to develop meaningful programs that were targeted and effective. The CMP included a five year timeline for cost-effective program implementation. Since adoption of the CMP, West Basin has been successfully implementing programs described in this section below.

As the regional water wholesaler, West Basin spear-headed an effort to ensure the region is working together to meet the State's goal of a 20 percent reduction in water demand by the year 2020. Initiated in 2009, it was a unique program that allowed West Basin to work with its local water retailers to update the water conservation master planning efforts that were completed in 2006. West Basin (on behalf of its retailers) applied for and was awarded a $100,000 grant by the USBR to develop eight Local Water Use Efficiency Plans and to update West Basin's 2006 CMP. In addition to the grant, the retailers and West Basin provided a cost-share of $130,000. In 2010, West Basin began this project with the intent to help the agencies develop water use baselines and conservation targets to help meet the SBX 7-7 targets in 2015 and 2020.

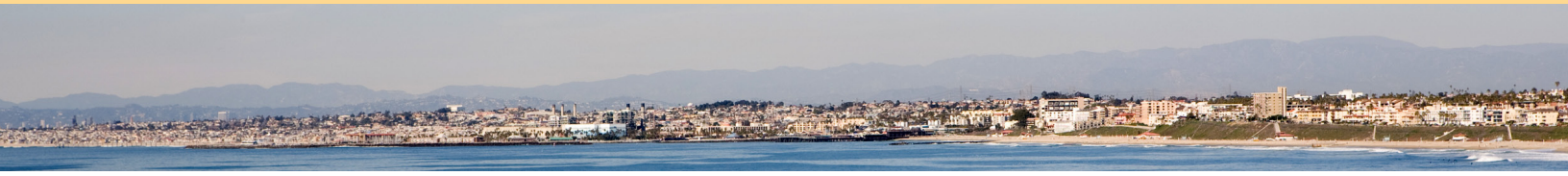
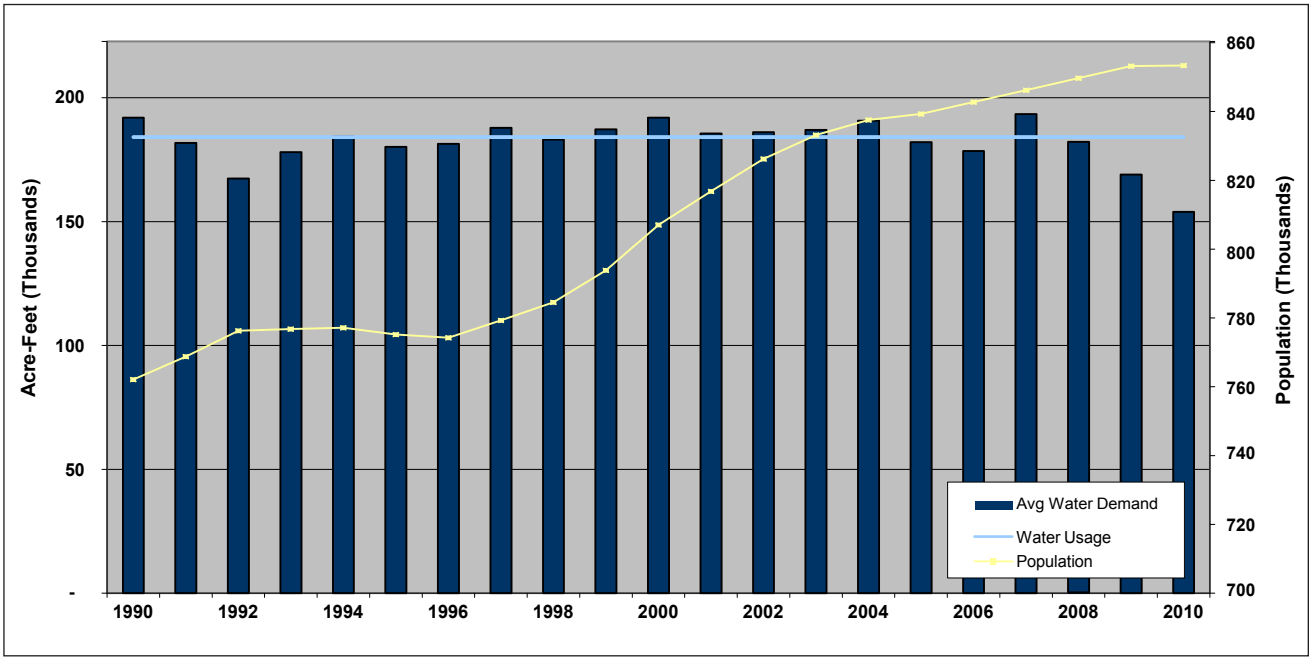


Figure 7-2: Total Retail Water Demand vs. Population Growth (1990 – 2010)



Source: Information based on MWD Demographic Data, 2005
Note: Total retail demand includes groundwater production but not replenishment demands for use at seawater barriers.

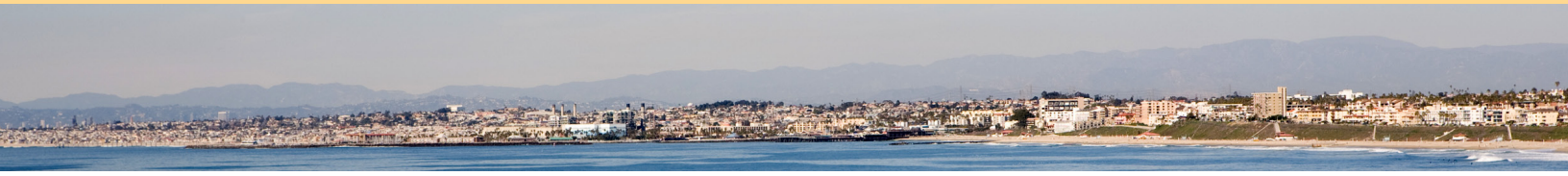
West Basin and its partners used a GPCD target calculator and the Alliance for Water Use Efficiency Water Conservation Tracking Tool to develop the information for the Water Use Efficiency Plans. West Basin worked closely with each water retailer through bi-monthly meetings to collaborate, share ideas and discuss challenges. The plans will be completed by May 2011 and include a five year and a ten year timeline for implementation of various programs. The retailers will be able to use the information from their individual plans to report their conservation targets in their UWMPs.

7.3 External Agency Coordination

As a part of conservation planning and implementation, West Basin also works with other regional and statewide agencies and groups such as MWD, and the CUWCC.

7.3.1 Metropolitan Water District

In 2010, MWD adopted an updated Integrated Resources Plan (IRP) that includes a strong commitment to water conservation. MWD's 2010 IRP establishes water supply targets for Southern California through 2035, specifically a potable demand reduction of 1.7 MAF. This target represents MWD's goal of achieving a 20% reduction in per capita water use across its service area. MWD is currently developing a long-term conservation plan to implement the IRP conservation target. This plan focuses on conducting more research, providing device incentives and funding, assisting with market transformation and legislation and helping to support its member agencies with conservation efforts.



As a member agency of MWD, West Basin actively participated in both the IRP Working Group and the Long Term Conservation Plan development, and will benefit from the conservation implementation strategies outlined in the plan.

7.3.2 California Urban Water Conservation Council

In 1991, the CUWCC was created to increase water use efficiency by integrating urban water conservation BMPs into the planning and management of California water agencies. It is a partnership of agencies and organizations concerned with water supply and conservation of natural resources in California.

To encourage water use efficiency, the CUWCC asked water agencies and organizations to sign a MOU regarding urban water conservation in California, which committed participating urban water suppliers to use their "good faith efforts" to implement the CUWCC's 14 BMPs.

West Basin was one of the first urban water suppliers to become signatory to the CUWCC's MOU. Every two years, water agency signatories, including West Basin, must submit their BMP reports to the CUWCC. West Basin has submitted BMP Wholesaler Water Agency Reports to the CUWCC that detail West Basin's progress in implementing the 14 BMPs as currently specified in the MOU. In Appendix G, West Basin has included its most recent 2008-–09 and 2009–10 CUWCC Reports.

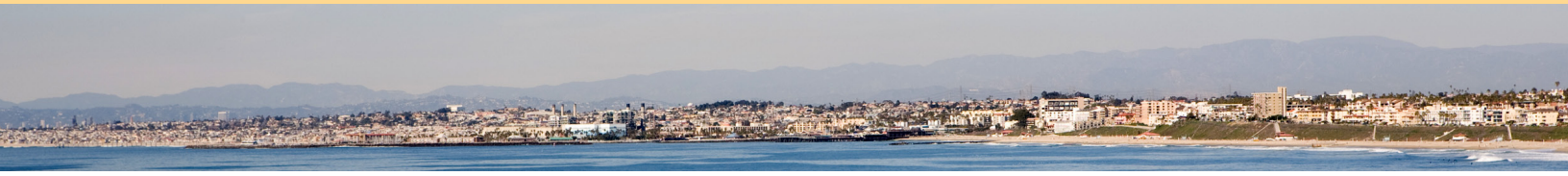
7.4 CUWCC – New BMPs and Reporting Options

In 2008/09, the CUWCC completed an ambitious project to revamp, streamline and improve the 14 BMPs and to develop several ways that an agency can report their water conservation targets and savings. Along with this process, the CUWCC created a new reporting database that agencies can use to report their achievements. Agencies must report to the CUWCC every two years, and the next reporting period will take place in 2011, when the new reporting database has been completed.

The CUWCC 14 BMPs are now organized into five categories. Two of the categories, Utility Operations and Education, are called Foundational BMPs because they are essential water conservation activities for any utility and therefore must be adopted by all signatories to the CUWCC MOU. The Residential, Commercial, Industrial, and Institutional (CII), and Landscape BMP categories are now called Programmatic BMPs.

Foundational

- Utility Operations
  - **BMP #3 System Water Audits:** Unaccounted for water calculated annually, and distribution system audits as required
  - **BMP #4 Metering with Commodity Rates:** Metering of consumption and billing by volume



- **BMP #10 Wholesale Agency Assistance:** Support by wholesalers for conservation programs of retail water suppliers
- **BMP #11 Conservation Pricing:** Uniform or increasing block rate structure, volume related water charges, and service cost recovery
- **BMP #12 Conservation Coordinator:** Designation of staff coordination of agency conservation programs
- **BMP #13 Water Waste Prohibition:** Enforced prohibition of wasteful use of water

- Education
  - **BMP #7 Public Information:** Public information to promote water conservation
  - **BMP #8 School Education:** Provision of education materials and services to schools

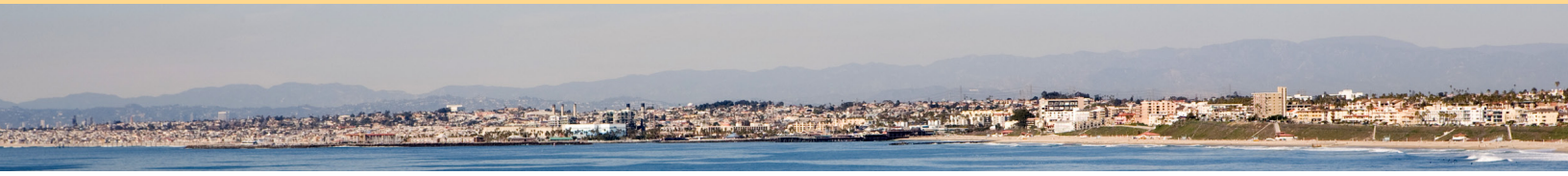
Programmatic

- Residential
  - **BMP #1 Residential Water Surveys:** Indoor and outdoor audits of residential water use and distribution of water-saving devices
  - **BMP #2 Residential Plumbing Retrofits:** Distribution or installation of water-saving devices in pre-1992 residences
  - **BMP #6 High Efficiency Clothes Washers:** Rebates for efficient washing machines
  - **BMP #14 Residential Ultra-Low Flush Toilet Replacement:** Programs promoting replacement of high-water-using toilets with ultra-low flush toilets
- Landscape
  - **BMP #5 Large-Landscape Conservation:** ET-based water budget for large landscape irrigators
- Commercial, Industrial, and Institutional
  - **BMP #9 Commercial, Industrial, and Institutional Conservation:** Programs to increase water use efficiency in CII sectors

7.5 Current Water Conservation Programs

As the water wholesaler for eight water retail agencies and one groundwater agency, West Basin has collaborated with many important stakeholders and leveraged funding to develop and implement cost-effective programs that conserve water and energy, reduce runoff and provide other important environmental benefits.

All of these programs combined are being used to help West Basin and its retailers meet the 14 BMPs. West Basin has provided programs and activities that have assisted its retailers to help meet the BMPs listed here.



7.5.1 BMP #1 - Water Survey Programs for Single-Family Residential and Multi-Family Customers

Water surveys provide residents with valuable information about their water use. Trained conservation professionals test the water flow rates using devices inside the home, such as showerheads, toilets, and sink aerators to make sure they are water efficient. They also check for leaks and teach the resident how to read the water meter correctly. A comprehensive evaluation is conducted on the outdoor landscape to identify inefficiencies and recommend ways the resident can save water outdoors.

Several of West Basin's water retailers have hired companies to provide this service to their customers. As the regional water wholesaler, West Basin supports these efforts and provides further resources as necessary.

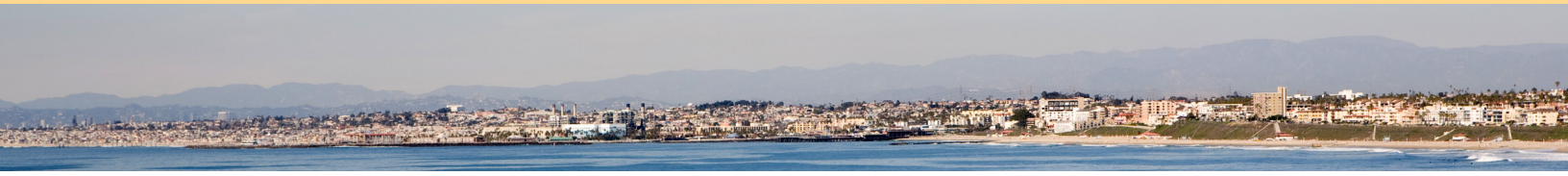
In 2007, West Basin designed a residential landscape program called the Green Garden Program and received a grant for $231,000 from USBR. In addition, West Basin received local funding through a partnership with MWD and several of its local retail water agencies. The Green Garden Program focused on providing qualified residents with free landscape surveys, "smart" irrigation controllers and rotating sprinkler nozzles. The program contained three steps:

- **Step 1:** Residents first contacted West Basin's Program vendor to pre-qualify.
- **Step 2:** West Basin's vendor provided a free landscape survey and if the resident had an older, inefficient irrigation controller, they were invited to a free sprinkler controller exchange event.
- **Step 3:** Residents brought their old irrigation controllers to the exchange event, and at the event the resident would be provided with a "smart" irrigation controller and rotating sprinkler nozzles. They would also receive one hour of training on how to install and program the controller.

Upon completion of the program in September 2010, West Basin conducted a water use study to compare the pre-controller installation water use with the post-installation water use and found an overall water savings of 14 percent. This percentage translates to about 47 gallons saved per day. Table 7-1 shows the total conserved savings from the Green Garden Program.

Table 7-1: Green Garden Program

	Number Completed	Water Use Saved (AF)
Landscape Surveys	958	N/A
Controllers Distributed	580	30
Rotating Sprinkler Nozzles	4,845	32
Total	**6,383**	**62**



7.5.2 BMP #2 - Residential Plumbing Retrofit

This BMP recommends the distribution and retrofit of low-flow showerheads, toilet displacement devices, and faucet aerators, as well as the adoption of enforceable ordinances. As Table 7-2 shows, it is estimated that since 1990, West Basin has distributed over 2,000 faucet aerators and over 220,000 low-flow showerheads.

In mid 2000, several of West Basin's retail water agencies began working with a company called Resource Action Program. This company developed a water and energy conservation kit geared for elementary school kids. As a way to provide local support and increase the program, West Basin partnered with several local water agencies and was awarded a DWR grant of $261,000 to be used for the purchase and implementation of 20,000 school kits. Through the use of these kits, a total of 588 acre-feet of water and 62 million kilowatts of electricity will be saved.

Table 7-2: Residential Plumbing Retrofits

Devices	1990-2000		2000-2005		2005-2010		Total	
	# of Units	AF Saved	# of Units	AF Saved	# of Units	AF Saved	# of Units	AF Saved
Faucet Aerators	954	3	0	0	1,133	3	2,087	6
Low-Flow Showerheads	215,563	1,014	7,500	35	152	.68	223,215	1,049

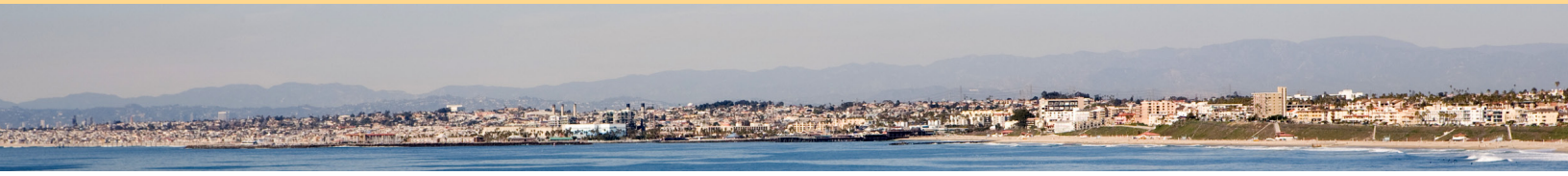
7.5.3 BMP #3 - System Water Audits, Leak Detection, and Repair

In May 2009, the American Water Works Association published the 3rd Edition *M36: Manual Water Audits and Loss Control Programs*. Included was a new BMP 1.2 to replace the old BMP 3 and incorporated new water loss management procedures as they apply to California.

As a result, retail water agencies are expected to use the AWWA Free Water Audit Software to complete their standard water audit and water balance. Implementation shall consist of actions such as standard water audit and water balance, validation, and economic values, among others. While West Basin is required to comply with BMP 3 as a wholesale water agency, the agency is exempt due to the fact that the agency neither owns nor operates a potable water distribution system.

7.5.4 BMP #4 - Metering with Commodity Rates for all New Connections and Retrofit of Existing Connections

Since West Basin is a water wholesaler, this BMP does not directly apply. However, every water agency within West Basin's service area bills their retail customers according to meter consumption. By encouraging the installation of dedicated landscape meters, agencies will be able to recommend the appropriate irrigation schedules through future landscape programs.



This BMP requires that agencies identify barriers that make it difficult to retrofit commercial accounts with dedicated landscape meters as well as incentives to encourage such retrofits.

7.5.5 BMP #5 - Large Landscape Conservation Programs and Incentives

This BMP requires that agencies provide non-residential customers with support and incentives to improve their landscape water efficiency. Several of the local water retailers provide free large landscape surveys and MWD provides incentives for devices such as smart irrigation controllers and rotating sprinkler nozzles.

The large landscape sector was identified in West Basin's 2006 Conservation Master Plan as an area where a considerable amount of water could be saved. Recent data shows that irrigation system and landscape inefficiencies can be as high as 50 percent. Many landscapes are poorly maintained and overwatered, therefore additional training, education and resources are needed to reduce water use. As a result, West Basin and its water retailers partnered to develop several programs with grant funds.

Ocean Friendly Landscape Program

In 2007, West Basin formed a partnership with the Surfrider Foundation to develop the Ocean Friendly Landscape Program. This program contains several water conservation and education components including:

- Facilitation of 40 Ocean Friendly Garden workshops
- Distribution of 1,350 residential "smart" irrigation controller rebates
- Distribution of 1,117 large landscape irrigation controllers
- Development of 10 Ocean Friendly demonstration gardens
- Implementation of a study that would test the success of the irrigation controllers at reducing dry-weather runoff

As part of the Greater Los Angeles County Region Integrated Regional Water Management Program, Proposition 50 Implementation Grant Application, this program was awarded a $1.2 million grant. Since the implementation of this program began in 2010, West Basin has been working with cities, parks, school districts, Homeowner Associations, and other qualified sites to install "smart" controllers. Table 7-3 shows the estimated conserved savings to date of this program. Once all 1,117 controllers are installed by the end of the year 2012, the total annual water savings is estimated to be 332 AF per year.

Due to the State bond freeze in 2008 and 2009, the residential rebate and demonstration garden components of the program were put on hold. They both resumed implementation in late 2010.

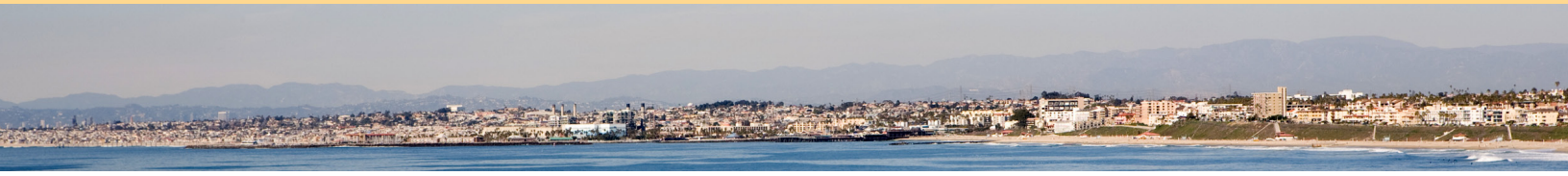


Table 7-3: Ocean-Friendly Landscape Program since Inception

Program Component	Units Completed	Annual Savings (AF)
Irrigation Controllers Installed	100	30
Classes Conducted	19	N/A
Residential Rebates Provided	5	.26
Demonstration Gardens Installed	0	N/A

Comprehensive Landscape Survey Program

In 2006, West Basin developed a Large Landscape Survey Program and was awarded funding through MWD's Enhanced Conservation Program. This program provided the services of a qualified landscape surveyor to conduct comprehensive surveys on large landscapes and provide a detailed audit report along with recommendations. Fifteen sites were audited with a resulting 55.6 percent of average irrigation efficiency due to broken and mismatched sprinkler heads, over-watering, no hydro-zoning, puddling of water, dry spots, incorrect water scheduling and various other problems.

