2010

City of Santa Monica
Urban Water Management Plan

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2010

URBAN WATER MANAGEMENT PLAN

City of Santa Monica

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SECTION 1: INTRODUCTION

1.1 PURPOSE AND SUMMARY

This is the Urban Water Management Plan (2010 UWMP) for the City of Santa Monica (City). This plan has been prepared in compliance with the Urban Water Management Planning Act (Act), which has been codified at California Water Code sections 10610 through 10657 and can be found in Appendix B to this 2010 Plan.

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

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, in accordance with prescribed requirements, an urban water management plan." These plans must be filed with the California Department of Water Resources (DWR) every five years describing and evaluating reasonable and practical efficient water uses, reclamation, and conservation activities. (*See generally* Wat. Code § 10631.)

The Act has been amended on several occasions since its initial passage in 1983. New requirements of the Act due to SBx7-7 state that per capita water use within an urban water supplier's service area must decrease by 20% by the year 2020 in order to receive grants or loans administered by DWR or other state agencies. The legislation sets an overall goal of reducing per capita urban water use by 20% by December 31, 2020. The state shall make incremental progress towards this goal by reducing per capita water use by at least 10% by December 31, 2015. Each urban retail water supplier shall develop water use targets and an interim water use target by July 1, 2011. Effective 2016, urban retail water suppliers who do not meet the water conservation requirements established by this bill are not eligible for state water grants or loans. An urban retail water supplier shall include in its water management plan the baseline daily per capita water use, interim water use target, and compliance daily per capita water use. DWR, 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. These new requirements are included in **Section 4: Water Demands.**

As part of the City's past and current sustainability goals, the City is currently implementing all facets of this plan to be 100% sustainable (import-free) by 2020.

1.2 COORDINATION

In preparing this 2010 Plan, the City has encouraged broad community participation.

Copies of the City's draft plan were made available for public review at City Hall and the local public libraries in the City. The City noticed a public hearing to review and accept comments on the draft plan more than two weeks in advance of the hearing. The notice of the public hearing was published in the local press and mailed to the City Clerk. On June 28, 2011, the City held a noticed public hearing to review and accept comments on the draft plan. Notice of the public hearing was published in the local press. Following the consideration of public comments received at the public hearing, the City adopted the 2010 Plan on July 12, 2011. A copy of the City Council resolution approving the 2010 Plan is included in **Appendix D**.

As required by the Act, the 2010 Plan is being provided by the City to the California Department of Water Resources, the California State Library, and the public within 30 days of the City's adoption.

Table 1.1
Coordination and Public Involvement

	Participated In Plan Preparation	Contacted for Assistance	Commented on Draft	Notified of Public Hearing	Attended Public Hearing
City Water Resources Division	x	x	x	x	x
City Public Works Dept		x	x	x	x
City Manager's Office				x	x
Santa Monica City Council				x	x
The Metropolitan Water District of Southern California		x		x	x
CA Dept of Water Resources				x	
LADWP				x	
LA County Waterworks				x	
LACSD				x	
Interested General Public			x	x	x

1.3 FORMAT OF THE PLAN

The chapters in this 2010 Plan correspond to the items presented in the Act and are as follows:

Section 1 - Introduction

This chapter describes the UWMP Act, the City's planning and coordination process, the history of the City's water supply system, a description of its existing service area, the local climate, population served and the City's water distribution system.

Section 2 - Water Sources & Supplies

This chapter describes the City's water supplies, including imported water purchased from the Metropolitan Water District of Southern California (MWD), local groundwater extracted from the Santa Monica Basin, and recycled dry weather urban runoff produced at the Santa Monica Urban Runoff Recycling Facility (SMURRF). This chapter discusses potential future water supplies

Section 3 – Water Quality

This chapter discusses water quality issues with the City's imported and groundwater sources and water quality effects on management and supply reliability.

Section 4 – Water Demand

This chapter describes past, current and projected water usage within the City's service area prior to the implementation of future demand management measures.

Section 5 – Reliability Planning

This chapter presents an assessment of the reliability of the City's water supplies by comparing projected water demands with expected water supplies under three different hydrologic conditions: a normal year; a single dry year; and multiple dry years. This 2010 Plan concludes that if projected imported and local supplies are developed as anticipated, no water shortages are anticipated in the City's service area during the planning period.

Section 6 – Demand Management

This chapter addresses the City's compliance as a member of the California Urban Water Conservation Council (CUWCC) with the current Best Management Practices (BMPs). The BMPs correspond to the 14 Demand Management Measures (DMMs) listed in the UWMP Act and are described in this section.

Section 7 – Water Shortage Contingency Plan

This chapter describes the City's current conservation activities, as well as those efforts that will be utilized in the event of a water supply interruption, such as drought. The City's water shortage contingency plan was developed in consultation and coordination with other MWD member agencies. In addition, MWD's Water Surplus and Drought Management Plan (WSDM) is also described.

Appendices

The appendices contain references and specific documents that contain the data used to prepare this 2010 Plan.

1.4 WATER SYSTEM HISTORY

Santa Monica was founded in 1875 on the site of a land grant by Don Francisco Sepulveda and occupies 8.3 square miles (5,312 acres). The City of Santa Monica started primarily as a seaside resort and gradually became integrated into the Los Angeles Metropolitan Area as development in the Los Angeles Basin grew. During the first half of the twentieth century, Santa Monica's population (along with most of California) grew at a tremendous pace, averaging over a 120% increase in growth.

Figure 1.1: City of Santa Monica

To meet the needs of the expanding population, the City of Los Angeles constructed aqueducts to bring water from the Owens Valley to supply the needs of Los Angeles. Much of the western Los Angeles area was unincorporated around the early

part of the twentieth century, which prompted the City of Los Angeles to offer a reliable water supply as an incentive for annexation to the City of Los Angeles. For many areas, this was a welcomed opportunity. However, the City desired to remain independent and purchased several existing small water purveyors, such as the Arcadia Water Company and the Venice Water Company, to create its own water supply and administrative agency.

Due to continued development, the City of Santa Monica along with 12 other local governments formed the Metropolitan Water District (MWD) in 1928. MWD was originally created to build the Colorado River Aqueduct to supplement the water supplies of the original founding members. In 1972, MWD augmented its supply sources to include deliveries from the State Water Project via the California Aqueduct. Today, the MWD serves more than 145 cities and 94 unincorporated communities.

Figure 1.2: City of Santa Monica

The City of Santa Monica continues to purchase MWD water, to supplement its water supply. From 1960 to 1980, Santa Monica's population growth slowed dramatically, with the City experiencing a small decline in population from 1980 to 1990. This slow growth rate was largely due to Santa Monica's limited size and the limited availability of land to be developed.

1.5 CITY WATER SERVICE AREA

Santa Monica is an urban coastal community, bordered by the Pacific Ocean on the West and the City of Los Angeles on the North, East, and South. The City's water service area consists entirely of the City of Santa Monica with limited service in the City of Los Angeles. Land use is principally composed of single and multi-family residences, a centralized business and commercial district, and some institutional and industrial areas as shown in **Figure 1.4**. Since the area is mostly under built-out conditions, changes in land use types will result from re-development of existing lots.

1.6 CLIMATE

The City has a Mediterranean climate with moderate, dry summers with an average temperature of about 70°F and cool, wet winters with an average temperature of 52°F. The average rainfall for the region is approximately 14 inches.

Table 1.2
Climate Characteristics
(WorldClimate.com)

Month	Rainfall (in)	ETo (in)
Jan	3.1	1.9
Feb	2.9	2.2
Mar	2.2	3.4
Apr	0.9	4.8
May	0.1	5.6
Jun	0.0	6.3
Jul	0.0	6.5
Aug	0.1	6.2
Sep	0.2	4.8
Oct	0.3	3.7
Nov	1.3	2.4
Dec	2.2	1.9
Totals:	**13.5**	**49.7**

Overall, the City receives slightly more rainfall than other cities in the Los Angeles area (about 1 inch greater).

1.7 POPULATION

According to the most recent census figures, the current 2010 resident population of the City is approximately 91,000 persons. Since the City serves only 25 customers in the City of Los Angeles, the total service area population essentially equals that of the City. Thus, the total current resident population served by the City's water system is approximately 91,000 persons. Population is expected to expand very modestly with an annual growth rate of less than 1.0% annually over the next 25 years as shown in **Table 1.3** below.

Table 1.3
Population Projections
(MWD 2010 IRP Update)

Year	Estimated Population
2015	91,243
2020	91,487
2025	91,716
2030	91,926
2035	92,124

Since Santa Monica is a major commercial center for the region, the City has estimated daytime populations of up to 200,000 due in large part to the number of businesses and attractions located in the City.

1.8 WATER SYSTEM

Imported Water

The City's imported water supply is delivered through two 24-inch connections to MWD. MWD provides the City and the region with imported water via its Santa Monica, Sepulveda, and Culver City Feeder Systems. The City's connections with MWD are designated as SM-1 and SM-2. SM-1 is located at the Arcadia Water Treatment Facility and SM-2 is located at the Charnock Well Field; both in West Los Angeles. **Table 1.4** lists the capacities of the City's imported connections:

Table 1.4
Imported Connections with MWD

Description	Capacity (cfs)
SM-1	30
SM-2	25

Groundwater

The City receives groundwater from ten groundwater wells that pump water from the Santa Monica Basin. The City's wells are located in the Charnock, Arcadia, and Olympic Subbasins. The City's wells range in capacity from 1,100 gpm to 3,500 gpm as listed in **Section 2** (see **Table 2.3)**.

Recycled Dry Weather Urban Runoff

The City receives dry weather urban runoff from its Pico-Kenter and Pier storm drains and treats it at its Santa Monica Urban Runoff Recycling Facility (SMURRF). The SMURRF has a capacity of 0.75 MGD and provides water treated at Title 22 levels to various commercial and landscape customers in the City.

Distribution System

The City distributes its water to its 17,000 service customers through a 250 mile network of distribution mains with pipelines sizes ranging from 6 to 36 inches. The water system consists of three pressure zones that provide sufficient water pressure to customers. The water service area and districting map are shown in **Figures 1.3** and **1.4** on the following pages.

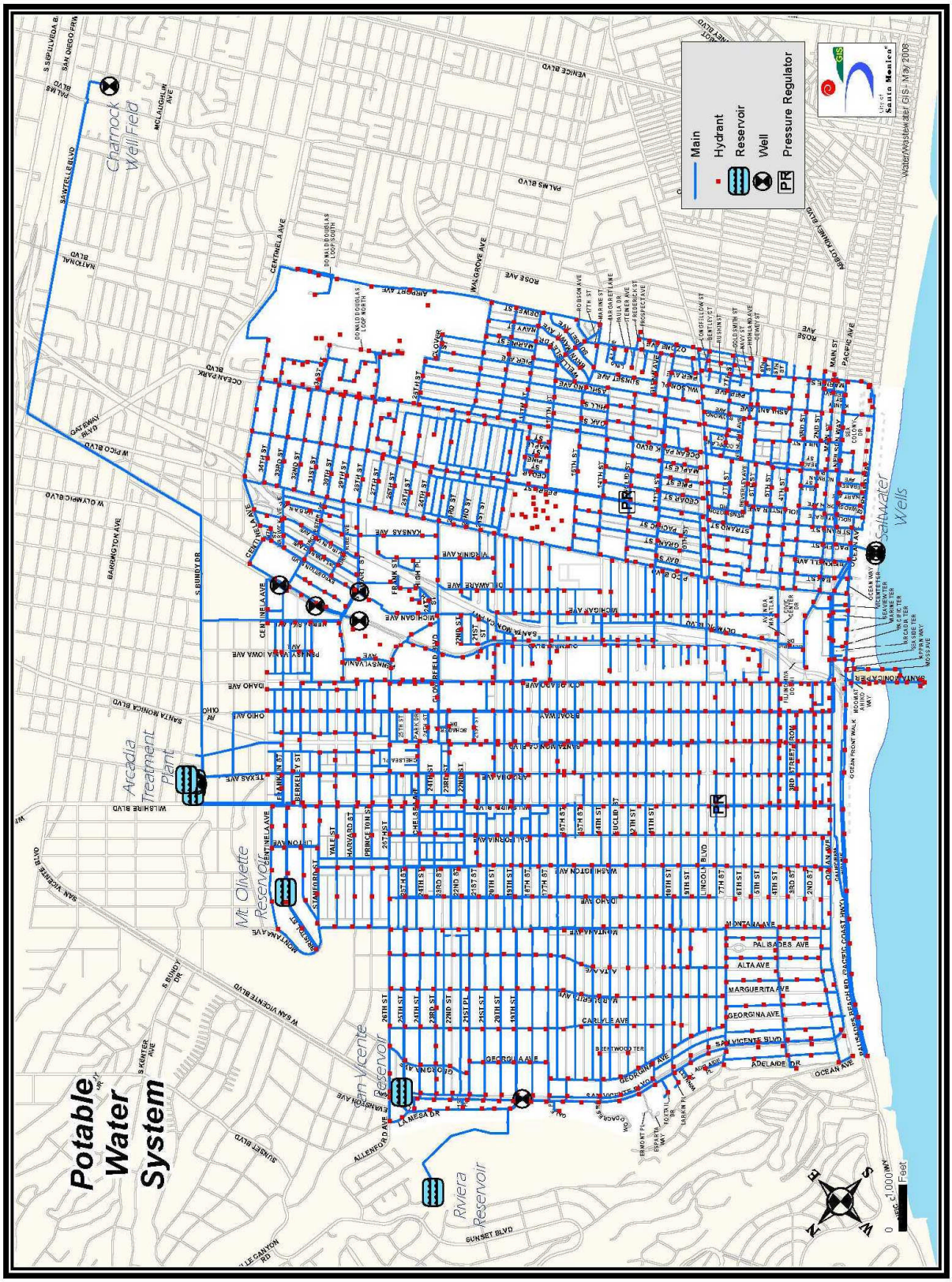

Figure 1.3: City of Santa Monica Water Map

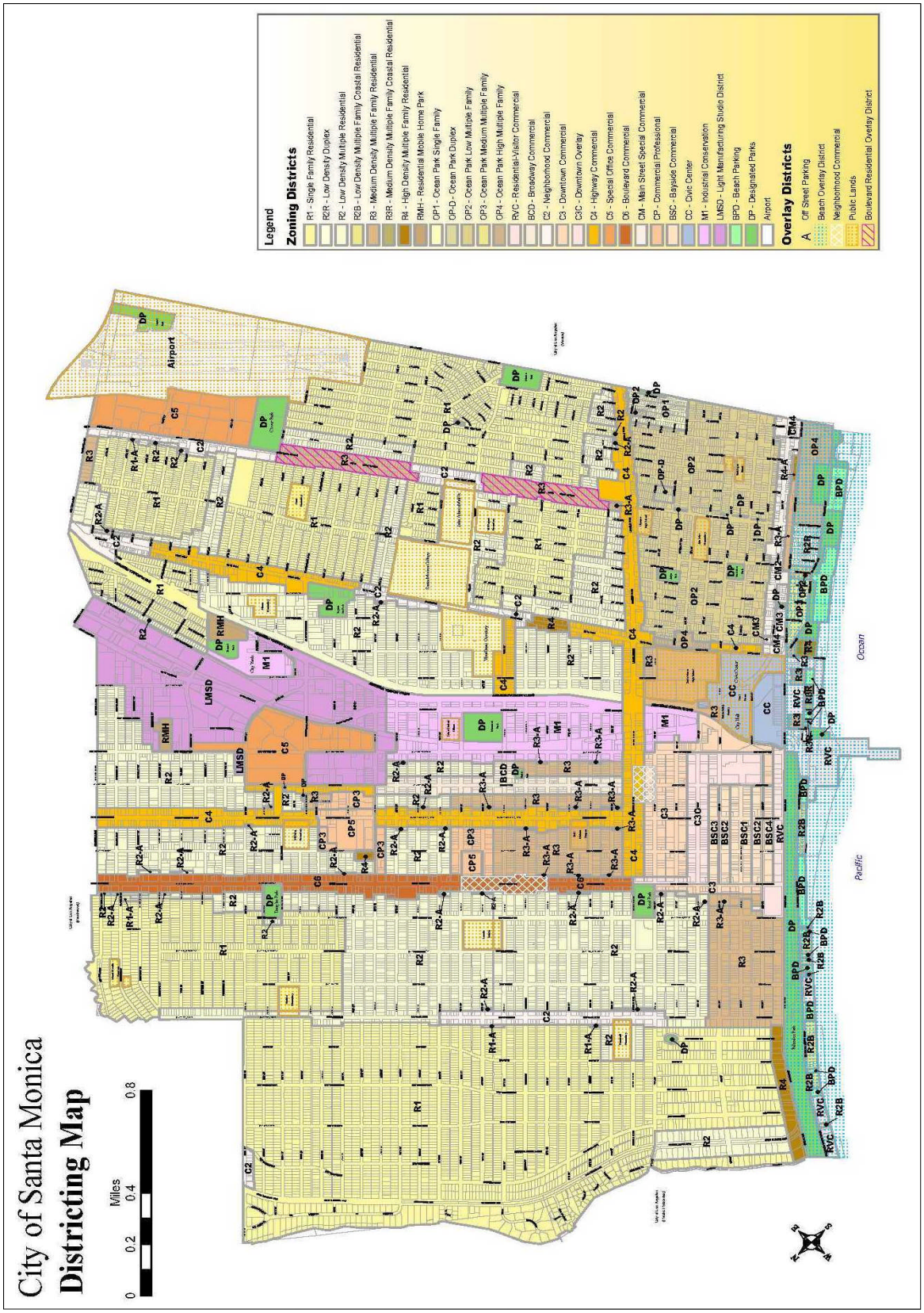

Figure 1.4: City of Santa Monica Districting Map

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SECTION 2: WATER SOURCES & SUPPLIES

2.1 INTRODUCTION

The City's water supply consists of imported water purchased from MWD, groundwater produced from the Santa Monica Basin, and recycled dry weather urban runoff produced at its SMURFF facility.

2.2 WATER SUPPLY SOURCES

Imported Water

The City has access to imported MWD water from the Colorado River and the Sacramento-San Joaquin River Delta in Northern California. These two water systems provide Southern California with approximately 2 million acre-feet (MAF) of water annually for urban uses.

The Colorado River supplies California with 4.4 MAF annually for agricultural and urban uses with approximately 3.85 MAF used for agriculture in Imperial and Riverside Counties. The remaining unused portion (600,000 - 800,000 AF) is used for urban purposes in MWD's service area.

Figure 2.1: Parker Dam at Colorado River

In addition to the Colorado River, the Sacramento-San Joaquin River Delta provides a significant amount of supply annually to Southern California. The Delta is located at the confluence of the Sacramento and San Joaquin Rivers east of the San Francisco Bay and is the West Coast's largest estuary. The Delta supplies Southern California with over 1 MAF of water annually.

Figure 2.2: Sacramento-San Joaquin Delta

The use of water from the Colorado River and the Sacramento-San Joaquin Delta continues to be a critical issue. In particular, Colorado River water allotments have been debated among the seven basin states and various regional water agencies at both the federal and state levels. The use of Delta water has been debated as competing uses for water supply and ecological habitat have jeopardized the Delta's ability to meet either need and have threatened the estuary's ecosystem.

In order to provide the City with imported water, MWD utilizes two separate aqueduct systems (one for each source of supply) to obtain its supplies. These two aqueduct systems convey water from each source into two separate reservoirs whereupon MWD pumps the water to one of its five treatment facilities. One of these aqueduct systems is

known as the Colorado River Aqueduct (CRA). The CRA was constructed as a first order of business shortly after MWD's incorporation in 1928. The CRA is 242 miles long and carries water from the Colorado River to Lake Matthews and is managed by MWD.

Figure 2.3: Colorado River Aqueduct

In addition to the CRA, MWD receives water from northern California via the California Aqueduct. Also known as the State Water Project, the California Aqueduct is 444 miles long and carries water from the Delta to Southern California and is operated by the Department of Water Resources.

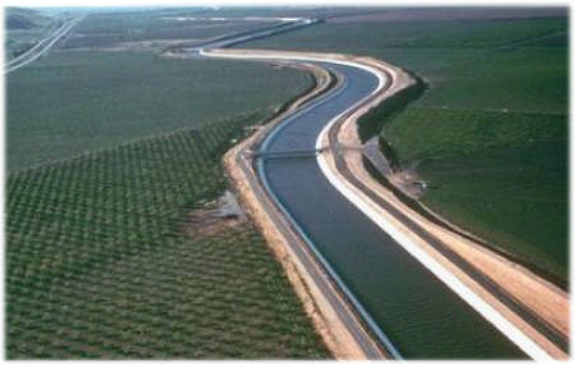

Figure 2.4: California Aqueduct

The previously mentioned aqueducts supply Southern California with a significant amount of its water and are crucial to its sustainability. In addition to these two water systems, there are also many other aqueducts that are vital to the State. The major aqueducts in California are shown in **Figure 2.5** on page 2-3.

As a wholesale agency, MWD distributes imported water to its 26 member agencies throughout Southern California as shown in **Figure 2.6** on Page 2-4. The City is one of 15 Retail agencies served by MWD and receives imported water at two locations: the Arcadia Water Treatment Plant and the Charnock Well Field and Pump Station Site. Both of these connections are 24 inches in size and are capable of serving 100 percent of the City's water needs with a hydraulic grade capable of direct service to all three (3) pressure zones within the City's service area.

Table 2.1 presents the City's five-year historic imported water purchases from 2005 to 2009. Imported over this time period has accounted for over 85% of the City's supply totals.

Table 2.1
Five-Year Imported Water Supply
(Purchases from MWD)

Year	Purchases (AF)
2009	11,685
2008	12,323
2007	13,017
2006	13,216
2005	12,671
Average:	**12,582**

The City's tier 1 rate allocation from MWD in 2005 was 11,109 AFY and in 2010 the limit was 11,515 AFY. As indicated by **Table 2.1**, the City's imported water purchases exceeded their Tier 1 rate allocation during each of the past five years due to the inactivity of its wells in the Charnock Subbasin (see pages 2-6 and 2-7).

Figure 2.5: Aqueduct Systems in California
(Figure A.2-5 in MWD's 2010 RUWMP)

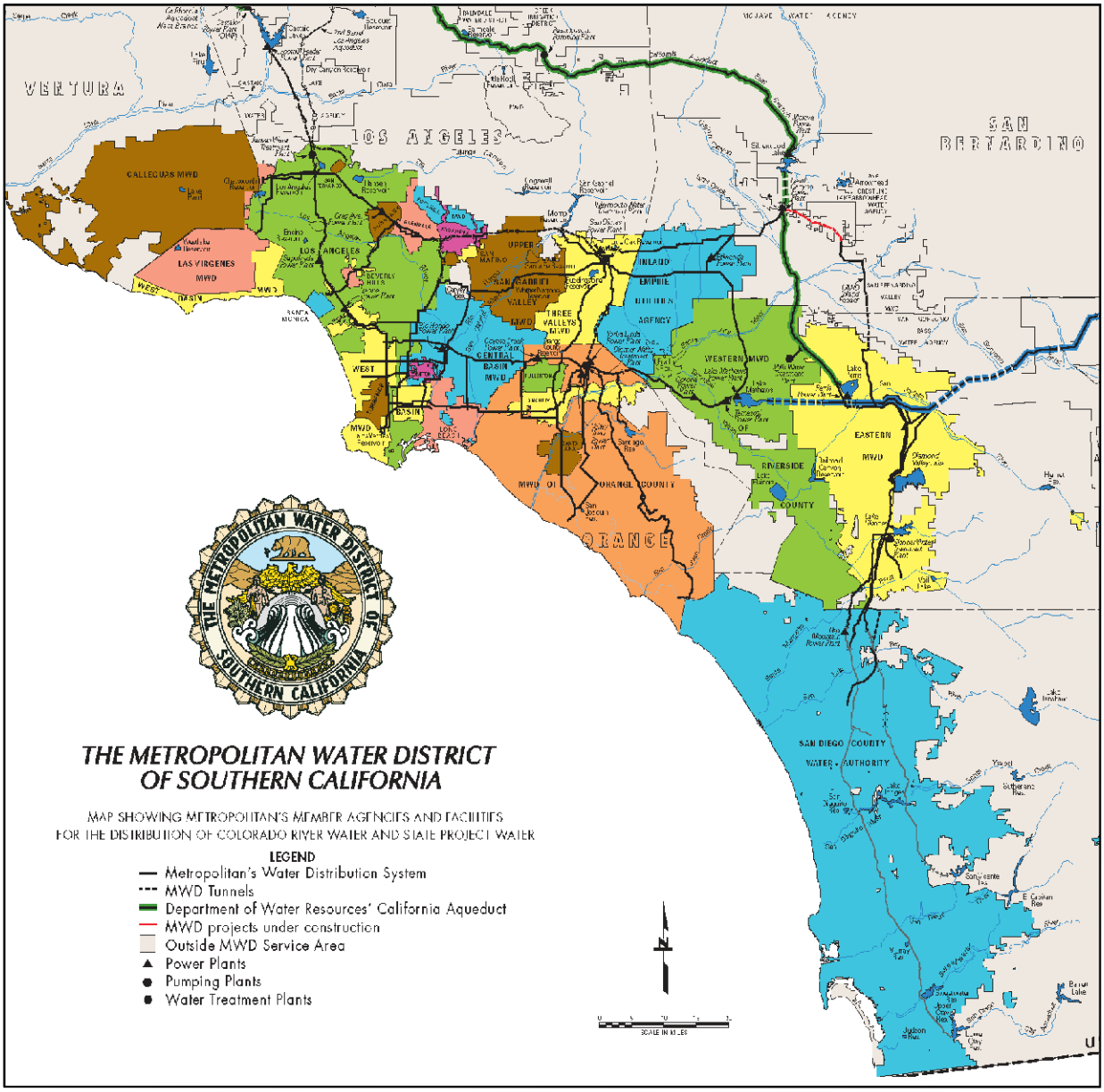

Figure 2.6: MWD Service Area Map (City Shown in Blue)

Groundwater

The City obtains its groundwater supply from the Santa Monica Basin. The basin is located in western Los Angeles County and overlies the entire City of Santa Monica, Culver City, Beverly Hills, and portions of western Los Angeles. The Basin has a surface area of 50.2 square miles of mostly flat to mildly hilly terrain. The basin is bounded by impermeable rocks of the Santa Monica Mountains to the North, the Ballona Encarpment (Bluffs) to the South, the Newport-Inglewood fault to the East, and the Pacific Ocean to the West. Extensive faulting within the Basin separates the basin into five subbasins as shown in **Figure 2.7** below.

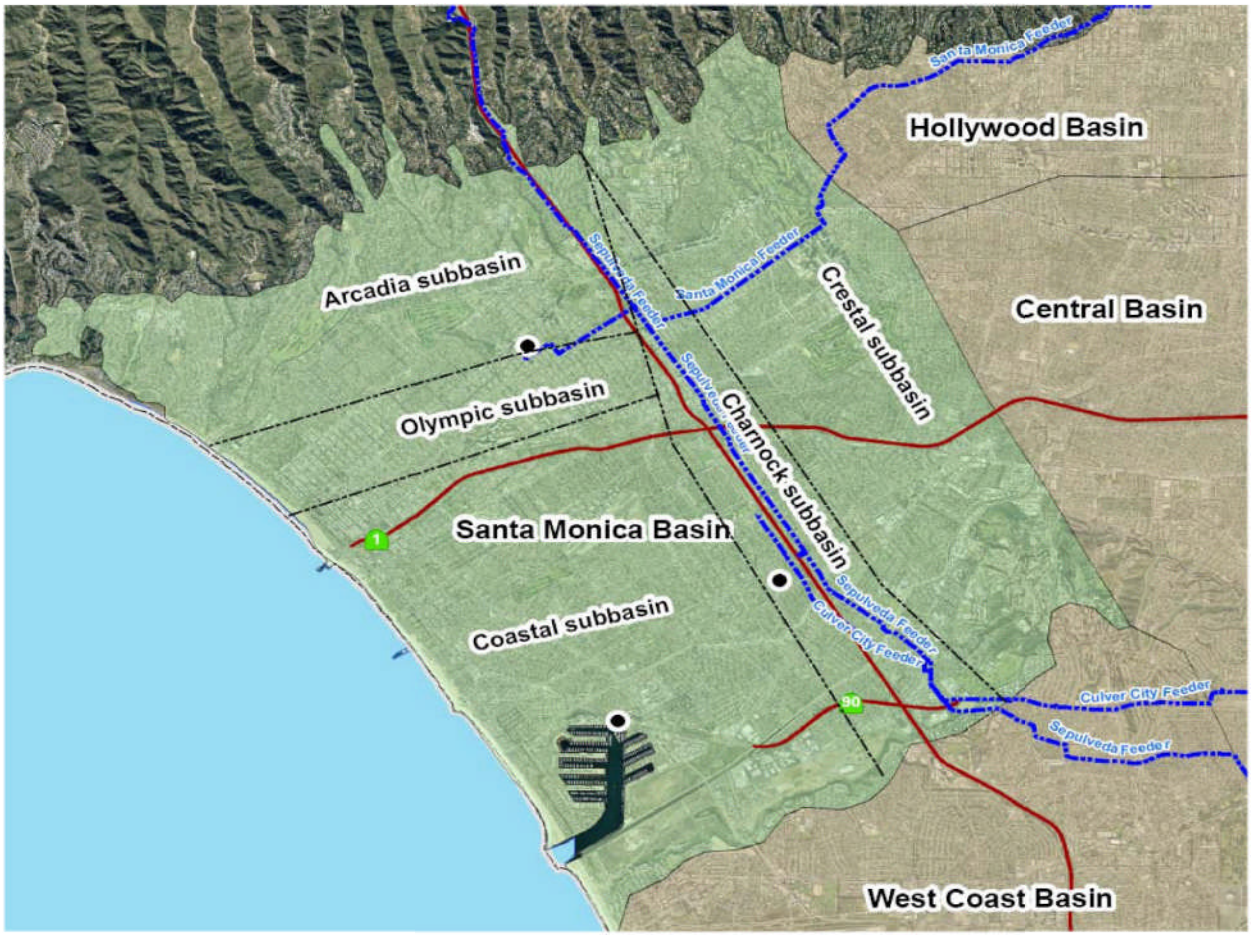

Figure 2.7: Main Santa Monica Basin and Subbasins

The main water bearing formations of the Santa Monica Basin include the Ballona and Silverado aquifers underneath the clay-rich Bellflower aquiclude. The Lakewood Formation, which includes the Ballona Aquifer, is a significant aquifer formation within some areas of Los Angeles County and is present in the Arcadia and Olympic Subbasins in northern half of the Santa Monica Basin. The Ballona Aquifer has a thickness of up to 90 feet with a yield of 800 gpm. The Silverado Aquifer within the San Pedro Formation is the main potable production aquifer in the Santa Monica Basin with a thickness of up to 280 feet and a yield of 4,700 gpm.