Figure 7-3: Example Audit Report

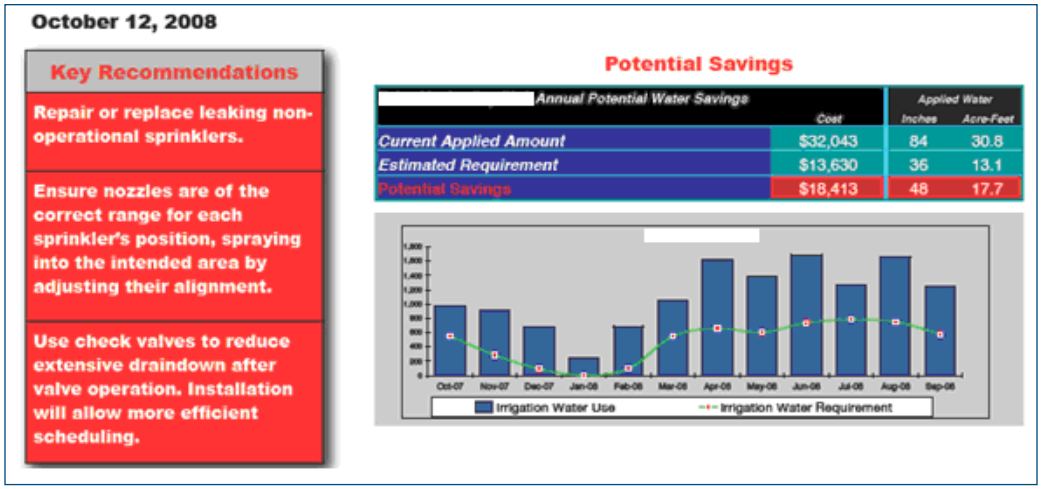
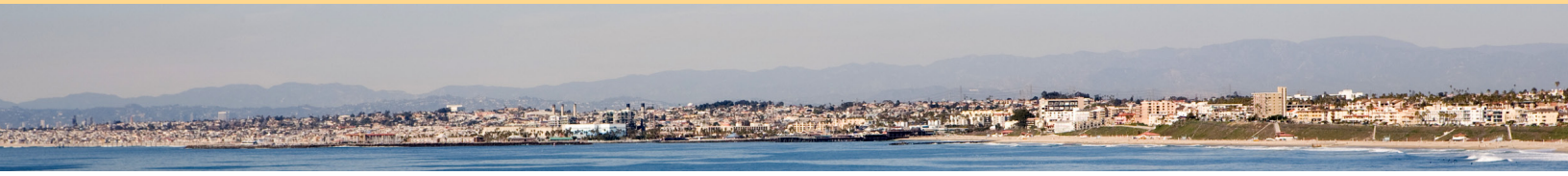


Figure 7-3 is an example of the front cover of the audit report. Within the report, the water usage was analyzed and compared to the recommended water usage using the local weather or evapotranspiration potential. Key recommendations were also provided to the customer.

Table 7-4: Comprehensive Landscape Survey Program Savings

Number of Site Surveys	Annual Savings (AF)
15	51



Landscape Training to Professional Landscapers

In order to better educate the landscape community about water conservation practices, West Basin held a workshop in 2009 in the City of Malibu. West Basin partnered with the City of Malibu, Los Angeles County Waterworks District #29 (the local water retailer) and a professional landscape company to conduct a training session. The class was taught in Spanish and provided information about water-efficiency practices, the local ordinance requirements, and overall best management practices.

Model Landscape Ordinance Compliance

The landscape programs mentioned above will help West Basin and its retailers abide by the requirements of the new State's Model Landscape Ordinance. The ordinance contains the following requirements and provisions:

- Encouragement of the use of recycled water
- Landscape water budget component
- Provision to minimize landscape irrigation overspray and runoff
- Provisions for appropriate use and groupings of plants
- Provisions for use of automatic irrigation systems and irrigation schedules based on climate conditions

West Basin's programs are aligned with the new ordinance. For example, West Basin continues to identify and connect new customers to its water recycling system. West Basin also encourages the use of water budgets as mentioned above in the Comprehensive Landscape Program. During the last few years, several of West Basin's water retailers have developed new tiered rates and water budgets. Through its Ocean Friendly Garden Classes, West Basin teaches residents how to develop a water efficient and sustainable garden. Some of the topics covered include: reducing turf, installing native plants, installing drip irrigation and using weather-based irrigation controllers, all of which are mentioned in the state's new ordinance.

7.5.6 BMP #6 - High-Efficiency Washing Machine Rebate Programs

Since 2005, the MWD has provided rebates for high-efficiency clothes washers to its member agencies. MWD has branded the term BeWaterWise to develop market recognition. During the 2006–2010 period, MWD conducted many radio and television commercials to promote the rebates as well as promoted the program on its website.

MWD testing found that many of the high-efficiency machines had a Water Factor of 6.0 or less. In order to motivate the public to purchase the most efficient washers possible, MWD developed a rebate that allowed only washers with a Water Factor of 4.0 or less to qualify for a $100 washer rebate. The washer rebate incentive continues to be an effective tool to achieve water conservation. Table 7-5 shows the annual water savings within West Basin's service area as a result of the use of higher efficient machines.

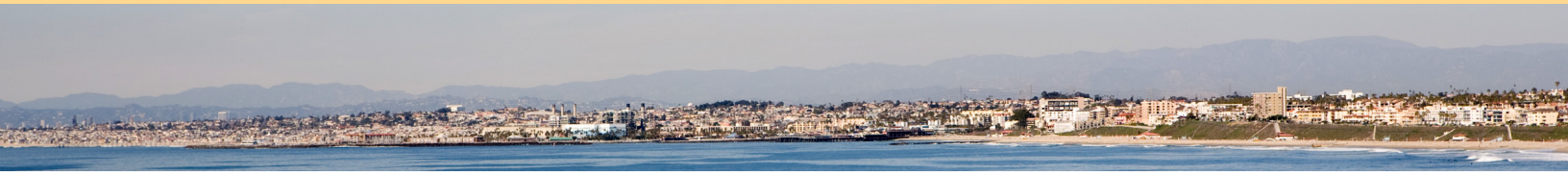


Table 7-5: High-Efficiency Washing Machine Rebate Program Savings (2003-2010)

Number of Rebates	Annual Savings (AF)
2,821	44

7.5.7 BMP #7 - Public Information Programs

West Basin uses many strategies to help promote its programs to the public. It coordinates with local and regional agencies to promote water conservation messaging as well as developing its own public information programs. Community support for WR 2020 is strong based on letters of support received from City Councils, Chambers of Commerce, community groups and more than 4,000 individual supporters.

In 2009, West Basin developed and launched its WR2020 Program. The goal of this program is to communicate to the public West Basin's goal of increasing local water reliability by doubling recycled water production, doubling its water conservation efforts and introducing ocean-water desalination to its water portfolio. All of West Basin's supply development programs fall under the umbrella of the WR2020 Program. As part of WR 2020, West Basin offers the specific conservation related programs described below.

WR2020 Program – Speakers Bureau

West Basin staff provides presentations on its WR 2020 Program. In 2009/10, West Basin conducted over 100 presentations to local community groups that included city councils, service clubs, chambers of commerce and others. The presentations provided information on current water supply challenges and the programs that West Basin launched to help meet those challenges. Through outreach efforts more than 3,500 local residents and 100 cities/community groups pledged their support for the WR 2020 Program.

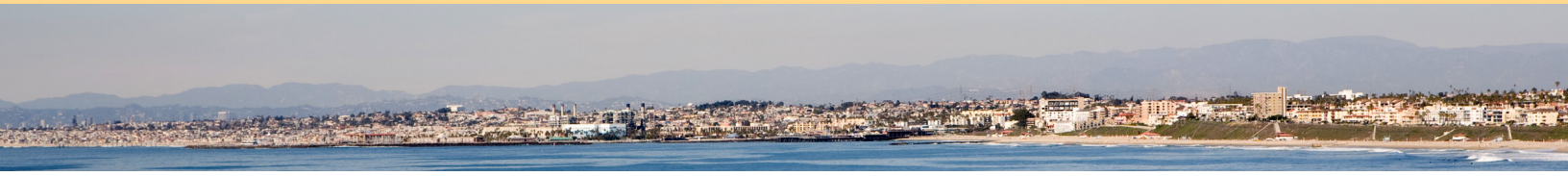
Imported Water Supply Tours

West Basin, in cooperation with MWD, also provides inspection tours of the Colorado River Aqueduct and the State Water Project to legislators, local elected officials, retail agency staff, and the general public at various times throughout the year. The purpose of the three-day trips is to give local decision-makers a better understanding and appreciation of the water supply issues impacting the region.

Water Harvest Festival

Water Harvest Festival

In October 1999, West Basin began its first annual Water Harvest Festival located at the ECLWRF in El Segundo. West Basin invites the public to participate in a variety of games, shows, tours and contests to learn from informational stations about water recycling and conservation. In 2010, West Basin conducted its 12th annual Water Harvest Event that had over 3,000 people



in attendance. The event features local agencies and water conservation product vendors that provide the public with information about water conserving devices, rebates and programs. West Basin also provides free tours of its facility and demonstrates to the public how waste water is turned into usable recycled water.

Smart Landscape Expo

There has been an increased desire by the public recently to learn more about native plants, drip irrigation and other landscape conservation devices and measures. In response, West Basin developed the Smart Landscape Expo, where the public can visit irrigation vendors and purchase native plants from local nurseries. At the initial expo, conducted in 2009, West Basin provided free 30-minute workshops taught by landscape designers. West Basin filmed several outdoor landscape demonstrations and placed the clips on its web site for the public to view. For the third annual Expo, West Basin will incorporate energy efficiency awareness into the event to give the public a more holistic view of green living both outdoors and indoors. It has been renamed the Water and Energy Smart Expo.

Water Recycling and Ocean-Water Desalination Tours

Once a month, West Basin offers free tours of its ECLWRF to the public to share the WR 2020 Program, educate visitors about water supply issues, and show how water is purified in 20 minutes. The ocean-water desalination demonstration facility will open to the public in May 2011, and will soon offer tours three days a week. Both facilities will also be open for school tours for grades 3-12.

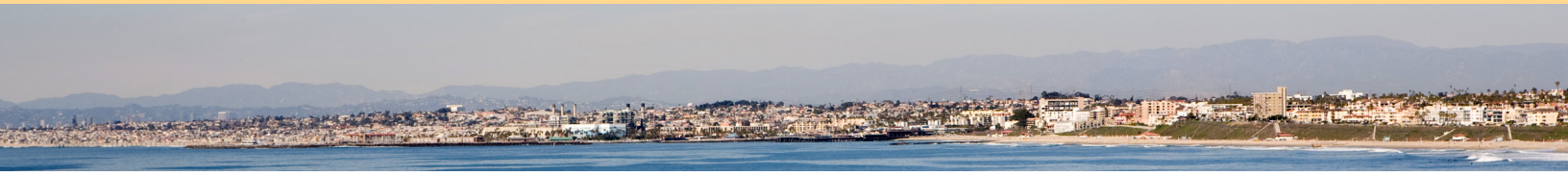
ECLWRF School Tours

Ocean Friendly Garden Classes

In 2008, West Basin began offering free Ocean Friendly Garden (OFG) Classes as part of its larger Ocean Friendly Landscape Program. In 2010, West Basin, in partnership with the Surfrider Foundation, conducted 19 classes throughout its service area. Classes are one-day, three-hour sessions that teach residents how to build an Ocean Friendly Garden of their own, reduce runoff, landscape with drought-tolerant plants, and keep water on their property. These classes were well attended with as many as 60 residents participating per class.

Zero Runoff Street Median Water Conservation Program

For this West Basin and MWD grant-funded program, water efficient street medians and parkways were designed to reduce water use by at least 50 percent and water runoff by 100 percent. This program included projects that replaced existing street medians and parkways with a combination of artificial turf, porous cover, native and/or drought tolerant plants, drip irrigation, or Smart Irrigation Controllers. Several cities took advantage of this program and retrofitted street medians to reduce water use, reduce runoff and educate the public about water conservation.



Native Plant Demonstration Garden

New Native Plant Demonstration Gardens

In 2009, West Basin built a new Native Plant Demonstration Garden at ECLWRF in El Segundo. As a part of this project, West Basin held two hands-on workshops where the public assisted with the installation of the plants, drip irrigation and the permeable walkway. In 2010, West Basin also renovated the landscape at its headquarters in Carson with two hands-on workshops to learn how to install and maintain the native plants and a drip irrigation system.

California Water Awareness Campaign

West Basin is also active with the California Water Awareness Campaign (CWAC), which is an association formed several years ago to coordinate efforts throughout the State during its *May is Water Awareness Month* campaign. With this effort, water agencies throughout the State, large and small, can tap into a large pool of knowledge and materials to promote a water awareness message not only in May, but throughout the year.

Media Outreach

West Basin maintains a strong link with the local news media through press releases, one-on-one tours and talks, and small group briefings to share West Basin's ongoing achievements in making water supply more reliable. Recently, West Basin conservation staff was included on the cover of a Palos Verdes gardening supplement highlighting native water efficiency plants.

7.5.8 BMP #8 - School Education Programs

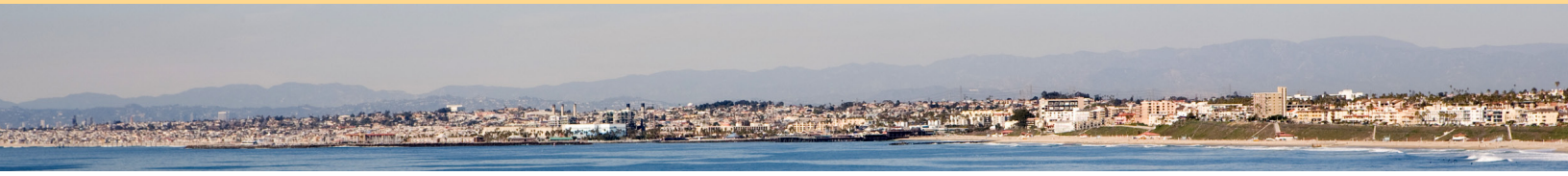
Water and environmental education continue to be critical components of West Basin's outreach strategy. Therefore, West Basin offers a variety of elementary through high school programs free of charge to all schools within its service area. Descriptions of each program can be found in Section 7.6.

7.5.9 BMP #9 - Conservation Programs for Commercial, Industrial, and Institutional (CII) Accounts

West Basin has increased its participation and involvement with the CII sector over the past few years. Since 2007, West Basin has implemented, designed and participated in a number of successful CII programs partnering with local water agencies and their purveyors as well as with governmental organizations for increased outreach opportunities, described further below.

Complete Restroom Retrofit Program

This program provides businesses using older restroom devices with high-efficiency toilets, urinals and sink faucets. This program was initially funded through a grant and has been ongoing since 2007. This program has been successful for both small businesses and larger businesses alike. Phase 2 of the program was implemented in 2010 and will focus more on larger commercial customers such as high-rise buildings and hotels.



Recirc and Save Program

This program incentivizes large commercial and industrial customers to implement water-use efficiency projects as identified by West Basin. Increased incentives are offered for cooling tower efficiency upgrades and process water efficiency improvements such as water supply recirculation and on-site treatment. This program also offers technical assistance and audits to assist these customers in making changes to their processes that will result in water use reductions.

Cash for Kitchens Program

During its pilot phase in 2009, this program initially targeted large (greater than 1,000 square feet) commercial kitchens but has now been expanded to also include smaller restaurants. Food service facilities can benefit greatly from the use of efficient devices as well as through behavioral changes. In order to address both, the program includes a quick audit, a session with the facility's management as well as device replacements for qualifying equipment.

Public Sector Program

This program was designed and implemented by MWD to assist public and institutional facilities in making water-efficiency upgrades. It was offered as a limited-time only program providing up-front funding for these public sites to make changes to their indoor and outdoor water-using systems.

Save Water, Save a Buck

In 2005, West Basin entered into a 10-year agreement with MWD to help support the on-going regional marketing efforts of this CII rebate program. As a way to increase the success of this program, West Basin offers its cities and water purveyors an opportunity to contribute additional funding to Save Water, Save a Buck to increase the rebate amounts available to their commercial customers. Over the years, agencies have partnered to provide higher rebate amounts in an effort to increase conservation participation from their customers. Rebates are offered for commercial clothes washers, water brooms, cooling tower conductivity controllers, pre-rinse spray nozzles, x-ray machine recirculating devices and commercial toilets and urinals. Table 7-6 summarizes the success of these programs.

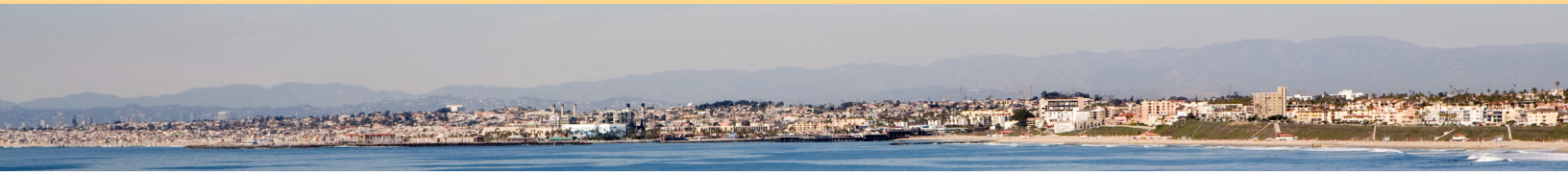


Table 7-6: Summary of CII Programs

Program	Devices Distributed	Number of Units	AF Savings*	Agency Partnerships
Complete Restroom Retrofit	High-Efficiency Toilets, Zero-Water and Ultra-Low Flush Urinals, Self-Closing Sensor Faucets	1,164	804	California Water Service Company and Golden State Water Company, Metropolitan Water District, Department of Water Resources, Water Replenishment District
Recirc and Save	pH Conductivity Controllers, Various process improvements	3	29	California Water Service Company and Golden State Water Company, Metropolitan Water District, Department of Water Resources, United States Bureau of Reclamation
Cash for Kitchens	Faucet Aerators, Flow Restrictors, Pre-Rinse Spray Valves, Waterbrooms	162	14.7	California Water Service Company, Golden State Water Company, Water Replenishment District, Metropolitan Water District
Public Sector Program	High-Efficiency Toilets, Zero-Water and Ultra-Low Flush Urinals, Waterbrooms, Centralized Irrigation Controllers, Synthetic Turf	265	978	Metropolitan Water District
Save Water, Save a Buck	Various	11,320	12,857	Metropolitan Water District, California Water Service Company, and Golden State Water Company
TOTAL		**12,914**	**14,683**	

*Over the Lifetime of the Devices

7.5.10 BMP #10 - Wholesale Agency Programs

The programs provided by West Basin as a regional wholesaler are done in partnership with its retail agencies to benefit the 17 cities that are located within West Basin's service area as shown in Table 7-7.

Since 2005, West Basin has acquired more than $4 million from State, Federal and local grant funding sources for program development and implementation. Furthermore, West Basin markets, designs and implements a majority of the BMPs within its service area. West Basin has also invested over $2 million over the last five years to provide conservation and education programs that help increase water supply reliability for the region.

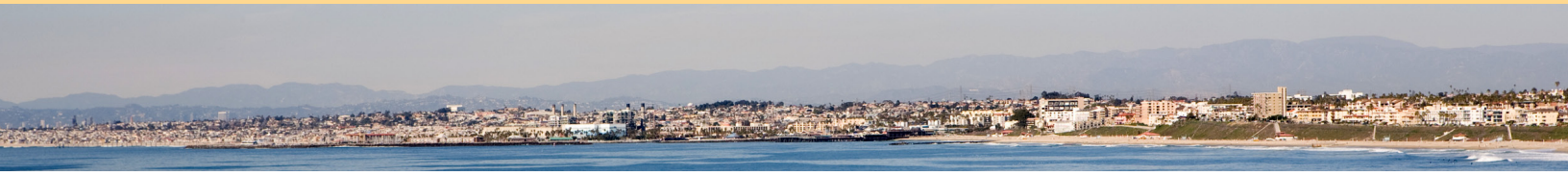


Table 7-7 West Basin Wholesale Agency Program Support

Retail Agencies that West Basin Supports	BMPs that West Basin Supports
California American Water Company California Water Service Company City of El Segundo City of Inglewood City of Lomita Los Angeles County Waterworks District #29 City of Manhattan Beach Golden State Water Company	BMP #3 - System Audits BMP #5 - Landscape Programs BMP #6 - Washing Machines BMP #7 - Public Information BMP #8 - School Education BMP #9 - CII Rebates and Programs BMP #10 - Wholesaler Incentives BMP #12 - Water Conservation Coordinator BMP #14 - ULFT Replacement

As part of West Basin's WR 2020 Program, conservation programs will be further enhanced to provide even greater support to city and water retailer conservation program efforts.

7.5.11 BMP #11 - Conservation Pricing

In 2003, West Basin passed-through MWD's two-tiered rate structure to its customer agencies to promote water conservation and regional water supply reliability. This rate structure called for customer agencies, in coordination with West Basin, to develop a reasonable budget for their Tier 1 annual maximum limit for imported water. Through voluntary purchase agreements, these customers will pay a higher price (Tier 2) for purchases that exceed their Tier 1 allotment. To assist them in not exceeding their Tier 1 allocation limits, West Basin works with agencies to enhance conservation, education and expand recycled water use.

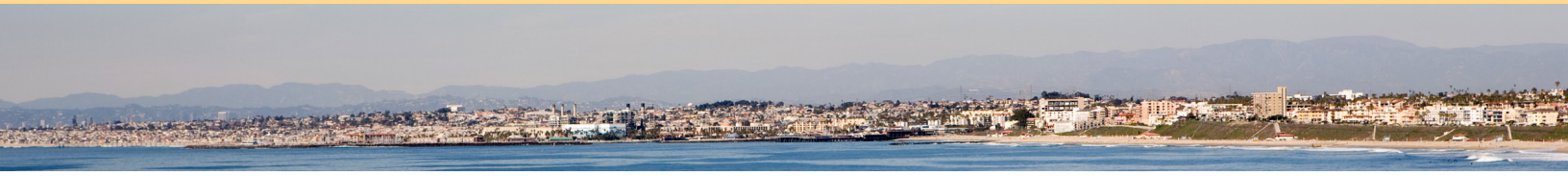
7.5.12 BMP #12 - Water Conservation Coordinator

In 2007, West Basin added an additional full time employee, which was identified in the 2006 Conservation Master Plan, to assist with the development of West Basin CII Programs. West Basin's Conservation Department now employs both a Senior Water Use Efficiency Specialist and a CII Specialist.

7.5.13 BMP #13 - Water Waste Prohibition

West Basin helped to promote MWD's *Its Time to Get Serious* media campaign by developing a campaign to increase our cities' awareness of the current water situation by requesting that they adopt a resolution. The resolution stated that the city would be willing to review their current ordinances and policies as they related to water conservation. With West Basin's effort, many cities adopted the resolution and seven cities actually passed stricter water efficiency ordinances.

In 2008/09, MWD launched the Public Sector Program. This program provided upfront incentives to motivate the public including cities, counties, agencies, schools, and others, to purchase and install water-use efficiency devices. In order to participate in this program, MWD required each city to pass a Water Waste Prohibition Ordinance.



These ordinances feature provisions regarding water waste ranging from outdoor watering restrictions and requirements for water features and pools to requiring eating establishments to provide drinking water upon request only and requiring new car washes be equipped with recirculation systems. To date, the cities within West Basin's service territory that have passed these ordinances include: Rolling Hills Estates, West Hollywood, Lomita, Manhattan Beach, Culver City, El Segundo, and Malibu. Each city's ordinance may differ slightly.

7.5.14 BMP #14 - Residential Ultra-Low-Flush Toilet (ULFT) Replacement Programs

Since early 2000, MWD, West Basin and its local water retailers have been providing the public with ULFT rebates and programs. These successful programs have evolved through the steps listed below to provide the increasing water savings shown in Table 7-8.

- 2000 – 2010: MWD, West Basin, and local retailers provided rebates
- 2000 – 2010: West Basin provided free ULFTs and High-Efficiency Toilets (HET) to the public through its one-day toilet distributions
- 2008: West Basin received a grant from MWD to directly install HETs in the multi-family sector
- 2010: MWD, due to high ULFT saturation levels (in specific areas of its region), stopped providing residential toilet rebates

Table 7-8: ULFT / HET Rebate Program

	2000-2004	2005-2010	Total
$ per Rebate	$100	$50	N/A
# of Rebates	2,822	1,271	4,093
Water Savings (AF)	113	51	164

Over the last five years, there have been several new technological advancements with the ULFTs. In 2006-07, the 1.28 gallon per flush HET was introduced and began gaining greater acceptance in the market.

In 2009, MWD conducted a region-wide saturation study, as part of its *SoCalWaterSmart* Program and found a water efficient saturation level of over 70 percent. Therefore, in 2010, MWD phased-out the rebate for the HET. In 2004, West Basin had estimated a 40% saturation level and in 2009, estimated 60% saturation. West Basin's portion of MWD's service area has older communities and opportunities still remain for replacement of older 3 - 5 gallon toilets. Since opportunities still exist in West Basin's service area, West Basin along with several of its retail water agencies has continued conducting its free one-day HET distribution events. The results of this program are shown in Table 7-9.

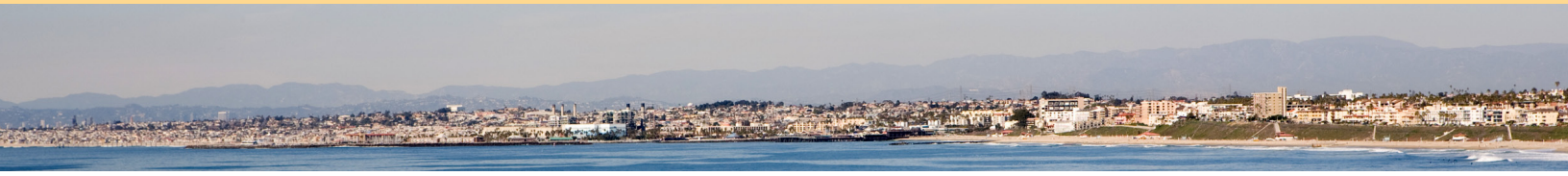


Table 7-9: One Day Free HET Replacement Program Savings

	2000-2004	2005	2006*	2007*	2008	2009	Total
# of Devices	13,172	2,742	0	0	2,593	1,500	20,007
Water Savings (AF)	381	110	0	0	104	60	655

*Temporary stop in program

In 2006, West Basin and its sister agency Central Basin Municipal Water District separated and became two distinct agencies so there was a halt of this program from 2006 -2007. Also during this time period, West Basin's toilet vendor went out of business but was able to restart toilet distributions in 2008.

Multi-Family Program

In 2008, West Basin developed a unique water/energy direct installation program called Green Living for Apartments & Condos. In collaboration with Southern California Edison (Edison) and the Southern California Gas Company (Gas Company), West Basin received a MWD grant to provide apartment and condominium owners with free installations of HETs, showerheads, bathroom aerators and compact fluorescent light bulbs. In 2008, a total of 2,500 HETs were installed, conserving an estimated 100 AF per year. In 2009, West Basin also provided an additional 1,500 HETs to the multi-family sector, for a total of 4,000 toilets.

Table 7-10: Multi-Family Residential Device Replacements

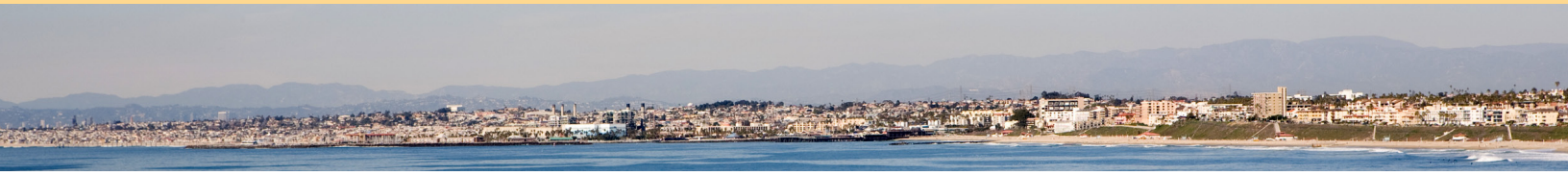
	2008	2009	Total	Annual Savings (AF)
HETs	2,500	1,500	4,000	161
Showerheads	214	214	428	3
Aerators	230	230	460	1.2
CFLs	500	500	1,000	N/A
Water Savings (AF)	104	60	655	165

7.5.15 Additional Conservation Programs

West Basin is very active in working with MWD to develop new conservation programs that are included in the CUWCC BMPs. In 2005, MWD implemented two new programs that are described below.

Water and Energy Implementation Program (WEIP)

West Basin is designing the WEIP to lay out both near-term and long-term goals working toward program integration between ourselves, Edison, the Gas Company and the water purveyors. Potential integration includes coordinated visits with the Gas Company for the *Cash for Kitchens* program, to acknowledge the strong connection between kitchens and natural gas use, and coordinated efforts to market and



implement water-efficiency programs along with Edison's well established Small Business Direct Install programs.

Community Partnering Program

MWD, in cooperation with its member agencies, accepts applications from non-profit organizations and public agencies that promote discussions and educational activities for regional water quality, conservation and reliability issues. This program provides support for the following types of activities:

- After-school water education
- Community water festivals
- Watershed education outreach
- Environmental museum exhibits
- Library water resources education book drives
- Public policy water conferences
- Other projects that directly support water conservation or water quality education

7.6 Current and Future Education Programs

West Basin is particularly dedicated to working with MWD and its customer agencies to provide water conservation educational opportunities for the communities they serve. West Basin manages and supports several programs and has also developed new program ideas for future implementation.

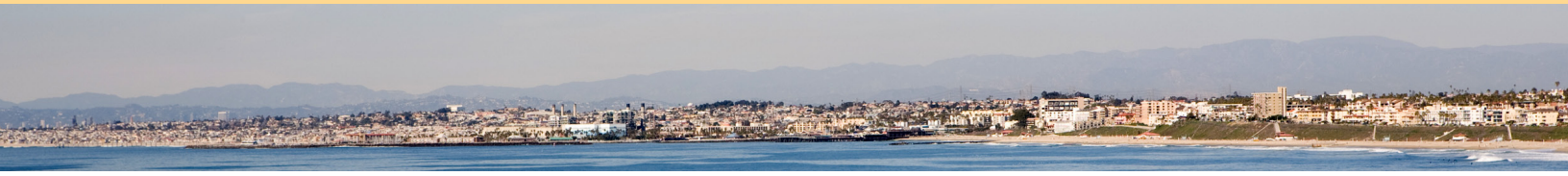
Solar Cup

7.6.1 Current Programs

Solar Cup

Solar Cup is an annual solar-power boat building and racing competition held for high school students in Southern California. The goal of the 7-month program is to encourage students to learn about science, mathematics, water quality issues, conservation, and alternative energy and fuel sources. This year, MWD, the lead sponsor of the program, allowed member agencies, including West Basin, to sponsor up to four teams. In 2010, the West Basin sponsored teams were divided into veteran and rookie teams.

- Veteran Teams
  - Palos Verdes Peninsula High School, Rolling Hills Estates
  - City Honors High School, Inglewood
- Rookie Teams
  - Environmental Charter High School, Lawndale
  - West High School, Torrance



Water is Life Student Art Contest

This program encourages 3rd -12th grade students to learn about their water supply and design a water conservation slogan illustrated with original artwork. Grand prize winners in the elementary, middle and high school categories receive a MacBook laptop through the generous support of United Water Services and the Law Offices of Lemieux and O'Neill.

Board of Directors Scholarship Program

The West Basin Board offers an annual Scholarship Award of up to $1,000 per qualified student with an interest in pursuing studies or a career in the water industry. Commencing in 2009, this program awarded eight scholarships to graduating high school seniors in West Basin's service area who have been accepted to a college, university or trade school. In 2010, this program awarded seven scholarships.

Water Educators Newsletter

West Basin keeps in touch with educators and administrators regarding our programs through our quarterly newsletter *Waterworks*.

Water Educators Newsletter

Water Explorations School Tours

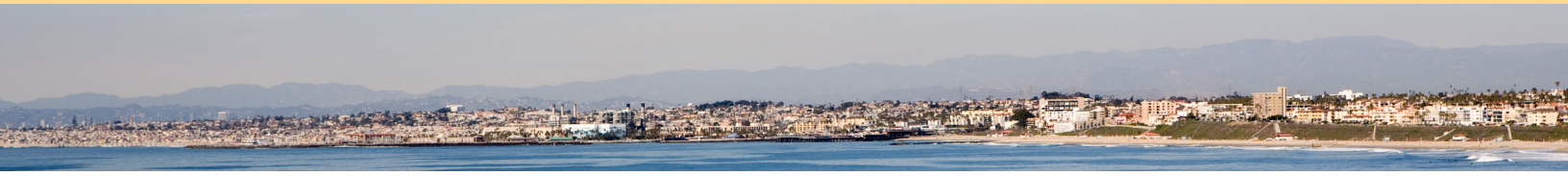
West Basin offers a free field trip experience for 3rd – 12th grade students (including a complimentary school bus) to visit the ECLWRF in El Segundo. During the field trip, students interact with a conservation exhibit that teaches the students about how changing their behavior can save water. The students are then taken to visit the SEA Lab aquarium to learn about local marine life. Also located at the SEA Lab facility is West Basin's new Water Education Center where students again get to experience another interactive conservation exhibit and learn about ocean-water desalination.

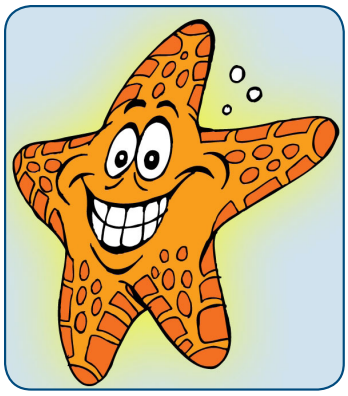
Table 7-11: School Tours at ECLWRP

Grade Level	FY 2005-06	FY 2006-07	FY 2007-08	FY 2008-09	FY 2009-10	Total
Grades K-3rd	475	958	1,012	1,939	1,033	5,417
Grades 4th-6th	590	1,061	1,534	2,893	2,467	8,545
Grades 7th-8th	35	332	150	542	196	1,255
High School	0	25	145	344	167	681
Total	**1,100**	**2,376**	**2,841**	**5,718**	**3,863**	**15,898**

Water Star Program

West Basin's new WR 2020 Water Star Program encourages elementary aged school children to sign up to save 20 gallons a day, reducing our dependence on imported water and reducing runoff to the ocean. Children receive a water star conservation kit





Water Star Program

complete with fix-it tickets, a water star badge, shower timer, faucet aerator, and other water-saving reminders. More than 700 students pledged to save 20 gallons per day during the 2010 pilot program.

Surfrider Foundation Teach and Test Program

The Surfrider Foundation South Bay Chapter's Teach and Test Program is an exciting project pairing high school students with graduate students from Loyola Marymount University to study the water quality of our South Bay beaches. West Basin sponsors this on-going effort to improve the water quality of Santa Monica Bay and introduce youth to water quality research and careers.

Teams volunteer to collect water samples from 12 local beaches to then analyze and publish their results in an on-going database. Students have participated from several schools within West Basin's service area including Chadwick School, Westchester, El Segundo, Redondo Union, and South high schools.

Splash Science

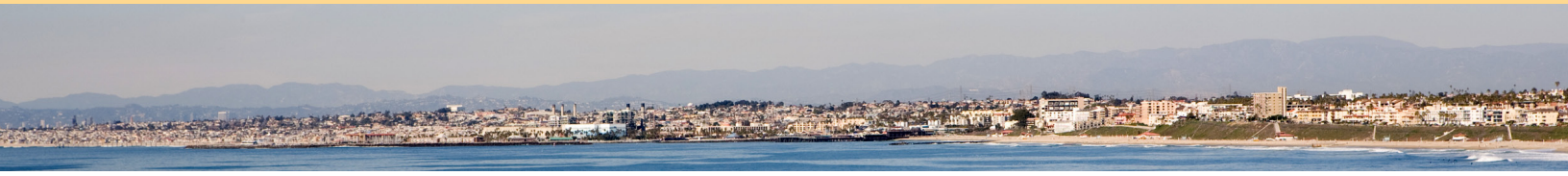
In 2011, Splash Science will be morphed into a program to bring students to the Ocean-Water Desalination Demonstration Facility.

Career Training Programs

Every February, West Basin partners with United Water Services, Inc. to participate in the Inglewood/Airport Chamber of Commerce's Annual Youth Business and Industry Job Shadow Day. West Basin serves as a business host and conducts a 5-hour water careers program and facility tour that accommodates 10 students. Students are introduced to West Basin's mission, water sustainability projects, agency organization and variety of job positions. Students then go on a tour of the ECLWRF to see the result of the public/private partnership with United Water. Students are exposed to a wide range of careers in chemistry, biology, engineering, human resources, finance, water resource planning, public affairs, operations and maintenance. West Basin also hosts high school summer internships in partnership with the South Bay Workforce Investment Board.

7.6.2 Future Programs

In addition to the programs listed above, in 2010 West Basin will be completing an Education Master Plan that outlines the programs best suited for the students within our service area. These programs will be considered for implementation over the next five years.



7.7 Conservation Program Partnerships

By partnering with various entities, West Basin is able to leverage its funding and resources in order to develop targeted programs that have been identified in its CMP.

Over the last five years, West Basin has partnered with local, state and federal agencies and has received several grants. These grants have allowed West Basin to develop and offer the public free water conservation programs. For every $1 that West Basin invests, it provides $6 worth of programs to the public. West Basin's funding partners have included the following:

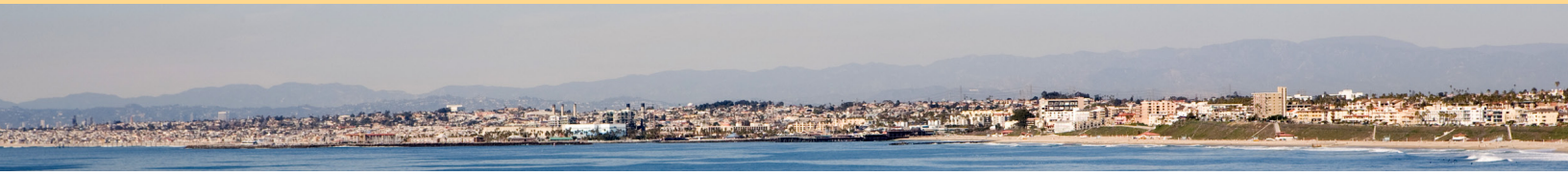
- United States Bureau of Reclamation (USBR)
- California Department of Water Resources
- Metropolitan Water District
- Retail Water Agencies
- Southern California Edison
- Southern California Gas Company

Over the last several years, West Basin has also developed new and important partnerships that help expand West Basin's conservation programs and messages including:

- **South Bay Environmental Services Center (South Bay Center):** In 2006, West Basin formed a partnership with the South Bay Center. The South Bay Center is a program of the South Bay Cities Council of Governments (South Bay COG) that promotes programs provided by Edison, the Gas Company, Los Angeles County Sanitation District and LA Metro as well as West Basin's water conservation programs throughout 16 cities in the South Bay.

- **Surfrider Foundation:** In 2006, West Basin formed a partnership with Surfrider for the purpose of creating the Ocean Friendly Landscape Program. Since that time, West Basin has also helped to sponsor Surfrider's Teach & Test Program. Surfrider works with high school students to teach them about water runoff issues and pollution to the ocean.

- **Southern California Edison and Southern California Gas Company:** Efforts to work more closely with the energy utilities have been made through West Basin's partnership with the South Bay Environmental Services Center. Residents and businesses interested in saving energy are more likely to be interested in saving water as well. Leveraging the efforts of the energy utilities allows for more cost-effective programs as well as enhanced offering for residential and business customers alike. Successful integration of water-use efficiency and energy efficiency programs is happening on a small scale with the real possibility of further and larger scale integration in the near future.



This page intentionally blank

SECTION EIGHT

Rates and Charges

2010

SECTION 8 Water Rates & Charges

As a water wholesale agency, West Basin does not directly charge residential and other end-use customers for supplies. Instead, West Basin's customer agencies purchase water from West Basin and then combine it with other supplies to deliver to their retail customers at a variety of rates.

West Basin's current potable water rates are primarily based upon the costs of imported supplies purchased from MWD. Imported water purchased by West Basin from MWD carries not only the cost of acquiring, importing, treating and distributing the water throughout the region, but also these costs associated with maintaining MWD reliability and "readiness to serve". The total West Basin rate structure must include the value-added costs associated with representing customer agencies at MWD, and distributing locally-produced recycled and desalinated groundwater supplies.

8.1 MWD Rate Structure

In 2002, the MWD Board adopted a new rate structure to support its strategic planning vision to encourage the development of local supplies like recycled water and conservation, and ensure a reliable supply of imported water. To achieve these objectives, MWD called for voluntary purchase orders from its member agencies, unbundled its water rates, established a tiered supply rate system, and added a capacity charge. The new rate structure components provide a better opportunity for MWD and its member agencies to manage their water supplies and proactively plan for future demands.

8.1.1 Purchase Orders

The Purchase Order is an agreement between MWD and a member agency, whereby the member agency agrees to purchase a minimum amount of non-interruptible water over a ten-year Purchase period. The Annual Maximum is the amount of lower cost (Tier 1) non-interruptible water that a member agency is entitled to purchase annually as a result of that Purchase Order.

Table 8-1 shows how both the current annual maximum and purchase commitment were calculated for West Basin. West Basin's highest delivery of non-Order interruptible water was 174,304 AF in 1990. Therefore, West Basin's Tier 1 annual maximum is calculated as 90 percent of 174,304 AF – or 156,874 AF. The total purchase commitment is 60 percent of 174,304 AF multiplied by the 10 year Purchase Order period - or 1,045,824 AF to be purchased by the end of 2013. Since signing a Purchase Order with MWD in 2002 West Basin has remained below its Tier 1 annual maximum and has been on track to meet its Purchase Commitment by the year 2012.

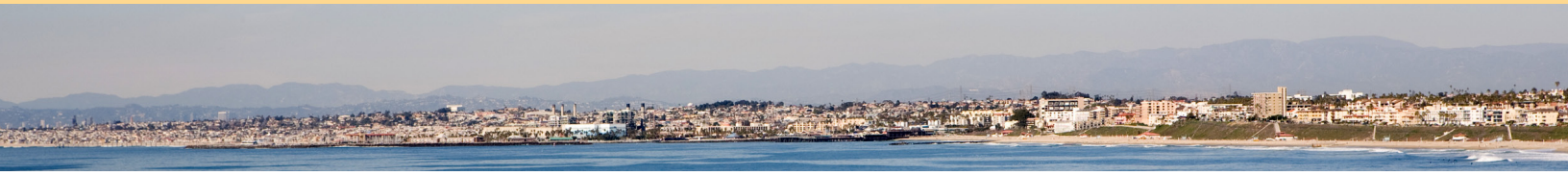


Table 8-1: West Basin Purchase Order Terms

Initial Base Allocation (AF)	Tier 1 Annual Maximum (90% of Base) (AF)	Purchase Order (60% of Base x 10) (AF)
174,304	156,874	1,045,825

8.1.2 Unbundled Rates and Tier 1& 2

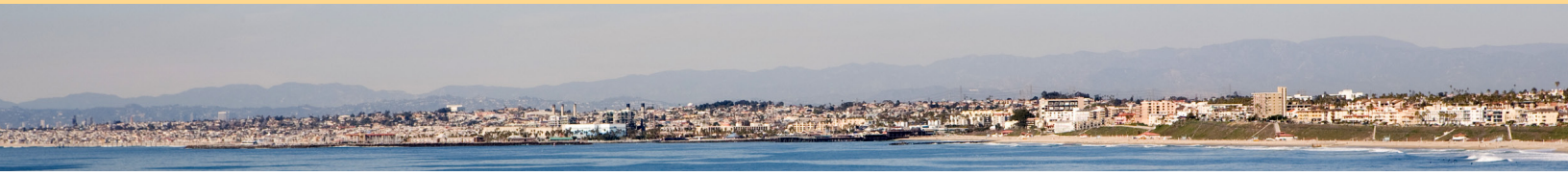
To justify the different components of the costs of water on a per acre foot basis, MWD rates are comprised of the following components:

- **Supply Rate Tier 1:** Reflects the average supply cost of water from the Colorado River and State Water Project.
- **Supply Rate Tier 2:** Reflects the MWD costs associated with developing new supplies, which is assessed when an agency exceeds its Tier 1 limit of firm deliveries.
- **System Access Rate:** Recovers a portion of the costs associated with the conveyance and distribution system, including capital and operating and maintenance costs.
- **Water Stewardship Rate:** Recovers MWD's cost of providing incentives to member agencies for conservation, water recycling, groundwater recovery, and other water management programs approved by the MWD Board.
- **Delta Supply Surcharge:** Reflects the additional supply costs that MWD faces along with other costs due to the pumping restrictions on the State Water Project. The Delta Supply Surcharge replaced the Water Supply Surcharge effective with the FY 2009/10 rates.
- **System Power Rate:** Recovers MWD's electricity-related costs, such as the pumping of water through the conveyance and distribution system.
- **Treatment Surcharge:** Recovers the treatment cost and is assessed only for treated water deliveries, whether firm or non-firm.