Groundwater in the Basin is replenished by percolation from precipitation, receiving an average annual precipitation of about 14 inches, and by surface runoff from the Santa Monica Mountains. The Inglewood fault restricts some of the groundwater inflows from the Central Basin to the East that would have otherwise replenished the Santa Monica Basin. Since the basin is mostly urbanized and soil surfaces have been paved to construct roads, buildings, and flood channels, only a small portion of basin soils are capable of transmitting water to the water-bearing formations below.

Groundwater flow is generally from the Santa Monica Mountains in the North to the West Coast Basin in the South. Groundwater outflows to the West Coast basin are estimated to be about 1,000 AFY. However, there are no formal agreements governing this outflow. Additional outflow to the Hollywood and Central Basins is restricted by the Newport-Inglewood Uplift.

Figure 2.8: Santa Monica Mountains

The total storage capacity of the basin is estimated to be approximately 1.1 million acre-feet (MAF). Although no formal safe yield determination has been made for the Santa Monica Basin, based upon studies performed by the USGS, the average yield based upon estimated inflows and outflows between 1971 and 2000 was about 7,500 AFY.

Groundwater levels in each subbasin are generally at or above mean sea level (MSL), although low water levels at or below MSL in the Coastal Subbasin allow for the possibility of seawater intrusion to occur in that Subbasin. Water levels at or below MSL in the Charnock Subbasin, however, do not pose a high risk for seawater intrusion.

Figure 2.9: Ballona Creek & Encarpment (Bluffs)

Due to the natural replenishment of the Basin, there are no spreading basins in the Santa Monica Basin, although during the 1980s the City injected up to 2,148 AFY of imported water from MWD into the Charnock Subbasin using an ASR well. The City, however, ceased this operation in 1990 and the City does not currently provide additional groundwater recharge into the Basin.

Since groundwater levels are typically at or above mean sea level and since the City does not operate any wells in the Coastal Subbasin, seawater intrusion does not pose a significant risk to the City's groundwater supply. Therefore there are no seawater intrusion barriers or desalters in the Santa Monica Basin. However, due to the relative brackish nature of the Basin, the City maintains a blending plan to meet federal and state drinking water standards.

The Santa Monica Basin is currently unadjudicated and the management of water

resources in the Santa Monica Basin is provided by the City. The California Department of Health Services and the Regional Water Quality Control Board provide additional oversight of the Basin's groundwater quality and help monitor contaminant levels.

The key characteristics of the Santa Monica Basin are summarized below in **Table 2.2**:

Table 2.2
Santa Monica Basin
Summary of Characteristics

Item	Amount
Max. Depth to Groundwater	500 ft.
Thickness of Groundwater Table	30-280 ft.
Storage Capacity	1.1 MAF
Safe Yield*	7,500 AFY
Spreading Basins (Total)	0
Seawater Intrusion Barriers	0
Desalters	0
ASR Wells**	0
Wells (Active)	5
Wells (Inactive)***	5
Well Capacity (Total)	12,300 gpm

*No formal Safe Yield has been determined
**Prior to 1990, the City injected up to 2,148 AFY of imported water into the Charnock Subbasin.
***Prior to completion of remediation efforts In Feb. 2011

Groundwater Production

As of February 2011, the City extracts groundwater from ten active groundwater wells with a combined production capacity of 12,300 gpm. Two of these wells are located in the Arcadia Subbasin (500 gpm total capacity) and three of are located in the Olympic Subbasin (2800 gpm capacity). Additionally, there are five wells with a combined production capacity of 9,000 gpm located in the Charnock Subbasin. The five Charnock wells, however, had been shut down from 1995-2010 due to methyl tertiary butyl ether (MTBE) contamination and all groundwater production over the past five years occurred in the Arcadia and Olympic Subbasins. Prior to the discovery of MTBE contamination in 1995, the City produced the majority of its groundwater from the Charnock Subbasin.

The City's groundwater well statistics are listed below in **Table 2.3**:

Table 2.3
City Groundwater Wells

Well Name/No.	Subbasin	Capacity (gpm)
Charnock 13	Charnock	1,800
Charnock 15	Charnock	1,800
Charnock 16	Charnock	1,800
Charnock 18	Charnock	1,800
Charnock 19	Charnock	1,800
Arcadia 4	Arcadia	250
Arcadia 5	Arcadia	250
Sana Monica 1	Olympic	900
Sana Monica 3	Olympic	1,000
Sana Monica 4	Olympic	900
	Total Capacity:	**12,300**

In addition to the wells listed in **Table 2.3**, there are other production wells within the Basin that are not a part of the City's water system. All of the City's wells are equipped with flowmeters to measure water production. Water production is recorded

monthly by City water staff and reported annually to the Department of Water Resources (DWR). Over the past five years, groundwater extraction has ranged from 1,751 AF to 2,062 AF (average of 1,951 AF). **Table 2.4** displays the City's groundwater supplies for the past five years:

Table 2.4
Five-Year Groundwater Production
(Total All Wells)

Year	Production (AF)
2009	2,062
2008	2,060
2007	1,992
2006	1,751
2005	1,890
Average:	**1,951**

The groundwater supply totals listed in **Table 2.4** represent only a fraction of the City's overall groundwater supply capability. With the re-activation of the City's Charnock wells, groundwater production is expected to increase significantly within the next five years. Historically, the Charnock wells have produced well over half of the City's groundwater.

Recycled Dry Weather Urban Runoff

The City of Santa Monica completed its Santa Monica Urban Runoff Recycling Facility (SMURRF) in 2002. The primary objectives of the facility was to eliminate contamination of the Santa Monica Bay caused by urban runoff and to provide cost-effective treatment for producing high-quality water for reuse in landscape irrigation and indoor plumbing. The SMURRF project was funded by City of Santa Monica, City of Los Angeles. State Water Resources Control Board, Metropolitan Water District, federal ISTEA Grant funds and Los Angeles County Proposition "A" Grants and is operated jointly by the cities of Santa Monica and Los Angeles.

Figure 2.10: Water Treatment at SMURRF Facility

The facility treats dry weather urban runoff from the Pico-Kenter and Pier drains year-round and is designed to routinely treat 500,000 gallons per day (0.5 MGD) with a peak of 750,000 gallons per day (0.75 MGD). It removes urban runoff contaminants that previously discharged into Santa Monica Bay, treats the water to Title 22 state standards and is considered a BMP by the Regional Water Quality Control Board. The treated water is then pumped through a City-wide distribution system that serves parks, medians, Woodlawn Cemetery and dual-plumbed buildings. The facility has helped the City in increasing land use densities while decreasing its need for additional potable supplies.

In addition to reducing pollutants entering the Bay and increasing supply reliability, the SMURRF was designed to increase public awareness of Bay pollution and alternative water uses. The SMURRF is located in a prominent tourist location adjacent to the Santa Monica pier and provides a new access to the beach through a

walkway from which visitors can view the facility. As a walk-through facility, visitors can see the array of the equipment at two separate overlook points. Each piece of equipment is laid out in a logical format and water is daylighted at five separate points allowing visitors to view the purification process. Educational material about the workings of the facility, are also available. The SMURRF is show in **Figure 2.11** below. Due to its strategic location, the SMURRF has enhanced community pride and indirectly increased water conservation awareness.

Figure 2.11: Aerial View of SMURRF

Over the past five years, the SMURRF has allowed the City to reduce its dependence on imported water at a time when its groundwater sources were limited due to ongoing MTBE contamination in the Charnock Subbasin. When the SMURRF facility went online in 2002, there were a total of four (4) recipients of recycled water.

In 2009, there were a total of eleven (11) recipients of recycled water, two of which included commercial/institutional users receiving recycled water for indoor use through a dual-plumbed system. Current dual-plumbed and landscape uses include the City's Public Safety Facility and the RAND Corporation. The Water Gardens, an office-professional campus at the City's eastern boundary with Los Angeles, is in the process of accepting recycled water for plumbing and landscape uses. Users in progress include a seven story Civic Center Parking Structure, Caltrans rights-of-way slopes, a skate park and the Santa Monica Civic Center Specific Plan site.

SMURRF Production

Over the past five years, recycled dry weather urban runoff has accounted for 0.6

percent to 2.4 percent of the City's overall water supply (potable plus recycled). However, recycled dry weather urban runoff accounted for up to 19% of dedicated irrigation connection supply totals. **Table 2.5** below lists the total production (effluent) from the SMURRF:

Table 2.5
Five-Year Production
(SMURRF Effluent)

Year	Production (AF)
2009	108
2008	107
2007	103
2006	94
2005	356
Average:	**154**

With a maximum production capacity of 840 AFY, the SMURRF has been operated at an average of 20 percent capacity over the past five years.

2.3 WATER SUPPLY SUMMARY

Due to water quality issues with the Charnock Subbasin and low flows to the SMURRF, the City has relied heavily on imported water over the past five years as indicated by **Table 2.6** below:

Table 2.6
Water Supply Averages
(2005-2009)

MWD (AF) % of Total	Ground (AF) % of Total	Recycled (AF) % of Total
11,685	1,951	154
86%	13%	1%

2.4 PROJECTED WATER SUPPLY

As population and land-use densities increase, the City understands the need to discover and support local water supply projects to augment imported supplies. As part of this process, the City completed its MTBE remediation effort in February 2011 and re-activated its five wells in the Charnock Subbasin. In the near future, the City intends to conduct a new Groundwater Management Study in order to determine a formal safe yield of the Basin. The City also intends to become independent of imported water while relying entirely on groundwater and recycled water to meets its water needs by the year 2020. A water master plan to be conducted in 2012 will provide details to achieve this goal.

Table 2.7 presents the City's projected water supplies available from all sources from 2015-2035:

Table 2.7
Projected Water Supply

Year	Imported (AF)	Ground (AF)	Recycled (AF)
2015	11,515	12,400	560
2020	11,515	12,400	560
2025	11,515	12,400	560
2030	11,515	12,400	560
2035	11,515	12,400	560

The City's decision to become import-free will offset the economic burdens of purchasing imported water. Moreover, since the City will continue to have access to imported water, the City's decision will also add to its supply reliability over the next 25 years. The City will also benefit indirectly from regional conservation efforts and also through MWD's efforts to augment its supplies and improve storage capacities.

2.5 ALTERNATE WATER SOURCES

This section provides an overview of alternative water sources and their potential uses. Alternative water sources include recycled wastewater, greywater, and desalinated seawater.

Recycled Wastewater

Background

The City participated in a regional study that examined the feasibility of comprehensive reclamation in Southern California. The study was called Southern California Comprehensive Water Reclamation and Reuse Study (SCCWRES) and was cost shared between eight (8) agencies, which included cities and water districts. The United States Bureau of Reclamation along with the eight cost sharing agencies and over 60 local water and wastewater agencies participated in the development of the SCCWRRS. The study included four regions: Los Angeles Basin, Orange County, San Diego County and the Inland Empire. In addition to the SCCWRRS, the City participated in the Recycled Water Master Plan for the West Basin Municipal Water District and Los Angeles Department of Water and Power. The study included the evaluation of expanding the facilities into Santa Monica as a long-term option. City staff has attended Los Angeles County Reclaimed Water Advisory Committee (LACRWAC) meetings. The LACRAWAC is an official chapter of the Water Reuse Association, which has helped implement water recycling in California.

Wastewater Collection & Treatment System

The City of Santa Monica Water Resources Division manages the wastewater collection system for Santa Monica. All of the wastewater flows from the City (excluding a percentage of dry weather storm water runoff) is collected by the City's local sewer mains and delivered to the Hyperion Wastewater Treatment Plant. Santa Monica Wastewater flow is metered and averages about 11 million gallons per day (mgd). Santa Monica is a contracting entity to the City of Los Angeles Amalgamated Sewerage System, which includes Hyperion.

Figure 2.12: Wastewater Treatment at Hyperion

The treatment applied at Hyperion includes primary, secondary and tertiary treatment for the production of recycled water (reclaimed water). In addition to Hyperion, the City of Los Angles operates three other treatment plants capable of producing recycled water. Together, the plants are capable of producing up to 80 MGD of recycled wastewater.

Recycled Wastewater Use

Currently the City benefits from the use of recycled dry weather urban runoff and does not use recycled wastewater. However, the City benefits indirectly from regional uses of recycled water. The City does not currently have the capability to construct a treatment facility within its limits.

Potential Uses of Recycled Wastewater

As a result of using recycled dry weather

urban runoff since 2002, the City has identified potential non-potable water users. If the City were to include recycled wastewater, the City could benefit as a number of parks, schools, medians, and dual-plumbed buildings could receive recycled wastewater.

Projected Use of Recycled Wastewater

The projected use of recycled wastewater within the City's service area for the next 25 years is uncertain as funding for infrastructural improvements are needed to distribute recycled water from Hyperion to the City. The City does not expect to use recycled wastewater but intends to continue using recycled dry weather urban runoff from its SMURRF facility.

Future Plans for Recycled Wastewater

In 1987, a study was conducted to determine the feasibility of the City constructing its own wastewater reclamation facility or stormwater treatment plant. Based solely on technical and financial considerations, the study concluded that the City would be better served remaining a contract member of the Amalgamated System. However, the study recommended that the City pursue the feasibility of a stormwater treatment plant. Currently the plant supplies non-potable water for landscaping and dual-plumbed buildings and future uses include street cleaning machines and other non-potable uses.

Rainwater Harvesting

This alternate water supply reduces potable water demand while reducing the amount of polluted storm water runoff from entering the Santa Monica Bay. The City actively promotes the use of rainwater for landscape irrigation through numerous free workshops for professionals and homeowners in addition to rebates for rain barrels and cisterns.

Figure 2.13: Captured Rainwater Helps Irrigate Home

With the recent award of the grant from the California Department of Water Resources, the City has doubled the rebate amounts for these products.

Greywater

Greywater has been used as an alternate source of water in California since its adoption in 1995. Greywater is used as irrigation water in order to reduce potable water use. The City has promoted its use actively since 2004 via free bi-annual workshops for professionals and homeowners.

Figure 2.14: Home Irrigated with Greywater

The City rebated three residential greywater systems between 2004 and 2007 and realized that the existing laws made it very

difficult and costly for homeowners to install simple systems. Futhermore, few off-the-shelf greywater systems were available making it harder for people to comply with the rigorious permitting process. The City advocated for changes to the law and with the recent passage of SB 1258, it is now easier for homeowners to reuse this water supply for landscape irrigation. The City will begin offering rebates for simple greywater systems starting in 2011.

Desalinated Water

Seawater desalination is a process whereby seawater is treated to remove salts and other contents to develop both potable and non-potable supplies. There are over 10,000 desalination facilities worldwide that produce over 13 million AFY. Desalinated water can add to Southern California's supply reliability by diversifying its water supply sources and mitigating against possible supply reductions due to conservation. With its Seawater Desalination Program (SDP), the MWD facilitates progress and provides financial incentives for the development of seawater desalination facilities within its service area.

Figure 2.15: Seawater Desalination Plant

A total of five member agencies submitted projects totaling 142,000 AFY. In 2004, MWD adopted an Integrated IRP update which included a desalination goal of 150,000 AFY by the year 2025. Currently, the five member agency projects are in various levels of development.

Although the City is located adjacent to the ocean, the economics of building and operating an oceanfront desalinization plant would prohibit its construction in Santa Monica, as most oceanfront plants are constructed adjacent to existing power plants, and take advantage of the existing discharge. In addition, Santa Monica does not have adequate perched brackish water and energy availability to encourage the construction of brackish desalinization plants. Therefore, the City does not have any current plans to develop any desalination facitlities.

2.6 TRANSFERS OR EXHCHANGES

The City of Santa Monica has not considered water transferring as an option for its produced groundwater. Santa Monica believes that through pro-active water conservation policies and programs and the recycling of urban runoff, the reliability of its water supply will increase even as housing densities increase. Water conservation and recycled water are considered additional sources of water because it frees up water that would otherwise be used inefficiently. Though with this stance, Santa Monica avoids being an additional draw on imported water, which benefits the region at large.

2.7 PLANNED SUPPLY PROJECTS

The City of Santa Monica will supply the majority of its potable water via its local groundwater production following MTBE remediation. The remainder of its supply will be provided by the Metropolitan Water District and the City's SMURRF. In the future the City may consider recycling additional urban runoff from Los Angeles

County drains that are presently discharging into the Bay, such as the Wilshire Boulevard and Montana Avenue drains. However, the economics of purchasing the necessary land to build future recycling plants will be an important factor in assessing the economic viability of these projects.

SECTION 3: WATER QUALITY

3.1 WATER QUALITY SUMMARY

In 1974, Congress passed the Safe Drinking Water Act in order to protect public health by regulating the nation's drinking water supply. As required by the Safe Drinking Water Act, the City provides annual Water Quality Reports to its customers. Currently all of the water that the City distributes to its customers meet federal EPA standards and California Department of Health Services (CDHS) Standards.

The quality of water distributed to the City's water system is directly related to the quality of the supply sources from which the City obtains its water. This section explores the quality of the City's supply sources and examines important water contaminants that the City actively monitors as part of its efforts to supply safe drinking water to its customers.

3.2 QUALITY OF SOURCES

Imported Water

The City receives imported water from MWD in order to supplement its groundwater supplies and for blending needs to meet Federal and CDHS standards. Imported water obtained from the SWP and the CRA contain specific contaminants which are characteristic of the Bay Delta and the Colorado River regions. Some of the contaminants of concern include: salinity, biological loads, disinfection by-products, percholorate, uranium, and arsenic. MWD's 2010 RUWMP discusses the water quality concerns of its supplies.

To provide safe drinking water to its customers, MWD treats its water supply at five (5) separate treatment plants, three of which blend a mixture of SWP and CRA water. Of the five plants that serve Southern California, the City has access to treated effluent from the Weymoth Treatment Plant via MWD's Middle Feeder pipeline.

Figure 3.1: Weymouth Treatment Plant

Although MWD water meets all regulatory requirements, MWD understands the need for strong testing and quality assurance for its customers. Water is analyzed and tested at one central, state-of-the-art treatment facility in addition to five satellite laboratories at each treatment facility to ensure the quality and safety of its water.

Groundwater

Groundwater extracted from the Santa Monica Basin and its sub basins contains various levels of contaminants specific to the Basin which include, Total Dissolved Solids (TDS), Nitrate, Volatile Organic Compounds (VOCs), and methyl tertiary butyl ether (MTBE). Overall TDS concentrations in the Santa Monica Basin are typically high and exceed the secondary MCL of 500 mg/l in all three of its groundwater producing subbasins. Thus, the

City treats its groundwater in order to meet drinking water standards.

Over the past 15 years (1995-2010), the City has been significantly impacted as a result of MTBE contamination in its Arcadia and Charnock Subbasins. During this time, the City's five Charnock wells were kept offline as remediation efforts continued. For its Arcadia wells, the City installed a shallow aquifer and vadose remediation system (SAVRS) and a lower aquifer remediation system (LARS) to remediate the MTBE affected zones. For its Charnock wells, the City settled with responsible parties of the MTBE contamination in order to construct and operate a treatment facility to clean up residual MTBE contamination.

Figure 3.2: Health Standards Protect Drinking Water

In addition to MTBE, the City has also detected other contaminants of concern at or near maximum concentration levels. In particular, the City detected TCE (a VOC) in its Olympic Subbasin in 1979. Air strippers were installed during the 1980s in the Olympic wells. More recently, the City has also detected 1,4 dioxane in its Olympic wells.

Other common groundwater contaminants of the region such as nitrates and perchlorate either meet drinking water standards or have not been detected (perchlorate not detected).

Table 3.1 below summarizes the City's groundwater treatment activities for the its major contaminants:

Table 3.1
Santa Monica Basin
Major Contaminants

Subbasin	Contaminant Treated
Arcadia	None
Charnock	MTBE
Olympic	TCE
All	TDS

Due to mitigation efforts and ongoing treatment of raw groundwater, all groundwater supplied to the City's distribution system meets federal and state drinking water standards.

Recycled Dry Weather Urban Runoff

The City's SMURRF uses a state-of-the-art treatment process to treat dry weather urban runoff in a seven-step treatment process to California Title 22 standards. The City's SMURRF is considered to be a Best Management Practice (BMP) to reduce pollutants by the Regional Water Quality Control Board (RWQCB).

3.3 EFFECTS OF WATER QUALITY ON MANAGEMENT STRATEGIES & SUPPLY RELIABILITY

The previous section discussed water quality issues affecting the City's water supply operations. Due to advanced treatment procedures and an approved blending plan, the City does not anticipate any reductions in its water supplies due to water quality issues in the near future. Future regulatory changes enacted by the EPA and/or the State legislature will be met through additional

mitigation and treatment actions in order to meet the standards and to maintain water supply to the City's customers. Thus, the City does not expect water quality to be a major factor in its supply reliability considerations. However, water quality issues will continue to influence day-to-day water operations and management decisions as mitigation and treatment procedures are evaluated to determine their cost and treatment effectiveness against alternative procedures.

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SECTION 4: WATER DEMANDS

4.1 FACTORS AFFECTING DEMAND

Water use within the City is variable and depends on a number of factors which range from increases and decreases in irrigation and water losses to changes in plumbing fixtures and customer usage habits. This section explores the water usage trends within the City and quantifies total usage per customer type.

Urbanization's Affect On Water Use

The City of Santa Monica, like most of Southern California, began as a small, suburban town with plenty of room for development. Previous land uses in the City at that time were mostly residential with some commercial use for hotels. By 1875 the City's population reached 1,000 persons and the City continued to grow as a seaside sanctuary for wealthy vacationers.

Figure 4.1: Early Santa Monica

The City was incorporated in 1887 and began its water operations during the early 1900s. In 1928, the City joined 12 other local cities in forming the Metropolitan Water District. Through these steps, the City paved the way for continued urban development and population expansion. By 1920, the City's population soared to 37,000 and the City continued to experience significant population growth. By the 1960s, the City's population growth slowed as the City's development expanded. The City is now mostly developed but can accommodate denser developments in some parcels per the Land Use Circulation Element (LUCE) adopted in 2010.

Figure 4.2: Santa Monica Today

Through urbanization, the City has become one of the key coastal cities in Los Angeles County. The City's adjacent location to the Santa Monica Mountains provides additional supply reliability through surface runoff and subsurface inflows which has sustained its past population and economic growth. Due to current "built-out" conditions, additional growth can only be expected through re-development.

Water Use Within City

The City's image as a sustainable City (one of the leaders in the nation), is due to its dedication to conserving its resources while maintaining the beauty of its community parks, schools, and recreational facilities both in the private and in the public sector.

Since the City is zoned mainly for residential use, the City has a significant number of residential lots which require consistent irrigation to maintain landscapes. The City therefore has ordinances to ensure landscapes are irrigated at the proper time in order to reduce overspray and runoff.

Figure 4.3: Residential Irrigation

In addition to water demand for residential irrigation purposes, there are a number of other significant water demands within the City's service area. These include commercial properties and institutional facilities such as the City's Civic center, Santa Monica College, and two hospitals.

Figure 4.4: Santa Monica College

Although the City enjoys a relatively healthy economic stature as a result of its location, overall water use characteristics within the City's service area reflect regional water use characteristics within Southern California. The City's water consumption trends do not necessarily compare to other high-end communities as a result of the City's pro-active conservation efforts.

4.2 HISTORIC WATER DEMAND

Water demands within the City's service area over the past five years are met by imported water from MWD, groundwater from the Santa Monica Basin, and recycled water from the SMURRF. Annual water use since 2005 has ranged from about 14,000 AF to 15,000 AF as shown below in **Table 4.1**:

Table 4.1
Five-Year Historic Water Use
(Service Area Total)

Year	Demand (AF)
2009	13,855
2008	14,491
2007	15,112
2006	15,061
2005	14,917
Average:	**14,687**

As indicated by **Table 4.1** above, annual water use fluctuates each year and is dependent on climatologic conditions.

4.3 WATER DEMAND BY SECTOR

Water Demand By Sector

The City maintains records of water consumption and bills its customers on a bi-monthly basis for its water service. the City maintains approximately 17,000 service connections with a mixture of residential, commercial, instiutional, and landscape accounts.

Nearly 80 percent of the total service connections are either single family or multi-family residential as over half of the City is zoned for residential use. Commercial and institutional accounts comprise about 13 percent of the total accounts and have the highest consumption rate at an average of 1.6 AFY per connection over the past five years. Landscape irrigation and "other" accounts comprise the remaining portion of the City's metered connections.

The water use by each connection type for the past five years and the total number of service connections is listed below in **Tables 4.2 and 4.3**. The average proportions of water use by sector listed in this table will be used to analyze projected water use by sector in Section 4.5.

Table 4.2
Historic Demand By Sector (AF)

Sector	2005	2006	2007	2008	2009
Single Family Residential	3,322	3,645	3,752	3,529	3,195
Multi-Family Residential	5,843	5,866	5,784	5,575	5,408
Commercial/Institutional	3,325	3,774	3,745	3,549	3,374
Landscape Irrigation	573	626	728	698	652
Subtotal:	**13,063**	**13,912**	**14,009**	**13,351**	**12,629**
Unaccounted For Water	1,854	1,150	1,103	1,140	1,226
Total Water Use:	**14,917**	**15,061**	**15,112**	**14,491**	**13,855**

Table 4.3
Historic Number of Service Connections

Sector	2005	2006	2007	2008	2009
Single Family Residential	7,464	7,473	7,508	7,538	7,545
Multi-Family Residential	6,072	6,090	6,088	6,223	6,269
Commercial/Institutional	2,214	2,221	2,222	2,319	2,323
Landscape (Potable)	451	467	478	527	549
Other	912	924	965	991	1,023
Landscape (Recycled)	10	10	11	11	9
Commercial/Institutional (Recycled)	0	0	0	0	2
Total No. of Connections:	**17,123**	**17,185**	**17,272**	**17,609**	**17,720**

As can be noted from **Table 4.2** above, unaccounted for water accounts for a significant portion of the City's overall water use at nearly 10 percent. A portion of this amount is due to water losses. Water losses at the 10 percent range are not untypical of many water agencies and have negative cost impacts on water operations. Water losses, however, cannot be prevented entirely.

4.4 WATER CONSERVATION ACT

SBx7-7 Background

Due to reductions of water in the San Joaquin Delta, the Legislature drafted the Water Conservation Act of 2009 (SBx7-7) to protect statewide water sources. The new legislation called for a 20% reduction in water use in California by the year 2020. The new legislation amended the water code to call for 2020 and 2015 water use targets in the 2010 Urban Water Management Plans (UWMPs) and allows the Department of Water Resources (DWR) to enforce compliance to the new water use standards. Failure to comply with interim and final targets will make the City ineligible for grants and loans from the State needed to attain water self-sufficiency by 2020.