The MWD water rates for calendar year 2011 are displayed in Table 8-2.

Table 8-2: MWD Rates Adopted for 2011

Category of Water	$/AF
Supply Rate Tier 1	$104
Supply Rate Tier 2	$280
System Access Rate	$204
Water Stewardship Rate	$41
Water Supply Surcharge	$0
Delta Supply Surcharge	$51
Power Rate	$127
Treatment Rate	$217
Total Tier 1 Treated Rate	**$744**
Total Tier 2 Treated Rate	**$869**



8.1.3 Replenishment Service

Although the great majority of the MWD water supplies are sold as uninterruptible Tier 1 or Tier 2 supply, there are times when excess supply is available for storage replenishment purposes. Since these excess supplies are only as available (or interruptible), they are typically bought at a discounted rate by agencies to recharge groundwater supplies or fill surface storage. This Replenishment Service Water is offered by MWD as either untreated or treated (that can be used as "in-lieu," where a retail agency will curtail pumping and instead take direct deliveries from MWD). Replenishment Service Water rates are not tied to the uninterruptible rate structure illustrated in Table 8-2. These rates are established by MWD to provide the best incentive to replenish the groundwater basins. Replenishment Service rates effective January 1, 2011 are shown in Table 8-3.

Table 8-3: MWD Replenishment Service Rate Adopted for 2011

Category of Water	$/AF
Replenishment Water Rate Untreated	$409
Treated Replenishment Water Rate	$601

8.1.4 MWD Capacity Charge

The MWD capacity charge was developed to recover the costs of providing distribution capacity use during peak summer demands. The aim of this charge is to encourage member agencies to reduce peak day demands during the summer months (May 1 thru September 30) and shift usages to the winter months (October 1 thru April 30), which will result in more efficient utilization of MWD's existing infrastructure and defers capacity expansion costs. Currently, MWD's capacity charge for FY 2010 and 2011 are set at $7,200/cubic feet per second (cfs).

The capacity charge is applied to an agency's maximum usage rate, which is the highest daily average usage (per cfs) for the past three summer periods. Table 8-4 shows the maximum usage rate for West Basin.

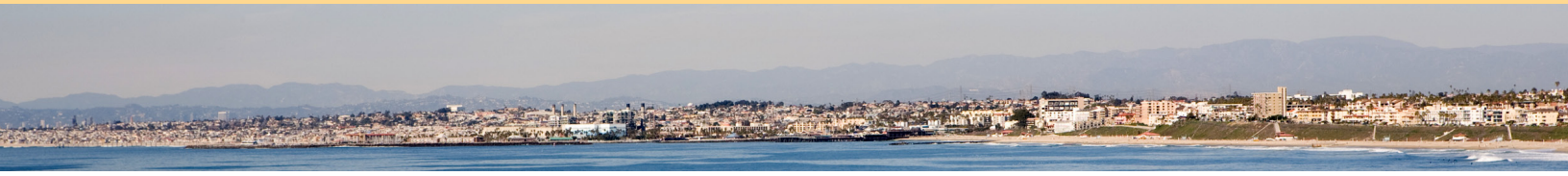
Table 8-4: MWD Capacity Charge for 2010

Peak Flow 2007 (cfs)	Peak Flow 2008 (cfs)	Peak Flow 2009 (cfs)	3-Year Max (cfs)	Capacity Charge
262	243	221	262	$1,663,700

Note: These peak flows are based upon West Basin's coincident peak of all its MWD connections.

8.1.5 Readiness-to-Serve Charge

MWD's readiness-to-serve charge recovers a portion of MWD's debt service costs associated with regional infrastructure improvements and is determined by the member agencies' firm imported deliveries for the past ten years. West Basin meets this obligation through its commodity rates.



8.2 West Basin's Imported Water Rates

To deliver water from MWD to its customer agencies, West Basin must pass along the MWD costs as well as an additional administrative surcharge. Described below are elements of the rate structure that West Basin applies to the delivery of imported water for its customer agencies.

8.2.1 Purchase Agreements

In order to meet the Purchase Order commitment with MWD, West Basin established its own purchase contract policy with its customer agencies. West Basin's Imported Water Purchase Agreement also calculates an annual maximum and total purchase commitment, but offers more flexibility to the customer. West Basin requires only a five-year commitment, as opposed to the ten-year MWD term. Furthermore, customer agencies have the option to adjust their annual maximum and purchase commitment amounts annually by offsetting imported water demand with recycled water purchased from West Basin. For purchases above the Tier 1 limit, or in the absence of a Purchase Agreement, the customer agency pays the Tier 2 rate.

8.2.2 Reliability Service Charge

One of the main revenue sources for West Basin is the reliability service charge applied to all imported water sold. Revenue from this charge recovers West Basin's administrative costs including planning, outreach and education, and conservation efforts, as well as a portion of the recycled water system operating costs. As of July 1, 2010, West Basin's reliability service charge is at $66/AF.

8.2.3 Readiness-to-Serve Surcharge

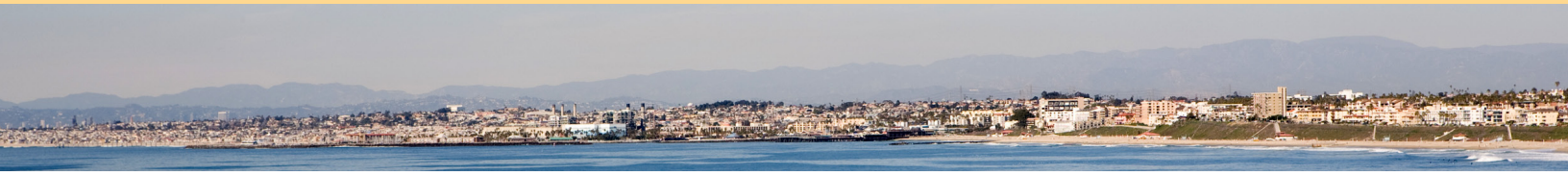
West Basin passes along MWD's readiness-to-serve charge within its commodity rates for non-interruptible and Barrier water supplies to cover this charge. As of January 1, 2011, West Basin's surcharge will be $125/AF.

8.2.4 Water Service Charge

Water utility revenue structures benefit from a mix of fixed and variable sources. West Basin's water service charge recovers a portion of the agency's fixed administrative costs, but is a relatively small portion of its overall revenue from water rates. As of July 1, 2010, the water service charge is $34/cfs of a customer agency's meter capacity for imported water meters.

8.2.5 West Basin's Capacity Charge

MWD's capacity charge is intended to encourage customers to reduce peak day demands during the summer months, which will result in more efficient utilization of MWD's existing infrastructure. West Basin has passed through MWD's capacity charge to its customer agencies based upon their highest daily average usage (per cfs) for the past three summer periods. The capacity charge that West Basin is assessed by MWD is $6,350/cfs for FY 2011.



8.2.6 Desalter Water Charges

West Basin also sells water produced by the Brewer Desalter at the effective MWD rate. This includes the MWD non-interruptible base rate and an acre-foot equivalent for the Capacity Charge. Currently, the rate for Desalter water is $767/AF as of January 2011.

8.3 Recycled Water Rates

West Basin's ECLWRF provides five different qualities of water to meet the needs of landscape irrigation, cooling towers, refineries, and industries within and outside its service area. Since 1995, West Basin has encouraged the maximum use of recycled water by providing an economic incentive through specialized rates and charges.

Recycled water use for irrigation - Home Depot Center, Carson, CA

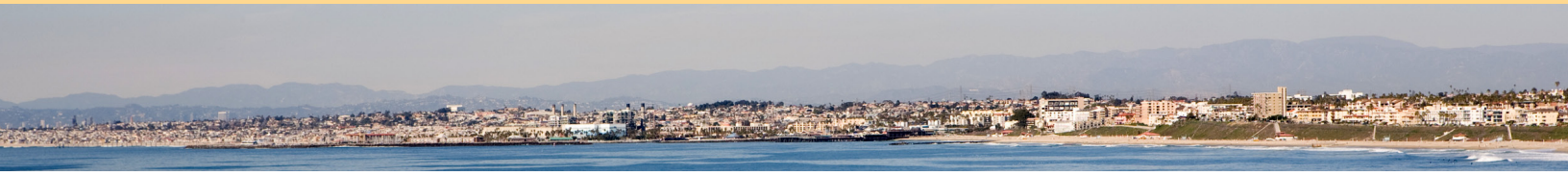
8.3.1 Recycled Water Rates

West Basin uses seven different rates for recycled water to account for differing treatment quality, power requirements, and customer location. All rates are assessed to include the operation and maintenance costs, and labor and power costs associated with the delivery of recycled water. A majority of these rates are set up in a declining tiered structure to further encourage the use of recycled water, while the others are set up to service one or more customers at a uniform rate. Most of the recycled water rates are set lower than potable water rates except for highly treated recycled water for use by refineries. Fiscal year 2010 – 2011 rates are shown in Table 8-5.

Table 8-5: 2010-2011 Recycled Water Rates

Volume (AF/Month)	WBMWD Service Area	West Coast Barrier	Industrial R/O (WB Service Area)	Nitrified (Ind. R/O)	Industrial R/O Ultra (WB Service area)	Torrance/ LADWP Service Areas	Palos Verdes Zone Rate
0-25	$686/AF	$540/AF	$914/AF	$914/AF	$1,270/AF	$728/AF	$924/AF
25-50	$676/AF	$540AF	$914/AF	$914/AF	$1,270/AF	$718/AF	$941/AF
50-100	$666/AF	$540/AF	$914/AF	$914/AF	$1,270/AF	$708/AF	$904/AF
100-200	$656/AF	$540/AF	$914/AF	$914/AF	$1,270/AF	$698/AF	$894/AF
200+	$646/AF	$540/AF	$914/AF	$914/AF	$1,270/AF	$608/AF	$884/AF

Customers outside of West Basin's service area boundaries pay an additional $42/AF per tier. This additional charge is applied to make up for the recycled water standby charge that is not levied on their parcels.



8.3.2 Recycled Water Standby Charge

The recycled water standby charge is levied by West Basin to each parcel within the service area. A rate of $24 per parcel (up to one acre for residential) is administered by West Basin to provide a source of non-potable water completely independent of drought-sensitive supplies. The revenue collected from this charge is used to pay the debt service obligations on the West Basin water recycling facilities. Each year West Basin holds a public hearing where they adopt West Basin's Engineer's Report and Resolution to assess this charge.

8.4 Future Water Rate Projections

As the demand for water increases in southern California so does the cost to administer, treat, and distribute imported and recycled water. However, West Basin has worked diligently to ensure that stable and predictable rates are managed for the future. This section discusses projections of imported and recycled water rate trends for the next ten years.

8.4.1 Imported Water Rate Projections

In 2004, the MWD Board adopted its Long Range Financial Plan. This plan was developed to forecast future costs and revenues necessary to support its operations and capital investments. Furthermore, it lays out the financial policy MWD will pursue over the next ten years. According to projected MWD sales, with investments into local resources, MWD estimates imported water rates will increase 4-6 percent annually. As a result, West Basin's water reliability service charge is projected to increase at an annual average rate of 7 percent. This increase is determined by West Basin's own Long Range Financial analysis and revenue requirements.

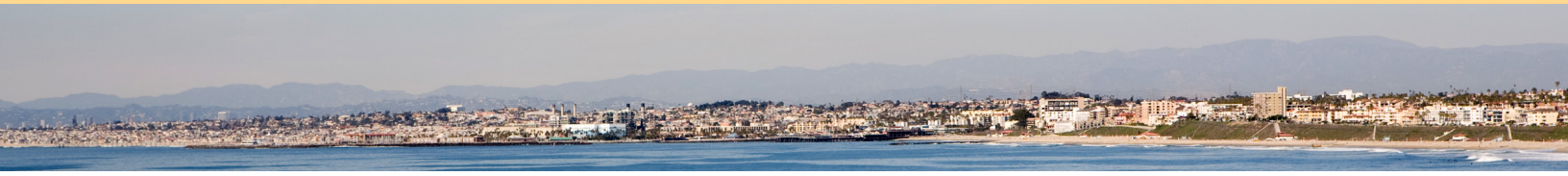
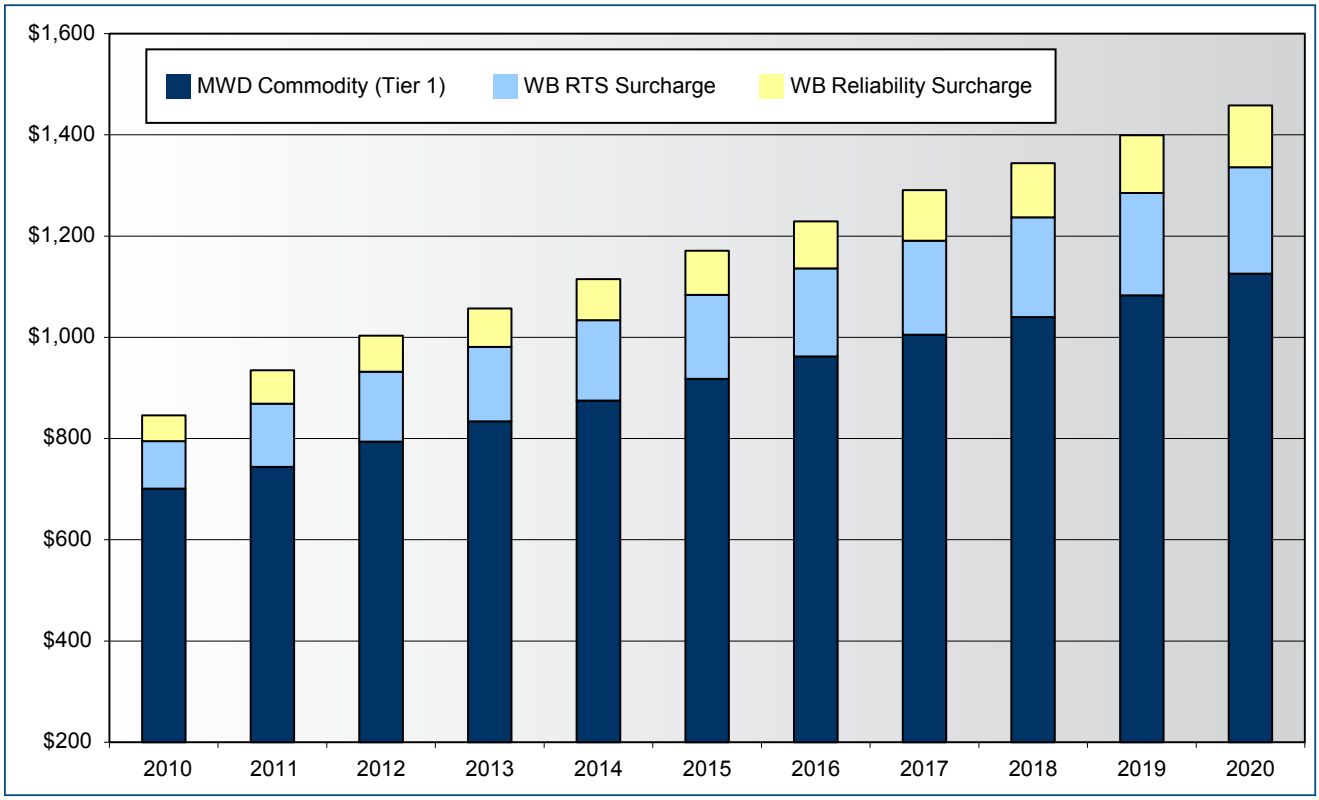


Figure 8-1: Projected Imported Water Rates displays West Basin's imported water rate projections for the next ten years.

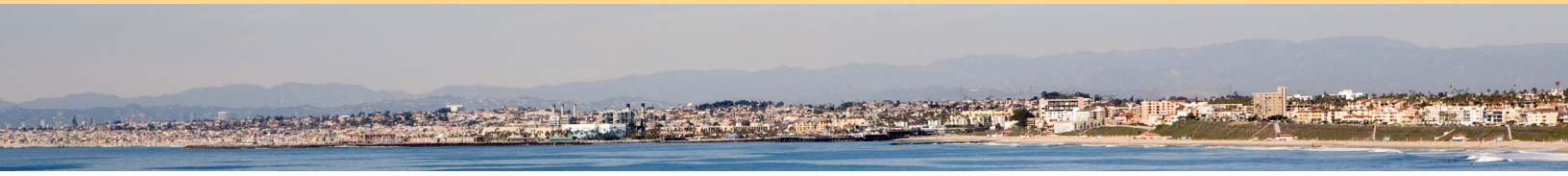
Figure 8-1: Projected Imported Water Rates



Source: MWD Long Range Financial Plan & West Basin's Financial Plan.

8.4.2 Recycled Water Rate Projections

Similar to imported water rates, recycled water rates are expected to increase due to higher treatment, maintenance, and power costs. However, West Basin believes in setting recycled water rates at a competitive level to help offset the use of imported water. To achieve this economic incentive, recycled water rates have been projected to increase at a slightly lower level than imported water. Rates are projected to increase for all types of recycled water, by an average of 5 percent annually. However, these rates may vary depending upon energy and chemical costs.



This page intentionally blank

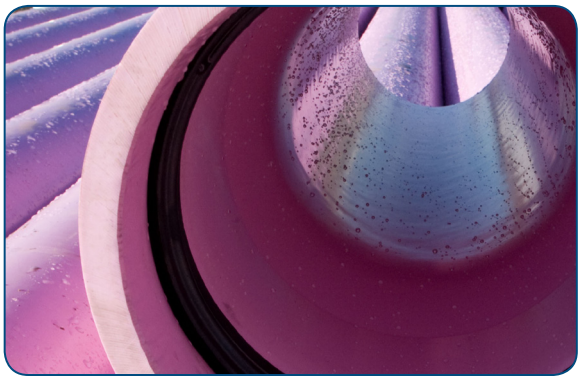
SECTION NINE

Recycled Water

2010

SECTION 9 Recycled Water

Recycled water is the cornerstone of West Basin's efforts to increase water reliability by augmenting local supplies and reducing dependence on imported water. Since planning and constructing its recycled water system in the early 1990s, West Basin has become an industry leader in water reuse. West Basin's recycled water supply is sold to customers for non-potable applications such as landscape irrigation, commercial and industrial processes, and indirect potable uses through groundwater replenishment. While serving to offset imported water supplies, recycled water use also results in less ocean discharge of lesser-treated wastewater into the Santa Monica Bay.



Recycled Water Pipe

In FY 2009-10, West Basin delivered about 30,400 AF of recycled water to sites inside and outside its service area, saving enough potable water to serve roughly 61,000 households. Within West Basin's service area, municipal and industrial recycled water use totaled about 15,500 AF and seawater barrier about 7,796 AF, which is about 13 percent of West Basin's current total water supplies. It is projected that recycled water sales could represent 27 percent of total water supplies by 2035.

9.1 Recycled Water Supply and Treatment

West Basin's recycled water source of supply is treated wastewater effluent from the City of Los Angeles's Hyperion Wastewater Treatment Plant (Hyperion). The City of Los Angeles has operated Hyperion, located adjacent to West Basin's service area, since 1894. Initially built as a raw sewage discharge plant into the Santa Monica Bay, Hyperion has been upgraded over the years to secondary and full secondary treatment. Hyperion's full treatment capacity is 450-850 mgd and secondary treatment capacity is 450 mgd.

Although the City of Los Angeles strives to provide West Basin with a consistent quality of secondary treated wastewater, the ECLWRF has to accommodate inevitable fluctuations in influent quality. Table 9-1 illustrates the amount of historical, current and projected wastewater collected and treated at Hyperion and the amount of recycled water that West Basin treats to at least tertiary recycled water standards.

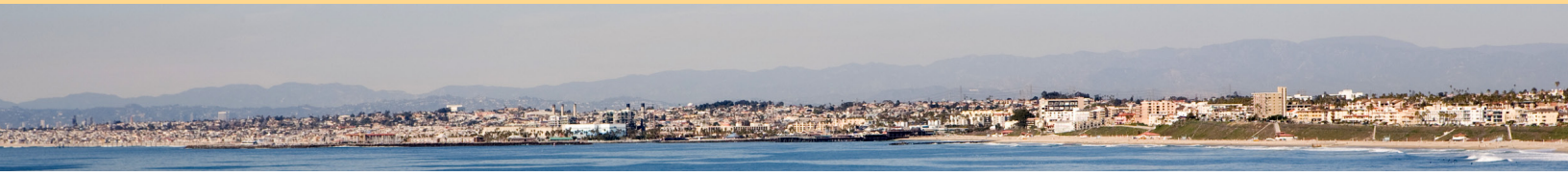


Table 9-1: Hyperion Wastewater Collected and Treated (AFY)

	2005	2010	2015	2020	2025	2030	2035
Wastewater collected & treated in Los Angeles' service area[1]	390,000	425,000	465,000	500,000	535,000	570,000	605,000
Quantity treated to meet recycled water standard[2]	24,160	30,000	58,100	62,000	66,000	70,000	70,000

[1] Data supplied by the Hyperion Wastewater Treatment Plant.
[2] Data supplied by West Basin.

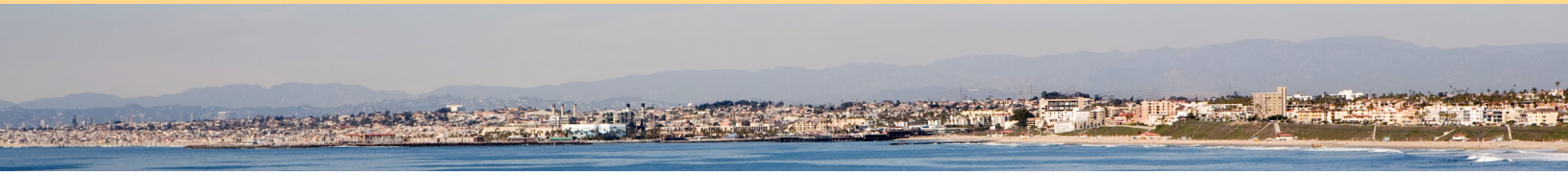
West Basin purchases approximately 37,600 AF, or roughly 9 percent of Hyperion's secondary effluent for treatment at the ECLWRF. West Basin opened ECLWRF in 1995, which is still one of the largest recycled water plants of its kind in the nation. This facility has a current capacity of 62,700 AF with its fourth expansion expected to be complete in 2012.

Most of West Basin's recycled water is treated to meet California Code of Regulations Title 22 (Title 22) tertiary standards. Title 22 addresses specific treatment requirements for recycled water and lists approved uses. Approximately 2,000 tests are performed monthly at the West Basin ECLWRF to ensure water quality meets or exceed all State and Federal requirements.

In 2002, West Basin's ECLWRF was recognized by the National Water Research Institute as one of the six National Centers for Water Treatment Technologies in the country. West Basin's recycled water program is unique in that it provides a variety of recycled water qualities beyond basic tertiary Title 22 levels. These five different water products, including Tertiary, are developed to meet specific customer specifications and are as follows:

- **Tertiary Water:** Secondary treated wastewater meeting Title 22 regulations is produced for non-potable irrigation through a conventional treatment process of coagulation, flocculation, clarification, filtration and disinfection.
- **Nitrified Water:** Tertiary water that is nitrified to remove ammonia is produced for use in refinery cooling towers.
- **Reverse Osmosis Water:** Secondary treated wastewater pretreated by microfiltration followed by reverse osmosis (RO), disinfection with ultra-violet and peroxide treatment for groundwater recharge.
- **Pure Reverse Osmosis Water:** Secondary treated wastewater that has undergone micro-filtration and RO for low-pressure boiler feed water.
- **Ultra-Pure Reverse Osmosis Water:** Secondary treated water that has undergone micro-filtration and two passes through RO for high-pressure boiler feed water.

In addition to providing recycled water for commercial and industrial uses, the reverse osmosis water produced by West Basin is purchased by the WRD and blended with potable water for injection into the West Coast Basin Seawater Barrier. This injected



water has the dual benefit of not only preventing seawater intrusion into the aquifers of the West Coast Groundwater Basin, but also providing replenishment to replace the water that is extracted by drinking water wells.

Seawater barriers are a series of injection wells that form a barrier to ensure that the groundwater level near the ocean stays high enough to keep seawater from seeping into a basin. Currently, the West Coast Basin Barrier receives approximatelty 75 percent RO recycled water mixed with 25 percent potable water. In April 2009, West Basin and WRD signed an agreement to increase the amount of RO recycled water supplied to the barrier to 100 percent by 2012 — saving 5.5 billion gallons of potable imported water a year.

In order to supply the variety of recycled water products to large customers that are often a long distance from the ECLWRF, West Basin also operates three satellite facilities that provide further treatment to tertiary water after passing through the ECLWRF.

Figure 9-1 shows the location of the ECLWRF, in the City of El Segundo, as well as three satellite treatment facilities including the Exxon-Mobil Nitrification Plant in Torrance, the Chevron Nitrification Plant in El Segundo and the Carson Regional Water Recycling Plant in Carson.

Edward C. Little Water Recycling Facility

Recycled water used for irrigation - King Harbor, Redondo Beach, CA

9.2 Recycled Water Use

9.2.1 Existing System

To date, West Basin has saved over 100 billion gallons of potable water imported from Northern California and the Colorado River which would have otherwise been used for non-potable applications. All recycled water is produced initially at the ECLWRF where it is distributed to either end-use sites or one of several satellite facilities. In all, more than 350 sites currently use more than 9.7 billion gallons annually.

As Figure 9-1 shows, West Basin's recycled water system serves the cities of Carson, El Segundo, Gardena, Hawthorne, Hermosa Beach, Inglewood, Manhattan Beach, Lawndale, Redondo Beach, and unincorporated areas of Los Angeles County within its service area, as well as the cities of Torrance and Los Angeles, which are outside of its service area.

The recycled water distribution infrastructure is separate from the potable drinking water system. All pipes, pumps and other equipment used to transport recycled water are clearly identified as recycled water to distinguish them from the potable drinking water system.

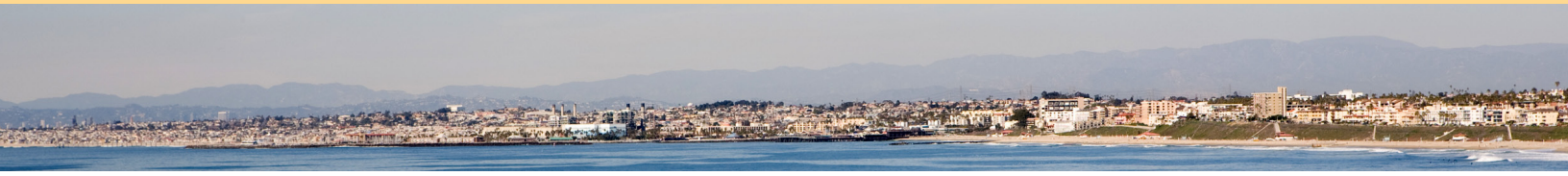
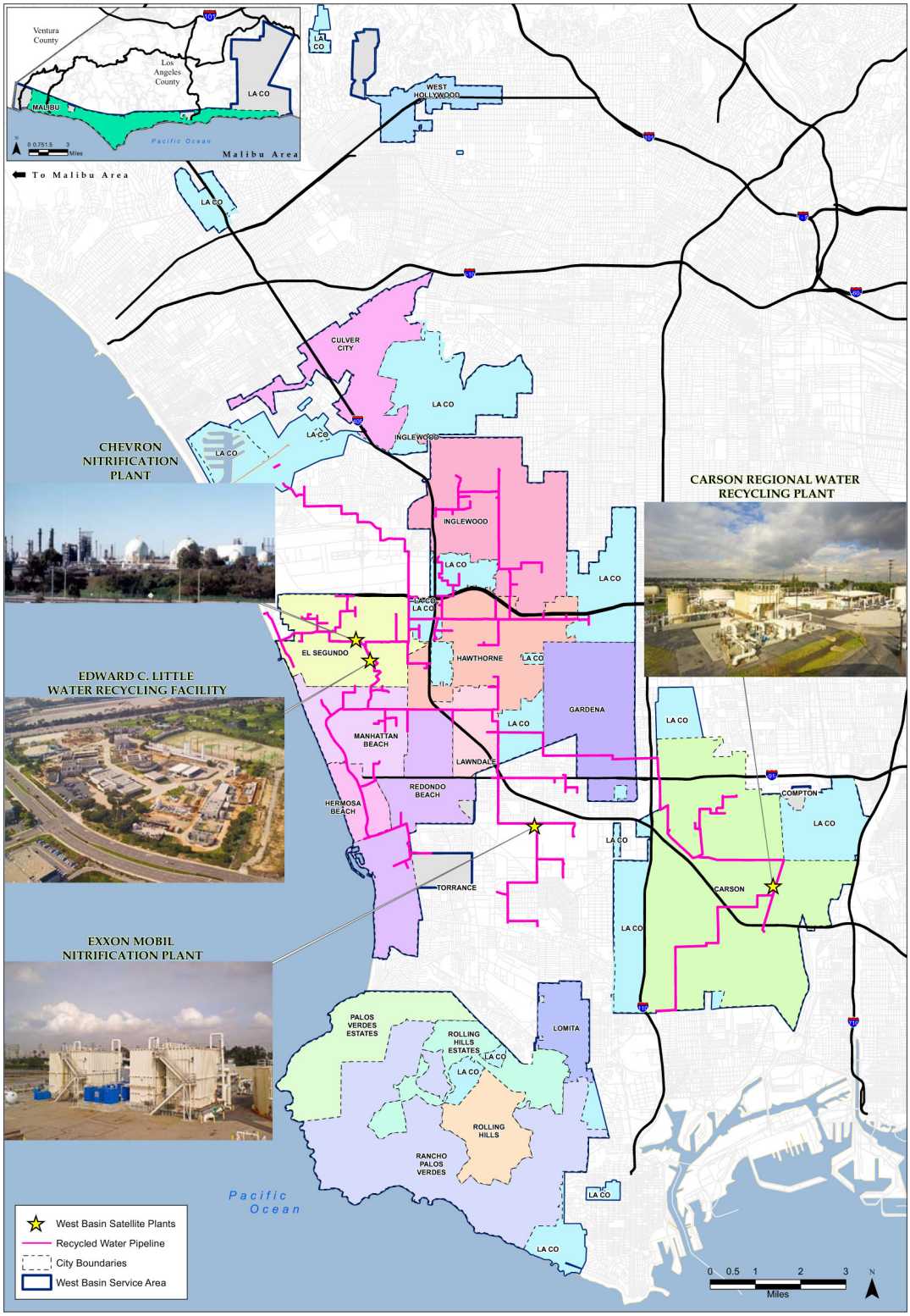
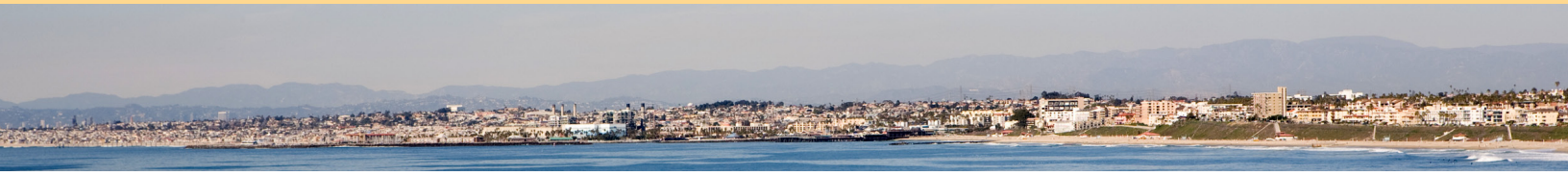


Figure 9-1: West Basin's Water Recycling Facilities



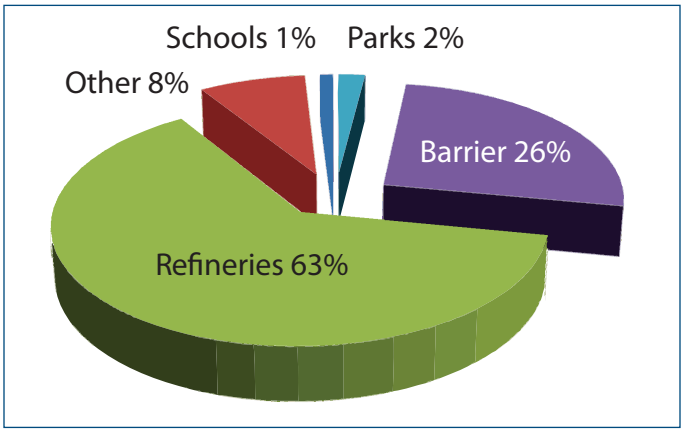


9.2.2 Recycled Water Use by Type

West Basin supplies recycled water for a wide-variety of customer uses such as:

- Seawater barriers
- Construction
- Industrial: Multi-Use
- Industrial: Nitrified
- Street Sweeping
- Irrigation: Cal-Trans
- Irrigation: Cemetery
- Irrigation: College
- Irrigation: Golf Course
- Irrigation: Landscape
- Irrigation: Medians
- Irrigation: Multi-Use
- Irrigation: Park
- Irrigation: School

Figure 9-2: Recycled Water Use by Type



9.2.3 Historical and Current Sales

West Basin's recycled water sales over the past ten years are illustrated in Figure 9-3. Sales increased until 2002-03, then declined due to a change in the source water from Hyperion. Sales have increased slightly in subsequent years and have remained steady at around 30,000 AF for the past two years. Table 9-3 provides a more detailed breakdown of historical sales by showing each retail customer agency's annual purchases for the past ten years.

West Basin has been able to deliver over 270, 500 AF over the last ten years to customers both inside and outside of its service area. This recycled water use has replaced enough potable water to supply the needs of approximately 135,250 families of four for an entire year. West Basin anticipates recycled water production and use to increase in the future due to system expansions, new applications, increasing public acceptance and economic incentives.

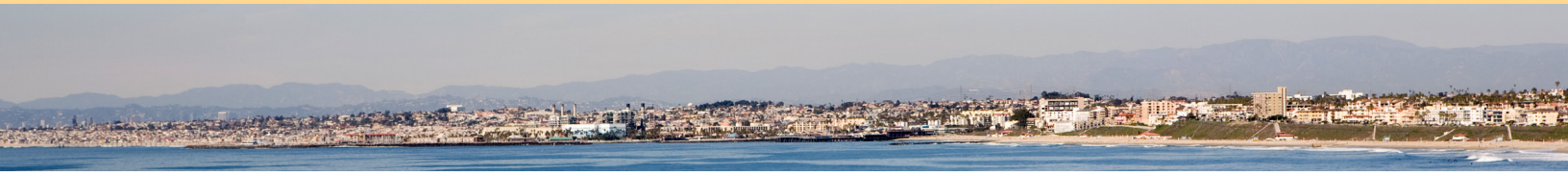
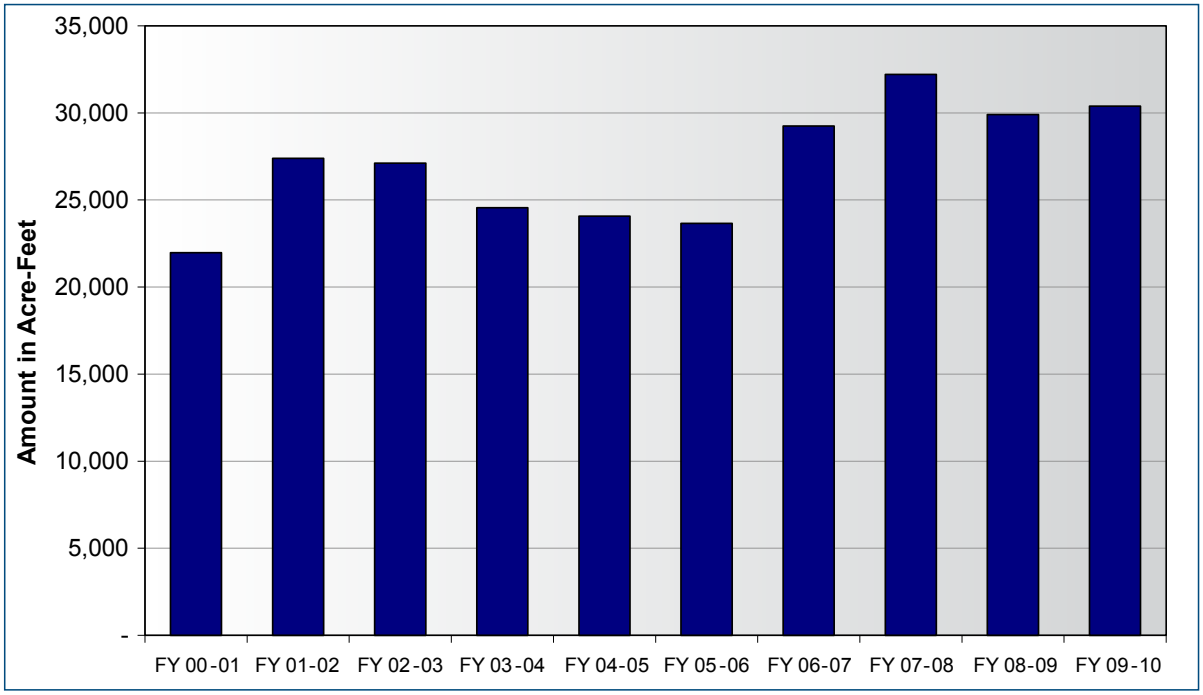


Figure 9-3: Historical Recycled Water Sales (FY 2000-2010)

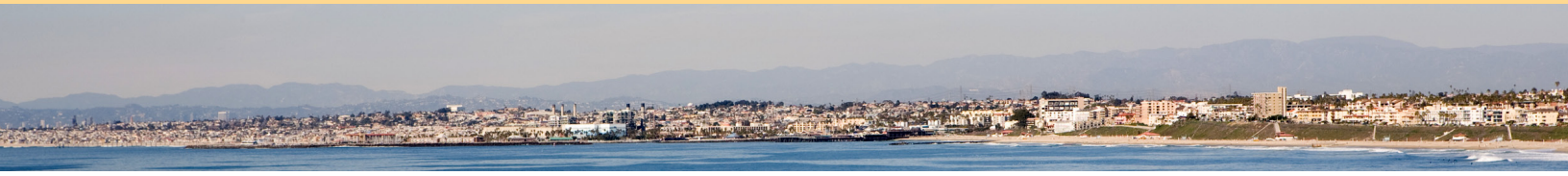


West Basin's recycled water system also services the Cities of Torrance and Los Angeles, which are located outside of West Basin boundaries. Therefore, although the total usage within West Basin's service area was 23,331 AF in 2009-2010, the total amount of recycled water delivered by West Basin was 30,384 AF

According to West Basin's 2005 UWMP, deliveries of recycled water within the service area were projected to reach over 39,000 by 2010. As shown in Table 9-2, actual sales in 2009/2010 fell significantly below this target. This was mainly due to setbacks in expanding the recycled water program in the southern portion of West Basin's service area which resulted in many large industrial customers not connecting to the system. In addition, water quality problems at Hyperion impacted deliveries to the West Coast Seawater Barrier significantly.

Table 9-2: Comparison of Recycled Water Use Projections

Type of Use	2005 Projection for 2010	2009/2010 Actual Use
Irrigation/Industrial	21,848	22,588
West Coast Barrier	17,500	7,797
Total	**39,348**	**30,384**



9.2.4 Projected System Expansions

In 2009, West Basin completed a Capital Implementation Master Program (CIMP). The CIMP includes all of the planned projects for recycled water and desalination through the year 2030. The major recycled water capital projects are explained in further detail below.

ECLWRF Phase V Expansion: With the completion of the ECLWRF Phase V Expansion in 2012, West Basin is looking toward increasing its ability to provide enough recycled water to meet 100 percent of the West Coast Seawater Barrier's needs. The Phase V Expansion Project will increase barrier water production at the ECLWRF by up to an additional 5 mgd and serve the El Segundo Energy Center with 0.5 mgd of single-pass RO water. The Phase V Expansion will also expand ECLWRF's tertiary treatment system by an additional 10 mgd.

Edward C Little Water Recycling Facility

Hyperion Secondary Effluent Pump Station Expansion: As West Basin's recycled water production continues to increase, the demand for Hyperion's effluent will eventually exceed the capacity of the Hyperion Secondary Effluent Pump Station. A pump station expansion would be able provide a capacity of up to 70 mgd for ECLWRF. West Basin is working closely with Los Angeles Department of Water & Power, the provider of electrical power to the pump station, to also construct a second electrical feeder to the pump station that will also increase the reliability of the pumping facilities.

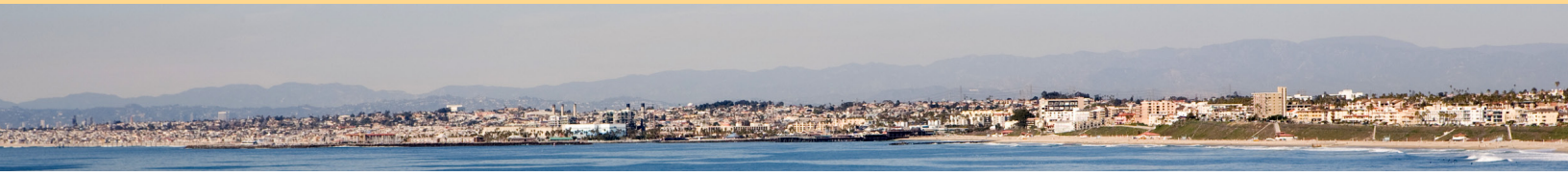
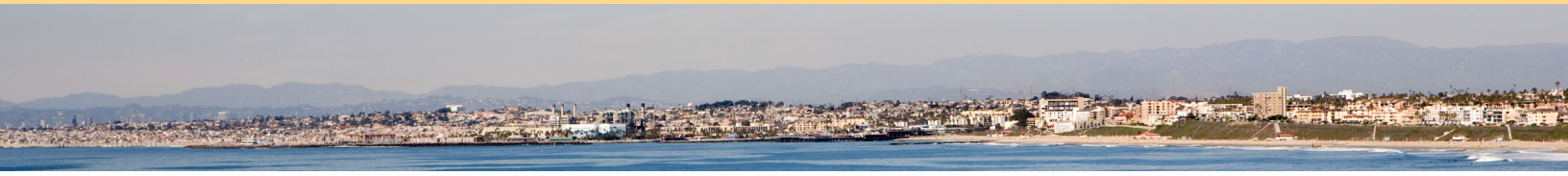


Table 9-3: West Basin Recycled Water Sales FY 2000-2010 (AFY)

West Basin	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	Total
California Water Service Co. Dominguez	3,297	3,165	3,101	3,639	3,616	3,665	3,610	4,690	5,293	4,959	39,035
California Water Service Co. Hawthorne	90	116	101	112	111	111	118	85	99	90	1,032
California Water Service Co. Hermosa/ Redondo	133	130	130	144	107	119	141	145	163	150	1,361
City of El Segundo	3,542	7,632	8,103	8,310	7,868	7,405	8,201	7,865	8,978	9,035	76,937
City of Inglewood	622	707	577	638	595	568	797	650	680	621	6,455
City of Manhattan Beach	272	307	254	301	274	249	316	288	251	264	2,777
Inglewood Unified School District	24	31	30	67	60	57	68	56	62	56	510
Golden State Water Company	237	282	315	432	435	429	523	552	410	360	3,975
M&I	8,216	12,371	12,610	13,643	13,064	12,604	13,774	14,330	15,936	15,535	132,082
WRD (Barrier)	6,753	7,290	6,754	3,935	3,799	4,383	9,104	11,129	7,652	7,797	68,596
Within Service Area	**14,969**	**19,660**	**19,364**	**17,578**	**16,863**	**16,987**	**22,878**	**25,459**	**23,588**	**23,331**	**200,677**
City of Torrance	91	117	144	196	186	253	285	311	277	272	2,134
City of Torrance - Mobil	6,558	7,212	7,328	6,385	6,735	6,156	5,774	6,078	5,599	6,173	63,998
LA DWP	357	398	277	394	283	257	313	360	444	608	3,692
Outside of Service Area	**7,006**	**7,727**	**7,750**	**6,975**	**7,205**	**6,666**	**6,372**	**6,750**	**6,320**	**7,053**	**69,823**
TOTAL	**21,974**	**27,387**	**27,113**	**24,552**	**24,067**	**23,652**	**29,250**	**32,208**	**29,908**	**30,384**	**270,500**



Harbor-South Bay Recycled Water Expansion Project: The Harbor-South Bay Recycled Water Expansion Project is a partnership between West Basin and the United States Army Corps of Engineers (USACE) to both expand West Basin's current recycled water distribution system as well as to provide an improvement in overall system reliability. This expansion will be able to bring additional recycled water supplies to the cities of Carson, Torrance, Palos Verdes, Gardena, and unincorporated areas of Los Angeles County.

Treatment/Conveyance Facility Repair, Replacement, and Improvements: Multiple improvements are under consideration for West Basin's treatment and conveyance system facilities. These improvements will enhance the safety, operability and efficiency of both the distribution system and treatment facilities. Some improvements will be made to comply with safety, water quality or other regulatory requirements or will be done to lower operating costs or improve equipment life.