Figure 4.5: California's 2020 Water Conservation Goals

In addition to an overall statewide 20% water use reduction, the objective of SBx7-7 is to reduce water use within each hydrologic region in accordance with the agricultural and urban water needs of each region. Currently, the Department of Water Resources (DWR) recognizes 10 separate hydrologic regions in California as shown in **Figure 4.5**. Each hydrologic region has been established for planning purposes and corresponds to the State's major drainage areas. The City of Santa Monica is located in the South Coast Hydrologic Region (HR), which includes

all of Orange County, most of San Diego and Los Angeles Counties, parts of Riverside, San Bernardino, and Ventura counties, and a small amount of Kern and Santa Barbara Counties. The South Coast HR is shown below in **Figure 4.6.** Per capita water use, measured in gallons per capita per day (GPCD), in the South Coast HR varies between different water agencies, depending on the geographic and economic conditions of the agency's service area. Regions with more affluence, such as Beverly Hills, typically consume more water and therefore have higher per capita water use numbers. The South Coast Hydrologic Region has an overall baseline per capita water use of 180 GPCD and DWR has established a regional target of 149 GPCD for the region as a compliance target to satisfy SBx7-7 legislation.

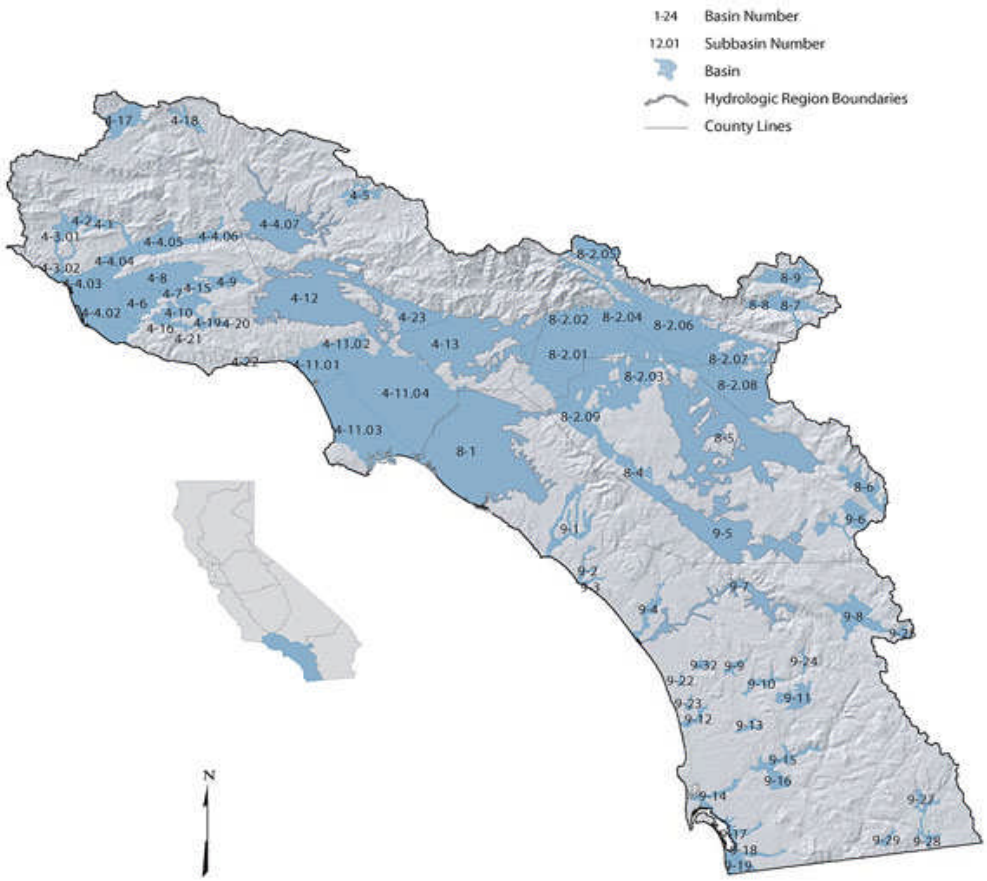

Figure 4.6: South Coast Hydrologic Region

SBx7-7 Methodologies

To satisfy the provisions of SBx7-7, the City must establish a per capita water use target for the year 2020 as well as an interim target. DWR has provided guidelines for determining these targets in its *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use* and also in the 2010 UWMP Guidebook (Section D). The City's baseline water use is based on the City's historic water use and is determined by the procedure on the following page:

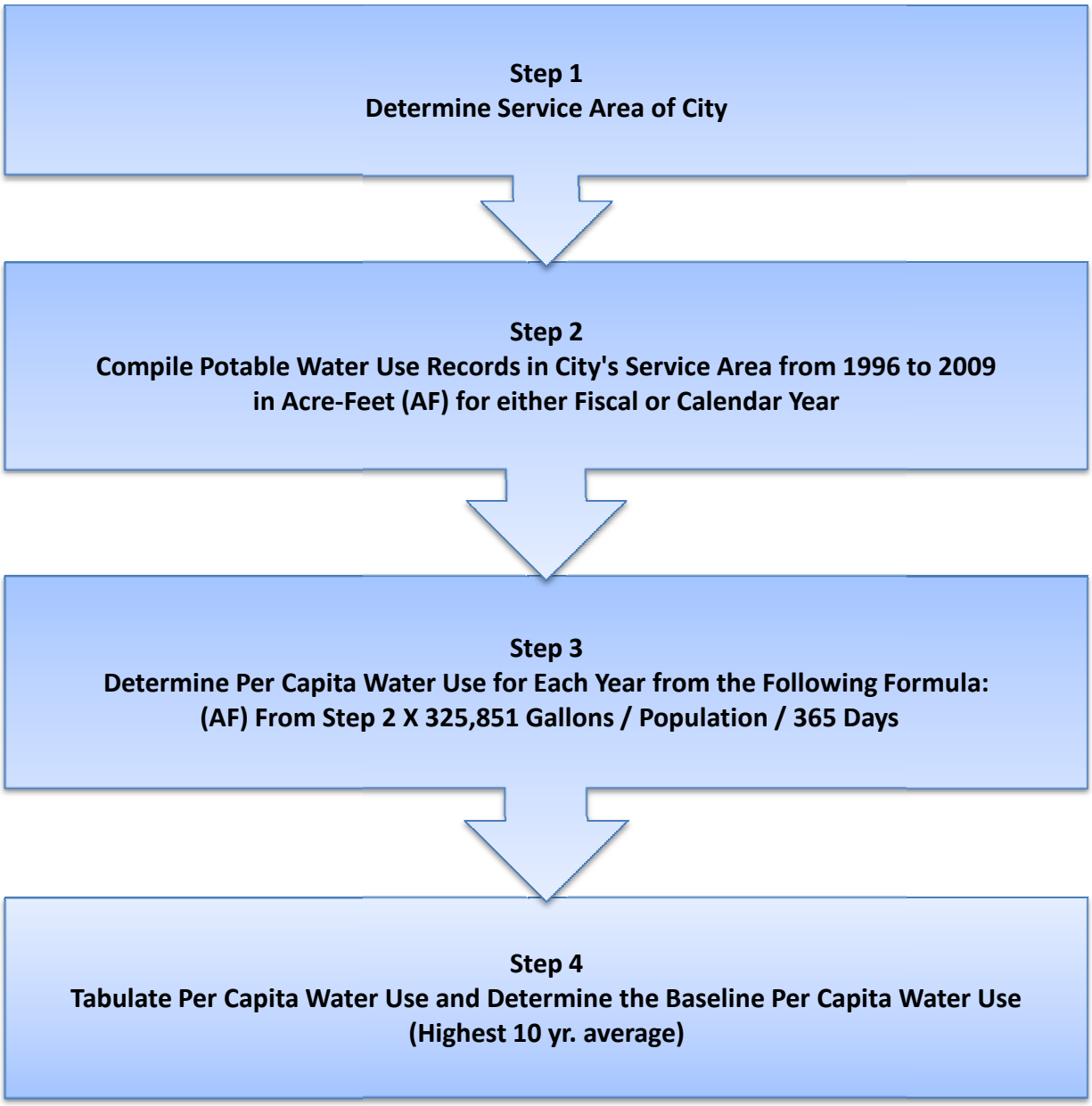

Figure 4.7: Procedure for Determining Baseline Per Capita Water Use

In the same fashion, the City is responsible for determining a five-year baseline water use in accordance with DWR's guidelines. The *Methodologies* guidebook makes provisions which allow a water supplier to meet the target requirements by achieving any one of a number of target requirements, provided that the water supplier's per capita water use is low enough relative to the region within which it supplies water. The basic options include a minimum reduction requirement of 5% (Water Code § 10620), a 5% Reduction from the Regional (South Coast HR) target (Water Code § 10608.20 (b) (3)), or a strict 20% reduction.

These options have been established in order

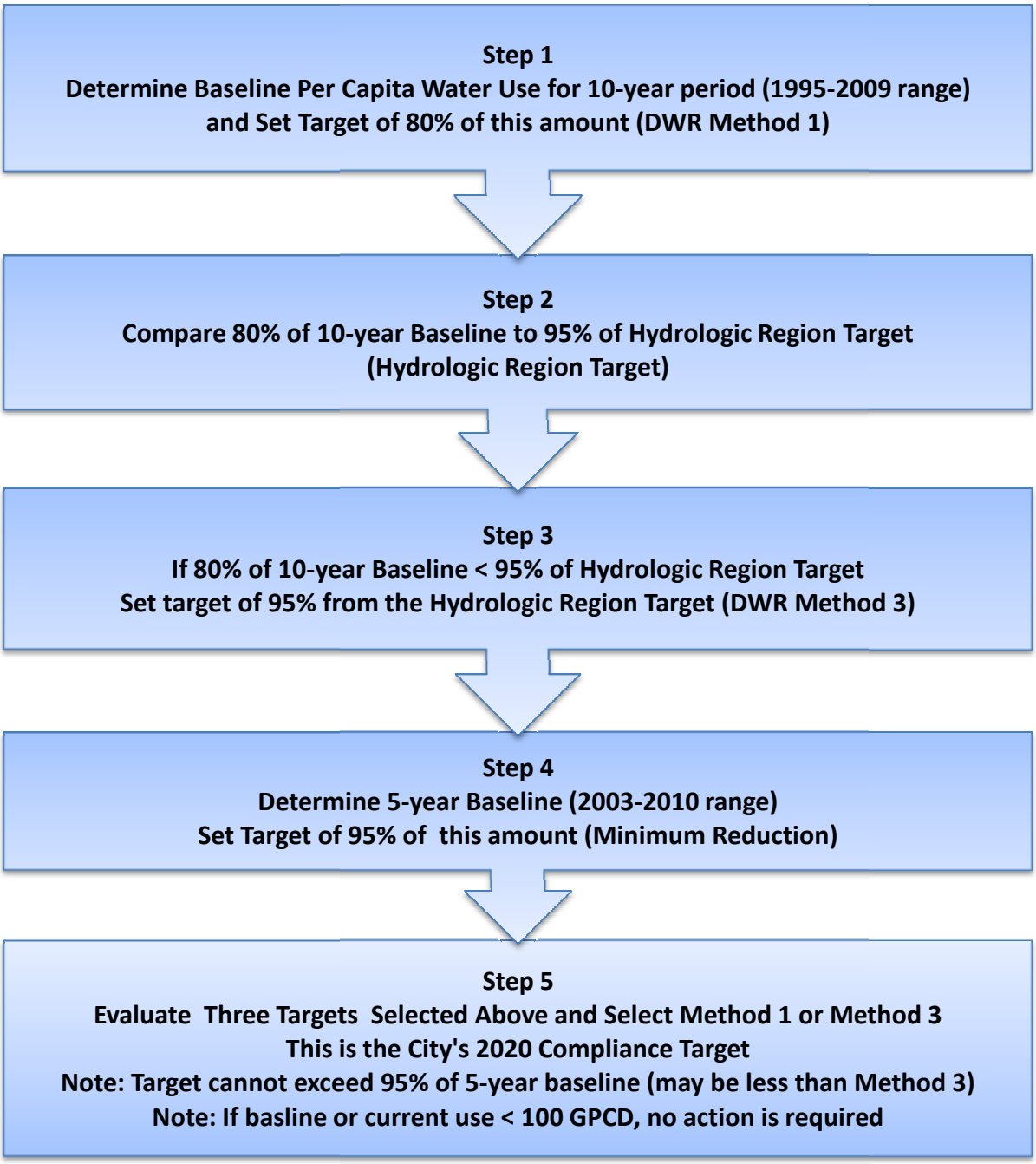

Figure 4.8: Procedure for Determining 2020 Per Capita Water Use Target

to avoid placing any undue hardship on water agencies that have already been implementing water conservation measures for some time. The basic procedure for determining the applicable water reduction target is illustrated by **Figure 4.8** above. If an agency's 10-year baseline is slightly higher than the Hydrologic Region's Target, that agency still must achieve a 5% reduction from its 5-yr. baseline. If an agency has a per capita water use of 100 GPCD or less, that agency will not have to adhere to any reduction targets as that agency is already water efficient.

SBx7-7 Targets

Due to the options available to water agencies, some neighbor agencies within the South Coast HR with moderate water usages, such as Los Angeles, (baseline of 150.6 GPCD) will not have to adhere to stringent reduction requirements. **Table 4.4** below shows an example of these options available to the City of Los Angeles:

Table 4.4
Reduction Example for Los Angeles
(Baseline = 150.6 GPCD)

Min. Reduction Requirement (5% of 5-year baseline) (10608.22)	20% Target (10608.20) (b)(1)	5% Reduction from Regional Target (10608.20) (b)(3)
143.07	120.5	141.5
2020 Per Capita Target:		**141.5**
Interim (2015) Target:		**146.1**

As indicated by the above table, the City of Los Angeles cannot select a minimum reduction requirement of 143.07 GPCD (5% from its baseline) as this amount is greater than 141.5 GPCD (5% reduction from the South Coast HR's regional target). However, since Los Angeles's 20% reduction target (120.5 GPCD) is less than the minimum reduction requirement that is required by DWR (141.5 GPCD), it is feasible to select 141.5 GPCD as its 2020 water use target.

Like the City of Los Angeles, water consumption quantities in the City are moderate due to conservation awareness and a commitment to efficient water use. This indicates that the City's options will not be limited within the provisions of SBx7-7.

To determine the City's historic per capita water use and to set 10-yr. and 5-yr. baselines, water use data was gathered from 1996-2009 and the City's baseline was determined as shown below in **Table 4.5:**

Table 4.5
City of Santa Monica
Historic GPCPD Water Use

Year	Total Consumption (AF)	Per Capita (GPCD)
2009	13,748	133
2008	14,383	141
2007	15,009	148
2006	14,967	148
2005	14,561	143
2004	15,201	150
2003	14,884	149
2002	14,936	152
2001	14,342	150
2000	15,028	160
1999	14,732	160
1998	14,081	153
1997	14,888	162
1996	14,970	162
10 yr. Baseline (1996-2005) (SB7: 10608.20)		**154**
5 yr. Baseline (2003-2007) (SB7: 10608.22)		**148**
South Coast HR:		**180**

In order to determine the correct compliance target, the City's baseline water use will be compared to the regional compliance target as in the Los Angeles example in order to determine the applicable reduction amounts per the SBx7-7 additions to the water code. The legal stipulations relevant to the City and the required target to be enforced by DWR is shown in **Table 4.6** on the following page:

Table 4.6
City of Santa Monica
2020 Water Use Targets

Min. Reduction Requirement (10608.22)	20% Target (10608.20) (b)(1)	5% Reduction from Regional Target (10608.20) (b)(3)
141	123	142
2020 Per Capita Target:		**123**
2015 Interim Target:		**139**
2009 Per Capita Water Use:		**133**

As indicated by the above table, the City can select a minimum reduction requirement of 141 GPCD (5% from its 5-yr. baseline) as this amount is less than 142 GPCD (5% reduction from the South Coast HR's regional target). Therefore 10608.22 applies to the City. In addition, since the City's 20% reduction target (123 GPCD) far exceeds the minimum reduction requirement of 141 GPCD, the City may also select 123 GPCD as its 2020 water use target. To enhance its sustainability policies, the Santa Monica City Council on June 28, 2011 chose a more aggressive conservation approach and selected 123 GPCD as its 2020 water use Target in accordance with 10608.20 (b)(1).

Although the requirements of SBx7-7 seem stringent, it is noteworthy to mention that the City has seen a 16% increase in water efficiency from 1996-2010. This is due in part to a greater achievement of conservation measures, saturation of water-saving plumbing fixtures, and overall water conservation awareness. The City's water conservation awareness has also led to a 100% local sustainability goal set for 2020 that is discussed in further detail in the following section.

Methods to Achieve SBx7-7 Target

Through adherence to conservation measures, the City can participate in Statewide efforts to conserve Sacramento-San Joaquin Bay-Delta Water and to protect the ecological habitat of the region. Although ecological motives are controversial, ensuring a reliable supply of water for human use is a top priority without controversy. Through conservation measures and the use of renewable, local groundwater supplies, the City can reduce demand for Bay-Delta water.

Figure 4.9: Bay-Delta Water Must Be Preserved

The City understands the unique needs of its customers and also the importance of efficient water use. As a result, the City will utilize management strategies specific to the needs of its residents. The methods to be used in achieving its 2020 reduction requirements consist of the Demand Management Measures listed in **Table 6.1** and additional City conservation programs which include the following:

- Rebates for sustainable landscapes and water-saving irrigation systems.
- Rebates for rain barrels and cisterns.
- Rebates for plumbing fixtures and process equipment.
- Free monthly sustainable landscape workshops and classes for homeowners and professionals.

- Free water audits for homeowners and businesses.
- Educational programs for students.

In addition, the City may enact additional water use restrictions in accordance with its Water Shortage Response Plan. With increased public awareness of SBx7-7 requirements, it is likely that the public will begin to understand the importance of water conservation and will begin to use water more efficiently.

4.5 100% SUSTAINABILITY BY 2020

In addition to the mandatory conservation requirement of SBx7-7, the City intends to continue its conservation efforts to close the gap between its water consumption and local production capacity in order to achieve 100% sustainability from local water sources by 2020 to safeguard the state's imported water sources from further depletion. In September 2010, the Santa Monica Task Force on the Environment unanimously adopted a motion regarding water self-sufficiency. The motion recommended that the City Council direct staff to develop a plan to reach a 100% sustainable water supply (100% water self-sufficiency from local sources) by 2020.

As part of this plan, the City intends to conduct a safe yield analysis of all City owned groundwater resources, including the Charnock, Olympic, and Arcadia Subbasins. Based on previous investigations reported in a 2010 Water Supply Assessment (WSA), the City has determined the maximum sustainable groundwater production capacity to be 12,400 AFY. Current groundwater production capacity, however, stands at 9,500 AFY due to treatment requirements as a result of MTBE contaminants. This current production capacity results in a gap of about 3,000 AFY. For the short term, the City will have to account for this difference by importing water from MWD.

To achieve the City's reliability goals, the City will undergo efforts to maximize its groundwater production capacity and continue to implement conservation efforts for the next 10 years to close the gap between local total water demand and total water available locally.

Figure 4.10: Lake Oroville Reservoir

Most of the pieces of the City's sustainability goal are already in place, as the City has recently prepared a Watershed Management plan in 2006, a Water Shortage Response Plan in 2009, the City's Water Resources Division Asset Management Plan, the Water Supply Assessment in the 2010 Land Use and Circulation Element, and this Urban Water Management Plan. The City intends to merge the elements of these documents and develop a Water Master Plan. The Water Master Plan will also evaluate supply options including increased use of groundwater (once a formal safe yield is determined) recycled water (additional recycled stormwater plus potential recycled wastewater), greywater, and demand management options. The Water Master Plan is expected to be prepared by June 2012.

Current Forecast to Achieve 100% Goal

Based on previous safe yield analysis of the

City's groundwater basins and the production capacity of the SMURRF, the City's potential production capacity (potable plus non-potable) is about 13,000 AFY. Since recycled water produced at the SMURRF is used in place of potable water by 11 metered customers (previously using potable water), the total annual water consumption limit to achieve 100% Sustainability is roughly 13,000 AFY. Based on a projected population of 91,487 in 2020, the per capita consumption rate comparisons for baseline (2003-2007), SBx7-7, and 100% sustainability are shown below in **Table 4.7**:

Table 4.7
2020 Consumption Comparison
(Population = 91,487)

Baseline 03-07 (AF)	SBx7-7 Target (AF)	100% Sustainability (AF)
15,167	12,600	13,000
Per Capita Consumption Rate Needed		
148	123	127

The 2012 projected water consumption rate is anticipated to reach about 130 GPCD. Therefore, the City is on track to achieve its 100% sustainability goal provided that groundwater capacity is maximized. The data shown above assumes that the City will have to maximize its groundwater production capacity in order to achieve a production rate of 12,400 AFY. However, the City may, in its safe yield analysis of the Basin, determine that its safe-yield production capacity is greater than 12,400 AFY and may by 2020 achieve a production greater than 12,400 AFY. Conversely, the City may be unable to maximize its groundwater production beyond the current capacity of 9,500 AFY.

4.6 PROJECTED WATER USE

Future water use projections must consider significant factors on water demand, such as development and/or redevelopment, and climate patterns, among other less significant factors which affect water demand. Although redevelopment is expected to be an ongoing process, it is not expected to significantly impact water use since the City is already in a "built-out" condition. Rainfall, however, will continue to extend a major influence on demand as drought conditions will increase demand at a time when these supplies are limited and may therefore result in water use restrictions in accordance with the City's Water Shortage Response Plan (i.e. Advisory, Stage 1, etc). As the City's population continues to grow and as water conservation measures continue to be implemented, the City should experience moderate increases in its water consumption due only to population increases. Per capita consumption rates, however, should be expected to remain in compliance with State law (123.2 GPCD).

For planning purposes, the City's projected water use for 2015-2035 is broken down by sector in **Table 4.8.** The residential sector includes low-income housing units as the Housing Element for the City lists 164 low and very low income housing units to meet the City's Housing Needs Assessment. The estimated residential per unit water demand is 0.70 acre-feet/unit/year and thus 115 acre-feet/year is needed to supply these projected lower income housing units. These water demands are included in future water demand projections for single and multi-family homes listed in **Table 4.8** on the following page.

Table 4.8
Projected Water Use By Sector Based on SBx7-7 Consumption Requirement of 123 GPCD*

Sector	2015	2020	2025	2030	2035
Single Family Residential	2,991	2,998	3,006	3,013	3,019
Multi-Family Residential	4,883	4,896	4,908	4,920	4,930
Commercial/Institutional	3,046	3,054	3,062	3,069	3,075
Landscape Irrigation	562	563	565	566	567
Subtotal:	**11,481**	**11,511**	**11,541**	**11,567**	**11,592**
Unaccounted For Water	1,111	1,114	1,116	1,119	1,121
Total Water Use:	**12,592**	**12,625**	**12,657**	**12,686**	**12,713**

*Based on consumption rate of 123 GPCD, City should expect 100% sustainability through 2035 and beyond if local production is maximized

SECTION 5: RELIABILITY PLANNING

5.1 INTRODUCTION

Drought conditions continue to be a critical issue for Southern California's water supply. As the population of Southern California continues to increase and as environmental regulations restrict imported and local water supplies, it is important that each agency manage its water consumption in the face of drought. This can be accomplished through conservation and supply augmentation, and additionally through prohibitions under penalty of law during times of seasonal or catastrophic shortage in accordance with local ordinances.

This section discusses local and regional efforts to ensure a reliable supply of water and compares projected supply to projected demand. Demand and supply projections are provided in **Tables 5.5- 5.11**.

5.2 HISTORIC DROUGHTS

California experienced a drought during 1976-77. The City of Santa Monica enacted a Drought Ordinance in July 1977 as a direct response to the drought conditions. The ordinance declared that Santa Monica was suffering from a drought emergency and structured water use reduction in five phases, culminating in overall goal of a 25% reduction. The ordinance also declared that Phase I, a reduction of 10% overall water usage, was in effect. The ordinance mainly targeted residential customers and used a straight percentage allocation plan requiring usage reduction.

The local region experienced the next prolonged drought from 1987 through 1992. The City met its customers' needs by investing in an aggressive water demand reduction program during the summer of 1988. The program, titled "Just Say No to Drips" was developed in response to the drought and to an overall need for conservation. Several measures were developed in 1988 and all fell under the "Just Say No to Drips" program. The City adopted a "No Water Waste" Ordinance in 1989. This "No Water Waste" Ordinance established water conservation statutes and provided punitive measures for failure to observe the statutes. This ordinance was issued to help the City achieve a goal of 10% reduction in water consumption.

Figure 5.1: Lake Oroville: Drought Conditions

In 1990, the City enacted an Emergency Water Conservation Plan, which augmented the 1989 "No Water Waste" Ordinance by initiating several other water conservation activities. On September 20, 1994, the City adopted the Santa Monica Sustainable City Program, which was updated by the 2003 Sustainable City Plan (Appendix F). Santa Monica is committed to protecting, preserving and restoring the natural environment.

5.3 REGIONAL SUPPLY RELIABILITY

As a result of continued challenges to its water supplies, MWD understands the importance of reliable water supplies. MWD strives to meet the water needs of Southern California by developing new projects to increase the capacity of its supplies while encouraging its member agencies to develop local supply project to meet the needs of its customers. Also, MWD is committed to developing and maintaining high-capacity storage reservoirs, such as Diamond Valley Lake, to meet the needs of the region during times of drought and emergency.

Figure 5.2: MWD's 800,000 AF Diamond Valley Lake

MWD operates Diamond Valley lake, an 800,000 AF reservoir, to avoid the repercussions of reduced supplies from the SWP and CRA. In addition, MWD operates several additional storage reservoirs in Riverside, San Bernardino, and San Diego Counties to store water obtained from the SWP and the CRA. Storage reservoirs like these are a key component of MWD's supply capability and are crucial to MWD's ability to meet projected demand without having to implement the Water Supply Allocation Plan (WSAP). This is crucial since the SWP and CRA have become more restricted which could render the City's supplies more vulnerable to shortage.

Colorado River Aqueduct Reliability

Water supply from the CRA continues to be a critical issue for Southern California as MWD competes with several agricultural

water agencies in California for unused water rights to the Colorado River. Although California's allocation has been established at 4.4 million acre-feet (MAF) per year, MWD's allotment stands at 550,000 AFY with additional amounts which increase MWD's allotment to 842,000 AFY if there is any unused water from the agricultural agencies.

MWD recognizes that due to competition from other states and other agencies within California has decreased the CRA's supply reliability. In 2003, the Quantification Settlement Agreement (QSA) was signed which facilitated the transfer of water from agricultural agencies to urban uses.

State Water Project Reliability

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

On an annual basis, each of the 29 SWP contractors including Metropolitan request an amount of SWP water based on their anticipated yearly demand. In most cases, Metropolitan's requested supply is equivalent to its full Table A Amount. After receiving the requests, DWR assesses the amount of water supply available based on precipitation, snow pack on northern California watersheds, volume of water in storage, projected carry over storage, and Sacramento-San Joaquin Bay Delta regulatory requirements. For example, the SWP annual delivery of water to contractors has ranged from 552,600 AFY in 1991 to 3.5 MAF in 2000. Due to the uncertainty in water supply, contractors are not typically guaranteed their full Table A Amount, but instead a percentage of that amount based on the available supply.

Each December, DWR provides the contractors with their first estimate of allocation for the following year. As conditions develop throughout the year, DWR revises the allocations.

Figure 5.3: State Water Project (SWP)

Due to the variability in supply for any given year, it is important to understand the reliability of the SWP to supply a specific amount of water each year to the contractors.