Conveyance Facility Corrosion Protection Improvements: As a result of a study completed by West Basin, various cathodic protection improvements were identified that would ensure the integrity of West Basin's recycled water facilities. These improvements will be implemented periodically to ensure system integrity over the duration of the system's useful service life.

9.2.5 Projected Recycled Water Use

The 2009 CIMP identified and prioritized areas where recycled water has the potential to expand based upon potential future customers. Converting fabric and carpet dying industrial users to recycled water use are examples of significant opportunities for increased use.

The CIMP projects described in Section 9.2.4 are expected to result in at least an additional 40,900 AF of use within West Basin's service area by 2035. West Basin is also projecting to expand its export of recycled water within the City of Los Angeles' service area. Oil refineries within the harbor area of Los Angeles are proximal to West Basin's existing system and represent a large untapped potential for high-quality recycled water sales. West Basin will continue to pursue new cost-effective projects both within and outside its service area.

Recycled water use for irrigation - Raytheon, El Segundo, CA

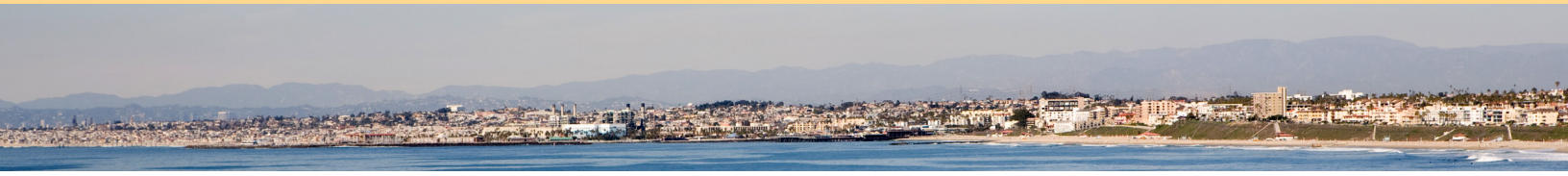


Table 9-4 illustrates the projected increase of recycled water over the next 25 years.

Table 9-4: Projected Recycled Water Use (AFY)

	2015	2020	2025	2030	2035
Industrial & Irrigation	16,368	33,882	33,882	37,382	37,382
Indirect Potable Reuse	16,980	16,980	16,980	20,480	20,480
Within Service Area	**33,348**	**50,862**	**50,862**	**57,862**	**57,862**
City Torrance	6,650	6,650	6,650	6,650	6,650
City of Los Angeles	10,700	10,700	10,700	10,700	10,700
Outside of Service Area	**17,350**	**17,350**	**17,350**	**17,350**	**17,350**
Total	**50,698**	**68,212**	**68,212**	**75,212**	**75,212**

9.2.6 Encouraging Recycled Water Use

West Basin generates interest in recycled water by contacting potential customers and cities with sites that are located near an existing main pipeline, have a high water use potential in which a line can be constructed, are mandated to use recycled water, and/or express interest. For commercial and industrial customers, West Basin emphasizes the benefit of recycled water as a tool for profitability for businesses that goes beyond the benefits of water conservation. West Basin markets recycled water as a resource that:

- Is less expensive than potable water;
- Is more reliable than imported water in a drought; and
- Is consistent with statewide goals for water supply and ecosystem improvement on both the State Water Project and Colorado River systems.

The target customer is expanding from traditional irrigation users such as golf courses and parks to unconventional commercial and industrial users. Through innovative marketing, recycled water is now being used by oil refineries and for cooling towers. In addition, West Basin is investigating recycled water use in fabric dye houses, co-generating plants, and commercial laundries.

In addition to West Basin wholesaling recycled water at a rate lower than potable water, other financial incentives are used to encourage recycled water use. Some potential recycled water customers do not have the financial capability to pay for the onsite plumbing retrofits necessary to accept recycled water. Therefore, West Basin advances funds for retrofit expenses, which can later be reimbursed through the water bills. Table 9-5 illustrates West Basin's coordinated effort with key stakeholders during the development of the CIMP.

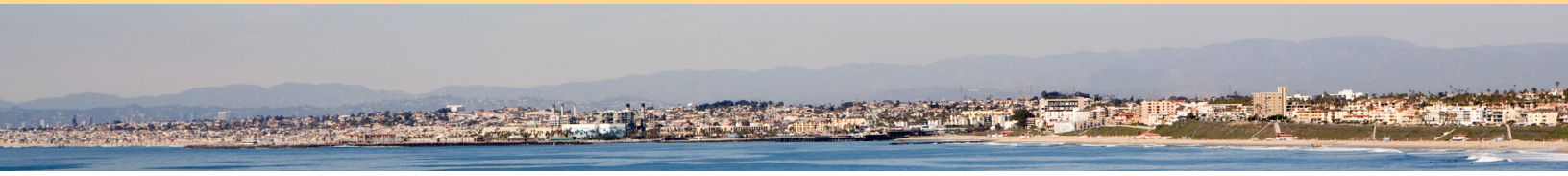


Table 9-5: CIMP Coordination

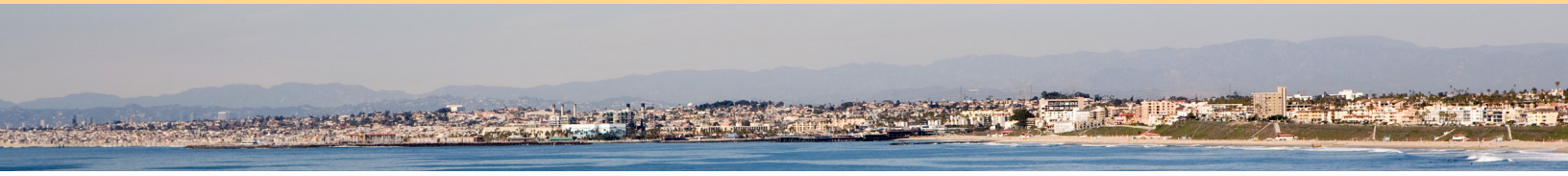
Participating Agencies	Role in Plan Development
Water Purveyors	Customer Development, Facilities, Impacts, Rates
Wastewater Agencies	Recycled Water Supply, Water Quality, Reliability
Groundwater Agencies	Rates and Customer Involvement
Planning Agencies	Economic Analysis, Rates, Data Assessment, Customer Assessment, Rates, Community Impacts, Customer Involvement, Conceptual Pipeline Routes, Cost Estimates

Funding

Capital costs for projects planned over the next five years have been budgeted to average approximately $30 million a year. These costs will be covered by the sources identified here and other sources as they become available.

MWD Local Resources Program Incentive: To qualify, proposed recycled water projects by member agencies must cost more than projected MWD treated non-interruptible water rates and reduce potable water needs. As a member agency of MWD, West Basin is eligible to receive an incentive for up to $250/AF of produced recycled water. It is competitive and requires an application and review process by MWD in coordination with West Basin staff.

Grant Funding: West Basin often applies for Federal and State grant funding for recycled water projects including through the USACE, which affords qualified programs 75 percent project funding. West Basin has utilized this funding arrangement for several of our previous water recycling projects.



This page intentionally blank

SECTION TEN

Desalination

2010

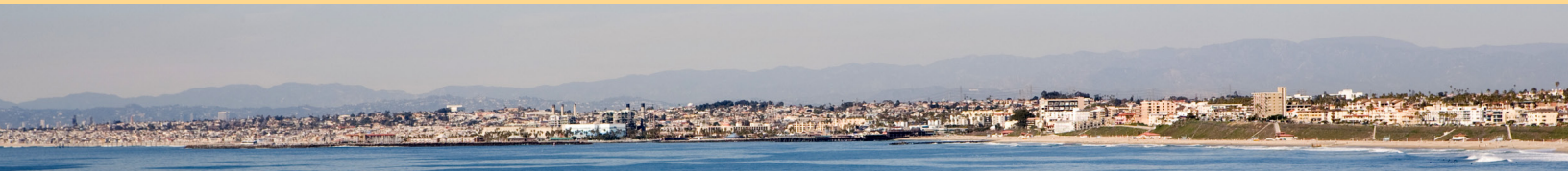
SECTION 10 Desalination

West Basin's experience in recycled water treatment includes substantial knowledge on methods used for the removal of salt from water supplies. This experience has proved useful to West Basin in pursuing both groundwater and ocean-water desalination programs to further develop local water supplies. Since 1993, West Basin has operated the C. Marvin Brewer Desalter Facility to treat brackish groundwater that remains on the inland side of the West Coast Seawater Barrier. In 2001 West Basin also began a multi-phase program to explore the systematic development of a full scale ocean-water desalination facility. This multi-phase approach has been based on deliberate scientific research and testing, beginning with a small pilot facility to test the basic treatment technology, and followed by West Basin's recently dedicated Ocean-Water Desalination Demonstration Facility and Water Education Center in order to evaluate and demonstrate ocean protection, energy recovery and cost reduction technologies. These facilities have been developed to ensure a full scale ocean water desalination facility will be done in a cost and energy efficient manner and with a goal to protect the ocean. Research results from the Demonstration Facility will be shared throughout the water industry worldwide via the web site.

10.1 Ocean Desalting Process

Desalination or desalting is the process of converting highly salty, or brackish, water into a drinkable supply. Today's ocean-water desalting process removes salt, minerals and impurities from ocean-water with cutting edge membrane technologies such as ultrafiltration or microfiltration and reverse osmosis. Using these methods, raw ocean-water first passes through an ultrafiltration or microfiltration membrane which has thousands of hollow strands with pores on the walls that are 5,000 times smaller than a pinhole. The water then continues on to reverse osmosis membranes for the final purification process. Reverse osmosis is a pressure driven process whereby water passes through the molecular structure of a thin membrane that filters out salts, minerals, and impurities. Figure 10-1 shows a diagram of the typical desalting process.

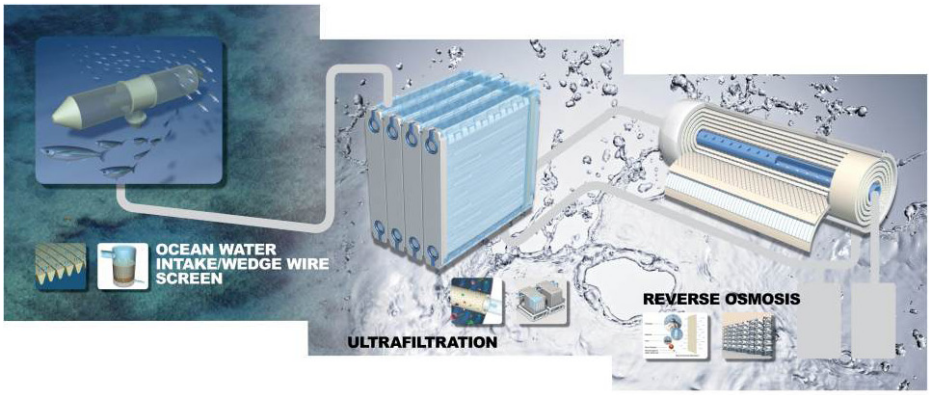
Traditionally, ocean-water desalination has been considered too expensive for a large-scale project, and for many years it was cost prohibitive compared to other sources of potable water in the West Basin service area. However, due to recent advancements in membrane technologies and energy recovery systems, and the increasing cost of existing sources of water, ocean-water desalination is now a financially viable new water source that is cost competitive with other sources of drinking water.



10.2 West Basin's Ocean-Water Desalination Pilot Project

In May 2002, West Basin initiated piloting efforts to desalinate ocean-water and evaluate the potential for developing a viable, new future drinking water supply for the region. This pilot project was located at the El Segundo Power Plant in the City of El Segundo and marked the first use of microfiltration pretreatment and reverse osmosis as a treatment process for ocean-water desalination. The pilot project was in operation for over seven years, and desalted approximately 20 gallons per minute (gpm) of raw ocean-water. The goal of the project was two-fold: 1) identify optimal performance conditions and 2) evaluate the water quality characteristics. The research findings are being shared among industry partners.

Figure 10-1: Desalting Process

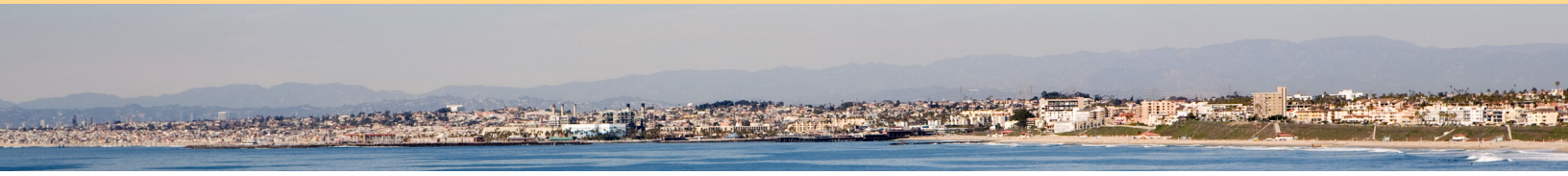


The process combination of microfiltration pretreatment and reverse osmosis treatment was to evaluate whether this process was effectively treating ocean-water and so West Basin performed extensive water quality research. Tens of thousands of water quality test results indicated that the treatment approach of utilizing microfiltration pretreatment and reverse osmosis treatment provides a reliable and consistent water quality that meets all State and Federal drinking water standards. The water produced at the pilot project consisted of approximately 300 parts per million (ppm) of total dissolved solids, lower than typical tap water in southern California. Figure 10-2 shows the microfiltration and reverse osmosis membranes used in the pilot demonstration project.

Figure 10-2: Treatment Technologies Used at West Basin's Pilot Plant

Example of Reverse Osmosis Units

Microfiltration Unit



West Basin's ocean-water desalination pilot project was designed to be a regional and national asset, and it was an open, collaborative effort that has benefited the entire water industry. To fund the $7 million combined cost of the pilot project, West Basin partnered with major agencies within and related to the water industry, including the American Water Works Association Research Foundation, California Avocado Commission, City of Tampa Bay, DWR, East Bay Municipal Utility District, Long Beach Water Department, Los Angeles Department of Water and Power, MWD, National Water Research Institute, San Diego County Water Authority, South Florida Water Management District, and United States Bureau of Reclamation.

10.3 Ocean-Water Desalination Demonstration Facility Projects

Following the pilot project, West Basin's next objective was to evaluate several critical components of the ocean-water desalination process through a small full-scale desalination demonstration project. In early 2009, West Basin received all necessary permits to proceed with the construction of the West Basin Ocean-Water Desalination Demonstration Facility and Water Education Center. West Basin used the data acquired from the pilot project in the planning and development of the demonstration facility that is co-located at the SEA Lab Marine Educational Facility in Redondo Beach, California.

The Demonstration Facility draws in 500,000 gallons of seawater a day to perform various research and testing activities. Of the total intake volume, 100,000 gal/day is treated to produce 50,000 gal/day of drinking water (although the product water meets all drinking water standards, by permit the District is required to re-combine the water and return it to the ocean). This demonstration will develop a basis of design for a future full-scale desalination plant by accomplishing the following goals:

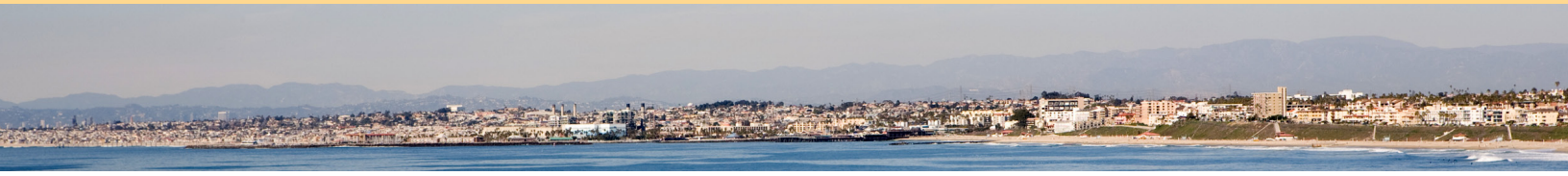
- Evaluating environmentally safe intake and concentrate discharge technologies and impacts
- Optimizing operation and maintenance procedures using full-scale elements
- Optimizing performance of energy recovery devices
- Analyzing water quality (as a continuation of the pilot plant testing)
- Providing opportunities for public and stakeholder education

Figure 10-3 shows the construction of the Demonstration Facility and Water Education Center within the facility.

10.4 Future Ocean-Water Desalination Projects

10.4.1 Ocean-Water Desalination Full-Scale Facility

This Ocean-Water Desalination Demonstration Facility will test the viability of a future, full-scale Ocean-Water Desalination Facility capable of providing up to 20,000 AFY, or enough to supply 40,000 families for a year. Pending the findings from the



demonstration facility and the environmental review process, West Basin anticipates permitting, financing, and constructing a full-scale facility by 2017. West Basin will perform a Desalination Program Master Plan in 2011 that will evaluate potential siting opportunities within West Basin's service area that could accommodate a full-scale facility. Potable water produced by the future ocean-water desalination facility will be supplied to local and/or regional drinking water distribution systems.

Figure 10-3: West Basin's New Desalination Demonstration Facility

Construction of Demonstration Facility

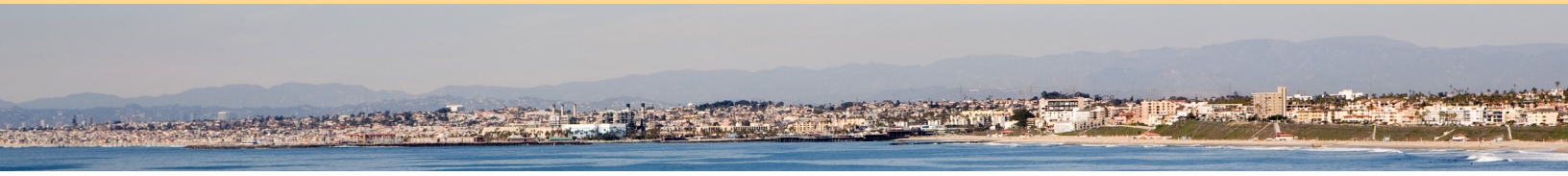
Water Education Center

Water Education Center

Water Education Center

Table 10-1: Opportunities for Desalinated Water

Sources of Water	Yield AFY	Start Date	Type of Use
Ocean Water	20,000	June 2017	Potable



10.5 Brewer Desalter Treatment Facility

West Basin owns the C. Marvin Brewer Desalter Facility which began operating in July 1993. The Desalter was built on a site owned by California Water Service Company (CWSC) in the City of Torrance where it removes chloride from groundwater impacted by seawater intrusion in the WCGB. The Desalter was initially conceived as a five-year pilot program to see if brackish water could be economically treated to drinking water standards.

The Desalter originally used two wells to pump brackish water from a saline plume remaining within the WCGB. It treats the water using cartridge filters and reverse osmosis, and the treated water is then blended with other potable water. CWSC stores the treated water blend on-site in a 5-million gallon storage reservoir, and ultimately delivers it to consumers through their distribution system. Under the terms of an agreement with CWSC, West Basin reimburses CWSC to operate and maintain the Desalter.

In 2005, enhancements were made to the Desalter program that replaced the two wells with a new, more productive well. This well has the capability to pump 1,600 to 2,400 AFY of brackish groundwater to be treated at the Desalter.

Figure 10-4: Brewer Desalter Facility Equipment

Brewer Extraction Well Site

Brewer Desalter RO Treatment

F WATER CONSERVATION ORDINANCE: ORDINANCE NO. 1433

ORDINANCE NO. 1433

AN ORDINANCE ADDING A NEW CHAPTER 10-5 TO THE EL SEGUNDO MUNICIPAL CODE ("ESMC") ESTABLISHING WATER CONSERVATION MEASURES IN ACCORDANCE WITH WATER CODE § 375 AND AMENDING ESMC §§ 1-2A-1, 1-2A-2, AND 1-2A-3 TO ENFORCE ESMC CHAPTER 10-5 WITH ADMINISTRATIVE CITATIONS.

The City Council of the City of El Segundo does ordain as follows:

SECTION 1: The City Council finds as follows:

A. Protecting, conserving, and managing water supplies is an issue of municipal concern. Contamination, drought, or damage to the City's potable water infrastructure can lead to a water emergency.

B. The City receives all of its water from the West Basin Municipal Water District ("WBMWD") and Metropolitan Water District of Southern California ("MWD"; collectively, "Districts").

C. It is in the public interest for the City to enact regulations for distribution and use of potable water including, without limitation, water conservation programs to encourage efficient water use and discourage waste.

SECTION 2: El Segundo Municipal Code ("ESMC") §§ 1-2A-1, 1-2A-2, and 1-2A-3 are amended to read as follows:

"1-2A-1: Purpose.

This chapter is adopted pursuant to the city's police powers and Government Code § 53069.4 for the purpose of making any violations of El Segundo Municipal Code §§ 5-4-1 to 5-4-13 (entitled "*Storm Water and Urban Runoff Pollution Control*") and §§ 10-5-1 to 10-5-23 (entitled "*Water Conservation*") subject to an administrative fine and to set forth the procedures for the imposition and collection of such fines.

1-2A-2: Applicability.

This chapter provides for administrative citations that are in addition to all other legal remedies, criminal or civil, which the city may pursue to address violations of the Storm Water Code and Water Conservation Code. The use of this chapter is at the sole discretion of the code enforcement officer.

1-2A-3: Definitions:

Unless the contrary is stated or clearly appears from the context, the following definitions govern the construction of the words and phrases used in this chapter:

* * *

"Water Conservation Code" means §§ 10-5-1 to 10-5-24 of the El Segundo Municipal Code and any federal, state, or local regulation enforced by and through the Water Conservation Code including, without limitation, pertinent provisions of Titles 13 and 15 of this Code."

SECTION 3: A new Chapter 10-5, entitled *Water Conservation*, is added to the ESMC to read as follows:

"**CHAPTER 10-5**

WATER CONSERVATION

10-5-1: Purpose.

This Chapter is adopted pursuant to Water Code § 375 for the purpose of establishing water conservation requirements and implementing contingency measures in the event of water shortages.

10-5-2: Definitions.

Unless the contrary is stated or clearly appears from the context, the following definitions govern the construction of the words and phrases used in this Chapter.

"Impervious surface" means a constructed or modified surface that cannot effectively percolate water. The terms includes, without limitation, sidewalks, driveways, gutters, and roads.

"Person" means a natural or corporate person who receives potable water service from the City.

"Programmed" means a weather-based or senor-based irrigation controller that was programmed in accordance with manufacturer's instructions and site-specific conditions.