Current Reservoir Levels

Statewide, storage reservoir levels rise and fall due to seasonal climate changes which induce increase in demand. During periods of drought, reservoir levels can drop significantly and can limit the amount of supplies available. As a result, both DWR and MWD monitor their reservoir levels regularly. In 2009, conditions of several key reservoirs indicated drought conditions. Currently, reservoir levels are high as indicated by **Figures 5.4** and **5.5**:

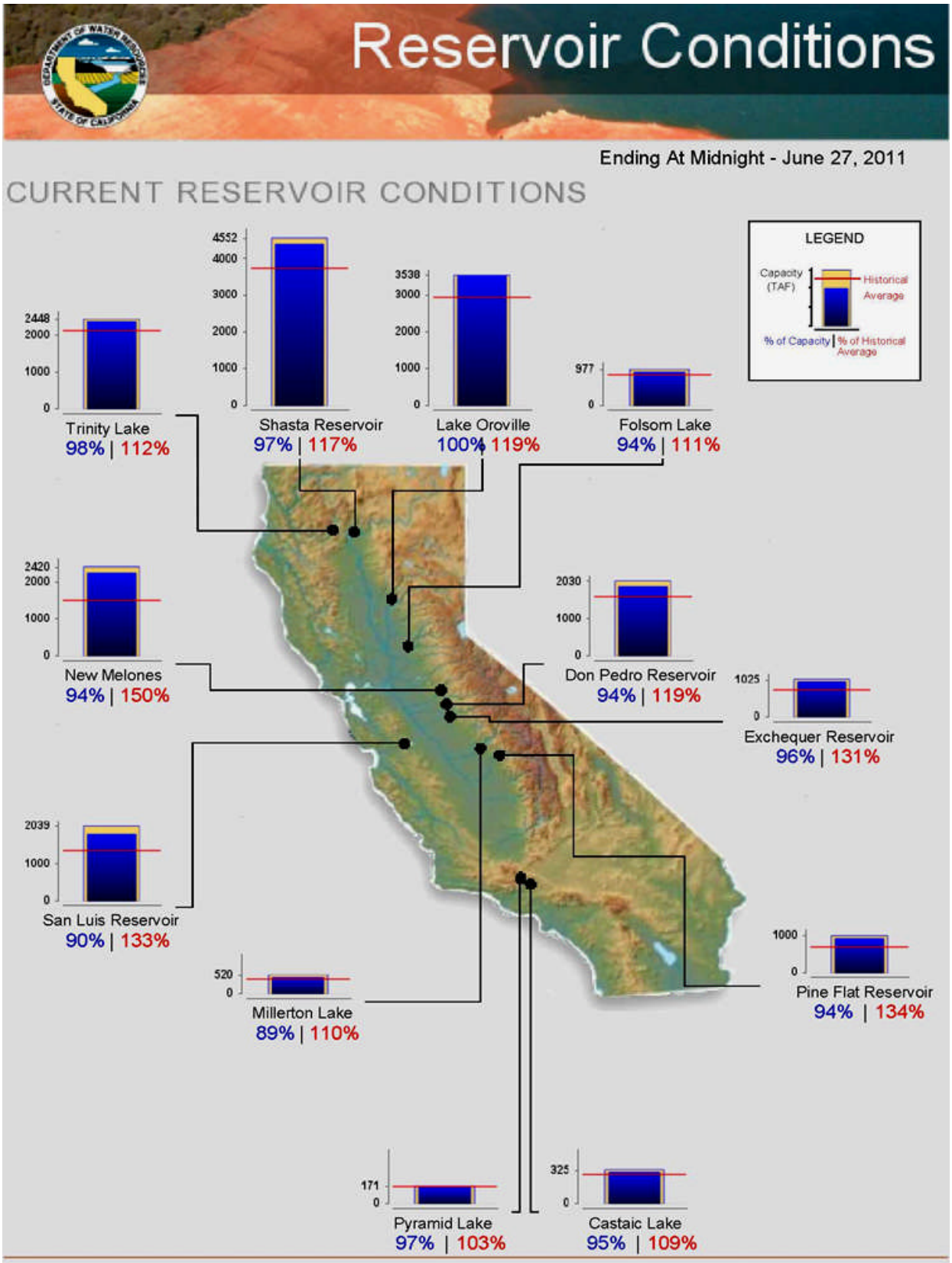

Figure 5.4: California State Reservoir Levels

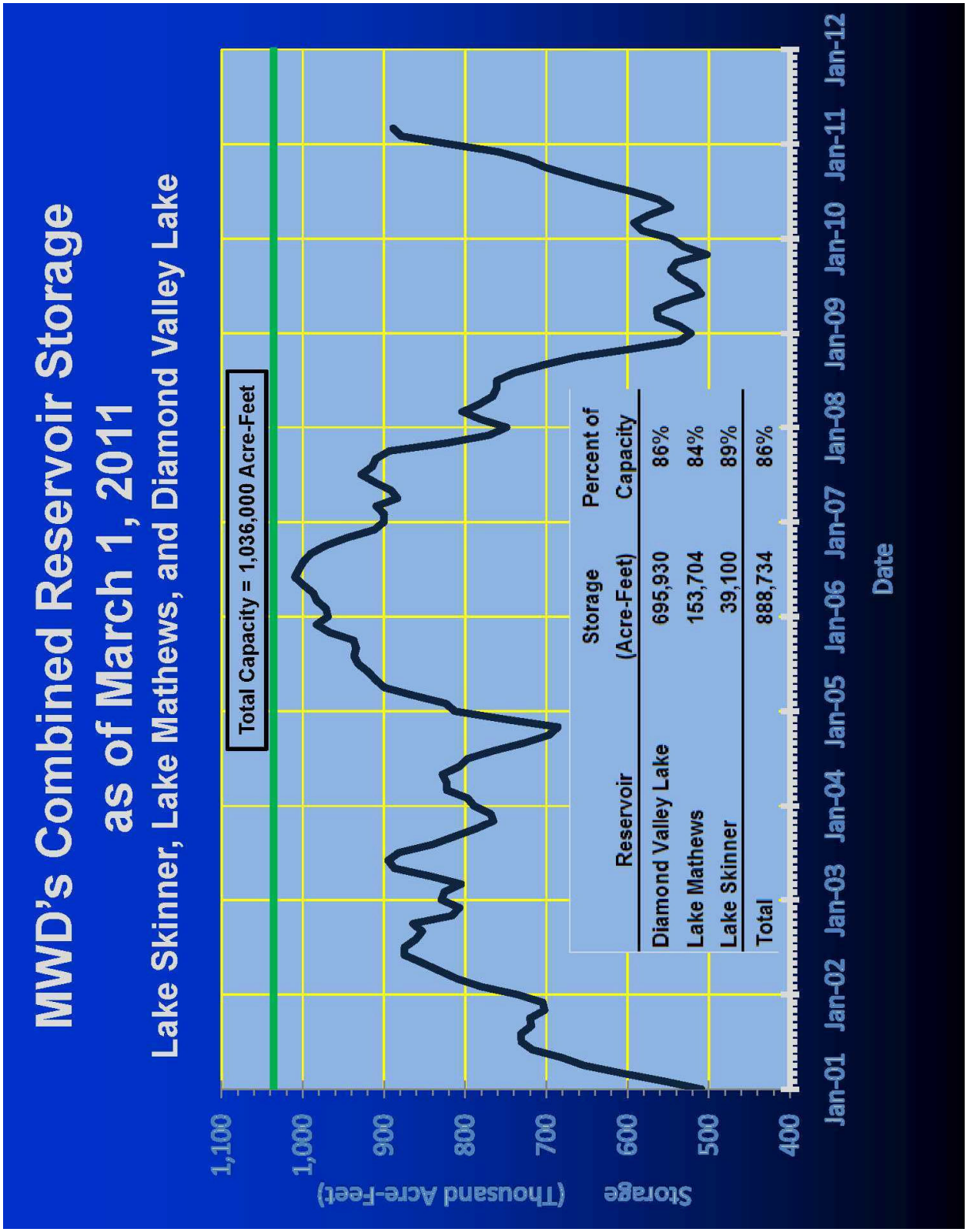

Figure 5.5: MWD Reservoir Levels

5.4 SUPPLY VS. DEMAND

As the City obtains its water sources from local groundwater, imported water, and recycled dry weather urban runoff, the City's water supply reliability is based on the capacity and vulnerability of its infrastructure in addition to the seasonal demand changes brought about by periods of drought. Population growth will also continue to be a factor in future reliability projections. Since the City is pursuing 100% local water sustainability, having continued access to imported water increases the City's supply reliability.

Regional Supply Reliability

Southern California is expected to experience an increase in regional demands in the years 2015 through 2035 as a result of population growth. Although increases in demand are expected, they are limited due to the requirements of SBx7-7 which provides a cap on water consumption rates (i.e. per capita water use). It can be reasonably expected that the majority of agencies will be at or near their compliance targets by 2020 and thereafter as conservation measures are more effectively enforced.

Tables 2.9-2.11 of MWD's 2010 RUWMP shows supply reliability projections for average and single dry years through the year 2035. The data in these tables is important to effectively project and analyze supply and demand over the next 25 years for many regional agencies. It is noteworthy that Projected Supplies During a Single Dry Year and Multiple Dry Years indicates MWD's projected supply will exceed its projected single dry year and multiple dry year demands in all years. Likewise, for average years, MWD supply exceeds projected demands for all years. The data contained in these tables has an indirect effect on the City's imported supply capacity and thus this data will also be used to develop the City's projected supply and demand over the next 25 years.

City Supply Reliability

To project future supply and demand comparisons, it will be assumed that demand will increase annually based on population growth and a constant of 123 GPCD in accordance with SBx7-7 requirements. **Table 5.1** contains the projected populations that will be used to project demand:

Table 5.1
City of Santa Monica
Population Projections

Year	Population
2015	91,243
2020	91,487
2025	91,716
2030	91,926
2035	92,124
Demand = Population x GPCD Rate	

During times of drought, demand will increase at a time when supply will decrease. To project demands during drought periods, the following factors measured from actual demand data from dry years 2002-2004 will be assumed:

- **Single Dry Year Demand Increase**: 104.1% of Normal
- **Multiple Dry Year Demand Increases (Years 1, 2, & 3)**: 104.1%, 103.8 %, 106.0% of Normal

Table 5.2
MWD Regional Imported Water Supply Reliability Projections
Average and Single Dry Years (AF)

Row	Region Wide Projections	2015	2020	2025	2030	2035
Supply Information						
A	Projected Supply During an Average Year[1]	3,485,000	3,810,000	4,089,000	3,947,000	3,814,000
B	Projected Supply During a Single Dry Year[1]	2,.457,000	2,782,000	2,977,000	2,823,000	2,690,000
C = B/A	Projected Supply During a Single Dry Year as a % of Average Supply	**70.5**	**73.0**	**72.8**	**71.5**	**70.5**
Demand Information						
D	Projected Demand During an Average Year	2,006,000	1,933,000	1,985,000	2,049,000	2,106,000
E	Projected Demand During a Single Dry Year	2,171,000	2,162,000	2,201,000	2,254,000	2,319,000
F = E/D	Projected Demand During a Single Dry Year as a % of Average Demand	**108.2**	**111.8**	**110.9**	**110.0**	**110.1**
Surplus Information						
G = A-D	Projected Surplus During an Average Year	1,479,000	1,877,000	2,104,000	1,898,000	1,708,000
H = B-E	Projected Surplus During a Single Dry Year	286,000	620,000	776,000	569,000	371,000
Additional Supply Information						
I = A/D	Projected Supply During an Average Year as a % of Demand During an Average Year	**173.7**	**197.1**	**206.0**	**192.6**	**181.1**
J = A/E	Projected Supply During an Average Year as a % of Demand During Single Dry Year	**160.5**	**176.2**	**185.8**	**175.1**	**164.5**
K = B/E	Projected Supply During a Single Dry Year as a % of Single Dry Year Demand (including surplus)	**113.2**	**128.7**	**135.3**	**125.2**	**116.0**

Table 5.3
MWD Regional Imported Water Supply Reliability Projections
Average and Multiple Dry Years (AF)

Row	Region Wide Projections	2015	2020	2025	2030	2035
Supply Information						
A	Projected Supply During an Average Year[1]	3,485,000	3,810,000	4,089,000	3,947,000	3,814,000
B	Projected Supply During Multiple Dry Year Period*	2,248,000	2,417,000	2,520,000	2,459,000	2,415,000
C = B/A	Projected Supply During Multiple Dry Year as a % of Average Supply	**64.5**	**63.4**	**61.6**	**62.3**	**63.3**
Demand Information						
D	Projected Demand During an Average Year	2,006,000	1,933,000	1,985,000	2,049,000	2,106,000
E	Projected Demand During Multiple Dry Year Period[2]	2,236,000	2,188,000	2,283,000	2,339,000	2,399,000
F = E/D	Projected Demand During Multiple Dry Year Period as a % of Average Demand	**111.5**	**113.2**	**115.0**	**114.2**	**113.9**
Surplus Information						
G = A-D	Projected Surplus During an Average Year	1,479,000	1,877,000	2,104,000	1,898,000	1,708,000
H = B-E	Projected Surplus During Multiple Dry Year Period	12,000	229,000	237,000	120,000	16,000
Additional Supply Information						
I = A/D	Projected Supply During an Average Year as a % of Demand During an Average Year	**173.7**	**197.1**	**206.0**	**192.6**	**181.1**
J = A/E	Projected Supply During an Average Year as a % of Demand During Multiple Dry Year	**155.9**	**174.1**	**179.1**	**168.7**	**159.0**
K = B/E	Projected Supply During a Multiple Dry Year as a % of Multiple Dry Year Demand (including surplus)	**100.5**	**110.5**	**110.4**	**105.1**	**100.7**

Table 5.4
City of Santa Monica Water Supply Availability & Demand Projections
Normal Water Year (AF)

Water Sources	2015	2020	2025	2030	2035
Supply					
Imported Water	11,515	11,515	11,515	11,515	11,515
Groundwater	12,400	12,400	12,400	12,400	12,400
Recycled Dry Weather Urban Runoff	560	560	560	560	560
Total Supply	**24,475**	**24,475**	**24,475**	**24,475**	**24,475**
Demand					
Total Demand	**12,592**	**12,625**	**12,657**	**12,686**	**12,713**
% of 2005-2009 Avg. Demand (14,687)	85.73%	85.96%	86.18%	86.38%	86.56%
Supply/Demand Comparison					
Supply/ Demand Difference	11,883	11,850	11,818	11,789	11,762
Difference as % of Supply	48.55%	48.42%	48.29%	48.17%	48.06%
Difference as % of Demand	94.37%	93.86%	93.37%	92.93%	92.52%

Table is intended only to show City will be able to meet demand for all years per the following*:

1. Total Demand based on 123 GPCD (SBx7-7) multiplied by population projections of Table 5.1

2. Imported Water Supply represents supply available to City, if needed, based on the City's MWD Tier 1 Limit of 11,515 AFY

3. Groundwater Supplies based on previous safe yield estimates (12,400 AFY) assuming City will maximize well production from its current rate of 9,500 AFY to 12,400 AFY

4. Recycled Dry Weather Urban Runoff Supplies based on the average capacity of the SMURRF (500,000 GPD) operating 365 days per year

*This Table not intended to be a projection of City's actual groundwater production. City may pump amounts different from its adjudicated right of 12,400 AFY based on production and treatment capacity of its well facilities.

*This Table is not intended to be a projection of City's actual demand. Demand of 123 GPCD is based on SBx7-7 limits. Actual demand may be below the SBx7-7 limit of 123 GPCD in accordance with water efficiency trends or mandates in the City.

Table 5.5
City of Santa Monica Water Supply Availability & Demand Projections
Single Dry Year (AF)

Water Sources	2015	2020	2025	2030	2035
Supply					
Imported Water	11,515	11,515	11,515	11,515	11,515
Groundwater	12,400	12,400	12,400	12,400	12,400
Recycled Dry Weather Urban Runoff	100	100	100	100	100
Total Supply	**24,015**	**24,015**	**24,015**	**24,015**	**24,015**
Normal Year Supply	24,475	24,475	24,475	24,475	24,475
% of Normal Year	98%	98%	98%	98%	98%
Demand					
Total Demand	**13,108**	**13,143**	**13,176**	**13,206**	**13,235**
Normal Year Demand	12,592	12,625	12,657	12,686	12,713
% of Normal Year	104.1%	104.1%	104.1%	104.1%	104.1%
Supply/Demand Comparison					
Supply/Demand Difference	10,907	10,872	10,839	10,809	10,780
Difference as % of Supply	45.42%	45.27%	45.13%	45.01%	44.89%
Difference as % of Demand	83.21%	82.72%	82.26%	81.85%	81.46%

Table is intended only to show City will be able to meet demand for all years per the following*:

1. Total Demand based on 123 GPCD (SBx7-7) multiplied by population projections of Table 5.1 and by single dry year increase of 104.1%

2. Recycled Dry Weather Urban Runoff Supplies based on previous dry year supplies in 2007 (about 100 AF)

3. All other items derived in similitude to Table 5.4

*See notes below Table 5.4 for explanation of groundwater supply / overall demand

Table 5.6
City of Santa Monica Water Supply Availability & Demand Projections
Multiple Dry Years (2011-2015) (AF)

Water Sources	2011	2012	2013	2014	2015
Supply					
	Normal Years		**Multiple Dry Years**		
Imported Water	11,515	11,515	11,515	11,515	11,515
Groundwater	12,400	12,400	12,400	12,400	12,400
Recycled Dry Weather Urban Runoff	560	560	100	100	100
Total Supply	**24,475**	**24,475**	**24,015**	**24,015**	**24,015**
Normal Year Supply	24,475	24,475	24,475	24,475	24,475
% of Normal Year	100%	100%	98%	98%	98%
Demand					
	Normal Years		**Multiple Dry Years**		
Total Demand	**12,558**	**12,564**	**13,086**	**13,055**	**13,347**
Normal Year Demand	12,558	12,564	12,571	12,577	12,592
% of Normal Year	100.0%	100.0%	104.1%	103.8%	106.0%
Supply/Demand Comparison					
	Normal Years		**Multiple Dry Years**		
Supply/Demand Difference	11,917	11,911	10,929	10,960	10,668
Difference as % of Supply	48.69%	48.66%	45.51%	45.64%	44.42%
Difference as % of Demand	94.89%	94.80%	83.52%	83.95%	79.93%

Table is intended only to show City will be able to meet demand for all years per the following*:

1. Total Demand based on 123 GPCD (SBx7-7) multiplied by population projections of Table 5.1 and by multiple dry year increases of 104.1%, 103.8%, and 106.0%

2. Recycled Dry Weather Urban Runoff Supplies based on previous dry year supplies in 2007 (about 100 AF)

3. All other items derived in similitude to Table 5.4

*See notes below Table 5.4 for explanation of groundwater supply / overall demand

Table 5.7
City of Santa Monica Water Supply Availability & Demand Projections
Multiple Dry Years (2016-2020) (AF)

Water Sources	2016	2017	2018	2019	2020
Supply					
	Normal Years		**Multiple Dry Years**		
Imported Water	11,515	11,515	11,515	11,515	11,515
Groundwater	12,400	12,400	12,400	12,400	12,400
Recycled Dry Weather Urban Runoff	560	560	100	100	100
Total Supply	**24,475**	**24,475**	**24,015**	**24,015**	**24,015**
Normal Year Supply	24,475	24,475	24,475	24,475	24,475
% of Normal Year	100%	100%	98%	98%	98%
Demand					
	Normal Years		**Multiple Dry Years**		
Total Demand	**12,598**	**12,604**	**13,128**	**13,096**	**13,383**
Normal Year Demand	12,598	12,604	12,611	12,617	12,625
% of Normal Year	100.0%	100.0%	104.1%	103.8%	106.0%
Supply/Demand Comparison					
	Normal Years		**Multiple Dry Years**		
Supply/Demand Difference	11,877	11,871	10,887	10,919	10,632
Difference as % of Supply	48.53%	48.50%	45.34%	45.47%	44.27%
Difference as % of Demand	94.28%	94.18%	82.93%	83.37%	79.45%

Table is intended only to show City will be able to meet demand for all years per the following*:

1. Total Demand based on 123 GPCD (SBx7-7) multiplied by population projections of Table 5.1 and by multiple dry year increases of 104.1%, 103.8%, and 106.0%

2. Recycled Dry Weather Urban Runoff Supplies based on previous dry year supplies in 2007 (about 100 AF)

3. All other items derived in similitude to Table 5.4

*See notes below Table 5.4 for explanation of groundwater supply / overall demand

Table 5.8
City of Santa Monica Water Supply Availability & Demand Projections
Multiple Dry Years (2021-2025) (AF)

Water Sources	2021	2022	2023	2024	2025
Supply					
	Normal Years		**Multiple Dry Years**		
Imported Water	11,515	11,515	11,515	11,515	11,515
Groundwater	12,400	12,400	12,400	12,400	12,400
Recycled Dry Weather Urban Runoff	560	560	100	100	100
Total Supply	**24,475**	**24,475**	**24,015**	**24,015**	**24,015**
Normal Year Supply	24,475	24,475	24,475	24,475	24,475
% of Normal Year	100%	100%	98%	98%	98%
Demand					
	Normal Years		**Multiple Dry Years**		
Total Demand	**12,632**	**12,638**	**13,163**	**13,131**	**13,416**
Normal Year Demand	12,632	12,638	12,644	12,651	12,657
% of Normal Year	100.0%	100.0%	104.1%	103.8%	106.0%
Supply/Demand Comparison					
	Normal Years		**Multiple Dry Years**		
Supply/Demand Difference	11,843	11,837	10,852	10,884	10,599
Difference as % of Supply	48.39%	48.36%	45.19%	45.32%	44.13%
Difference as % of Demand	93.76%	93.66%	82.45%	82.88%	79.00%

Table is intended only to show City will be able to meet demand for all years per the following*:

1. Total Demand based on 123 GPCD (SBx7-7) multiplied by population projections of Table 5.1 and by multiple dry year increases of 104.1%, 103.8%, and 106.0%

2. Recycled Dry Weather Urban Runoff Supplies based on previous dry year supplies in 2007 (about 100 AF)

3. All other items derived in similitude to Table 5.4

*See notes below Table 5.4 for explanation of groundwater supply / overall demand

Table 5.9
City of Santa Monica Water Supply Availability & Demand Projections
Multiple Dry Years (2026-2030) (AF)

Water Sources	2026	2027	2028	2029	2030
Supply					
	Normal Years		**Multiple Dry Years**		
Imported Water	11,515	11,515	11,515	11,515	11,515
Groundwater	12,400	12,400	12,400	12,400	12,400
Recycled Dry Weather Urban Runoff	560	560	100	100	100
Total Supply	**24,475**	**24,475**	**24,015**	**24,015**	**24,015**
Normal Year Supply	24,475	24,475	24,475	24,475	24,475
% of Normal Year	100%	100%	98%	98%	98%
Demand					
	Normal Years		**Multiple Dry Years**		
Total Demand	**12,663**	**12,670**	**13,196**	**13,164**	**13,447**
Normal Year Demand	12,663	12,670	12,676	12,682	12,686
% of Normal Year	100.0%	100.0%	104.1%	103.8%	106.0%
Supply/Demand Comparison					
	Normal Years		**Multiple Dry Years**		
Supply/Demand Difference	11,812	11,805	10,819	10,851	10,568
Difference as % of Supply	48.26%	48.23%	45.05%	45.18%	44.01%
Difference as % of Demand	93.28%	93.18%	81.99%	82.43%	78.59%

Table is intended only to show City will be able to meet demand for all years per the following*:

1. Total Demand based on 123 GPCD (SBx7-7) multiplied by population projections of Table 5.1 and by multiple dry year increases of 104.1%, 103.8%, and 106.0%

2. Recycled Dry Weather Urban Runoff Supplies based on previous dry year supplies in 2007 (about 100 AF)

3. All other items derived in similitude to Table 5.4

*See notes below Table 5.4 for explanation of groundwater supply / overall demand

Table 5.10
City of Santa Monica Water Supply Availability & Demand Projections
Multiple Dry Years (2031-2035) (AF)

Water Sources	2031	2032	2033	2034	2035
Supply					
	Normal Years		**Multiple Dry Years**		
Imported Water	11,515	11,515	11,515	11,515	11,515
Groundwater	12,400	12,400	12,400	12,400	12,400
Recycled Dry Weather Urban Runoff	560	560	100	100	100
Total Supply	**24,475**	**24,475**	**24,015**	**24,015**	**24,015**
Normal Year Supply	24,475	24,475	24,475	24,475	24,475
% of Normal Year	100%	100%	98%	98%	98%
Demand					
	Normal Years		**Multiple Dry Years**		
Total Demand	**12,692**	**12,699**	**13,226**	**13,194**	**13,476**
Normal Year Demand	12,692	12,699	12,705	12,711	12,713
% of Normal Year	100.0%	100.0%	104.1%	103.8%	106.0%
Supply/Demand Comparison					
	Normal Years		**Multiple Dry Years**		
Supply/Demand Difference	11,783	11,776	10,789	10,821	10,539
Difference as % of Supply	48.14%	48.12%	44.93%	45.06%	43.88%
Difference as % of Demand	92.83%	92.74%	81.58%	82.01%	78.20%

Table is intended only to show City will be able to meet demand for all years per the following*:

1. Total Demand based on 123 GPCD (SBx7-7) multiplied by population projections of Table 5.1 and by multiple dry year increases of 104.1%, 103.8%, and 106.0%

2. Recycled Dry Weather Urban Runoff Supplies based on previous dry year supplies in 2007 (about 100 AF)

3. All other items derived in similitude to Table 5.4

*See notes below Table 5.4 for explanation of groundwater supply / overall demand

Based on the data contained in **Tables 5.2-5.10**, the City can expect to meet future demands through 2035 for all climatologic classifications. Projected groundwater and imported water supply capacities are not expected to be significantly affected during times of low rainfall and over short term dry periods of up to three years. However, during prolonged periods of drought, the City's imported water supply capacities may potentially be reduced significantly due to reductions in MWD's storage reservoirs resulting from increases in regional demand.

5.5 VULNERABILITY OF SUPPLY

Due to the semi-arid nature of the City's climate and as a result of past drought conditions, the City is vulnerable to water shortages due to its climatic environment and seasonally hot summer months. While the data shown in **Tables 5.4** through **5.10** identifies water availability during single and multiple dry year scenarios, response to a future drought would follow the water use efficiency mandates of the City's 2009 Water Shortage Response Plan (WSRP), along with implementation of the appropriate stage of regional plans such as the WSDM Plan (MWD). These programs are discussed in Section 7.

5.6 WATER SUPPLY OPPORTUNITIES

City Projects

The City continually reviews practices that will provide its customers with adequate and reliable supplies. As discussed in previous sections, the City may consider maximizing its groundwater supply capacity through the drilling of additional wells to meet its 100% sustainability goals. The City may also consider recycling additional urban runoff from Los Angeles County drains that are presently discharging into Santa Monica Bay, such as the Wilshire Boulevard and Montana Avenue drains. However, the economics of purchasing the necessary land to build future recycling plants will be an important factor in assessing the economic viability of these projects.

Due to this fact, the City does not currently have any specific plans for additional water supply projects other than ongoing maintenance and upgrades to its existing wells, storage reservoirs, and SMURRF. Once the City completes its Water Master Plan in 2012, the City will identify specific means of achieving their sustainability goals which will likely include water supply projects.

Regional Projects (MWD)

MWD is implementing water supply alternative strategies for the region and on behalf of member agencies to ensure available water in the future. Some of these strategies include:

- Conservation
- Water recycling & groundwater recovery
- Storage/groundwater management programs within the region
- Storage programs related to the SWP and the Colorado River
- Other water supply management programs outside of the region

MWD has made investments in conservation and supply augmentation as part of its long-term water management strategy. MWD's approach to a long-term water management strategy was to develop an Integrated Resource Plan (IRP) to include many supply sources. A brief description of the various programs implemented by MWD to improve reliability is included **Table 5.11** below:

Table 5.11
MWD IRP 2010 Regional Resources Status

Supply	Description	
Colorado River Aqueduct (CRA)	Metropolitan holds a basic apportionment of Colorado River water and has priority for an additional amount depending on availability of surplus supplies. Water management programs supplement these apportionments.	
State Water Project (SWP)	Metropolitan receives water delivered under State Water Contract provisions, including Table A contract supplies, use of carryover storage in San Luis Reservoir, and Article 21 interruptible supplies.	
Conservation	Metropolitan and the member agencies sponsor numerous conservation programs in the region that involve research and development, incentives, and consumer behavior modification.	
	Code-Based Conservation	Water savings resulting from plumbing codes and other institutionalized water efficiency measures.
	Active Conservation	Water saved as a direct result of programs and practices directly funded by a water utility, e.g., measures outlined by the California Urban Water Conservation Council's (CUWCC) Best Management Practices (BMPs). Water savings from active conservation completed through 2008 will decline to zero as the lifetime of those devices is reached. This will be offset by an increase in water savings for those devices that are mandated by law, plumbing codes or other efficiency standards.
	Price Effect Conservation	Reductions in customer use attributable to changes in the real (inflation adjusted) cost of water.
Local Resources	*Groundwater*	Member-agency produced groundwater from the groundwater basins within the service area.
	Groundwater Recovery	Locally developed and operated, groundwater recovery projects treat contaminated groundwater to meet potable use standards. Metropolitan offers financial incentives to local and member agencies through its Local Resources Program for recycled water and groundwater recovery. Details of the local resources programs are provided in **Appendix A.6**.
	Los Angeles Aqueduct (LAA)	A major source of imported water is conveyed from the Owens Valley via the LAA by Los Angeles Department of Water and Power (LADWP). Although LADWP imports water from outside of Metropolitan's service area, Metropolitan classifies water provided by the LAA as a local resource because it is developed and controlled by a local agency.
	Recycling	Recycled water projects recycle wastewater for M&I use.
	Surface Water	Surface water used by member agencies comes from stream diversions and rainwater captured in reservoirs.
Groundwater Conjunctive Use Storage Programs	Metropolitan sponsors various groundwater storage programs, including, cyclic storage programs, long-term replenishment storage programs, and contractual conjunctive use programs. Details of the groundwater storage programs are provided in **Appendix A.4**.	
Surface Water Storage	Metropolitan reservoirs (Diamond Valley Lake, Lake Mathews, Lake Skinner) and flexible storage in California Department of Water Resources (DWR) reservoirs (Castaic Lake, Lake Perris). Details of the surface storage reservoirs are provided in **Appendix A.5**.	
Central Valley Storage & Transfers	Central Valley storage programs consist of partnerships with Central Valley water districts to allow Metropolitan to store SWP supplies in wetter years for return in drier years. Metropolitan's Central Valley transfer programs consist of partnerships with Central Valley Project and SWP settlement contractors to allow Metropolitan to purchase water in drier years. Details of the Central Valley Storage and Transfer programs are provided in **Appendix A.3**.	