"Responsible person" means the person responsible for daily operations of each residential or commercial premises located within the City's jurisdiction including, without limitation, the property owner.

"Sensor-based irrigation controller" means an irrigation controller that operates based upon input received from any combination of sensors such as rain, light, and soil moisture, installed within or around an irrigated landscape area.

"Weather-based irrigation controller" means an irrigation controller that operates based on evapotranspiration rates and historic or real-time weather data.

10-5-3: Water Conservation Program.

All water customers are required to adopt and put into use at the earliest possible date drought water conservation programs.

10-5-4: Repair of Plumbing, Sprinkler and Irrigation System.

Responsible persons must, as soon as practicable, but not later than forty-eight (48) hours after such person first discovers water leaks, commence repair of any leaking pipes, faucets, plumbing fixtures, other water service appliances, sprinklers, watering or irrigation systems, or distribution systems and promptly complete such repair work, unless a waiver is obtained from the City.

10-5-5: Watering/Irrigation.

Except as otherwise provided by this Section, it is unlawful for any person to water their lawn or landscaping or permit their lawn or landscaping to be

watered between the hours of nine (9:00) AM and five (5:00) PM. It is unlawful for any person to water their lawn or landscaping or permit their lawn or landscaping to be watered for a period longer than fifteen (15) minutes per station each day. Notwithstanding these prohibitions, the following is permitted:

A. Persons may operate an irrigation system between 9:00 AM and 5:00 PM for the purpose of installing, repairing or routine maintenance of the same;

B. Persons may water between the hours of 9:00 AM and 5:00 PM using any of the following methods:

1. Properly programmed weather-based and/or sensor-based irrigation controllers;

2. Drip irrigation;

3. By hand, using a bucket; or

4. By hand, using a hose with an automatic shutoff nozzle.

10-5-6: Miscellaneous Restrictions. The following are unlawful for any person:

A. Allowing grass, lawns, groundcover, shrubbery, and open ground to be watered at any time while it is raining.

B. Operating landscape irrigation system(s) that allow overspray or excess runoff onto impervious surfaces (such as sidewalks, driveways, v-ditches, gutters and roadways).

C. To use a water hose to wash any vehicle including, without limitation, cars, trucks, boats, trailers, recreational vehicles, or campers, or any other aircraft, tractor, or any other vehicle, or any portion thereof, unless the hose is equipped with an automatic shutoff nozzle. Except for individual residential vehicle washing, all wash water from vehicle washing/cleaning activity must be prevented from discharging to the stormwater drainage system.

10-5-7: Commercial Car Washes.

A. It is unlawful for commercial car wash facilities to permit the washing of any boat or vehicle in such facility or on its premises, other than by the following methods:

1. Use of mechanical automatic car wash facilities utilizing water recycling equipment or utilizing recycled water;

2. Use of a hose that operates on a timer for limited time periods and shuts off automatically at the expiration of the time period;

3. Use of a hose equipped with an automatic shutoff nozzle; or

4. Use of bucket and hand washing.

B. All wash/rinse water must be captured and recycled or discharged into the sanitary sewer system.

C. All new commercial conveyor car wash facilities must be equipped with a water recycling system.

10-5-8: Washing of Equipment and Machinery.

It is unlawful for any person to use a water hose to wash any type of equipment or machinery, or any portion thereof, unless the hose is equipped with an automatic shutoff nozzle. All wash water from such washing/cleaning activity must be prevented from discharging to the stormwater drainage system.

10-5-9: Cleaning of Structures.

It is unlawful for any person to use water through a hose to clean the exterior of any building or structure unless such hose is equipped with a shutoff nozzle. All wash water from such activity must be prevented from discharging to the stormwater drainage system.

10-5-10: Cleaning of Surfaces.

It is unlawful for any person to use water through a hose to clean any sidewalk, driveway, roadway, parking lot, or any other outdoor paved or hard surfaced area, unless all wash water from such activity is prevented from discharging to the stormwater drainage system.

10-5-11: Water Spillage.

Every person must minimize water spillage into streets, curbs, or gutters and minimize runoff beyond the immediate area of use. Every person is deemed to have under his/her control at all times his/her water distribution lines and facilities, and to know the manner and extent of his/her water use and excess runoff.

10-5-12: Swimming Pools and Spas.

It is unlawful for any person to empty and refill a swimming pool or spa except to prevent or repair structural damage or to comply with public health regulations. Discharge of pool water, other than directly to the sanitary sewer system, must be consistent with this Code with regard to stormwater. Discharge of pool filter backwash water to the stormwater drainage system is prohibited. All pools and spas must be equipped with a water recirculation device. The use of a pool/spa cover is encouraged to prevent evaporative water loss.

10-5-13: Fountains, Decorative Basins, Ponds, Waterways.

It is unlawful for any person to use water to operate or maintain levels in decorative fountains, basins, ponds, and waterways unless a recirculation device is in use. Discharge of water, other than directly to the sanitary sewer system, must be consistent with this Code with regard to stormwater. Discharge of filter backwash water to the stormwater drainage system is prohibited.

10-5-14: Cooling Systems.

No single pass cooling systems are permitted in new connections.

10-5-15: Commercial Laundry Facilities.

New commercial laundry facilities must be equipped with a water reclamation system for rinse water.

10-5-16: Visitor-Serving Facilities.

The owner and manager of each hotel, motel, restaurant, and other visitor-serving facility must ensure that such facility displays, in places visible to all customers, placards or decals approved by the City, promoting public awareness of the need for water conservation and/or advising the public that waste of water is prohibited.

10-5-17: Restaurants.

Restaurants in the City cannot serve water to restaurant customers, except upon request of the customer.

10-5-18: Construction.

A. It is unlawful to use potable water for compacting or dust control purposes in construction activities where there is a reasonably available source of recycled or other non-potable water approved by the California State Department of Health Services and appropriate for such use.

B. All water hoses used in connection with any construction activities must be equipped with an automatic shutoff nozzle when an automatic shutoff nozzle can be purchased or otherwise obtained for the size or type of hose in use.

10-5-19: Use of Hydrants.

It is unlawful for any person to utilize any fire hydrant for any purpose other than fire suppression or emergency aid, without first obtaining written approval from the City Manager, or designee.

10-5-20: Indiscriminate Use.

It is unlawful for any person to cause or permit the indiscriminate running of water not otherwise prohibited by this chapter which is wasteful and without reasonable purpose.

10-5-21: Public Health and Safety.

These regulations cannot be construed to limit water use which is immediately necessary to protect public health or safety.

10-5-22: Water shortage contingency measures.

The City Council by resolution is authorized to require or impose reductions in the use of water if such reductions are necessary in order for the City to comply with water use restrictions imposed by federal, state or regional water agencies or to respond to emergency water shortage conditions. Depending on the expected duration and severity of the shortage, these measures may include, without limitation, the following:

A. Prohibit the filling or emptying and refilling of swimming pools, excluding normal maintenance of water levels due to evaporation.

B. Prohibit the use of a temporary fire hydrant meter from the City, or otherwise using water through a temporary City water service.

C. Require all major water users to reduce their usage by the percentage determined by the City Manager, or designee, to be necessary to sustain adequate water supply for the City. Such percentage must be based both on the rate of supply to the City and the rate of current water demand.

D. Impose an additional water surcharge above and beyond the existing City water rates on all City residents, water users and water consumers who fail or refuse to abide by the requirements, restrictions and priorities

adopted by the City in response to the emergency water shortage condition.

E. Suspend all sales and deliveries of City water, or use of City water, for construction or grading purposes.

F. Reduce or prohibit consumption or use of City water by residential, recreational, commercial, industrial and institutional water users for landscape irrigation purposes.

G. Initiate or implement additional or innovative actions to increase the supply of water available to the City and to conserve the City's existing water supply.

10-5-23: Relief from compliance.

The City Manager, or designee, may grant written waivers to persons who apply on forms supplied by the City for:

A. Prohibited uses of water if it is found that a waiver is necessary to prevent an emergency condition relating to health and safety, and if the person seeking a waiver demonstrates that he or she implemented water conservation measures in some other manner that achieves the objectives of this Chapter. No waiver can be granted for the filling of any decorative fountain, basin, pond, hot tub, spa or permanent swimming or wading pool, unless the filling occurs as the result of performing necessary leak repairs and unless the other provisions of this Section are met.

B. No waiver can be granted unless the person demonstrates that he or she has already achieved the maximum practical reduction in water consumption as can be achieved by the affected property or business. Any waiver granted must be based upon the water consumption rates of similar water users, properties or businesses.

10-5-24: Enforcement.

At least one written warning must be provided to persons upon the first violation of this Chapter. Second and subsequent violations may be enforced in accordance with applicable law including, without limitation, this Code. It is the code enforcement officer's responsibility to enforce this Chapter"

SECTION 4: CALIFORNIA ENVIRONMENTAL QUALITY ACT EXEMPTION. This ordinance is exempt from review under the California Environmental Quality Act

(California Public Resources Code §§ 21000, *et seq.*, "CEQA") and CEQA regulations (14 California Code of Regulations §§ 15000, *et seq.*) because it establishes rules and procedures to permit operation of existing facilities; minor temporary use of land; ensure maintenance, restoration and protection of the environment; and regulate normal operations of facilities for public gatherings. This Ordinance, therefore, is categorically exempt from further CEQA review under Cal. Code Regs. Title 14, §§ 15301, 15304(e), 15308, and 15323.

SECTION 5: PUBLIC NOTIFICATION. The City Manager, or designee, is directed to provide public notification regarding the regulations set forth in this ordinance through any reasonable means including, without limitation, newspaper publications, flyers contained within the City's utility bills, and advertising on the City's PEG cable channel.

SECTION 6: SAVINGS CLAUSE. Repeal of any provision of the SPMC or any other regulation by this Ordinance does not affect any penalty, forfeiture, or liability incurred before, or preclude prosecution and imposition of penalties for any violation occurring before, this Ordinance's effective date. Any such repealed part will remain in full force and effect for sustaining action or prosecuting violations occurring before the effective date of this Ordinance.

SECTION 7: SEVERABILITY. If any part of this Ordinance or its application is deemed invalid by a court of competent jurisdiction, the city council intends that such invalidity will not affect the effectiveness of the remaining provisions or applications and, to this end, the provisions of this Ordinance are severable.

SECTION 8: VALIDITY OF PREVIOUS CODE SECTIONS. If this the entire Ordinance or its application is deemed invalid by a court of competent jurisdiction, any repeal of the SPMC or other regulation by this Ordinance will be rendered void and cause such SPMC provision or other regulation to remain in full force and effect for all purposes.

SECTION 9: The City Clerk is directed to certify the passage and adoption of this Ordinance; cause it to be entered into the City of El Segundo's book of original ordinances; make a note of the passage and adoption in the records of this meeting; and, within fifteen (15) days after the passage and adoption of this Ordinance, cause it to be published or posted in accordance with California law.

SECTION 10: This Ordinance will take effect on January 1, 2010.

PASSED AND ADOPTED this 3rd day of November 2009.

Kelly McDowell, Mayor

ATTEST:

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) SS
CITY OF EL SEGUNDO)

I, Cindy Mortesen, City Clerk of the City of El Segundo, California, do hereby certify that the whole number of members of the City Council of said City is five; that the foregoing Ordinance No. 1433 was duly introduced by said City Council at a regular meeting held on the 6 day of OCT. 2009, and was duly passed and adopted by said City Council, approved and signed by the Mayor, and attested to by the City Clerk, all at a regular meeting of said Council held on the 3 day of NOV. 2009, and the same was so passed and adopted by the following vote:

AYES: **McDowell, Busch, Brann, Fisher, Jacobson**

NOES: **None**

ABSENT: **None**

ABSTAIN: **None**

Cindy Mortesen, City Clerk

APPROVED AS TO FORM:
Mark D. Hensley, City Attorney

By: _____
Karl H. Berger, Assistant City Attorney

G WATER SHORTAGE CONTINGENCY PLAN

DRAFT

RESOLUTION NO.

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF EL SEGUNDO FINDING THE NECESSITY FOR AND ADOPTING A WATER SHORTAGE CONTINGENCY PLAN IN CONFORMANCE WITH THE GUIDELINES ESTABLISHED BY THE CALIFORNIA STATE DEPARTMENT OF WATER RESOURCES

BE IT RESOLVED by the City Council of the City of El Segundo as follows:

SECTION 1. Declaration of Policy. California Water Code Sections 375 et seq. permit public entities which supply water at retail to adopt and enforce a water conservation program to reduce the quantity of water used by the people therein for the purpose of conserving the water supplies of such public entity. The City Council of the City of El Segundo hereby establishes a draft comprehensive water conservation program pursuant to California Water Code Sode.375 et seq., based upon the need to conserve water supplies and to avoid or minimize the effects of any future shortage.

SECTION 2. Findings. The City Council of the City of El Segundo finds and determines that a water shortage could exist based upon the occurrence of one or more of the following conditions:

(A) A general water supply shortage due to increased demand or limited supplies.

(B) Distribution of storage facilities of Metropolitan Water District of Southern California or other agencies become inadequate.

(C) A major failure of the supply, storage and distribution facilities of the Metropolitan Water District of Southern California or of the City of El Segundo occurs.

The City Council of the City of El Segundo also finds and determines that the conditions prevailing in the State and in the Los Angeles County area require that the water resources available be put to maximum beneficial use to the extent to which they are capable, and that the waste or unreasonable use, or unreasonable method of use, of water be prevented and that the conservation of such water encouraged with a view to the maximum reasonable and beneficial use thereof in the interest of the people of the City of El Segundo and for the public welfare.

SECTION 3. Priority Uses of Water. In order to promote water conservation, the objective of the different levels of water management is to curtail low priority uses of water. Low priority uses of water are generally described as all uses other than drinking, cooking, bathing, sanitation, fire suppression, or for medicinal or health related uses requiring water, such as dialysis machines.

SECTION 4. Water Conservation Stages. Exhibit “A” of this Resolution details the water conservation stages.

SECTION 5. Mandatory Compliance. Exhibit "A" of this Resolution details the mandatory prohibitions and the stages in which they are enacted.

SECTION 6. Penalties. Exhibit "A" of this Resolution details the penalties and enforcement actions that the City of El Segundo may enforce during various stages of water shortage.

SECTION 7. Notification. The City of El Segundo shall notify all customers of the water shortage conservation level adopted by the City Council, and recommended and mandated practices adopted by the City.

SECTION 8. Appeal Process. The City Council shall, by Resolution, establish an appeal process that affords customers the opportunity to contest findings, correct errors, and alleviate unusual and extraordinary circumstances.

SECTION 9. Effective Date. This Resolution is enacted as an emergency measure and shall become effective on the date of adoption of the City Council.

SECTION 10. Severability. If any section, sub-section, clause or phrase in this Water Conservation Resolution or the application thereof to any person or circumstances is for any reason held invalid, the validity of the remainder of the Conservation Resolution or the application of such provisions to other persons or circumstances shall not be affected.

SECTION 11. California Environmental Quality Act. The provisions of this Resolution are exempt from the provisions of the California Environmental Quality Act as an action to mitigate emergency conditions and as a rate setting measure pursuant to Public Resources Code Sections 21080(b)(4) and 21080(b)(8), respectively; and in following with the exemption filed by the Metropolitan Water District of Southern California on January 8, 1991, as lead agency for the establishment of water delivery conservation programs for water delivered to the West Basin Municipal Water District.

PASSED AND ADOPTED this ___ day of _____, 2006.

_____
Kelly McDowell, Mayor

ATTEST:

_____
Cindy Mortesen, City Clerk

APPROVED AS TO FORM:
Mark D. Hensley, City Attorney

By: _____
Karl H. Berger, Assistant City Attorney

EXHIBIT "A"
TO
RESOLUTION NO.

DRAFT WATER SHORTAGE CONTINGENCY PLAN
(CHAPTER 8 OF THE 2005 URBAN WATER MANAGEMENT PLAN)

Chapter 8.0: Water Shortage Contingency Plan

8.1 Stages of Action

With population growth, energy shortages, earthquakes, and the threat of terrorism experienced by California; maintaining the gentle balance between water supply and demand is a complicated task that requires planning and forethought. In the event that a water shortage occurs, simple measures can be implemented to conserve the water supply at a public level. Below, stages are discussed during which various conservation measures will be imposed by the City of El Segundo, beginning with voluntary conservation and leading to various stages of mandatory compliance in the event that the water supply experiences shortages of up to a 50 percent reduction in the water supply. Implementation of the stages detailed below will occur on an emergency basis. This 2005 Urban Water Management Plan, specifically Chapter 8, will be enacted if the need arises and serves as the functioning Water Shortage Contingency Plan for the City of El Segundo. Appendix J details the Draft Resolution for adopting the water shortage contingency plan.

Table 8.1 – 1: Water Supply Shortage Stages and Conditions

Stage Number	Water Supply Conditions	Targeted Percent Shortage
Stage 1: **Voluntary Compliance – Water Watch**	Applies during periods when the possibility exists that the City of El Segundo will not be able to meet all of the demands of its customers.	0% to 15%
Stage 2: **Mandatory Compliance – Water Alert**	Applies during periods when the probability exists that the City of El Segundo will not be able to meet all of the water demands of its customers.	15% to 25%
Stage 3: **Mandatory Compliance – Water Warning**	Applies during periods when the City of El Segundo will not be able to meet all the water demands of its customers.	25% to 35%
Stage 4: **Mandatory Compliance – Water Emergency**	Applies when a major failure of any supply or distribution facility, whether temporary or permanent, occurs in the water distribution system of the State Water Project, Metropolitan Water District of Southern California, West Basin Municipal Water District, or El Segundo facilities.	35% to 50%

8.2 Minimum Supply for the Next Three Years

In order to prepare for and prevent water supply shortage, it is useful to estimate the future minimum supply. The minimum water supply available to the City of El Segundo for the next three years is estimated based upon the driest three year historic sequence and is compared to a normal three year estimate. El Segundo purchases water solely from West Basin Municipal Water District (WBMWD), and therefore, is directly dependent on the reliability of supplies from WBMWD.

WBMWD has chosen the sequence of FY 2001-2002, FY 2002-2003, and FY 2003-2004 as its multiple dry-year scenario, and hence, this sequence was used in the calculation of the three year minimum supply for the City of El Segundo. WBMWD's potable water supplier, Metropolitan, has indicated in its 2005 Regional Urban Water Management Plan that it plans to be able to provide 100% reliability for the supply demanded by its member agencies through 2025. This assurance of available supply from Metropolitan allows supply reliability projections to be based on projected demand.

Table 8.2 – 1: Three Year Estimated Minimum Water Supply (AFY)

Source	Normal Year			Multiple–Dry Year		
	2006	2007	2008	2006	2007	2008
WBMWD Potable Water	8,658	8,665	8,672	9,104	9,120	9,136
WBMWD Recycled Water	8,100	8,100	8,100	8,100	8,100	8,100

8.3 Catastrophic Supply Interruption Plan

As a California jurisdiction, the City of El Segundo could experience a catastrophic interruption in the water supply as a result of a regional power outage, earthquake, terrorism, or other event. A successful recovery plan is dependent upon an in depth understanding of the vulnerability of each source of supply, delivery system, and distribution system to potential catastrophes. Possible catastrophes are listed in Table 8.3 – 1: Preparation Actions for a Catastrophic Event and preparation actions being taken to reduce the severity of each event are discussed below.

Table 8.3 – 1: Preparation Actions for a Catastrophic Event

Possible Catastrophe	Check if Discussed
Regional Power Outage	√
Earthquake	√
Terrorism	√

8.3.1 Regional Power Outage

Currently, the City of El Segundo Water Division does not have generators. If a regional power outage were to occur, then the two electric pumps would become disabled. However, El Segundo has a natural gas pump, which has a greater pumping capacity than both electric pumps combined. The electric pumps operate at a maximum rate of 2000 gallons per minute (GPM), while the natural gas pump operates at 5000 GPM. If a major earthquake or other catastrophic incident caused a regional power outage and a natural gas line break, but the water distribution lines were still intact, the City of El Segundo would be able to provide water to its customers and its emergency interties (i.e. LADWP, City of Manhattan Beach, and California Water Service Company). Water Division operations personnel can change valve positions and directly operate the water system from Metropolitan Water District of Southern California's (Metropolitan) water pressure. The City of El Segundo is adequately prepared in the event of a regional power outage. Additionally, the City of El Segundo Water Division is planning on purchasing a generator during 2006-2007 to increase their preparedness for a regional power outage.

8.3.2 Earthquake

As previously discussed, if seismic activity caused power outage and natural gas line breaks, the City of El Segundo can adequately provide water to its customers. In regards to structural stability during an earthquake, the elevated tank was seismically retrofitted approximately 10 years ago. These retrofits included installing larger cross braces and more anchors on the footings of the tank. The 3 MG reservoir underwent a seismic evaluation in 2005 and was deemed stable, and the 6 MG reservoir has not undergone evaluation. In a worse case scenario and the reservoirs did rupture, then the valves could be aligned to service the community using Metropolitan water pressure.

8.3.3 Terrorism

Per the requirements of the Bioterrorism Act of 2002, El Segundo completed a Security Vulnerability Assessment (SVA) to identify and propose mitigation solutions to prevent deliberately induced events. The planning scenarios included contamination, bomb threats, security breaches, and vandalism, all of which were analyzed in detail and documented in a confidential report.

The SVA precipitated security enhancements recommendations that El Segundo is currently implementing. A new Supervisory Control and Data Acquisition (SCADA) Telemetry System is being installed in 2006 to provide better control and surveillance of the Water Division facilities, and some of the reservoirs have been equipped with hardened locks to inhibit adversaries. Furthermore, the City of El Segundo is still incorporating some of the following recommendations:

- Perimeter Fencing/Barrier Improvements,
- Application of Tamper-Resistant Equipment & Perimeter Locks,
- Lighting Improvements (Motion-Activated),
- Landscaping Improvements/Maintenance,

- Intrusion & Motion Detection Systems,
- Installation of Security Gratings & Screens,
- Signage Improvements,
- Administrative Improvements (Security Awareness Training, Employee Screening & Background Checks, Security Passwords for Computers & Alarms, Visitor Control, Mail Inspection), and
- Application of Proprietary Bolts.

8.4 Prohibitions and Consumption Reduction Methods

8.4.1 Water Shortage Planning

As part of the implementation of the regional Integrated Resources Planning (IRP), Metropolitan has developed a Water Surplus and Drought Management (WSDM) Plan for Southern California. This plan directs Metropolitan's resource operations to help attain the region's 100% reliability goal. The WSDM Plan was updated in 2004 to account for changes impacting supplies from the Colorado River and California's Bay–Delta. In the past, Metropolitan has developed drought management plans that simply addressed shortage actions and primarily focused on issues of short–term conservation and allocation of imported water. The WSDM Plan recognizes the interdependence of reliability. The overall goal of the WSDM Plan is to ensure that shortage allocation of Metropolitan's imported water supplies is not required.