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SECTION 6: CONSERVATION MEASURES

6.1 INTRODUCTION

As a result of diminished existing supplies and difficulty in developing new supplies, water conservation is important to Southern California's sustainability. Therefore, the City acknowledges that efficient water use is the foundation of its current and future water planning and operations policies.

To conserve California's water resources, several public water agencies, and other interested parties of the California Urban Water Conservation Council (CUWCC) drafted the Memorandum of Understanding Regarding Urban Water Conservation (MOU) in 1991. The MOU establishes 14 Best Management Practices (BMPs) which are defined roughly as policies, programs, practices, rules, regulations, or ordinances that result in the more efficient use or conservation of water.

The 14 BMPs coincide with the 14 Demand Management Measures (DMMs) defined in the UWMP Act. The BMPs are intended to reduce long-term urban demands from what they would have been without their implementation and are in addition to programs which may be instituted during occasional water supply shortages.

6.2 CUWCC MEMBERSHIP

In 1991, the City became a signatory of the CUWCC by signing the MOU and has expedited implementation of water conservation measures. The City actively implements all 14 of the measures with good faith effort by achieving and maintaining the staffing, funding, and in general, the priority levels necessary to achieve the level of activity called for in each BMP's definition as described in the MOU. Water conservation is an integral part of the City's water policies.

Figure 6.1: Water Waste is Prohibited by City Code

As a member of CUWCC, the City is required to submit Bi-Annual Reports to the CUWCC which document the implementation of each BMP. The City has maintained compliance with the BMPs since becoming a signatory. Appendix E includes the CUWCC reports.

6.3 CONSERVATION MEASURES

As signatory to the MOU, the City has committed to use good-faith efforts to implement the 14 Demand Management Measures. In addition, the city has continued to work with the Metropolitan Water District to increase the effectiveness of its DMM programs and educate children on the importance of water conservation.

Overall, the city's conservation efforts as a member of CUWCC have led to efficient water use. These measurements have been updated to include the most recent data and implementation schedule for the DMM's. The city's 14 DMM's are summarized in **Table 6.1** on the following page:

Table 6.1
City Demand Management Measures
(CUWCC Best Management Practices)

Demand Management Measure		Description
DMM No. 1: Water Survey Programs for Single and Multi-Family Residential Customers		The City's water surveys are aimed at developing residential customer water use efficiency for both landscape and indoor water use.
DMM No. 2: Residential Plumbing Retrofit		The City's residential plumbing retrofit programs involve providing customers with water efficient plumbing devices such as low-flow showerheads.
DMM No. 3: System Water Audits, Leak Detection, and Repair		Conducted by water operations/maintenance staff, these programs aim at reducing water losses through a water agency's mains.
DMM No. 4: Metering With Commodity Rates		Providing water meters and charging for service is a key component to the City's water conservation policies.
DMM No. 5: Large Landscape Conservation Programs and Incentives		Smart timers and drip irrigation systems are among the devices used in the City to achieve landscape water use efficiency.
DMM No. 6: High-Efficiency Washing Machine Rebate Programs		Through this program, the City's customers can receive a rebate towards the purchase of a high-efficiency washing machine.
DMM No. 7: Public Information Programs	CALIFORNIA WATER AWARENESS CAMPAIGN	These programs provides the public information to promote water conservation and water conservation-related benefits.

Table 6.1 (cont.)
City Demand Management Measures
(CUWCC Best Management Practices)

Demand Management Measure		Description
DMM No. 8: School Education Programs		The City partners with MWD to provide children an opportunity learn the importance of water conservation
DMM No. 9: Conservation Programs for Comm./Indust./Institutional Accounts		Through this program, the City assists water using establishments in upgrading their plumbing devices.
DMM No. 10: Wholesale Agency Programs		Through this program, MWD provides the City with resources to advance water conservation efforts and effectiveness
DMM No. 11: Conservation Pricing		Through this program, the City provides economic incentives to customers to use water efficiently.
DMM No. 12: Water Conservation Coordinator		Through this program, the City establishes a conservation coordinator who oversees the City's water conservation measures.
DMM No. 13: Water Waste Prohibition		The City has ordinances in place which prohibit the waste of water and penalizes wasteful water use.
DMM No. 14: Residential Ultra Low Flush Toilet Replacement Program		Through this program, the City assists customers in replacing their existing toilets with water efficient models.

In addition to the 14 DMMs, the City also maintains the following conservation programs:

City of Santa Monica Water-Efficient Landscape Programs

- Rain Harvest Rebates: Property owners are eligible for up to $1,000 for the installation of rain barrels and/or cisterns. The City received $70,000 from the Department of Water Resources in 2010 to double the rebate amount for an additional 300 products.
- Sustainable Landscape Grants: Property owners are eligible for up to $5,000 to replace their existing sprinklers and water guzzling plants with drip irrigation and climate-appropriate plants. The City was awarded $250,000 from the Department of Water Resources in 2010 to fund 50 additional projects.
- Cash for Grass Rebates: Property owners are eligible for up to $1,000 to remove the lawn in the front yard and replace with climate-appropriate plants, mulch and drip irrigation. The City received co-funding from Metropolitan Water District for this program.
- Irrigation Rebate: Property owners are eligible for up to $500 to replace sprinklers with drip irrigation.
- Landscape Design, Installation, and Maintenance Classes: Free monthly classes are held for homeowners and landscape professionals. Each class highlights a specific element of sustainable landscaping that is required as part of the City's updated Water-Efficient Landscape and Irrigation Standards
- Water Conservation Ordinances: The City actively enforces it water conservation ordinance which prohibits irrigation runoff and water waste.

City of Santa Monica Water-Efficient Indoor Programs

- Rebates for qualified water-saving products: The city co-funds rebates totaling $40,000 each year through Metropolitan Water Districts' regional rebate programs.
- Water Audits - the City provides free water audits for homeowners, multi-family owners, and businesses to identify water-saving opportunities.

Additional information on the City's conservation programs can be found at: www.sustainablesm.org/water.

6.4 CITY CONSERVATION POLICIES

In 2003, the City updated the Sustainable City Plan, which includes goals for the City's government and the community to conserve and enhance Santa Monica's local resources, safeguard human health and the environment, maintain a healthy and diverse economy and improve the livability and quality of life for all of the community. The guiding principles of the 2003 plan are:

1. The concept of sustainability guides City policy.
2. Protection, preservation and restoration of the natural environment is a high priority of the City.
3. Environmental quality, economic health and social equity are mutually dependent.

4. All decisions have implications to the long-term sustainability of Santa Monica.
5. Community awareness, responsibility, participation, and education are key elements of a sustainable community.
6. Santa Monica recognizes its linkage with the regional, national and global community.
7. Those sustainability issues most important to the community will be addressed first, and the most cost-effective programs and policies will be selected.
8. The City is committed to procurement decisions which minimize negative environmental and social impacts.
9. Cross-sector partnerships are necessary to achieve sustainable goals.

The system level indicators for water use and their target goals are as follows:

Table 6.2
System Level Indicators & Targets

Water Use Indicators System Level	Targets
Total citywide use (also report per capita & by sector)	Reduce overall water use by 20% by 2010 (baseline year 2000)
Percent local vs. imported	Increase percentage of locally-obtained potable water to 70% by 2010.
Potable vs. non-potable	Of the total water used, non-potable water use shall be maximized.

As part of these policies, the City of Santa Monica is committed to implementing water conservation and water recycling programs to protect, preserve and restore the natural environment. The City's Office of Sustainability and the Environment (OSE) assists residents with free home water assessments, a water-efficient clothes washer rebate program, a rain barrel rebate program, a high efficiency toilet rebate program, landscaping grants & rebates for new or remodeled gardens demonstrating sustainable design, greywater tips and assists with educational guidance on water-saving methods at home and in business. The division's website offers indoor and outdoor water saving tips, educational programs and links to other environmental sites with water saving information.

The OSE also enforces the City's water conservation rules and regulations which include:

1. The Bay Save Fee Ordinance, which assesses a fee on water bills until fixtures are replaced with water conserving fixtures and a free water saving assessment is performed by City staff.
2. The Good Housekeeping Ordinance which includes anti-runoff provisions for irrigation and a prohibition of washing down paved areas with potable water.
3. The Selling Your Home/Property Ordinance that requires any building that changes owners since 1993 to be retrofitted with water conserving fixtures upon sale as a condition of escrow.
4. The No Water Waste Ordinance which prohibits irrigation between 10:00 am and 4:00 pm, prohibits the watering down of paved or hard-

surfaced areas, prohibits irrigation runoff, prohibits the filling of decorative fountains, prohibits the draining and re-filling of pools, requires water leaks to be repaired immediately, prohibits the washing of vehicles with a running hose and mandates that restaurants serve water only upon request. Staff assesses penalties in accordance with provisions of the ordinance and assists residents with voluntary compliance

5. The Green Building Ordinance which requires the most water-efficient plumbing fixtures, irrigation, and landscaping for new construction, major remodels, new or remolded landscapes.

The OSE also publishes news releases when water use goes up to help residents and business in eliminating waste, advertises water conservation on City buses, calls water customers after a rain event to encourage them to turn off their sprinklers, and also assists Water Resources Billing staff with bill enclosures promoting water conservation. As a result of the City's conservation achievements, the City of Santa Monica is recognized as one of the top ten leaders in sustainability in the United States.

SECTION 7: CONTINGENCY PLANNING

7.1 INTRODUCTION

Water supplies may be interrupted or reduced significantly in a number of ways including droughts, earthquakes, and power outages which hinder a water agencies ability to effectively delivery water. The ability to manage water supplies in times of drought or other emergencies is an important part of water resources management for a community. As the City receives imported water from MWD and extracts groundwater from the Santa Monica Basin, the City's response to an emergency will be a coordinated effort of its own staff in conjunction with other local and regional water agencies.

During water shortage emergencies, the City will implement its Water Shortage Response Plan which imposes up to a 50 percent reduction in the total water supply. The City will also work in conjunction with MWD to implement water shortage plans on a regional level.

7.2 CITY RESPONSE PLAN

In 2009, the Santa Monica City Council passed a Water Shortage Response Plan (WSRP), pursuant to City Municipal Code 7.16.030(c) which establishes five stages of water shortage severity based on predicted or actual water supply reductions. Each stage establishes water use reductions through voluntary or mandatory measures. Triggers for implementing the WSRP may include such events as a state or local emergency; natural disaster; a localized event that critically impacts the water supply; drought or the City's wholesale water agency imposing water allocation restrictions.

The objectives of the WSRP are to:

1. Prioritize essential uses of available water
2. Avoid irretrievable loss of natural resources
3. Manage current water supplies to meet ongoing and future needs
4. Maximize local municipal water supplies
5. Eliminate water waste city-wide
6. Create equitable demand reduction targets; and
7. Minimize adverse financial effects

The following priorities for use of available water are listed in order from highest to lowest priority:

1. Health and Safety including: consumption and sanitation for all water users; fire suppression; hospitals, emergency care, nursing and other convalescent homes and other similar health care facilities; shelters and water treatment
2. Institutions, including government facilities and schools such as public safety facilities, essential government operations, public pools and recreation areas
3. All non-essential commercial and residential water uses
4. Landscaped areas of significance, including parks, cemeteries, open spaces, government-facility landscaped areas and green belt areas
5. New water demand

Stages of Action

The WSRP establishes five stages of severity based on predicted or actual water supply reductions. Each stage establishes water use reductions either through voluntary or mandatory measures. Mandatory water restrictions include water use allowance for each water customer category. **Table 7.1** below outlines the stages of water shortage and water use reduction goals:

Table 7.1
Water Shortage Reduction Targets

Stage	Water Use Restrictions	Total Water Supply Reduction Percentage	City Wide Use Reduction Goal
Advisory	Voluntary	Shortage is Probable	10%
Stage 1	Mandatory	5-10%	15%
Stage 2	Mandatory	10-20%	20%
Stage 3	Mandatory	20-30%	30%
Stage 4	Mandatory	30+%	50%

The City Council may declare by resolution that an Advisory or Stage 1, 2, 3 or 4 Water Supply Shortage exists and that the actions outlined in the WSRP are necessary. The type of event which may prompt the City Council to declare an Advisory or Stage1, 2, 3, 4 Water Supply Shortage may include, among other factors, drought, state or local emergency, a natural disaster that critically impacts the water treatment or water distribution system, a localized event that critically impacts the water supply, water quality, water treatment or water distribution system, the City's wholesale water agency requests extraordinary water conservation efforts in order to avoid mandatory water allocations, the City's wholesale water agency implements a water allocation.

Metropolitan WSDM Plan

In addition to the provisions of the City's WSRP, the City will also work in conjunction with MWD to implement conservation measures within the framework of MWD's Water Surplus and Drought Management (WSDM) Plan. The WSDM Plan was developed in 1999 by MWD with assistance and input with its member agencies. The plan addresses both surplus and shortage contingencies.

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

be adopted in accordance with the principles of the WSDM Plan.

7.3 THREE-YEAR MINIMUM SUPPLY

Due to the inflows received from the Santa Monica Mountains (in addition to percolation) and limited outflows, the Santa Monica Basin is not as affected by dry seasons as other neighboring groundwater basins. Additionally, since the Santa Monica Basin is an unadjudicated basin, the lack of pumping restrictions has significant benefits for water supply reliability for the City during dry seasons. Thus, the City's groundwater supply is considered to be 100% reliable during all climatic seasons. Imported water, on the other hand, is contingent upon demand variances and available supplies during dry years. MWD, however, predicts 100% reliability of its supplies to meet demands during all climatic seasons. Recycled dry weather urban runoff from the City's SMURRF is heavily dependent on storm drain inflows and therefore will operate at a much lower capacity during dry seasons.

Based on the conditions described above, the City's three year minimum supply estimate is listed below in **Table 7.2**:

Table 7.2
Projected 3-yr Minimum Water Supply (AF)

Source	2011	2012	2013
Imported	11,500	11,500	11,500
Ground	12,400	12,400	12,400
Recycled	100	100	100
Total	**24,000**	**24,000**	**24,000**

Although the City desires to reduce become independent of imported water, the City should still expect 100% supply reliability during a three year drought as groundwater may be extracted beyond safe yield estimates for up to 7.5 years according to previous analyses conducted in a 2001 Komex H20 Science report.

7.4 CASTROPHIC INTERRUPTIONS

If water shortages are due to a catastrophic event such as a severe drought, earthquake, flood, or power outage, the City will take actions in accordance with its 2009 Water Shortage Response Plan for the appropriate water shortage severity. Additionally, the City will work in conjunction with other local and regional agencies. **Table 7.3** lists the actions the City will take during a catastrophic interruption of its water supply:

Table 7.3
Catastrophic Interruption Preparation Actions

No.	Preparation Action
1	Stretch existing water supply.
2	Obtain additional water supplies.
3	Develop alternative water supplies.
4	Determine where the funding will come from.
5	Contact and coordinate with other agencies.
6	Create an Emergency Response Team/Coordinator.
7	Create a catastrophe preparedness plan.
8	Place employees/contractors on call.
9	Develop methods to communicate with the public.
10	Develop methods to prepare for water quality interruptions.

In 2004, the City completed its Emergency Response Plan for its water system and also updates its City-wide Emergency Response

Plan annually. All actions to be undertaken during an emergency will follow the City's Emergency Response Plans and WSRP.

7.5 PROHIBITIONS

Mandatory Prohibitions

In accordance with the 2009 WSRP, the City has enacted several water use restrictions which are permanently enforced as part of the City's Municipal Code. Restrictions include the following:

- No landscape watering (10am-4pm) unless with drip irrigation is used.
- No runoff or overspray from excessive irrigation.
- No watering down hardscapes for cleaning.
- No washing of cars except with a hand-held bucket and positive action quick release shutoff valve.
- No filling of fountains, lakes, or ponds unless such features have a recycling system.
- Pools and spas must be covered to prevent evaporation.
- Eating establishments shall serve water only upon request.

The City's prohibitions on water use can be found in Section 7.16.020 of the City code.

Consumption Reduction Methods

In addition to the City's demand management measures, the following is a list of some of the consumption reduction methods the City may implement during a water shortage:

- Reduce pressure in water mains
- Flow restrictions
- Restrict building permits
- Restrict for only priority uses
- Water Shortage pricing
- Mandatory rationing

The City's consumption reduction methods are included in the City's Emergency Response Plan for its water system.

Penalties or Charges

Violation of the regulations and restrictions on water use set forth in the “No Water Waste” Ordinance constitutes an infraction punishable starting at $250. Each day that a violation occurs constitutes a separate offense. Any willful misrepresentation constitutes a misdemeanor punishable by a fine not to exceed five hundred dollars or by imprisonment for a period not to exceed six months or both, for any person to knowingly misrepresent any material fact to any representative of the City in any attempt or effort to circumvent or otherwise diminish the effectiveness of any of the requirements imposed by any part of the “No Water Waste” Ordinance.

7.6 FISCAL IMPACTS

The City has an established rate stabilization structure which includes rate increases to compensate the City of Santa Monica for operational expenses. When water use is down, fixed operational costs result in rate increases based upon usage to compensate the City for its expenses. Under normal water supply conditions, potable water production figures are recorded daily. Totals are reported monthly to the Water Resources Division Manager and incorporated into the water supply report. As previously mentioned, the City updated its Water Shortage Response Plan; particularly addressing water rationing stages, reduction goals, allotments and triggering mechanisms. The City’s revised plan is

consistent with the provisions outlined in MWD's emergency response plan and included in the Urban Water Management Plan after adoption.

7.7 COUNCIL ORDINANCE

In 2009, the Santa Monica City Council passed a Water Shortage Response Plan (WSRP), pursuant to City Municipal Code 7.16.030(c). Additionally, the City Council may implement the provisions of this plan by resolution, following a public hearing to determine the appropriate water shortage stage. A copy of the City's WSRP is included in Appendix G.

7.8 MECHANISMS TO DETERMINE REDUCTIONS IN WATER USE

Reductions in water use are tracked through the City's billing system, which tracks bi-monthly use for all metered connections. The used of a tiered rate structure also discourages high water use and OSE works with the public to reduce consumption.

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Appendix A: References

City of Santa Monica 2010 Urban Water Management Plan

References

1. City of Santa Monica. "2003 Sustainable City Plan" October, 2006
2. Metropolitan Water District of Southern California. "2010 MWD Regional Urban Water Management Plan (RUWMP)" December, 2010
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4. http://www.worldclimate.com/ "Weather, rainfall, and temperature data" April, 2011
5. City of Santa Monica. http://www.smgov.net/uploadedFiles/Departments/OSE/Categories/Education/RecyclingTourInfoSheet%202(1).pdf (Daytime Population Reference)
6. Metropolitan Water District of Southern California. "Chapter IV - Groundwater Basin Reports Los Angeles Coastal Plain Basins - Santa Monica Basin" September, 2007
7. California Department of Water Resources. "Coastal Plain of Los Angeles Groundwater Basin, Santa Monica Subbasin" (Bulletin 118) February, 2004
8. California Department of Water Resources. "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" February, 2011
9. City of Santa Monica. "Water Shortage Response Plan Ordinance" May, 2009
10. City of Santa Monica. "Water Self Sufficiency Strategy" March, 2011
11. PBSJ. "Water Supply Assessment for the Proposed Land Use and Circulation Element" January, 2010
12. PBSJ. "Land Use and Circulation Element Final Environmental Impact Report" April, 2010
13. City of Santa Monica. "Department of Water Resources - Water System Statistics" (Annual Report Showing Production & Sales), 1995-2009

Appendix B: UWMP Act

City of Santa Monica 2010 Urban Water Management Plan

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
SB 1087, Florez, 2005
SBX7 7, Steinberg, 2009

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 quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

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

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

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

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

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

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

Article 2.5 Water Service Reliability

10635.

(a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled

pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

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

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

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

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.

Appendix C: DWR Checklist

City of Santa Monica 2010 Urban Water Management Plan

Table I-1 Urban Water Management Plan checklist, organized by legislation number

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
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)	System Demands		**Section 4.4** **Appendix L**
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)	System Demands	Retailer and wholesalers have slightly different requirements	**Section 1.2** **Appendix D**
3	Report progress in meeting urban water use targets using the standardized form.	10608.40	Not applicable	Standardized form not yet available	**Not Applicable**
4	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.	10620(d)(2)	Plan Preparation		**Section 1.2** **Appendices D & J**
5	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.	10620(f)	Water Supply Reliability . . .		**Section 2** **Section 4.5** Multiple references to efficiency & sustainability throughout plan.
6	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 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.	10621(b)	Plan Preparation		**Section 1.2** **Appendix J**
7	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).	10621(c)	Plan Preparation		**Section 1.1** **Section 1.2** **Appendix D**
8	Describe the service area of the supplier	10631(a)	System Description		**Section 1.5**
9	(Describe the service area) climate	10631(a)	System Description		**Section 1.6** (Worldclimate.com)

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
10	(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 . . .	10631(a)	System Description	Provide the most recent population data possible. Use the method described in "Baseline Daily Per Capita Water Use." See Section M.	**Section 1.7** Projections based on MWD 2010 IRP Update
11	. . . (population projections) shall be in five-year increments to 20 years or as far as data is available.	10631(a)	System Description	2035 and 2040 can also be provided to support consistency with Water Supply Assessments and Written Verification of Water Supply documents.	**Section 1.7** Projections based on MWD 2010 IRP Update
12	Describe . . . other demographic factors affecting the supplier's water management planning	10631(a)	System Description		**Section 1.7** City has significant daytime populations.
13	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).	10631(b)	System Supplies	The 'existing' water sources should be for the same year as the "current population" in line 10. 2035 and 2040 can also be provided to support consistency with Water Supply Assessments and Written Verification of Water Supply documents.	**Section 2** Imported Water Groundwater Recycled Dry Weather Urban Runoff

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
14	(Is) groundwater . . . identified as an existing or planned source of water available to the supplier . . .?	10631(b)	System Supplies	Source classifications are: surface water, groundwater, recycled water, storm water, desalinated sea water, desalinated brackish groundwater, and other.	**Section 2.2** Yes groundwater is a source of supply
15	(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. 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)	System Supplies		**Appendix K** Groundwater management plan not available at this time
16	(Provide a) description of any groundwater basin or basins from which the urban water supplier pumps groundwater.	10631(b)(2)	System Supplies		**Section 2.2 "Groundwater"**
17	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	10631(b)(2)	System Supplies		**Not Applicable**
18	(Provide) 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)	System Supplies		**Not Applicable**
19	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)(2)	System Supplies		**Section 2.2** **Section 4.5 (Page 4-10)** City operates at or under long term safe yield estimates of 12,400 AFY. 12,400 AFY is sustainable over a short-term dry periods as projected in **Section 5 (Tables 5.4-5.10)**
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. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.	10631(b)(3)	System Supplies		**Section 2.2 "Groundwater"** ***Groundwater Production*** **Pages 2-7 & 2-8**

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
21	(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.	10631(b)(4)	System Supplies	Provide projections for 2015, 2020, 2025, and 2030.	**Section 2.5** **Section 5.4 (Tables 5.4-5.10)**
22	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.	10631(c)(1)	Water Supply Reliability . . .		**Section 5.4 (Tables 5.4-5.10)**
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)	Water Supply Reliability . . .		**Section 5; Section 7** During times of groundwater supply interruption, City will import water and implement its Conservation Ordinance.
24	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	10631(d)	System Supplies		**Section 2.6**
25	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.	10631(e)(1)	System Demands	Consider “past” to be 2005, present to be 2010, and projected to be 2015, 2020, 2025, and 2030. Provide numbers for each category for each of these years.	**Section 4.3** **Section 4.6**

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
26	(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)(1)	DMMs	Discuss each DMM, even if it is not currently or planned for implementation. Provide any appropriate schedules.	**Section 6** City is a member of CUWCC and submits annual reports
27	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)(3)	DMMs		**Section 6** City is a member of CUWCC and submits annual reports
28	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(f)(4)	DMMs		**Section 6** City is a member of CUWCC and submits annual reports
29	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.	10631(g)	DMMs	See 10631(g) for additional wording.	**Not Applicable (See Section 6)** City is a member of CUWCC and submits annual reports

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
30	(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. 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.	10631(h)	System Supplies		**Section 2.7** **Section 4.6**
31	Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.	10631(i)	System Supplies		**Section 2.5** No plans for desalination.
32	Include the annual reports submitted to meet the Section 6.2 requirement (of the MOU), if a member of the CUWCC and signer of the December 10, 2008 MOU.	10631(j)	DMMs	Signers of the MOU that submit the annual reports are deemed compliant with Items 28 and 29.	**Section 6** City is a member of CUWCC and submits annual reports
33	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).	10631(k)	System Demands	Average year, single dry year, multiple dry years for 2015, 2020, 2025, and 2030.	**Section 2** **Section 5.4** Tables 5.2-5.10 deal with imported water supply available from MWD. Groundwater supply is also shown up 2035.

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
34	The water use projections required by Section 10631 shall include projected water use for single-family and multifamily 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.	10631.1(a)	System Demands		**Section 4.6**
35	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.	10632(a)	Water Supply Reliability . . .		**Section 7.2** ***Stages of Action***
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)	Water Supply Reliability . . .		**Section 7.3** Based on Tables 5.6-5.10
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)	Water Supply Reliability . . .		**Section 7.4**
38	(Identify) additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.	10632(d)	Water Supply Reliability . . .		**Section 7.5**
39	(Specify) consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.	10632(e)	Water Supply Reliability . . .		**Section 7.5**
40	(Indicated) penalties or charges for excessive use, where applicable.	10632(f)	Water Supply Reliability . . .		**Section 7.5**
41	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)	Water Supply Reliability . . .		**Section 7.6**
42	(Provide) a draft water shortage contingency resolution or ordinance.	10632(h)	Water Supply Reliability . . .		**Section 7.6** **Appendix G**
43	(Indicate) a mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.	10632(i)	Water Supply Reliability . . .		**Section 7.8**

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
44	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	10633	System Supplies		**Section 2.2 (Recycled Dry Weather Urban Runoff)** **Section 2.5**
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)	System Supplies		**Section 2.5**
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)	System Supplies		**Section 2.5**
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)	System Supplies		**Section 2.2 (Recycled Dry Weather Urban Runoff)** **Section 2.5**
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)	System Supplies		**Section 2.5**
49	(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.	10633(e)	System Supplies		**Section 2.5**
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)	System Supplies		**Section 2.5**
51	(Provide a) plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.	10633(g)	System Supplies		**Section 2.5**

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
52	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.	10634	Water Supply Reliability . . .	For years 2010, 2015, 2020, 2025, and 2030	**Section 3**
53	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.	10635(a)	Water Supply Reliability . . .		**Section 5**
54	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.	10635(b)	Plan Preparation		**To be performed**
55	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.	10642	Plan Preparation		Public Notification sent out. 60-day notice prior to Public Hearing. Proof of Notice & Public Hearing to be included in **Appendices J, M, N, & O**
56	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.	10642	Plan Preparation		Public Notification sent out. 60-day notice prior to Public Hearing. Proof of Notice & Public Hearing to be included in **Appendices J, M, N, & O**
57	After the hearing, the plan shall be adopted as prepared or as modified after the hearing.	10642	Plan Preparation		**Proof of Adoption/Resolution to be provided in Appendix D**

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
58	An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan.	10643	Plan Preparation		**Section 1.1**
59	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.	10644(a)	Plan Preparation		**To be performed**
60	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.	10645	Plan Preparation		**To be performed**

a The UWMP Requirement descriptions are general summaries of what is provided in the legislation. Urban water suppliers should review the exact legislative wording prior to submitting its UWMP.

b The Subject classification is provided for clarification only. It is aligned with the organization presented in Part I of this guidebook. A water supplier is free to address the UWMP Requirement anywhere with its UWMP, but is urged to provide clarification to DWR to facilitate review.

Appendix D: City Council Resolution Adopting 2010 UWMP

City of Santa Monica 2010 Urban Water Management Plan

City Council Meeting July 12, 2011 Santa Monica, California

RESOLUTION NUMBER 10594 (CCS)

(City Council Series)

A RESOLUTION OF THE CITY COUNCIL
OF THE CITY OF SANTA MONICA ADOPTING THE 2010 URBAN WATER MANAGEMENT PLAN

WHEREAS, the California Legislature enacted Assembly Bill 797 (Water Code Sections 10610 et seq., known as the Urban Water Management Planning Act (the "Act") during the 1983-84 Regular Session; and

WHEREAS, the Act requires every 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 an Urban Water Management Plan (Plan), the primary objective of which is for the conservation of water; and

WHEREAS, the City of Santa Monica is an urban supplier of water to a population of over 90,000; and

WHEREAS, the Act requires Plans to be reviewed at least once every five years, and requires cities to make any amendments or changes to the Plan which are indicated by the review; and

WHEREAS, the City adopted its last Urban Water Management Plan on November 22, 2005; and

WHEREAS, a new Urban Water Management Plan must be adopted by the Council, after public review and hearing, and filed with the California Department of Water Resources within thirty days of adoption, and by August 1, 2011; and

WHEREAS, the City of Santa Monica has prepared and circulated for public review a draft 2010 Urban Water Management Plan, and a properly noticed public hearing regarding the Plan was held by the City Council on June 28, 2011; and

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF SANTA MONICA DOES HEREBY RESOLVE AS FOLLOWS:

SECTION 1. The City Council finds that the City is in conformance with all applicable requirements of the Urban Water Management Planning Act.