The City of El Segundo has also prepared a list of water conservation measures that shall apply at each stage of local water shortage, which are summarized in Tables 8.4 – 1 and 8.4 – 2.

8.4.2 Mandatory Prohibitions

Exemption(s): The prohibited uses of water are not applicable to the use of water necessary for public health and safety, or for essential governmental services, such as police, fire, and other similar emergency services.

Table 8.4. – 1: Mandatory Prohibitions

Prohibition	Stage When Prohibition Becomes Mandatory
1. Using Potable Water for Street Washing	Stage 2
2. Serving Water at Restaurants	Stage 2
3. Operating Ornamental Fountains	Stage 2
4. Issuing New Meters	Stage 3
5. Washing Vehicles	Stage 3

Table 8.4. – 1: Mandatory Prohibitions	
Prohibition	**Stage When Prohibition Becomes Mandatory**
6. Watering Lawns and Landscape	Stage 2, 3, 4
7. Using Water For Agriculture and Nurseries	Stage 2, 3, 4
8. Filling Artificial Water Sources	Stage 4
9. Using Air Conditioning	Stage 4

1. Using Potable Water for Street Washing

Water shall not be used to wash down sidewalks, driveways, parking areas, tennis courts, patios, or other paved areas, except to alleviate immediate fire or sanitation hazards.

2. Serving Water at Restaurants

No operator or owner of a restaurant, hotel, cafe, cafeteria, or other public place where food is sold, served, or offered for sale, shall serve or allow to be served drinking water to any customer except when specifically requested.

3. Operating Ornamental Fountains

No person shall use water to clean, fill, or maintain levels in decorative fountains, ponds, lakes, or other similar aesthetic structures unless such water is part of a recycling system or from a storm drain system.

4. Issuing New Meters

New construction meters or permits for unmetered service will not be issued. Construction water shall not be used for earth work or road construction purposes.

5. Washing Vehicles

No person shall wash any motor vehicle, trailer, boat, or other type of mobile equipment, except with a hand-held bucket or a hose equipped with a positive shutoff nozzle for quick rinses.

Stage 3 Exemption(s): Washing is permitted at any time on the immediate premises of a commercial car wash. The use of water by all types of commercial car washes not using partially reclaimed or recycled water shall be reduced in volume by 20%. Further, such washing are exempted from these regulations where health, safety, and welfare of the public is contingent upon frequent vehicle cleaning, such as garbage trucks and vehicles used to transport food and perishables.

Stage 4 Exemption(s): Washing is permitted at any time on the immediate premises of a commercial car wash. The use of water by all types of commercial car washes not using partially reclaimed or recycled water shall be reduced in volume by 50%. Further, such washing are exempted from these

regulations where health, safety, and welfare of the public is contingent upon frequent vehicle cleaning, such as garbage trucks and vehicles used to transport food and perishables.

6. Watering Lawns and Landscape

These restrictions do not apply to commercial nurseries, golf courses, and other water-dependent industries.

Stage 2: No person shall water any lawn, landscape, or other turf area between the following hours: 7:00 AM – 6:00 PM during PDT and 7:00 AM to 3:00 PM during PST.

Stage 3: No person shall water any residential lawn, landscaping, and other turf areas at any time except by hand-carried bucket.

Stage 4: Residential landscaping shall be restricted to water only permanent trees and shrubs with a hand carried bucket or drip irrigation system once during a seven day period during the months of June, July, August, and September, and prohibited during the hours of 7:00 AM to 6:00 PM. Residential landscape irrigation shall be restricted to watering only permanent trees and shrubs with a hand carried bucket or drip irrigation system once during a fourteen day period during the months of October, November, December, January, February, March, April, and May, and prohibited during the hours of 7:00 AM to 3:00 PM.

7. Using Water for Agriculture and Nurseries

Exemption(s): Watering of plant materials classified to be rare, exceptionally valuable, or essential to the well being of rare animals is exempt.

Stage 2: No operator or owner of a commercial nursery, golf course, or other water-dependent industry shall water any lawn, landscaping, or other turf area between the hours of 6:00 AM and 6:00 PM. There shall be no restriction on watering with reclaimed water.

Stage 3: Irrigation of commercial nurseries, golf courses, or other water-dependent industries shall be restricted to no more than twice during a seven day period. The irrigation shall be prohibited during the hours of 6:00 AM to 6:00 PM. There shall be no restriction on watering with reclaimed water.

Stage 4: Irrigation of commercial nurseries, golf courses, or other water-dependent industries shall be restricted to once during a seven day period and prohibited during the hours of 6:00 AM to 6:00 PM. There shall be no restriction on watering with reclaimed water.

8. Filling Artificial Water Sources

Filling or refilling swimming pools, spas, ponds, and artificial lakes is prohibited.

9. Using Air Conditioning

No water shall be used for air conditioning purposes.

8.4.3 Consumption Reduction Methods

Table 8.4-2: Consumption Reduction Methods		
Consumption Reduction Methods	**Stage When Method Takes Effect**	**Projected Reduction (%)**
1. Emergency Water Conservation Allocation	Stage 2, 3, 4	Dependent on Water Shortage Stage*
2. Conservation Pricing	Stage 2	
3. Prohibitions	Stage 2	

*Section 8.1 details the percent reduction for each Water Shortage Stage.

1. Emergency Water Conservation Allocation

During advanced stages of water shortage, the City of El Segundo places mandatory allocation constraints requiring a percent consumption reduction. Individual allotments are based on a "basic use" as administratively determined by the City Manager. Exceptions are made for residential customers with 5/8", 3/4", or 1" meters which are not required to use less than a set daily equivalent per two month billing period. Reductions for each phase are outlined below:

Stage 2: 20 percent reduction from the set allocation **OR** no more than the daily equivalent of 24 hundred cubic feet (hcf) per two month billing period*,

Stage 3: 30 percent reduction from the set allocation **OR** no more than the daily equivalent of 21 hcf per two month billing period*,

Stage 4: 50 percent reduction from the set allocation **OR** no more than the daily equivalent of 15 hcf per two month billing period*.

** This exception applies only to residential customers with 5/8", 3/4" or 1" meters.*

2. Conservation Pricing

During rationing situations, customers who exceed their Emergency Water Conservation Allocation may have a surcharge for excess usage imposed upon their regular water bill as described in Section 8.5.1.

3. Prohibitions

The prohibitions detailed in Section 8.4.2 are implemented on a mandatory basis as described in that section.

8.5 Penalties

For violations pertaining to the emergency water conservation allocation described in Section 8.4.3, a surcharge upon the customer's regular water bill shall be imposed in an amount equivalent to the unit rate charged to El Segundo by the West Basin Municipal Water District for excess water purchased.

The proposed penalties for violation of any of the provisions outlined in Section 8.4.2 will be reviewed and enacted during a water shortage if required by the Metropolitan Water District of Southern California or the California Department of Water Resources. These proposed penalties are summarized in Table 8.5-1 and detailed below.

Table 8.5 – 1: Penalties and Charges for Violations of Prohibitions

Penalties	**Stage When Penalty Takes Effect**
Written Notice	1st Failure to Comply
Flow Restricting Device Installed	2nd Failure to Comply
Discontinued Water Services	3rd Failure to Comply
Charges	**Stage When Penalty Takes Effect**
$35.00 Charge	2nd Failure to Comply
$70.00 Charge	3rd Failure to Comply

8.5.1 Prior to Enforcement

Prior to enforcement, any person who is suspected of violating this Water Shortage Contingency Plan shall be given a written notice, with a description of the violation. Such person shall have 24 hours to correct the violation.

8.5.2 First Failure to Comply

For the first failure to comply, the City of El Segundo will issue the customer a written notice that a first violation of any water shortage stage has occurred.

8.5.3 Second Failure to Comply

For the second failure to comply, the City of El Segundo will install, for a period no less than 48 hours and until the customer satisfies to the City of El Segundo that failure to comply will not continue, a flow-restricting device in the customer's water service line. The charge for installing and removing the flow-restricting device will be $35.00 and will be paid by the customer prior to removal.

8.5.4 Third or Subsequent Failure to Comply

For the third or subsequent failure to comply; the City of El Segundo will discontinue water service for a period of no less than 24 hours and until the customer satisfies to El Segundo that failure to comply will not continue. The customer will pay $70.00 for restoration of water service.

8.6 Revenue Impact Analysis

In the event that a decrease in water supply occurs for an extended period of time, El Segundo could face a potential loss requiring El Segundo to draw from any reserves and also re–examine the revenue stream in order to balance the budget. El Segundo could experience increased costs (expenditures) from West Basin Municipal Water District due to the water supply shortages, but decreased customer usage (revenues) due to the conservation methods in effect. It is thus important to consider possible measures to overcome revenue and expenditure impacts.

8.6.1 Measures to Overcome Revenue Impacts

Table 8.6 – 1: Proposed Measures to Overcome Revenue Impacts	
Names of Measures	**Check if Discussed**
1. Rate Adjustment	√

1. Rate Adjustment

Should the City of El Segundo experience a significant decrease in water supplies for an extended period of time, the City Council would consider a water rate increase or water fee surcharge to cover any revenue shortfall due to water shortages or conservation measures.

8.6.2 Measures to Overcome Expenditure Impacts

Table 8.6-2: Proposed Measures to Overcome Expenditure Impacts	
Names of Measures	**Check if Discussed**
1. Tiered Water Rate Structure	√

1. Tiered Water Rate Structure

El Segundo continually maintains a tiered water rate structure for both potable and recycled water use. By this system, consumers rates increase with increased water consumption. This measure increases revenues in times of increased demand, which may be used to investigate alternative sources of supply.

8.7 Reduction Monitoring Procedure

As part of the mandatory conservation phase implementation, El Segundo will monitor the projected supply and demand for water by its customers on a daily basis. The City Manager shall determine the extent of the conservation required through the implementation and/or termination of particular

conservation stages in order for El Segundo to prudently plan for and supply water to its customers. Thereafter, the City Manager may order that the appropriate stage of water conservation be implemented or terminated in accordance with the applicable provision of this Water Shortage Contingency Plan.

Table 8.7-1: Water Use Monitoring Mechanisms	
Mechanisms for Determining Actual Reductions	**Type of Data Expected**
1. Water Supply Report	Monthly Water Production/Use Trends, Gallons Produced Per Day
2. Water Usage Records	Identification of individual customers with exceptionally high water usage.

1. Water Supply Report

Under normal water supply conditions, potable water production figures are recorded daily. Totals are reported monthly to the Water Distribution Supervisor and Finance Department and incorporated into the water supply report. This report is forwarded to the West Basin Municipal Water District, and with such data, it is possible to develop trends for monthly water production and use.

2. Water Usage Records

El Segundo maintains water use records on each individual customer account. Exceptionally high usage is identified at the time the meter is read. These accounts are investigated for potential water loss or abuse.

COMPLETED DWR CHECKLIST

CITY OF EL SEGUNDO

Urban Water Management Plan Checklist, Organized by Subject

No.	UWMP Requirement [a]	California Water Code Reference	Additional Clarification	UWMP Location
	PLAN PREPARATION			
4	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	10620(d)(2)		Chapter 1, Section 1.4 - Coordination
6	Notify, at least 60 days prior to the public hearing on the plan required by Section 10642, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. Any city or county receiving the notice may be consulted and provide comments.	10621(b)		Chapter 1, Section 1.4 - Coordination
7	Provide supporting documentation that the UWMP or any amendments to, or changes in, have been adopted as described in Section 10640 et seq.	10621(c)		Chapter 1, Section 1.5 - Plan Adoption, Submittal, and Implementation
54	Provide supporting documentation that the urban water management plan has been or will be provided to any city or county within which it provides water, no later than 60 days after the submission of this urban water management plan.	10635(b)		Chapter 1, Section 1.5 - Plan Adoption, Submittal, and Implementation
55	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	10642		Chapter 1, Section 1.4 - Coordination

No.	UWMP Requirement [a]	California Water Code Reference	Additional Clarification	UWMP Location
56	Provide supporting documentation that the urban water supplier made the plan available for public inspection and held a public hearing about the plan. For public agencies, the hearing notice is to be provided pursuant to Section 6066 of the Government Code. The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water. Privately-owned water suppliers shall provide an equivalent notice within its service area.	10642		Chapter 1, Section 1.4 - Coordination
57	Provide supporting documentation that the plan has been adopted as prepared or modified.	10642		Chapter 1, Section 1.5 - Plan Adoption, Submittal, and Implementation Appendix B
58	Provide supporting documentation as to how the water supplier plans to implement its plan.	10643		Chapter 1, Section 1.5 - Plan Adoption, Submittal, and Implementation
59	Provide supporting documentation that, in addition to submittal to DWR, the urban water supplier has submitted this UWMP to the California State Library and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. This also includes amendments or changes.	10644(a)		Chapter 1, Section 1.5 - Plan Adoption, Submittal, and Implementation
60	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the urban water supplier has or will make the plan available for public review during normal business hours	10645		Chapter 1, Section 1.5 - Plan Adoption, Submittal, and Implementation
	SYSTEM DESCRIPTION			
8	Describe the water supplier service area.	10631(a)		Chapter 2, Section 2.1 - Service Area Physical Description
9	Describe the climate and other demographic factors of the service area of the supplier	10631(a)		Chapter 2, Section 2.2 - Service Area Climate

No.	UWMP Requirement [a]	California Water Code Reference	Additional Clarification	UWMP Location
10	Indicate the current population of the service area	10631(a)	Provide the most recent population data possible. Use the method described in "Baseline Daily Per Capita Water Use." See Section M.	Chapter 2, Section 2.3 - Service Area Population
11	Provide population projections for 2015, 2020, 2025, and 2030, based on data from State, regional, or local service area population projections.	10631(a)	2035 and 2040 can also be provided to support consistency with Water Supply Assessments and Written Verification of Water Supply documents.	Chapter 2, Section 2.3 - Service Area Population
12	Describe other demographic factors affecting the supplier's water management planning.	10631(a)		Chapter 2, Section 2.4 - Other Demographic Factors
	SYSTEM DEMANDS			
1	Provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	10608.20(e)		Chapter 3, Section 3.1 - Water Conservation Bill of 2009 Baselines and Targets
2	*Wholesalers:* Include an assessment of present and proposed future measures, programs, and policies to help achieve the water use reductions. *Retailers:* Conduct at least one public hearing that includes general discussion of the urban retail water supplier's implementation plan for complying with the Water Conservation Bill of 2009.	10608.36 10608.26(a)	Retailers and wholesalers have slightly different requirements	Chapter 3, Section 3.4 - Water Use Reduction Plan
3	Report progress in meeting urban water use targets using the standardized form.	10608.40		Chapter 3, Section 3.1 - Water Conservation Bill of 2009 Baselines and Targets

No.	UWMP Requirement [a]	California Water Code Reference	Additional Clarification	UWMP Location
25	Quantify past, current, and projected water use, identifying the uses among water use sectors, for the following: (A) single-family residential, (B) multifamily, (C) commercial, (D) industrial, (E) institutional and governmental, (F) landscape, (G) sales to other agencies, (H) saline water intrusion barriers, groundwater recharge, conjunctive use, and (I) agriculture.	10631(e)(1)	Consider 'past' to be 2005, present to be 2010, and projected to be 2015, 2020, 2025, and 2030. Provide numbers for each category for each of these years.	Chapter 3, Section 3.2 - Water Demands
33	Provide documentation that either the retail agency provided the wholesale agency with water use projections for at least 20 years, if the UWMP agency is a retail agency, OR, if a wholesale agency, it provided its urban retail customers with future planned and existing water source available to it from the wholesale agency during the required water-year types	10631(k)	Average year, single dry year, multiple dry years for 2015, 2020, 2025, and 2030.	Chapter 3, Section 3.3 - Water Demand Projections
34	Include projected water use for single-family and multifamily residential housing needed for lower income households, as identified in the housing element of any city, county, or city and county in the service area of the supplier.	10631.1(a)		Chapter 3, Section 3.2.6 - Lower Income Housing Projections
	SYSTEM SUPPLIES			
13	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, and 2030.	10631(b)	The 'existing' water sources should be for the same year as the "current population" in line 10. 2035 and 2040 can also be provided.	Chapter 4, Section 4.1 - Water Sources
14	Indicate whether groundwater is an existing or planned source of water available to the supplier. If yes, then complete 15 through 21 of the UWMP Checklist. If no, then indicate "not applicable" in lines 15 through 21 under the UWMP location column.	10631(b)	Source classifications are: surface water, groundwater, recycled water, storm water, desalinated sea water, desalinated brackish groundwater, and other.	Chapter 4, Section 4.2 - Groundwater

No.	UWMP Requirement [a]	California Water Code Reference	Additional Clarification	UWMP Location
15	Indicate whether a groundwater management plan been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	10631(b)(1)		N/A
16	Describe the groundwater basin.	10631(b)(2)		Chapter 4, Section 4.2 - Groundwater
17	Indicate whether the groundwater basin is adjudicated? Include a copy of the court order or decree.	10631(b)(2)		Chapter 4, Section 4.2 – Groundwater
18	Describe the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. If the basin is not adjudicated, indicate “not applicable” in the UWMP location column.	10631(b)(2)		Chapter 4, Section 4.2 – Groundwater
19	For groundwater basins that are not adjudicated, provide information as to whether DWR has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition. If the basin is adjudicated, indicate “not applicable” in the UWMP location column.	10631(b)(2)		N/A
20	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	10631(b)(3)		Chapter 4, Section 4.2 - Groundwater
21	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	10631(b)(4)	Provide projections for 2015, 2020, 2025, and 2030.	Chapter 4, Section 4.2 - Groundwater
24	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	10631(d)		Chapter 4, Section 4.3 - Transfer Opportunities

No.	UWMP Requirement [a]	California Water Code Reference	Additional Clarification	UWMP Location
30	Include a detailed description of all water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years, excluding demand management programs addressed in (f)(1). Include specific projects, describe water supply impacts, and provide a timeline for each project.	10631(h)		Chapter 4, Section 4.6 - Future Water Projects
31	Describe desalinated water project opportunities for long-term supply, including, but not limited to, ocean water, brackish water, and groundwater.	10631(i)		Chapter 4, Section 4.4 - Desalinated Water Opportunities
44	Provide information on recycled water and its potential for use as a water source in the service area of the urban water supplier. Coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	10633		Chapter 4, Section 4.5 - Recycled Water Opportunities
45	Describe the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	10633(a)		Chapter 4, Section 4.5 - Recycled Water Opportunities
46	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	10633(b)		Chapter 4, Section 4.5 - Recycled Water Opportunities
47	Describe the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.	10633(c)		Chapter 4, Section 4.5 - Recycled Water Opportunities
48	Describe and quantify the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.	10633(d)		Chapter 4, Section 4.5 - Recycled Water Opportunities
49	The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	10633(e)		Chapter 4, Section 4.5 - Recycled Water Opportunities

No.	UWMP Requirement [a]	California Water Code Reference	Additional Clarification	UWMP Location
50	Describe the actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.	10633(f)		Chapter 4, Section 4.5 - Recycled Water Opportunities
51	Provide a plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.	10633(g)		Chapter 4, Section 4.5 - Recycled Water Opportunities
WATER SHORTAGE RELIABILITY AND WATER SHORTAGE CONTINGENCY PLANNING [b]				
5	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	10620(f)		Chapter 5, Section 5.1 - Water Supply Reliability
22	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage and provide data for (A) an average water year, (B) a single dry water year, and (C) multiple dry water years.	10631(c)(1)		Chapter 5, Section 5.4 - Drought Planning
23	For any water source that may not be available at a consistent level of use - given specific legal, environmental, water quality, or climatic factors - describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.	10631(c)(2)		Chapter 5, Section 5.1 - Water Supply Reliability
35	Provide an urban water shortage contingency analysis that specifies stages of action, including up to a 50-percent water supply reduction, and an outline of specific water supply conditions at each stage	10632(a)		Chapter 5, Section 5.4 - Drought Planning
36	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.	10632(b)		Chapter 5, Section 5.4 - Drought Planning
37	Identify actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.	10632(c)		Chapter 5, Section 5.2 - Water Shortage Contingency Planning

No.	UWMP Requirement [a]	California Water Code Reference	Additional Clarification	UWMP Location
38	Identify additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.	10632(d)		Chapter 5, Section 5.2 - Water Shortage Contingency Planning
39	Specify consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.	10632(e)		Chapter 5, Section 5.2 - Water Shortage Contingency Planning
40	Indicated penalties or charges for excessive use, where applicable.	10632(f)		Chapter 5, Section 5.2 - Water Shortage Contingency Planning
41	Provide an analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.	10632(g)		Chapter 5, Section 5.2 - Water Shortage Contingency Planning
42	Provide a draft water shortage contingency resolution or ordinance.	10632(h)		Chapter 5, Section 5.2 - Water Shortage Contingency Planning Appendix F
43	Indicate a mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.	10632(i)		Chapter 5, Section 5.4 - Drought Planning Appendix G
52	Provide information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments, and the manner in which water quality affects water management strategies and supply reliability	10634	For years 2010, 2015, 2020, 2025, and 2030	Chapter 5, Section 5.3 - Water Quality

No.	UWMP Requirement [a]	California Water Code Reference	Additional Clarification	UWMP Location
53	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. Base the assessment on the information compiled under Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.	10635(a)		Chapter 5, Section 5.4 - Drought Planning
	DEMAND MANAGEMENT MEASURES			
26	Describe how each water demand management measures is being implemented or scheduled for implementation. Use the list provided.	10631(f)(1)	Discuss each DMM, even if it is not currently or planned for implementation. Provide any appropriate schedules.	Chapter 6, Section 6.1 - Demand Management Measurement Implementation
27	Describe the methods the supplier uses to evaluate the effectiveness of DMMs implemented or described in the UWMP.	10631(f)(3)		Chapter 6
28	Provide an estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the ability to further reduce demand.	10631(f)(4)		Chapter 6
29	Evaluate each water demand management measure that is not currently being implemented or scheduled for implementation. The evaluation should include economic and non-economic factors, cost-benefit analysis, available funding, and the water suppliers' legal authority to implement the work.	10631(g)	See 10631(g) for additional wording.	N/A
32	Include the annual reports submitted to meet the Section 6.2 requirements, if a member of the CUWCC and signer of the December 10, 2008 MOU.	10631(j)	Signers of the MOU that submit the annual reports are deemed compliant with Items 28 and 29.	N/A

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

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