SECTION 2. The City Council hereby adopts the City's 2010 Urban Water Management Plan and orders it to be kept on file in the office of the City Clerk.

SECTION 3. The Water Resources Manager is hereby authorized and directed to file the 2010 Urban Water Management Plan with the California Department of Water Resources within thirty days after the date this Resolution is adopted, and by August 1, 2011.

SECTION 4. That the City Clerk shall certify to the adoption of this Resolution of the City Council of the City of Santa Monica adopting the 2010 Urban Water Management Plan, and thenceforth and thereafter the same shall be in full force and effect.

APPROVED AS TO FORM:

Marsha Jones Moutrie

MARSHA JONES MOUTRIE
City Attorney

Adopted and approved this 12th day of July, 2011.

Richard Bloom, Mayor

I, Maria M. Stewart, City Clerk of the City of Santa Monica, do hereby certify that the foregoing Resolution No. 10594 (CCS) was duly adopted at a meeting of the Santa Monica City Council held on the 12th day of July, 2011, by the following vote:

Ayes:	Councilmembers:	Holbrook, O'Connor, O'Day, Mayor Bloom
Noes:	Councilmembers:	None
Absent:	Councilmembers:	McKeown, Shriver Mayor Pro Tem Davis

ATTEST:

Maria M. Stewart, City Clerk

Appendix E: CUWCC Reports (2006-2010)

City of Santa Monica 2010 Urban Water Management Plan

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

Reporting Unit:
City of Santa Monica

Reporting Period:
07-08

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

A Reporting Unit (RU) must meet three conditions to satisfy strict compliance for BMP 1.

Condition 1: Adopt survey targeting and marketing strategy on time

Condition 2: Offer surveys to 20% of SF accounts and 20% of MF units during report period

Condition 3: Be on track to survey 15% of SF accounts and 15% of MF units within 10 years of implementation start date.

Test for Condition 1

		Single-Family	Multi-Family
City of Santa Monica to Implement Targeting/Marketing Program by:	1999		
Year City of Santa Monica Reported Implementing Targeting/Marketing Program:			
City of Santa Monica Met Targeting/Marketing Coverage Requirement:			

Test for Condition 2

			Single-Family	Multi-Family
Survey Program to Start by:	1998	Residential Survey Offers (%)	6.02%	2.18%
Reporting Period:	07-08	Survey Offers ≥ 20%	NO	NO

Test for Condition 3

	Completed Residential Surveys	
	Single Family	Multi-Family
Total Completed Surveys 1999 - 2008:	2,698	5,804
Past Credit for Surveys Completed Prior to 1999 (Implementation of Reporting Database):	275	575
Total + Credit	2,973	6,379
Residential Accounts in Base Year	7,456	41,080
City of Santa Monica Survey Coverage as % of Base Year Residential Accounts	39.87%	15.53%

Coverage Requirement by Year 10 of Implementation per Exhibit 1	13.50%	13.50%
City of Santa Monica on Schedule to Meet 10-Year Coverage Requirement	YES	YES

BMP 1 COVERAGE STATUS SUMMARY:
Water supplier has met the coverage requirements for this BMP.

BMP 02 Coverage: Residential Plumbing Retrofit

Reporting Unit: **City of Santa Monica**

Reporting Period: **07-08**

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

An agency must meet one of three conditions to satisfy strict compliance for BMP 2.

Condition 1: The agency has demonstrated that 75% of SF accounts and 75% of MF units constructed prior to 1992 are fitted with low-flow showerheads.

Condition 2: An enforceable ordinance requiring the replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts is in place for the agency's service area.

Condition 3: The agency has distributed or directly installed low-flow showerheads and other low-flow plumbing devices to not less than 10% of single-family accounts and 10% of multi-family units constructed prior to 1992 during the reporting period.

Test for Condition 1

		Single-Family		Multi-Family	
Report Year	Report Period	Reported Saturation	Saturation ≥ 75%?	Reported Saturation	Saturation ≥ 75%?
1999	99-00	90.00%	YES	90.00%	YES
2000	99-00	90.00%	YES	90.00%	YES
2001	01-02	80.00%	YES	90.00%	YES
2002	01-02	82.00%	YES	94.00%	YES
2003	03-04	82.00%	YES	95.00%	YES
2004	03-04	83.00%	YES	96.00%	YES
2005	05-06	84.00%	YES	97.00%	YES
2006	05-06	84.00%	YES	97.00%	YES
2007	07-08	85.00%	YES	97.00%	YES
2008	07-08	85.00%	YES	97.00%	YES

Test for Condition 2

Report Year	Report Period	City of Santa Monica has ordinance requiring showerhead retrofit?
1999	99-00	YES
2000	99-00	YES
2001	01-02	YES
2002	01-02	YES
2003	03-04	YES
2004	03-04	YES
2005	05-06	YES
2006	05-06	YES
2007	07-08	YES
2008	07-08	YES

Test for Condition 3

Reporting Period: 07-08

1992 SF Accounts	Num. Showerheads Distributed to SF Accounts	Single-Family Coverage Ratio	SF Coverage Ratio > 10%
7,459	40	0.5%	NO

1992 MF Accounts	Num. Showerheads Distributed to MF Accounts	Multi-Family Coverage Ratio	MF Coverage Ratio > 10%
41,080	160	0.4%	NO

BMP 2 COVERAGE STATUS SUMMARY:

Water supplier has met the coverage requirements for this BMP.

BMP 03 Coverage: System Water Audits, Leak Detection and Repair

Reporting Unit:
City of Santa Monica

Reporting Period:
07-08

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

An agency must meet one of two conditions to be in compliance with BMP 3:

Condition 1: Perform a prescreening audit. If the result is equal to or greater than 0.9 nothing more needs be done.

Condition 2: Perform a prescreening audit. If the result is less than 0.9, perform a full audit in accordance with AWWA's Manual of Water Supply Practices, Water Audits, and Leak Detection.

Test for Conditions 1 and 2

Report Year	Report Period	Pre-Screen Completed	Pre-Screen Result	Full Audit Indicated	Full Audit Completed
1999	99-00	NO			NO
2000	99-00	NO			NO
2001	01-02	NO			NO
2002	01-02	NO			NO
2003	03-04	NO			NO
2004	03-04	NO			NO
2005	05-06	NO			NO
2006	05-06	NO			NO
2007	07-08	NO			NO
2008	07-08	NO			NO

BMP 3 COVERAGE STATUS SUMMARY:
Water supplier is not currently on track to meet the coverage requirements for this BMP.

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

Reporting Unit:
City of Santa Monica

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?	No

For agencies signing the MOU prior to December 31, 1997:
100% of existing unmetered accounts to be metered and billed by volume of use by July 1, 2009.

For agencies signing the MOU after December 31, 1997:
- 100% of existing unmetered accounts to be metered and billed by volume of use by July 1, 2012 **OR** within six years of signing the MOU (whichever date is later).
- All retrofits must be completed no later than one year prior to the requirements of state law (January 1, 2025).

Test for Compliance

Total Meter Retrofits Reported through 2008	0
No. of Unmetered Accounts in Base Year	0
Meter Retrofit Coverage as % of Base Year Unmetered Accounts	0.0%
Coverage Requirement by Year 10 of Implementation per Exhibit 1	90.0%
Reporting Unit on Schedule to meet Coverage Requirement	NO

BMP 4 COVERAGE STATUS SUMMARY:
Water supplier is not currently on track to meet the coverage requirements for this BMP.

BMP 05 Coverage: Large Landscape Conservation Programs and Incentives

Reporting Unit:
City of Santa Monica

Reporting Period:
07-08

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? Yes

An agency must meet three conditions to comply with BMP 5.

Condition 1: Develop water budgets for 90% of its dedicated landscape meter accounts within four years of the date implementation is to start.

Condition 2: (a) Offer landscape surveys to at least 20% of its CII accounts with mixed use meters each report cycle and be on track to survey at least 15% of its CII accounts with mixed use meters within 10 years of the date implementation is to start OR (b) Implement a dedicated landscape meter retrofit program for CII accounts with mixed use meters or assign landscape budgets to mixed use meters.

Condition 3: Implement and maintain customer incentive program(s) for irrigation equipment retrofits.

Test for Condition 1

Year	Report Period	BMP 5 Implementation Year	No. of Irrigation Meter Accounts	No. of Irrigation Accounts with Budgets	Budget Coverage Ratio	90% Coverage Met by Year 4
1999	99-00		283			NA
2000	99-00	1	283			NA
2001	01-02	2	71			NA
2002	01-02	3	71			NA
2003	03-04	4	410			No
2004	03-04	5	430			No
2005	05-06	6	451			No
2006	05-06	7	451			No
2007	07-08	8	475			No
2008	07-08	9	489			No

Test for Condition 2a (survey offers)

Select Reporting Period:	07-08
Large Landscape Survey Offers as % of Mixed Use Meter CII Accounts	0.0%
Survey Offers Equal or Exceed 20% Coverage Requirement	NO

Test for Condition 2a (surveys completed)

Total Completed Landscape Surveys Reported through 07-08	1
Credit for Surveys Completed Prior to Implementation of Reporting Database	30
Total + Credit	31
CII Accounts in Base Year	2,448

RU Survey Coverage as a % of Base Year CII Accounts	1.3%
Coverage Requirement by Year of Implementation per Exhibit 1	11.5%
RU on Schedule to Meet 10 Year Coverage Requirement	NO

Test for Condition 2b (mixed use budget or meter retrofit program)

Report Year	Report Period	BMP 5 Implementation Year	Agency has mix-use budget program	No. of mixed-use budgets
1999	99-00		NO	
2000	99-00	1	NO	
2001	01-02	2	NO	
2002	01-02	3	NO	
2003	03-04	4	NO	
2004	03-04	5	NO	
2005	05-06	6	NO	
2006	05-06	7	NO	
2007	07-08	8	NO	
2008	07-08	9	NO	

Report Year	Report Period	BMP 4 Implementation Year	No. of mixed use CII accounts	No. of mixed use CII accounts fitted with irrig. meters
1999	99-00		2,400	
2000	99-00	2	2,400	
2001	01-02	3	2,999	71
2002	01-02	4	2,999	71
2003	03-04	5		
2004	03-04	6		
2005	05-06	7		
2006	05-06	8		
2007	07-08	9	2,222	
2008	07-08	10	2,222	

Test for Condition 3

Report Year	Report Period	BMP 5 Implementation Year	RU offers financial incentives?	No. of Loans	Total Amt. Loans
1999	99-00		NO		
2000	99-00	1	NO		
2001	01-02	2	NO		
2002	01-02	3	NO		
2003	03-04	4	YES		
2004	03-04	5	YES		
2005	05-06	6	YES		
2006	05-06	7	YES		
2007	07-08	8	YES		
2008	07-08	9	YES		
			Total Amt.		Total Amt.

Report Year	Report Period	No. of Grants	Grants	No. of rebates	Rebates
1999	99-00				
2000	99-00				
2001	01-02				
2002	01-02				
2003	03-04				
2004	03-04				
2005	05-06	16	160,000		
2006	05-06	8	107,280	59	19,205
2007	07-08	12	156,995	1	20,000
2008	07-08	13	167,748	1	20,000

BMP 5 COVERAGE STATUS SUMMARY:
Water supplier has selected an "At Least As Effective As" option for this BMP.

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BMP 06 Coverage: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:
City of Santa Monica

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?	No

An agency must meet two conditions to comply with BMP 6.

Condition 1: Offer a cost-effective financial incentive to customers for the purchase of high-efficiency washers with water factors of 9.5 or less.

Condition 2: Meet Coverage Goal (CG=Total Dwelling Units x 0.0768) by July 1, 2008. Agencies signing the MOU after July 1, 2003, shall have a prorated Coverage Goal, based on implementation period of less than 4.0 years.

Test for Condition 1

Agency offers rebates for residential high-efficiency washers with water factors of 9.5 or less:	YES

Test for Condition 2

Coverage Goal:	1,262
Total Coverage Points Awarded (incl. past credit):	1,487
% of Coverage Goal:	117.80%

BMP 06 COVERAGE STATUS SUMMARY:
Water supplier has met the coverage requirements for this BMP.

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BMP 07 Coverage: Public Information Programs

Reporting Unit:
City of Santa Monica

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

An agency must meet one condition to comply with BMP 7.

Condition 1: Implement and maintain a public information program consistent with BMP 7's definition.

Test for Condition 1

Year	Report Period	BMP 7 Implementation Year	RU Has Public Information Program?
1999	99-00	1	YES
2000	99-00	2	YES
2001	01-02	3	YES
2002	01-02	4	YES
2003	03-04	5	YES
2004	03-04	6	YES
2005	05-06	7	YES
2006	05-06	8	YES
2007	07-08	9	YES
2008	07-08	10	YES

BMP 7 COVERAGE STATUS SUMMARY:
Water supplier has met the coverage requirements for this BMP.

CUWCC

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BMP 08 Coverage: School Education Programs

Reporting Unit:
City of Santa Monica

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

An agency must meet one condition to comply with BMP 8.

Condition 1: Implement and maintain a school education program consistent with BMP 8's definition.

Test for Condition 1

Year	Report Period	BMP 8 Implementation Year	RU Has School Education Program?
1999	99-00	1	NO
2000	99-00	2	NO
2001	01-02	3	YES
2002	01-02	4	YES
2003	03-04	5	YES
2004	03-04	6	YES
2005	05-06	7	YES
2006	05-06	8	YES
2007	07-08	9	YES
2008	07-08	10	YES

BMP 8 COVERAGE STATUS SUMMARY:
Water supplier has met the coverage requirements for this BMP.

CUWCC

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BMP 09 Coverage: Conservation Programs for CII Accounts

Reporting Unit:
City of Santa Monica

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?	No

An agency must meet two conditions to comply with BMP 9.

Condition 1: Agency has identified and ranked by use commercial, industrial, and institutional accounts.

Condition 2(a): Agency is on track to survey 10% of commercial accounts, 10% of industrial accounts, and 10% of institutional accounts within 10 years of date implementation to commence.
OR
Condition 2(b): Agency is on track to reduce CII water use by an amount equal to 10% of baseline use within 10 years of date implementation to commence.
OR
Condition 2(c): Agency is on track to meet the combined target as described in Exhibit 1 BMP 9 documentation.

Test for Condition 1

Ranked Commercial Use	YES
Ranked Industrial Use	YES
Ranked Institutional Use	YES

Test for Condition 2a

	Commercial	Industrial	Institutional
Total Completed Surveys Reported through 2008	477	0	3
Credit for Surveys Completed Prior to Implementation of Reporting Databases	25	5	15
Total + Credit	502	5	18
CII Accounts in Base Year	2,168	100	180
RU Survey Coverage as % of Base Year CII Accounts	23.2%	5.0%	10.0%
Coverage Requirement by Year 9 of Implementation per Exhibit 1	7.7%	7.7%	7.7%
RU on Schedule to Meet 10 Year Coverage Requirement	YES	NO	YES

Test for Condition 2b

Performance	Performance	Performance Target	Coverage

Year	Target Savings (AF/yr)	Target Savings Coverage	Savings Coverage Requirement	Requirement Met
1999			0.5%	NO
2000			1.0%	NO
2001	0	0.0%	1.7%	NO
2002	1	0.0%	2.4%	NO
2003	48	1.2%	3.3%	NO
2004	123	3.1%	4.2%	NO
2005	145	3.7%	5.3%	NO
2006	174	4.4%	6.4%	NO
2007	206	5.2%	7.7%	NO
2008	231	5.9%	9.0%	NO

Test for Condition 2c

Total BMP 9 Surveys + Credit	525
BMP 9 Survey Coverage	21.4%
BMP 9 Performance Target Coverage	5.9%
BMP 9 Survey + Performance Target Coverage	27.3%
Combined Coverage Equals or Exceeds Coverage Requirement?	YES

BMP 9 COVERAGE STATUS SUMMARY:
Water supplier has met the coverage requirements for this BMP.

CUWCC

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BMP 09 Coverage: Conservation Programs for CII Accounts

Reporting Unit:
City of Santa Monica

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?	No

An agency must meet two conditions to comply with BMP 9.

Condition 1: Agency has identified and ranked by use commercial, industrial, and institutional accounts.

Condition 2(a): Agency is on track to survey 10% of commercial accounts, 10% of industrial accounts, and 10% of institutional accounts within 10 years of date implementation to commence.
OR
Condition 2(b): Agency is on track to reduce CII water use by an amount equal to 10% of baseline use within 10 years of date implementation to commence.
OR
Condition 2(c): Agency is on track to meet the combined target as described in Exhibit 1 BMP 9 documentation.

Test for Condition 1

Ranked Commercial Use	YES
Ranked Industrial Use	YES
Ranked Institutional Use	YES

Test for Condition 2a

	Commercial	Industrial	Institutional
Total Completed Surveys Reported through 2008	477	0	3
Credit for Surveys Completed Prior to Implementation of Reporting Databases	25	5	15
Total + Credit	502	5	18
CII Accounts in Base Year	2,168	100	180
RU Survey Coverage as % of Base Year CII Accounts	23.2%	5.0%	10.0%
Coverage Requirement by Year 9 of Implementation per Exhibit 1	7.7%	7.7%	7.7%
RU on Schedule to Meet 10 Year Coverage Requirement	YES	NO	YES

Test for Condition 2b

Performance	Performance	Performance Target	Coverage

Year	Target Savings (AF/yr)	Target Savings Coverage	Savings Coverage Requirement	Requirement Met
1999			0.5%	NO
2000			1.0%	NO
2001	0	0.0%	1.7%	NO
2002	1	0.0%	2.4%	NO
2003	48	1.2%	3.3%	NO
2004	123	3.1%	4.2%	NO
2005	145	3.7%	5.3%	NO
2006	174	4.4%	6.4%	NO
2007	206	5.2%	7.7%	NO
2008	231	5.9%	9.0%	NO

Test for Condition 2c

Total BMP 9 Surveys + Credit	525
BMP 9 Survey Coverage	21.4%
BMP 9 Performance Target Coverage	5.9%
BMP 9 Survey + Performance Target Coverage	27.3%
Combined Coverage Equals or Exceeds Coverage Requirement?	YES

BMP 9 COVERAGE STATUS SUMMARY:
Water supplier has met the coverage requirements for this BMP.

CUWCC

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BMP 11 Coverage: Conservation Pricing

Reporting Unit:
City of Santa Monica

MOU Exhibit 1 Coverage Requirement

Agency indicated "at least as effective as" implementation during report period?	Yes

Per June 13, 2007 revision, an agency must meet one condition to comply with BMP 11.

Condition 1: Agency shall maintain rate structure consistent with BMP 11's definition of conservation pricing. If agency provides retail sewer service, agency shall maintain rate structure for sewer service consistent with definition of conservation pricing for sewer service in Part II, Section in A.

Water Service
- Agencies signing the MOU prior to June 13, 2007, implementation shall commence no later than July 1, 2007.
- Agencies signing the MOU after June 13, 2007, implementation shall commence no later than July 1 of the year following the year the Agency signed the MOU.

Sewer Service
- Agencies signing the MOU prior to December 31, 1997, implementation shall commence no later than July 1, 1998.
- Agencies signing the MOU or becoming subject to the MOU after December 31, 1997, implementation shall commence no later than July 1 of the first year following the year the agency signed or became subject to the MOU.

Test for Condition 1

Agency is Fully Metered	YES
Agency Employed Conserving WATER Rate Structure	YES
Agency Provides Sewer Service	YES
Agency Employed Conserving SEWER Rate Structure	YES

BMP 11 WATER COVERAGE STATUS SUMMARY:
Water supplier has met the coverage requirements for this BMP.

BMP 11 SEWER COVERAGE STATUS SUMMARY:
Water supplier has met the coverage requirements for this BMP.

BMP 11 Coverage: Conservation Pricing

Reporting Unit:
City of Santa Monica

Reporting Period:
07-08

MOU Exhibit 1 Coverage Requirement

Agency indicated "at least as effective as" implementation during report period?	Yes

Per June 13, 2007 revision, an agency must meet one condition to comply with BMP 11.

Condition 1: Agency shall maintain rate structure consistent with BMP 11's definition of conservation pricing. If agency provides retail sewer service, agency shall maintain rate structure for sewer service consistent with definition of conservation pricing for sewer service in Part II, Section in A.

Water Service
- Agencies signing the MOU prior to June 13, 2007, implementation shall commence no later than July 1, 2007.
- Agencies signing the MOU after June 13, 2007, implementation shall commence no later than July 1 of the year following the year the Agency signed the MOU.

Sewer Service
- Agencies signing the MOU prior to December 31, 1997, implementation shall commence no later than July 1, 2008.
- Agencies signing the MOU or becoming subject to the MOU after December 31, 1997, implementation shall commence no later than July 1 of the first year following the year the agency signed or became subject to the MOU.

Test for Condition 1

Agency is Fully Metered	YES
Agency Employed Conserving WATER Rate Structure	YES
Agency Provides Sewer Service	YES
Agency Employed Conserving SEWER Rate Structure	YES

BMP 11 WATER COVERAGE STATUS SUMMARY:
Water supplier has met the coverage requirements for this BMP.

BMP 11 SEWER COVERAGE STATUS SUMMARY:
Water supplier has met the coverage requirements for this BMP.

BMP 12 Coverage: Conservation Coordinator

Reporting Unit:
City of Santa Monica

Reporting Period:
07-08

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

Agency shall staff and maintain the position of conservation coordinator and provide support staff as necessary.

Test for Compliance

Report Year	Report Period	Conservation Coordinator Position Staffed?	Total Staff on Team (incl. CC)
1999	99-00	YES	3
2000	99-00	YES	3
2001	01-02	YES	3
2002	01-02	YES	2
2003	03-04	YES	3
2004	03-04	YES	3
2005	05-06	YES	3
2006	05-06	YES	3
2007	07-08	YES	3
2008	07-08	YES	3

BMP 12 COVERAGE STATUS SUMMARY:
Water supplier has met the coverage requirements for this BMP.

BMP 13 Coverage: Water Waste Prohibition

Reporting Unit: **City of Santa Monica**

Reporting Period: **07-08**

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

An agency must meet one condition to comply with BMP 13.

Implementation methods shall be enacting and enforcing measures prohibiting gutter flooding, single pass cooling systems in new connections, non-recirculating systems in all new conveyer car wash and commercial laundry systems, and non-recycling decorative water fountains.

Test for Condition 1

Agency or service area prohibits:

Year	Gutter Flooding	Single-Pass Cooling Systems	Single-Pass Car Wash	Single-Pass Laundry	Single-Pass Fountains	Other	RU has ordinance that meets coverage requirement
1999	YES	YES	YES	YES	YES	YES	YES
2000	YES	YES	YES	YES	YES	YES	YES
2001	YES	YES	YES	YES	YES	YES	YES
2002	YES	YES	YES	YES	YES	YES	YES
2003	YES	YES	YES	YES	YES	YES	YES
2004	YES	YES	YES	YES	YES	YES	YES
2005	YES	YES	YES	YES	YES	YES	YES
2006	YES	YES	YES	YES	YES	YES	YES
2007	YES	YES	YES	YES	YES	YES	YES
2008	YES	YES	YES	YES	YES	YES	YES

BMP 13 COVERAGE STATUS SUMMARY:

Water supplier has met the coverage requirements for this BMP.

BMP 14 Coverage: Residential ULFT Replacement Programs

Reporting Unit: **City of Santa Monica**

MOU Exhibit 1 Coverage Requirement

A Reporting Unit (RU) must meet one of the following conditions to be in compliance with BMP 14.

Condition 1: Retrofit-on-resale (ROR) ordinance in effect in service area.

Condition 2: Water savings from toilet replacement programs equal to 90% of Exhibit 6 coverage requirement.

An agency with an exemption for BMP 14 is not required to meet one of the above conditions. This report treats an agency with missing base year data required to compute the Exhibit 6 coverage requirement as out of compliance with BMP 14.

Status: Water supplier has met the coverage requirements for this BMP. as of 2009

Coverage Year	BMP 14 Data Submitted	Exemption Filed	ALAEA Selected	ROR Ordinance in Effect	Exhibit 6 Coverage Req'mt (AF)	Program Water Savings* (AF)
1999	YES	NO	NO	YES	481.14	12268.58
2000	YES	NO	NO	YES	1282.31	13755.33
2001	YES	NO	NO	YES	2291.16	15211.63
2002	YES	NO	NO	YES	3429.40	16628.83
2003	YES	NO	NO	YES	4642.52	18001.90
2004	YES	NO	NO	YES	5892.69	19329.36
2005	YES	NO	NO	YES	7153.77	20603.95
2006	YES	NO	NO	YES	8407.86	21828.05
2007	YES	NO	NO	YES	9642.83	23003.81
2008	YES	NO	NO	YES	10850.63	24132.83

*NOTE: Program water savings listed are net of the plumbing code. Savings are cumulative (not annual) between 1991 and the given year. Residential ULFT count data from unsubmitted forms are NOT included in the calculation.

BMP 14 COVERAGE STATUS SUMMARY:
Water supplier has met the coverage requirements for this BMP.

BMP 14 Coverage: Residential ULFT Replacement Programs

Reporting Unit: **City of Santa Monica**

BMP 14 Coverage Calculation Detail: Retrofit on Resale (ROR) Ordinance Water Savings

	Single Family	Multi-Family
1992 Housing Stock		
Average rate of natural replacement (% of remaining stock)	.04	.04

Average rate of housing demolition (% of remining stock)	.005	.005
Estimated Housing Units with 3.5+ gpf Toilets in 1997	6088.20	33530.42
Average resale rate	.33	.25
Average persons per unit	2.8	1.71
Average toilets per unit	2.5	1.5
Average savings per home (gpd; from Exhibit 6)	48.2	42.1

Single Family Housing Units

Coverage Year	Unretrofitted Houses	Houses Sold	Houses Unsold	Sold and Retrofitted	Sold and Already Retrofitted	Unsold and Retrofitted	Gross ROR Savings (AFY)	Nat'l Replacement Only Savings (AFY)	Net ROR Savings (AFY)
1999	3926.79	1999.06	4058.70	1999.06		162.35	190.68	87.08	103.60
2000	2532.72	1989.07	4038.41	1289.36	699.70	104.71	265.93	99.64	166.29
2001	1633.56	1979.12	4018.21	831.62	1147.50	67.54	314.47	111.70	202.77
2002	1053.62	1969.23	3998.12	536.38	1432.84	43.56	345.78	123.28	222.50
2003	679.57	1959.38	3978.13	345.96	1613.42	28.10	365.97	134.40	231.57
2004	438.31	1949.58	3958.24	223.14	1726.45	18.12	379.00	145.08	233.92
2005	282.70	1939.83	3938.45	143.92	1795.91	11.69	387.40	155.33	232.07
2006	182.34	1930.14	3918.76	92.83	1837.31	7.54	392.81	165.17	227.64
2007	117.61	1920.48	3899.17	59.87	1860.61	4.86	396.31	174.62	221.69
2008	75.85	1910.88	3879.67	38.62	1872.27	3.14	398.56	183.70	214.86

Multi Family Housing Units

Coverage Year	Unretrofitted Houses	Houses Sold	Houses Unsold	Sold and Retrofitted	Sold and Already Retrofitted	Unsold and Retrofitted	Gross ROR Savings (AFY)	Nat'l Replacement Only Savings (AFY)	Net ROR Savings (AFY)
1999	24188.84	8340.69	25022.07	8340.69		1000.88	796.43	418.89	377.54
2000	17449.83	8298.99	24896.96	6016.97	2282.01	722.04	1114.19	479.31	634.87
2001	12588.31	8257.49	24772.48	4340.65	3916.85	520.88	1343.41	537.33	806.08
2002	9081.21	8216.21	24648.62	3131.34	5084.86	375.76	1508.77	593.03	915.74
2003	6551.18	8175.12	24525.37	2258.95	5916.17	271.07	1628.07	646.52	981.55
2004	4726.02	8134.25	24402.75	1629.61	6504.64	195.55	1714.13	697.88	1016.24
2005	3409.35	8093.58	24280.73	1175.60	6917.98	141.07	1776.21	747.20	1029.01
2006	2459.51	8053.11	24159.33	848.08	7205.03	101.77	1820.99	794.55	1026.44
2007	1774.29	8012.84	24038.53	611.80	7401.04	73.42	1853.30	840.02	1013.29
2008	1279.97	7972.78	23918.34	441.35	7531.43	52.96	1876.61	883.68	992.93

Appendix F: Sustainable City Plan

City of Santa Monica 2010 Urban Water Management Plan

SANTA MONICA SUSTAINABLE CITY PLAN
Adopted September 20, 1994
Update Adopted February 11, 2003
Revised October 24, 2006

Introduction

We live in a time in which increased population growth, high levels of consumption and the desire to feed growing economies have created escalating demands on our resources - natural, human and social - on a local, regional, and global scale. These demands negatively impact the natural environment, our communities and the quality of our lives. In the face of these challenges, people worldwide have developed a growing concern for the environment and a desire to live sustainably.

In 1994 the Santa Monica City Council took steps to address these pressures locally by adopting the Santa Monica Sustainable City Program. The Sustainable City Program was initially proposed in 1992 by the City's Task Force on the Environment to ensure that Santa Monica can continue to meet its current needs – environmental, economic and social - without compromising the ability of future generations to do the same. It is designed to help us as a community begin to think, plan and act more sustainably – to help us address the root causes of problems rather than the symptoms of those problems, and to provide criteria for evaluating the long-term rather than the short-term impacts of our decisions – in short, to help us think about the future when we are making decisions about the present.

The program includes goals and strategies, for the City government and all sectors of the community, to conserve and enhance our local resources, safeguard human health and the environment, maintain a healthy and diverse economy, and improve the livability and quality of life for all community members in Santa Monica. To check our progress toward meeting these goals, numerical indicators were developed and specific targets were set for the city to achieve by the year 2000 in four goal areas – 1) Resource Conservation, 2) Transportation, 3) Pollution Prevention and Public Health Protection, and 4) Community and Economic Development.

Following eleven years of implementation the Santa Monica Sustainable City Program has achieved much success. Many of the initial targets have been met or exceeded and Santa Monica is now recognized as worldwide role model for sustainability. However, we are not "there" yet. While we have made progress in the right direction, Santa Monica's economy and the activities of its residents, businesses, institutions and visitors continue to negatively impact human health and the environment. And our community does not yet provide for the basic needs of all its members. Many challenges remain before Santa Monica can truly call itself a Sustainable City.

Sustainable City Update Process

In reviewing the progress made since the 1994 adoption of the program, the Task Force on the Environment recognized the need to update and expand the Sustainable City goals and indicators to provide a more complete picture of community sustainability, and to develop new indicator targets for 2010. The Task Force felt that a comprehensive update would allow Santa Monica to build on its initial success and to better address the challenges to sustainability that remain.

The update process began in July 2001 with the formation of the Sustainable City Working Group - a large group of community stakeholders that included elected and appointed officials, City staff, and representatives of neighborhood organizations, schools, the business community and other community groups. The Working Group met numerous times over the course of 15 months to discuss the myriad issues related to the sustainability of the community. They evaluated the long-term sustainability of Santa Monica using a framework comprised of three forms of community capital that need to be managed with care in order to ensure that the community does not deteriorate. These include natural capital – the natural environment and natural resources of the community; human and social capital – the connectedness among people in the community and the education, skills and health of the population; and financial and built capital – manufactured goods, buildings, infrastructure, information resources, credit and debt.

The group proposed significant changes to the initial Sustainable City goals and indicators, and assisted with the creation of new indicator targets. Early drafts of the proposed update were revised based on a large amount of public input received during the summer of 2002.

The result of this process is this updated Santa Monica Sustainable City Plan, which represents the community's vision of Santa Monica as a sustainable city. The change in name from Sustainable City Program to Sustainable City Plan was made to better reflect the long-term comprehensive nature of Santa Monica's vision and the community's efforts to become a sustainable city.

Sustainable City Plan Structure

The Santa Monica Sustainable City Plan is founded on nine **Guiding Principles** that provide the basis from which effective and sustainable decisions can be made. These Guiding Principles have been revised and updated from the versions initially adopted in 1994.

The Plan has also been expanded to include eight **Goal Areas**:

- Resource Conservation
- Environmental and Public Health
- Transportation
- Economic Development
- Open Space and Land Use
- Housing
- Community Education and Civic Participation
- Human Dignity

Within each Goal Area are specific **Goals** which comprise the core of the community vision and represent what Santa Monica must achieve in order become a sustainable city.

For each goal specific **Indicators** have been developed to measure progress toward meeting the goals. Indicators are tools that help to determine the condition of a system, or the impact of a program, policy or action. When tracked over time indicators tell us if we are moving toward sustainability and provide us with useful information to assist with decision-making. Two types of indicators are tracked as part of the Sustainable City Plan. **System level indicators** measure the state, condition or pressures on a community-wide basis for each respective goal area. **Program level indicators** measure the performance or effectiveness of specific programs, policies or actions taken by the City government or other stakeholders in the community.

Many of the goals and indicators measure more than one area of sustainability. A **Goal / Indicator Matrix** has been included to demonstrate the linkages between these areas. The amount of overlap shown by the matrix demonstrates the interconnectedness of our community and the far ranging impact of our decisions across environmental, economic and social boundaries.

Specific **Targets** have been created for many of the indicators. The targets represent aggressive yet achievable milestones for the community. Unless otherwise noted, the targets are for the year 2010 using 2000 as a baseline. For some indicators no specific numerical targets have been assigned. This was done where development of a numerical target was determined to be not feasible or where limits on data type and availability made it difficult to set a numerical target. In many of these cases a trend direction was substituted for a numerical target.

Terms throughout this document that may be unfamiliar to the general reader are defined in a **Glossary**. Words or phrases defined in the glossary are shown in *italics* the first time they appear in the document.

Leadership, Guidance and Implementation of the Sustainable City Plan

The City's Task Force on the Environment assumed the initial leadership role on behalf of the community for the Sustainable City Program. With the update and expansion of the Sustainable City Plan into new and more diverse goal areas, the Task Force on the Environment recommended the creation of a Sustainable City Task Force (SCTF) that

includes broad representation from community stakeholders with expertise in all of the SCP goal areas The Sustainable City Task Force was created in 2003 to provide leadership and guidance for implementation of the SCP.

At the City staff level, an interdepartmental Sustainability Advisory Team (SAT) was created to coordinate existing City activities so they are consistent with the Sustainable City goals and facilitate the future implementation of innovative programs and policies to achieve the goals. Members of this group serve as Sustainable City liaisons to their respective departments.

Between them, the SCTF and the SAT are responsible for developing a comprehensive implementation plan for meeting Sustainable City goals and targets, and for coordinating implementation, both interdepartmentally and between the City and community stakeholder groups.

Reporting

Following the City Council adoption of the Sustainable City Plan, the SCTF , SAT and city staff will present Council with a baseline indicators report and a Sustainable City Implementation Plan. The indicators report will be updated and presented to Council annually. The report is intended to provide useful information to City Council, City staff and community members on progress being made toward meeting goals and targets of the Plan, and will provide a basis for decision-making about policies and actions that influence the City's ability to meet the goals and targets.

Santa Monica Sustainable City Plan
GUIDING PRINCIPLES

1. **The Concept of Sustainability Guides City Policy**
   Santa Monica is committed to meeting its existing needs without compromising the ability of future generations to meet their own needs. The long-term impacts of policy choices will be considered to ensure a sustainable legacy.

2. **Protection, Preservation, and Restoration of the Natural Environment is a High Priority of the City**
   Santa Monica is committed to protecting, preserving and restoring the natural environment. City decision-making will be guided by a mandate to maximize environmental benefits and reduce or eliminate negative environmental impacts. The City will lead by example and encourage other community stakeholders to make a similar commitment to the environment.

3. **Environmental Quality, Economic Health and Social Equity are Mutually Dependent**
   Sustainability requires that our collective decisions as a city allow our economy and community members to continue to thrive without destroying the natural environment upon which we all depend. A healthy environment is integral to the city's long-term economic and societal interests. In achieving a healthy environment, we must ensure that inequitable burdens are not placed on any one geographic or socioeconomic sector of the population and that the benefits of a sustainable community are accessible to all members of the community.

4. **All Decisions Have Implications to the Long-term Sustainability of Santa Monica**
   The City will ensure that each of its policy decisions and programs are interconnected through the common bond of sustainability as expressed in these guiding principles. The policy and decision-making processes of the City will reflect our sustainability objectives. The City will lead by example and encourage other community stakeholders to use sustainability principles to guide their decisions and actions.

5. **Community Awareness, Responsibility, Participation and Education are Key Elements of a Sustainable Community**
   All community members, including individual citizens, community-based groups, businesses, schools and other institutions must be aware of their impacts on the environmental, economic and social health of Santa Monica, must take responsibility for reducing or eliminating those impacts, and must take an active part in community efforts to address sustainability concerns. The City will therefore be a leader in the creation and sponsorship of education opportunities to support community awareness, responsibility and participation in cooperation with schools, colleges and other organizations in the community.

6. **Santa Monica Recognizes Its Linkage with the Regional, National, and Global Community**
   Local environmental, economic and social issues cannot be separated from their broader context. This relationship between local issues and regional, national and global issues will be recognized and acted upon in the City's programs and policies. The City's programs and policies should therefore be developed as models that can be emulated by other communities. The City will also act as a strong advocate for the development and implementation of model programs and innovative approaches by regional, state and federal government that embody the goals of sustainability.

7. **Those Sustainability Issues Most Important to the Community Will be Addressed First, and the Most Cost-Effective Programs and Policies Will be Selected**
   The financial and human resources which are available to the City are limited. The City and the community will reevaluate its priorities and its programs and policies annually to ensure that the best possible investments in the future are being made. The evaluation of a program's cost-effectiveness will be based on a complete analysis of the associated costs and benefits, including environmental and social costs and benefits.

8. **The City is Committed to Procurement Decisions which Minimize Negative Environmental and Social Impacts**
   The procurement of products and services by the City and Santa Monica residents, businesses and institutions results in environmental, social and economic impacts both in this country and in other areas of the world. The City will develop and abide by an environmentally and socially responsible procurement policy that emphasizes long-term values and will become a model for other public as well as private organizations. The City will advocate for and assist other local agencies, businesses and residents in adopting sustainable purchasing practices.

9. **Cross-sector Partnerships Are Necessary to Achieve Sustainable Goals**
   Threats to the long-term sustainability of Santa Monica are multi-sector in their causes and require multi-sector solutions. Partnerships among the City government, businesses, residents and all community stakeholders are necessary to achieve a sustainable community.

10. **The Precautionary Principle Provides a Complimentary Framework to Help Guide City Decision-Makers in the Pursuit of Sustainability**
    The Precautionary Principle requires a thorough exploration and careful analysis of a wide range of alternatives, and a full cost accounting beyond short-term and monetary transaction costs. Based on the best available science, the Precautionary Principle requires the selection of alternatives that present the least potential threat to human health and the City’s natural systems. Where threats of serious or irreversible damage to people or nature exist, lack of full scientific certainty about cause and effect shall not be viewed as sufficient reason for the City to not adopt mitigating measures to prevent the degradation of the environment or protect the health of its citizens. Public participation and an open and transparent decision making process are critical to finding and selecting alternatives.

Santa Monica Sustainable City Plan
GOALS, INDICATORS AND TARGETS

RESOURCE CONSERVATION

Goals

Across all segments of the *community*:

1. Significantly decrease overall community consumption, specifically the consumption of non-*local*, *non-renewable*, non-recyclable and non-recycled materials, water, and energy and fuels. The City should take a leadership role in encouraging *sustainable procurement, extended producer responsibility* and should explore innovative strategies to become a *zero waste* city.

2. Within renewable limits, encourage the use of local, non-polluting, *renewable* and recycled resources (water, energy – wind, solar and geothermal – and material resources)

Indicators – System Level	**Targets**
Solid waste generation ▪ Total citywide generation (also report per capita and by sector) ▪ Amount landfilled ▪ Amount diverted (recycled, composted, etc) from landfill	Generation: Do not exceed year 2000 levels by 2010 Diversion: Increase amount diverted to 70% of total by 2010
Water use ▪ Total citywide use (also report per capita and by sector) ▪ Percent local vs. imported ▪ *Potable* vs. non-potable	Reduce overall water use by 20% by 2010. Of the total water used, non-potable water use should be maximized Increase percentage of locally-obtained potable water to 70% of total by 2010
Energy use ▪ Total citywide use (also report per capita and by sector)	(Target pending completion of Greenhouse Gas Emission Reduction Strategy in 2003)

Renewable Energy use Percent of citywide energy use from *renewable* and more efficient sources ▪ Total renewable energy use (also report by sector) ▪ Total energy use from *clean distributed generation* sources in SM (also report by sector)	By 2010 25% of all electricity use in Santa Monica should come from renewable sources By 2010 1% of all electricity use should come from clean distributed generation sources in Santa Monica
Greenhouse Gas Emissions ▪ Total citywide emissions (also report per capita, by source and by sector)	At least 30% below 1990 levels by 2015 for City Operations At least 15% below 1990 levels by 2015 citywide .
Ecological Footprint for Santa Monica	downward trend
Indicator of Sustainable Procurement	Indicator and target to be developed by 2007

Indicators – Program Level	**Targets**
***"Green"* Construction** Total number of *LEED*™ certified buildings in Santa Monica as a percent of new construction	100% of all buildings* greater than 10,000 square feet eligible for LEED™ certification constructed in Santa Monica in the year 2010 shall achieve LEED™ certification or its equivalent. Of these, 20% should attain LEED™ Silver, 10% LEED™ Gold and 2% LEED™ Platinum certification or equivalent. In addition, 50% of all new, eligible buildings* less than 10,000 square feet constructed in 2010 shall achieve LEED™ certification or its equivalent. *including all municipal construction

ENVIRONMENTAL AND PUBLIC HEALTH

Goals

1. Protect and enhance environmental health and public health by minimizing and where possible eliminating:
   - The use of *hazardous* or *toxic materials*, in particular *POPs (persistent organic pollutants)* and *PBTs (persistent bioaccumulative & toxic chemicals)*, by residents, businesses and City operations;
   - The levels of pollutants entering the air, soil and water; and
   - The risks that environmental problems pose to human and ecological health.

2. Ensure that no one geographic or socioeconomic group in the City is being unfairly impacted by environmental pollution.

3. Increase consumption of fresh, *locally produced*, organic produce to promote public health and to minimize resource consumption and negative environmental impacts.

Indicators – System Level	**Targets**
Santa Monica Bay Number of days Santa Monica beaches are posted with health warnings or closed. Measure for both: ▪ Dry weather months (April -October) ▪ Wet weather months (November-March)	0 warnings and closures at any Santa Monica beach location during dry weather months No more than 3 days with warnings or closures at any Santa Monica beach location on non-rainy days during wet weather months (a target for *rainy days* during these months will be determined in 2003)
Wastewater (sewage) generation ▪ Total citywide generation (also report per capita, and by sector)	Reduce wastewater flows 15% below 2000 levels by 2010
Vehicle miles traveled ▪ Total ▪ Local vs. drive-through	Downward trend (no target for local vs. drive through)
Air Quality Percent and demographic profile of Santa Monica residents who live within a ½ mile radius of *significant emissions sources*	By 2007 all significant emissions sources in Santa Monica should be identified

Indicators – Program Level	**Targets**
Residential household hazardous waste ▪ Total volume of *household hazardous waste* (HHW) collected from Santa Monica residents ▪ Number and Percent of Santa Monica households using the City's *HHW collection facility* ▪ Cumulative number and percent of Santa Monica households using the City's HHW collection facility since 2000	50% cumulative participation rate at the City's HHW collection facility by S.M. households by 2010 (i.e. by 2010 50% of all households in the city will have delivered HHW to the facility since 2000)
City purchases of hazardous materials Volume and toxicity of hazardous material (including POP & PBT containing materials) purchased by the City	(Target to be developed by City staff by 2007)
***Toxic air contaminant* (TAC) releases** ▪ Number of facilities in SM permitted to release TACs ▪ Total volume of TACs emitted in SM annually	Complete feasibility study for data availability and collection by 2007
Urban Runoff Reduction Percent of permeable land area in the City	Upward trend
Fresh, Local, Organic Produce Percent of fresh, *locally-produced*, organic produce that is served at City facilities and other Santa Monica institutions (including hospitals, schools, Santa Monica College, and City-sponsored food programs)	Annual increase over baseline
Organic Produce – Farmers Markets Total annual produce sales at Santa Monica farmers' markets ▪ Percent organically grown ▪ Percent grown using low-chemical methods ▪ Percent conventionally grown	Annual increase in percent of organically grown and low-chemical produce sales over baseline
Restaurant produce purchases Percent of Santa Monica restaurants that purchase ingredients at Santa Monica farmers' markets	Annual increase over baseline
Food choices Percent of Santa Monica residents who report that vegetable-based protein is the primary protein source for at least half of their meals	Annual increase over baseline

TRANSPORTATION

Goals

1. Create *a multi-modal* transportation system that minimizes and, where possible, eliminates pollution and motor vehicle congestion while ensuring safe mobility and access for all without compromising our ability to protect public health and safety.

2. Facilitate a reduction in automobile dependency in favor of affordable *alternative, sustainable modes of travel*.

Indicators – System Level	**Targets**
Modal split ▪ Number of trips by type, citywide ▪ *Average vehicle ridership (AVR)* of Santa Monica businesses with more than 50 employees	An upward trend in the use of sustainable (bus, bike, pedestrian, rail) modes of transportation AVR of 1.5 by 2010 for Santa Monica businesses with more than 50 employees
Residential use of sustainable transportation options Percent of residents who have intentionally not used their car but have instead used a sustainable mode of transportation in the past month	Upward trend
Sufficiency of transportation options Percent of residents who perceive that the available sustainable modes of transportation in Santa Monica meet their needs	Upward trend
Bicycle lanes and paths ▪ Percent of total miles of city arterial streets with bike lanes ▪ Total miles of bike paths in Santa Monica	35% by 2010 No net decrease
Vehicle ownership Average number of vehicles per person of driving age in Santa Monica ▪ total number of vehicles per person ▪ percent of total that are *qualified low emission / alternative fuel vehicles*	10% reduction in the average number of vehicles per person by 2010 Upward trend in % of qualified low emission / alternative fuel vehicles

Indicators – Program Level	**Targets**
Bus ridership ▪ Annual ridership on Santa Monica Big Blue Bus (BBB) ▪ Percent of residents who have ridden the BBB in the past year ▪ Percent of residents who have ridden the Tide shuttle in the past year ▪ Annual ridership on MTA routes originating in Santa Monica	Upward trend Upward trend Upward trend Upward trend
Alternative fueled vehicles Percent of the City's non-emergency fleet vehicles using alternative fuels ▪ Public works vehicles ▪ BBB vehicles ▪ Non emergency police and fire vehicles	(City staff to develop target by 2007)
Traffic congestion ▪ Number of signalized intersections with unacceptable motor vehicle congestion (*LOS D, E or F*) during peak hours ▪ *Level of service (LOS)* for sustainable modes of transportation at impacted intersections ▪ Locally classified streets that exceed City thresholds for traffic levels	Downward trend Upward trend Downward trend
Pedestrian and bicycle safety Number of bicycle and pedestrian collisions involving motor vehicles	Downward trend
Traffic impacts to emergency response Average emergency response times for public safety vehicles ▪ Police ▪ Fire	No upward trend

ECONOMIC DEVELOPMENT

Goals

1. Nurture a diverse, stable, *local economy* that supports basic needs of all segments of the community.

2. Businesses, organizations and local government agencies within Santa Monica continue to increase the efficiency of their use of resources through the adoption of sustainable business practices. The City takes a leadership role by developing a plan by 2005 to increase the adoption of sustainable practices by Santa Monica businesses and encouraging *sustainable businesses* to locate in Santa Monica.

Indicators – System Level	Targets
Economic Diversity Percent of total economic activity/output by business sector (expressed as a percent of total wages)	No single sector shall be greater than 25% of total economic activity/output; and the top three sectors shall not be greater than 50% of total economic activity/output.
Business reinvestment in the community (indicator to be developed by 2007)	Annual increase in reinvestment by businesses
Jobs / Housing Balance ▪ Ratio of the number of jobs in Santa Monica to the amount of housing ▪ Percent of Santa Monica residents employed in Santa Monica	Ratio should approach 1 Increasing trend
Cost of Living Santa Monica household incomes in relation to *Santa Monica cost of living index (SMCOLI)*	(no target)
Quality Job Creation Number of net new jobs created in Santa Monica that pay greater than or equal to the SMCOLI as a percent of total new jobs created	Increasing trend

Income Disparity ▪ Percent of Santa Monica households earning less than $25,000/year ▪ Percent of households earning more than $100,000/year	(no target)
Resource efficiency of local businesses ▪ Ratio of energy use to total economic activity by business sector ▪ Ratio of total water use to total economic activity by business sector	Downward trend Downward trend

Indicators – Program Level	**Targets**
Local employment of City staff ▪ Percent of City employees who live in SM ▪ Distance City employees travel to work	(no target)

OPEN SPACE AND LAND USE

Goals

1. Develop and maintain a sufficient *open space* system so that it is diverse in uses and opportunities and includes *natural function/wildlife habitat* as well as *passive* and *active recreation* with an equitable distribution of parks, trees and pathways throughout the community.

2. Implement land use and transportation planning and policies to create compact, *mixed-use projects*, forming *urban villages* designed to maximize affordable housing and encourage walking, bicycling and the use of existing and future public transit systems.

3. Residents recognize that they share the local ecosystem with other living things that warrant respect and responsible stewardship.

Indicators – System Level	Targets
Open Space ▪ Number of acres of public open space by type (including beaches, parks, public gathering places, gardens, and other public lands utilized as open space) ▪ Percent of open space that is permeable	Upward trend Upward trend
Trees ▪ Percent of tree canopy coverage by neighborhood ▪ Percent of newly planted and total trees that meet defined sustainability criteria* *to be developed by 2007	Upward trend Target to be developed by 2007
Parks - Accessibility Percent of households and population within ¼ and ½ mile of a park by neighborhood	Upward trend in park accessibility for Santa Monica residents
Land Use and Development Percent of residential, mixed-use projects that are within ¼ mile of *transit nodes* and are otherwise consistent with Sustainable City Program goals	Upward trend
Regionally Appropriate Vegetation Percent of new or replaced, non-turf, public landscaped area and non-recreational turf area planted with regionally appropriate plants	Target to be developed in 2007

HOUSING

Goals

1. Achieve and maintain a mix of *affordable, livable* and *green* housing types throughout the city for people of all socio-economic / cultural / household groups (including seniors, families, singles, and disabled).

Indicators – System Level	**Targets**
Availability of Affordable Housing Percent of all existing and new housing in Santa Monica affordable to *very low*, *low*, *moderate*, and *upper income* households	(Target to be developed by City staff in 2008 with the next update of the City's Housing Element)
Distribution of Affordable Housing Distribution of low income housing by neighborhood	(no target)

Indicators – Program Level	**Targets**
Affordable Housing for *Special Needs Groups* Number of new or *rehabilitated affordable housing* units for families, seniors, the disabled and other special needs groups as a percentage of all new or rehabilitated affordable housing development	Upward trend
Production of "Livable" Housing ▪ Number of new housing units in non-residential zone districts as a percentage of the total new housing ▪ Percent of new units within ¼ mile of: • transit stop • open space • grocery store	Upward trend Upward trend
Production of "Green" Housing Percent of new and substantially-rehabilitated housing that complies with Green Building Ordinance #1995 as a percentage of the total new and rehabilitated housing	Upward trend

COMMUNITY EDUCATION AND CIVIC PARTICIPATION

Goals

1. Community members of all ages participate actively and effectively in civic affairs and community improvement efforts.

2. Community members of all ages understand the basic principles of sustainability and use them to guide their decisions and actions - both personal and collective.

Indicators – System Level	**Targets**
Voter Participation Percent of registered Santa Monica voters who vote in scheduled elections. Compare to voter participation rates at the regional and national levels.	Increase SM voter participation to 50% in off year elections by 2010
Participation in Civic Affairs Percent of Santa Monica residents who have attended a city-sponsored meeting of any kind in the past year, including City Council meetings, City Commission meetings, or special-topic workshops	Upward trend
Empowerment Percent of Santa Monica residents who feel that they have the opportunity to voice their concerns in the city on major community decisions that affect their lives	Upward trend
Community Involvement Percent of Santa Monica residents who attend community events such as the Santa Monica Festival, a summer concert at the Pier, an event at Virginia Avenue Park, a neighborhood block party, a weekly farmers' market	Upward trend
Volunteering Percent of Santa Monica residents volunteering and total hours volunteered in selected City funded public benefit programs	Upward trend

Participation in Neighborhood Organizations Percent of Santa Monica residents that are active members in *recognized neighborhood organizations* (by neighborhood)	Upward trend
Sustainable Community Involvement Percent of Santa Monica residents who are aware of the Ecological Footprint for Santa Monica and understand their contribution to it	25% by 2010
Sustainable Community Involvement Percent of Santa Monica residents who have an understanding of how each Sustainable City goal area is a component of a sustainable community and the extent to which this affects their decisions	Upward trend

HUMAN DIGNITY

Goals

Santa Monica will be a community in which:

1. All its members are able to meet their basic needs and are empowered to enhance the quality of their lives; and

2. There is access among community members to housing, health services, education, economic opportunity, and cultural and recreational resources; and

3. There is respect for and appreciation of the value added to the community by differences among its members in race, religion, gender, age, economic status, sexual orientation, disabilities, immigration status and other special needs.

Indicators – System Level	Targets
Basic Needs – Shelter ▪ Number of homeless living in Santa Monica ▪ Percent of Santa Monica homeless population served by the city shelter that transition to permanent housing	(no target) Upward trend
Basic Needs – Health Care ▪ Percent of residents with health insurance ▪ Capacity of local health service providers to meet the basic health care needs of Santa Monica residents	Upward trend Upward trend
Basic Needs – Economic Opportunity Percent of Santa Monica residents who work more than 40 hours per week in order to meet their basic needs	Downward trend
Basic Needs – Public Safety Crime rate per capita – report by neighborhood/reporting district, and by type (property, violent, hate)	Downward trend

Residents' perception of safety Percent of residents who feel that Santa Monica is a safe place to live and work	Upward trend
Incidents of Abuse ▪ Number of incidents of abuse (domestic, child, and elder abuse) ▪ Percent of cases prosecuted	Downward trend Upward trend
Incidents of Discrimination ▪ Number of reports regarding Employment and housing discrimination ▪ Number of cases prosecuted	Downward trend Upward trend
Education/Youth ▪ *SMMUSD* student drop-out rates ▪ SMMUSD student suspension rates ▪ SMMUSD student substance abuse rates ▪ Percent of SMMUSD students who feel safe at school ▪ Percent of SMMUSD students that enroll in college or university ▪ SMMUSD students enrolled in advanced placement courses and percent that receive passing grades	Downward trend Downward trend Downward trend Upward trend Upward trend Upward trend
Empowerment Women, minorities and people with disabilities in leadership positions ▪ business ▪ local government ▪ non-profit organizations	Upward trend
Ability to Meet Basic Needs Percent of residents who perceive that needs are not being met for: ▪ Individual and family counseling ▪ Emergency food, clothing, shelter ▪ Employment services and job training ▪ Recreation and services for youth ▪ Health care ▪ Substance abuse treatment / prevention ▪ Affordable housing ▪ Seniors and people with disabilities ▪ Transportation and mobility	Downward trend in all areas

Santa Monica Sustainable City Plan
GOAL / INDICATOR MATRIX

The matrix below lists all of the Sustainable City indicators down the left side and the eight Sustainable City goal areas across the top. For each indicator dots are shown for every goal area that the indicator provides information about. While each indicator was developed to measure progress toward meeting goals in one goal area, this matrix shows that many of the indicators measure the conditions, impacts or effectiveness of our actions in several goal areas. This demonstrates the linkages between each of the goal areas and the impact of our decisions across environmental, economic and social boundaries.

	Resource Conservation	Environmental and Public Health	Transportation	Economic Development	Open Space and Land Use	Housing	Community Education and Civic Participation	Human Dignity
Resource Conservation Indicators								
Solid waste generation	●			●				
Water use	●	●		●			●	
Energy use	●	●	●	●		●		
Renewable energy use	●	●		●			●	
Greenhouse gas emissions	●	●	●	●	●	●		
Ecological Footprint for Santa Monica	●	●	●	●	●	●		
Indicator of sustainable procurement	●	●		●				
"Green" construction	●	●	●			●		
Environmental and Public Health Indicators								
Santa Monica Bay – beach closures		●			●			
Wastewater (sewage) generation	●	●		●				
Vehicle miles traveled	●	●	●		●	●		
Air quality	●	●	●	●				
Residential household hazardous waste		●						
City purchases of hazardous materials		●						
Toxic air contaminant releases		●						
Urban runoff reduction	●	●	●		●			
Fresh, local, organic produce		●	●	●				
Organic produce – Farmer's markets		●	●	●				
Restaurant produce purchases		●	●	●				
Food choices	●	●	●	●				
Transportation Indicators								
Modal split	●	●	●		●			
Residential use of sustainable trans. options	●	●	●		●		●	
Sufficiency of transportation options			●					
Bicycle lanes and paths			●		●			
Vehicle ownership	●	●	●	●				

	Resource Conservation	Environmental and Public Health	Transportation	Economic Development	Open Space and Land Use	Housing	Community Education and Civic Participation	Human Dignity
Bus ridership	●	●	●					
Alternative fueled vehicles – City fleet	●	●	●					
Traffic congestion			●	●	●			
Pedestrian and bicycle safety			●					
Traffic impacts to emergency response			●	●	●			
Economic Development Indicators								
Economic diversity				●				
Business reinvestment in the community				●			●	
Jobs / Housing balance			●	●		●		●
Cost of living				●		●		●
Quality Job Creation				●				●
Income disparity				●				●
Resource efficiency of local businesses	●	●		●				
Local employment of City staff			●	●		●		
Open Space and Land Use Indicators								
Open Space		●			●			
Trees	●	●			●			
Parks - Accessibility			●		●	●	●	
Land Use and Development			●		●	●		
Regionally appropriate vegetation	●				●			
Housing Indicators								
Availability of affordable housing				●		●		●
Distribution of affordable housing				●	●	●		●
Affordable housing for special needs groups						●		●
Production of “livable” housing	●		●	●	●	●		
Production of “green” housing	●	●				●		
Community Education and Civic Participation Indicators								
Voter participation							●	
Participation in civic affairs							●	
Empowerment							●	●
Community involvement							●	
Volunteering							●	
Participation in neighborhood organizations							●	
Sustainable community involvement 1	●	●	●		●			
Sustainable community involvement 2	●	●	●	●	●	●	●	●
Human Dignity Indicators								
Basic Needs - Shelter						●		●

	Resource Conservation	Environmental and Public Health	Transportation	Economic Development	Open Space and Land Use	Housing	Community Education and Civic Participation	Human Dignity
Basic Needs – Health Care								●
Basic Needs – Economic Opportunity				●				●
Basic Needs – Public Safety								●
Residents' perception of safety								●
Incidents of abuse								●
Incidents of discrimination				●		●		●
Education / Youth								●
Empowerment				●				●
Ability to meet basic needs				●	●	●		●

Santa Monica Sustainable City Plan
GLOSSARY

active recreation: recreational opportunities including sports and other activities that typically require playing fields, facilities or equipment.

affordable housing: any housing that is deed restricted for, and occupied by, households earning less than 120% of the Los Angeles County median family income.

alternative fuel vehicles: vehicles that operate on fuels other than gasoline or diesel. Alternative fuel vehicles include those that operate using compressed natural gas (CNG), liquid natural gas (LNG), propane, electricity, hybrid of gasoline and electricity, and hydrogen.

alternative (and/or sustainable) modes of transportation: for the purpose of this document *alternative* (and/or sustainable) modes of transportation include transportation by public transit (bus or rail), bicycle, walking, or alternative fuel vehicles.

average vehicle ridership (AVR): a measurement of vehicle occupancy indicating the average number of persons traveling in a measured number of vehicles. AVR is an indicator of the effectiveness of and participation in ridesharing programs

bike lane/path/route: As defined in the City's Bicycle Master Plan, a *bike lane* is a signed and striped lane along a roadway for use by bicycles. Other types of bicycle ways in the city are *bike paths* and *bike routes*. A bike path is a dedicated bicycle way that completely separates bicycles from motor vehicles. Bike routes are signed routes which bicyclists share with motor vehicles. Bike routes differ from bike lanes in that routes do not include any striping on the roadway - they are only designated by signage.

community: for the purpose of this document, whenever the term *community* is used it is meant to include the following groups: individuals of all ages, races and abilities; organizations; government agencies; businesses; employers; employees; residents; property owners; renters; visitors; schools; students; public and private service agencies; faith communities; and local media.

companion animals: animals kept by residents in their homes, yards, or other properties, for purposes of providing mutual companionship.

clean distributed generation: distributed generation refers to generation of electricity at or near the location where that electricity will be used. This differs from traditional electricity generation, which occurs at centralized power plants and is distributed over hundreds of miles to millions of customers through the electricity "grid". For the purpose of this document, *clean* distributed generation (in order of preferred technology type) refers to 1) renewable distributed generation, including electricity generated by solar photovoltaic systems, fuel cells (powered by hydrogen generated from solar, wind, or

other non-fossil fuel, renewable energy technologies), and small wind generators; 2) electricity generated by high efficiency (i.e., meeting or exceeding efficiency of large natural gas power plants) natural gas generators and fuel cells using hydrogen generated through a natural gas catalyst; and 3) medium scale, high-efficiency co-generation systems (powered by natural gas) serving many properties located within close proximity of each other. Clean distributed generation does not include electricity generated by gasoline or diesel powered generators.

diversion: in reference to solid waste, *diversion* refers to all waste that is kept out of a landfill through recycling, beneficial reuse, composting, or other means.

ecological footprint: The ecological footprint is a tool to help measure human impacts on local and global ecosystems. The ecological footprint of a given population (household, community, country) is the total area of ecologically productive land and water used exclusively to produce all the resources (including food, fuel, and fiber) consumed and to assimilate all the wastes generated by that population. Since we use resources from all over the world and affect far away places with our wastes, the footprint is a sum of these ecological areas — wherever that land and water may be on the planet. Thus the ecological footprint of Santa Monica is that area of productive land inside and outside its borders that is appropriated for its resource consumption or waste assimilation. There is a finite area of ecologically productive land and water on the Earth, which must be shared among 6 billion people as well as all of the planet's other species. The amount of ecologically productive land available globally at today's current population is approximately 5 acres per person. The ecological footprint of the average American is approximately 25 acres, far exceeding the "fair earthshare". The ecological footprint is an excellent tool for illustrating the magnitude of the change necessary for our world to become sustainable. It is also useful for evaluating and comparing the total environmental impact of specific activities and in this way, helpful for decision-making.

environmentally preferable: a product, service, activity or process that has a lesser or reduced effect on human health and the environment when compared to other products, services, activities or processes that serve the same purpose.

extended producer responsibility: responsibility of producers or manufacturers across the entire life cycle of their products, particularly to the post-consumer stage (after products are discarded and become waste). Typically once a product is sold to a consumer the responsibility of disposing of that product becomes the responsibility of the consumer. Extended producer responsibility requires that the producer of the product maintain responsibility for recycling or proper disposal of the product once it has surpassed its useful life.

green: for the purpose of this document, *green* is used as shorthand to refer to any environmentally preferable product, activity, service or process.

green housing: housing that meets or exceeds the requirements of the City's Green Building Design and Construction Guidelines.

greenhouse gas (GHG): greenhouse gases are natural and manmade gases in the earth's atmosphere that allow incoming solar radiation to pass through the atmosphere and warm the earth but trap radiant heat given off by the earth. The radiant heat absorbed by these gases heats the atmosphere. This is a natural process known as the "greenhouse effect" that keeps the earth habitable. The four primary greenhouse gases are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O) and chlorofluorocarbons (CFCs). Since the onset of the industrial period, human activities have lead to sharp increases in the levels of GHGs in the atmosphere, enhancing the greenhouse effect and contributing to rising global temperatures.

hazardous material: a material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment.

hazardous waste: a waste or combination of wastes which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may cause or significantly contribute to an increase in serious, irreversible, or incapacitating reversible illness or pose a substantial present or potential hazard to human health, safety, welfare or to the environment when improperly treated, stored, transported, used or disposed of, or otherwise managed.

household hazardous waste (HHW): hazardous waste that is generated by residents through the use of hazardous or potentially hazardous products in the home. Typical household hazardous wastes include spent batteries, cleaning products, pesticides, paints and solvents.

HHW collection facility: a permanent facility maintained by the City for the collection and proper recycling or disposal of hazardous waste generated by Santa Monica residents and small quantities of hazardous waste generated by Santa Monica businesses. This is provided as a free service to Santa Monica residents. The facility is located at 2500 Michigan Avenue. Call (310) 458-8255 for more information.

Income levels: With respect to the indicators of housing affordability the following are definitions of the income levels mentioned in this document:

Very low income: annual earnings between 0 and 50% of the Los Angeles County Median Family income (MFI)
Low income: annual earnings between 51 and 80% MFI
Moderate income: annual earnings between 81 and 120% MFI
Upper income: annual earnings above 120% MFI

LEED$_{TM}$ certification (Leadership in Energy & Environmental Design): A rating system developed by the United States Green Building Council (USGBC) that sets definitive standards for what constitutes a *green* or *environmentally preferable* building. The certification system is self-assessing and is designed for rating new and existing commercial, institutional, and high-rise residential buildings. It evaluates environmental performance of the entire building over the building's life cycle. LEED certifications are awarded at various levels (certified, silver, gold, and platinum) according to a point-based scoring system.

level of service (LOS): a concept used to describe street intersection operating conditions. It is based on average vehicle delay measurements and/or the volume/capacity ratio of the intersection in question. LOS grades range from A to F with A representing excellent (free-flow) conditions and F representing extreme traffic congestion. For the purpose of this document, LOS grade D represents marginally acceptable levels of traffic and grades E and F represent unacceptable levels. A definition of level of service for sustainable modes of transportation will be developed as part of the update of the Circulation Element of the City's General Plan scheduled for adoption in 2003.

livable housing: housing that is within close proximity to neighborhood serving commercial areas, transit stops and community resources such as parks and open space.

local: the term *local* has different definitions depending upon the context in which it is used in this document. These are described below:

1) Where *local* is used in reference to the economy ("local economy" or "local businesses") it refers to Santa Monica's economy or businesses located within Santa Monica.
2) *Local government agencies* refer to any agencies or departments of the Santa Monica city government.
3) Where *local* refers to food production ("locally produced") it refers to food grown in the southern half of the state of California
4) Where *local* refers to resources, it refers to resources obtained or impacted within a 500-mile radius of Santa Monica.

mixed-use projects: developments which incorporate both residential and commercial uses.

modal split: the split in use of various transportation modes including: single passenger vehicles; carpools of more than one passenger; bus; rail; bicycle; and pedestrian modes.

multi-modal transportation system: a transportation system that includes affordable, alternative modes of transportation such as public transit, and infrastructure and access for alternative fueled vehicles, bicycles and pedestrians, in addition to standard vehicular transportation.

native species: plant or animal species native to the southern California bioregion.

natural function/wildlife habitat: geographic areas that provide life-supportive functions associated with atmospheric, biological, biochemical and hydrological processes that keep our air and water clean, process waste and support survival and reproduction of plant and animal life.

non-renewable resources: natural resources that have a finite availability worldwide. Examples include coal, oil and other petroleum products.

open space: for the purpose of this document *open space* refers to all land uses defined as open space in the Open Space Element of the City of Santa Monica's General Plan. These include beaches, parks, public gathering places, usable green open space in street medians, scenic highway corridors, gardens, and other publicly accessible land.

passive recreation: recreational opportunities that occur in a natural setting which require minimal development or facilities, and the importance of the environment or setting for the activities is greater than in developed or active recreation settings.

PBTs (persistent bioaccumulative toxics): chemicals that are toxic, persist in the environment and bioaccumulate in food chains and, thus, pose risks to human health and the environment. The term PBT is used primarily by the US Environmental Protection Agency (EPA), as part of its preparation of a list of such chemicals that will receive special regulatory emphasis in the United States.

POPs (persistent organic pollutants): Organic chemical substances that persist in the environment and bioaccumulate in food chains and pose a risk of causing adverse effects to human health and the environment. The term POPs is commonly used in the context of the United Nations Environment Program (UNEP) and are subject to international negotiations aiming toward their global elimination.

Note: The primary difference between the PBTs and POPs is that the list of PBTs includes non-organic toxins that are not included on the list of POPs.

potable: suitable for drinking

qualified low emission / alternative fuel vehicles: Vehicles recognized by the State of California as being low emission and/or alternative fuel vehicles. These vehicles exceed the basic standards all new vehicles must meet to be sold in California and include low emission vehicles (LEVs), ultra low emission vehicles (ULEVs), super ultra low emission vehicles (SULEVs) and zero emission vehicles (ZEVs). Additional information about these vehicle designations can be found on the internet at http://www.arb.ca.gov/msprog/ccbg/ccbg.htm

rainy day: for the purpose of this document, a *rainy* day is any day with recorded precipitation greater than .1" in 24 hours.

recognized neighborhood organization: Tax-exempt, non-profit organization representing a commonly recognized neighborhood in Santa Monica.

regionally appropriate vegetation: plant and tree species that are environmentally appropriate for the Southern California region and that do not negatively impact native plants or animals. A specific list of regionally appropriate vegetation for Santa Monica will be developed in 2003.

rehabilitated housing: rehabilitation that increases by 25% or more the after-rehab value of the property; or a rehabilitation in which at least fifty percent of exterior walls have been removed or relocated for any duration of time.

renewable limits: harvesting resources within *renewable limits* refers to harvesting a renewable resource at a rate that is lower than the rate the resource can replace itself (e.g. catching fish at a rate that will allow the fish population to be maintained over time. If too many fish are caught, exceeding renewable limits, the fish population will decline). The terms *renewable limits* and *sustainable limits* are synonymous.

renewable resources: natural resources that have an unlimited supply (such as solar radiation) or that can be renewed indefinitely if ecosystem health is maintained (e.g. fisheries or forests).

routine: for the purpose of this document, *routine*, when describing generation of hazardous waste by City government operations, refers to regular and consistent operational practices such as vehicle maintenance, regular cleaning procedures, etc. Non-routine refers to hazardous waste generated during unanticipated events such as chemical spills or leaks.

Santa Monica cost of living index (SMCOLI): Los Angeles County cost of living for a two-person household adjusted for the cost of housing in Santa Monica. SMCOLI for 2000 is $21,800 (LA County cost of living) x 1.46 = $31,828. The 1.46 multiplication factor refers to the relative cost of housing in Santa Monica as compared to the average for Los Angeles County, based on the Housing Authority Survey of Rents.

significant emissions source: sources of toxic air contaminants and other air emissions that pose a threat to human health and the environment. A specific list of significant emission sources within Santa Monica will be developed in the course of tracking this indicator.

SMMUSD: Santa Monica-Malibu Unified School District

special needs groups: with respect to affordable housing, *special needs groups* refers to the elderly, disabled persons, large families, female-headed families, and the homeless.

sustainable: ***sustainable*** can mean slightly different things depending on the context in which it is used. For the purpose of this document, the following definitions are used:

sustainable (in reference to resource use): a method of harvesting or using a resource so that resource is not depleted or permanently damaged.

sustainable business: for the purpose of this document, *sustainable business* refers to a business that provides goods and services, and/or has incorporated into its daily operations practices that result in cleaner air and water, less waste and pollution, conservation of energy and natural resources, less traffic, improved quality of life for residents and workers, and contribute to a strong and viable local economy.

sustainable community/city: a community or city that meets its present needs without sacrificing the ability of future generations to meet their own needs. More specifically, a sustainable community is one that improves and enhances its natural, social and economic resources in ways that allow current and future members of the community to lead healthy, productive and satisfying lives.

sustainable modes of transportation/travel: same as *alternative modes of transportation* above

sustainable procurement: procurement of environmentally preferable goods and services in a way that also takes into consideration social responsibility and sustainable economic development issues in the manufacture, transportation, sale and use of those goods and services.

toxic material: a substance that causes illness, injury or death by chemical means. A poison.

toxic air contaminants (TACs): air pollutants which may cause or contribute to an increase in mortality or serious illness, or which may pose a present or potential hazard to human health.

transit node: a station for public transportation along a regional transit corridor (usually rail or rapid bus) with access routes for buses, taxis, automobiles, bicycles and pedestrians.

urban villages: mixed-use developments in walkable, livable and transit-oriented districts that balance the need for sufficient density to support convenient, high-frequency transit service within the scale of the adjacent community.

vehicle miles traveled (VMT): one vehicle traveling one mile constitutes a vehicle mile. VMT is primarily an indicator of automobile use. Increasing VMT typically corresponds with increases in traffic and vehicle-related pollution.

zero emissions vehicle (ZEV): motor vehicle that produces neither tailpipe nor evaporative pollutant emissions.

zero waste: recycling or reuse of all natural and man made materials back into nature or the marketplace rather than sending those materials landfills or similar disposal options.

Appendix G: City Ordinance No. ( )
Water Shortage Response Plan

City of Santa Monica 2010 Urban Water Management Plan

City of
Santa Monica®

CITY OF SANTA MONICA

WATER SHORTAGE RESPONSE PLAN

Department of Public Works
Water Resources Division
1212 5th St.
Santa Monica, CA 90401
(310) 458-8975
www.water.smgov.net

Table of Contents

Section 1: Introduction

The City of Santa Monica City Council adopts this Water Shortage Response Plan (WSRP) pursuant to Santa Monica Municipal Code ("SMMC") section 7.16.030(c). The WSRP is intended as an action plan and is designed to reduce water demand during water shortages. The WSRP is based in part on the State of California Department of Water Resources *2007 Urban Drought Guidebook*. The Urban Water Management Planning Act (Section 10632 of the California Water Code) requires water shortage contingency planning as a component of the Urban Water Management Plan, which is updated every five years.

The WSRP establishes five stages of water shortage severity based on predicted or actual water supply reductions. Each stage establishes water use reductions through voluntary or mandatory measures. Triggers for implementing the WSRP may include such events as a state or local emergency; natural disaster; a localized event that critically impacts the water supply; drought or the City's wholesale water agency imposing water allocation restrictions.

Section 2: City of Santa Monica Water Supply

The City of Santa Monica is a retail water agency providing water service to all single-family and multi-family residential users, commercial and industrial users and City of Santa Monica landscape and fire protection uses. The City is also a founding member agency of the Metropolitan Water District of Southern California (MWD). The City uses local groundwater, local recycled water and imported water from MWD. As a wholesale agency, the MWD finances, constructs and operates pipelines and other facilities to transport state water and Colorado River water to contracted water purveyors such as the City of Santa Monica.

The City of Santa Monica currently produces 12% of its water supply from groundwater wells and imports 88% from MWD. Since 1996, groundwater well production has been affected by contamination by infiltration of the fuel additive MTBE which has forced the City to increase dependence upon imported MWD water until groundwater remediation efforts are complete and a new treatment plant is operational. Voluntary water conservation programs have been used in Santa Monica since 1980.

Section 3: Past, Current and Future Water Demand

Table 1: Current and Planned Water Supplies – AF/Y[1]

Water Supply Sources	2005	2010	2015	2020	2025	2030
Imported Water Provider: Metropolitan Water District (MWD)	13196	12636	4006	4006	4006	4006
City of Santa Monica produced groundwater:	1406	1406	10036	10036	10036	10036
City of Santa Monica surface diversions:	0	0	0	0	0	0
Transfers in or out	0	0	0	0	0	0
Exchanges in or out	0	0	0	0	0	0
Recycled Water (current and projected production)	336	560	560	560	560	560
Desalination	0	0	0	0	0	0
Other	0	0	0	0	0	0

Section 4: Objectives and Priorities of Water Use

A. The objectives of the WSRP are to:

(1) Prioritize essential uses of available water;
(2) Avoid irretrievable loss of natural resources;
(3) Manage current water supplies to meet ongoing and future needs;
(4) Maximize local municipal water supplies;
(5) Eliminate water waste city-wide;
(6) Create equitable demand reduction targets; and
(7) Minimize adverse financial effects.

B. The following priorities for use of available water are listed in order from highest to lowest priority:

(1) Health and Safety including: consumption and sanitation for all water users; fire suppression; hospitals, emergency care, nursing and other convalescent homes and other similar health care facilities; shelters and water treatment;
(2) Institutions, including government facilities and schools such as public safety facilities, essential government operations, public pools and recreation areas;
(3) All non-essential commercial and residential water uses;
(4) Landscaped areas of significance, including parks, cemeteries, open spaces, government-facility landscaped areas and green belt areas;
(5) New water demand.

[1] City of Santa Monica Urban Water Management Plan 2005

Section 5: Triggers for Implementation

The City Council may declare by resolution that an Advisory or Stage 1, 2, 3 or 4 Water Supply Shortage exists and that the actions outlined in this WSRP are necessary. The type of event which may prompt the City Council to declare an Advisory or Stage1, 2, 3, 4 Water Supply Shortage may include, among other factors, drought, state or local emergency, a natural disaster that critically impacts the water treatment or water distribution system, a localized event that critically impacts the water supply, water quality, water treatment or water distribution system, the City's wholesale water agency requests extraordinary water conservation efforts in order to avoid mandatory water allocations, the City's wholesale water agency implements a water allocation.

Section 6: Stages of Water Shortage Supply

The WSRP establishes five stages of severity based on predicted or actual water supply reductions. Each stage establishes water use reductions either through voluntary or mandatory measures. Mandatory water restrictions include water use allowance for each water customer category. Table 2 below outlines the stages and water use reduction goals.

Table 2: Water Shortage Reduction Targets

Water Shortage Stage	Water Use Restrictions	Total Water Supply Reduction Percentage	City-wide Use Reduction Goal
Advisory	Voluntary	Shortage is probable	10%
Stage 1	Mandatory	5-10%	15%
Stage 2	Mandatory	10-20%	20%
Stage 3	Mandatory	20-30%	30%
Stage 4	Mandatory	30+%	50%

Section 7: Water Use Restrictions for All Stages

The following water conservation requirements apply to all persons within the City of Santa Monica and are permanently enforced in accordance with SMMC section 7.16.020:

(a) **Landscape.**

(1) **Watering Hours.** No lawn or landscape area shall be spray irrigated between the hours of ten a.m. and four p.m. on any day. This subsection shall not apply to any drip irrigation system approved by the Director of Public Works or unless the Director of Public Works approves in writing an exemption for irrigation system maintenance, leak repair or new planting of low water usage plants or if reclaimed water is utilized as permitted by law.

(2) **Irrigation Overspray and Runoff.** Water shall not spray or flow to any impermeable private or public surface including but not limited to walkways, driveways, sidewalks, alleys, streets, or storm drains.

(b) **Cleaning.** No person shall:

(1) Use water to wash, clean or clear any sidewalks, streets, walkways, patios, driveways, alleys or parking areas, whether paved or unpaved, with a hose connected to a domestic water source. Exception: Pressure washing may be permitted in writing by the Director of Public Works with approved equipment and if all wastewater is recovered for recycling, disposed of in the sanitary sewer, or directed to landscaping. In no event shall any water so used be permitted to run off into streets, alleys or storm drains;

(2) Wash or clean with water any vehicle, including, but not limited to any automobile, truck, van, bus, motorcycle, boat or trailer, whether motorized or unmotorized, except by use of a hand-held bucket or similar container or a hose equipped with a positive action quick release shutoff valve or nozzle. This subsection shall not apply to any commercial car washing facility which utilizes a recycling system to capture or reuse water. In no event shall any water so used be permitted to run off into streets, alleys or storm drains;

(c) **Water Features and Water Recreation Facilities.** No person shall:

(1) Fill, for the first time, any water feature such as a fountain, pond, lake or water display unless the water feature is constructed with a water recycling system and, prior to the issuance of a building permit, a fee is paid to the Director of Public Works equal to the first year water consumption of the water feature as determined by the Director of Public Works.

(2) Fill, for the first time, any water recreation facility such as a hot tub, spa, permanent swimming or wading pool unless the water recreation facility is constructed, installed or equipped with a cover to reduce water loss due to evaporation and, prior to the issuance of a building permit, a fee is paid to the Director of Public Works equal to the first year water consumption of the water recreation facility, as determined by the Director of Public Works.

(d) **Waste, Ponding and Leaks.** No person shall:

(1) Cause, permit or allow water to leak from any exterior or interior pipe, hose or plumbing fixture of any kind whatsoever.

(2) Cause, permit or allow water to flow from any source on private or public property into gutters, streets, alleys or storm drains except as a result of rainfall or from a source approved in writing by the Director of Public Works.

(3) Cause, permit or allow water from any source to pond on private or public property except as a result of rainfall or unless approved in writing by the Director of Public Works.

(4) Cause, permit or allow water to flow from any source on private or public property without beneficial use.

(e) **Eating and Drinking Establishments.** All eating and drinking establishments of any kind whatsoever including, but not limited to, any restaurant, hotel, cafe, cafeteria, bar or club, whether public or private, shall only provide drinking water to any person upon receipt of an express request.

(f) **Exceptions.** The provisions of this Section are not applicable to the uses of water which are necessary to protect public health and safety or for essential governmental services, such as police, fire and other similar emergency services.

The following water use restrictions shall apply as a result of implementing any stage of the WSRP:

Swimming Pools and Spas. No person shall empty and refill a privately-owned swimming pool or spa with water from the City's potable water supply, except to prevent or repair structural damage or to comply with public health regulations. No person shall fill with water from the City's potable water supply a new swimming pool or spa.

Section 8: City of Santa Monica Staff Responsibilities

(A) City staff will be informed of the water supply shortage. Each staff member will be expected to use water efficiently.
(B) The City's landscaped areas will be efficiently irrigated based on the Irrigation Association's Best Management Practices.
(C) Each staff member will be expected to notify the appropriate City department immediately of any leaks seen on City property or private property.

Section 9: Water Allowances for Stages 1,2,3,4

A Water Use Allowance (WUA) is established for each water customer. Examples of Water Allowances are found in Exhibits 1 and 2.

The WUA shall not apply to:

(A) Any water customer of the City of Santa Monica during an Advisory water supply shortage stage;
(B) Any hospital, emergency care facility, public safety facility, emergency shelter, assisted living facility;
(C) Any water customer account designated for municipal non-potable water.
(D) Any single-family or duplex residences where water consumption usage is at or below twenty-two (22) HCF per bi-monthly bill;
(E) Any multi-family residence where water consumption usage is at or below eight (8) HCF per dwelling unit per bi-monthly bill;

Summary of Allowances

Residential Water Customers

A water use allowance is a specified amount of water assigned to each residential water customer in the City of Santa Monica for the duration of a declared water shortage. The water allowance is calculated using a base amount (essential water use) plus an additional amount based on the customers past water usage (non-essential water use) then adjusted for summer and winter seasonal uses.

Commercial and Landscape Only Water Customers

A water use allowance is a percent reduction in the amount of water available for each commercial and landscape only water customer in the City of Santa Monica for the duration of a declared water shortage. Commercial water customers are allotted water on a percentage basis in recognition that water demand is constant and reductions may cause undue hardship.

Residential Water Allowance

Table 3: Residential Water Use Allowance

	Stage 1	Stage 2	Stage 3	Stage 4
Allowance for Single-Family Property	68 gallons per capita per day + non-essential allowance		50 gallons per capita per day + non-essential allowance	
Allowance for Multi-Family Property Master Meter	68 gallons per capita per day + non-essential allowance		50 gallons per capita per day + non-essential allowance	
Allowance for Multi-Family Property Individual Unit Meter	68 gallons per capita per day		50 gallons per capita per day	

Commercial Water Use Allowance
The water use allowance is a percentage of the previous year's average water usage over a certain period.

Table 4: Commercial Water Allowance

	Stage 1	Stage 2	Stage 3	Stage 4
% Water Available per Customer	95%	90%	85%	80%

Landscape Only Water Allowance
The water use allowance is the same as the water shortage reduction targets per Table 2.

Table 5: Landscape Only Water Allowance

	Stage 1	Stage 2	Stage 3	Stage 4
% Water Available per Customer	85%	80%	70%	50%

Section 10: Water Use Allowance Penalty Surcharge and Fines

Every customer of City-supplied water who uses water or permits water to be used in excess of the amounts established in accordance with this WSRP shall be charged a fine and penalty surcharge on their water bill for any water used in excess of the allowance set by this WSRP during the billing period as follows:

The following fines and penalty surcharges will be assessed for each HCF of EXCESS water used:

1-4 HCF*	= $4.00
5-10HCF	= $16.00
11-16HCF	= $32.00
17+	= $40.00 for each HCF over 17**

*1 HCF= 748 gallons
**plus other restrictions if applicable

If a water customer has more than three billing periods of excess water consumption usage, the Director of Public Works or his or her designee may restrict the flow of water to the customer in addition to charging the customer a fine and penalty surcharge for excess water usage. In addition, the Director of Public Works or his or her designee may require the customer at his or her expense to install appropriate water-efficient devices, appliances, plumbing fixtures, or irrigation equipment as may be required to bring water consumption within the limits established in the WSRP. If the water customer continues to fail to comply with the provisions of this WSRP the Director of Public Works may commence water disconnection procedures.

Section 11: Challenge or Variance

(A) A variance for the use of water in excess of the Water Use Allowance established by this WSRP may be granted by the Director of Public Works or his or her designee if it is determined that there exists no feasible means available to comply with the limits established by this WSRP and that the excess use of water is:

(1) necessary to prevent an emergency condition relating to health and safety, and if the person seeking a variance has demonstrated that the maximum practical reduction in water consumption is being achieved by the affected property or business and the water customer is in full compliance with the water conservation requirements of SMMC section 7.16.020; or

(2) caused by facts such as, but not limited to, illness, a necessary change in use of the affected property, an increase in the size of the household, changes in vacancy, increases in employment, increases in production output; or

(B) A variance must be requested in writing on forms provided by the City and include all necessary information. The Director shall issue his or her written decision within thirty days of a request being filed.

(C) No late fees will be assessed during the variance review process.

(D) No variance shall be granted to a water customer unless the customer has demonstrated that the maximum practical reduction in water consumption is being achieved by the affected property or business and the water customer is in full

compliance with the water conservation requirements of this WSRP and the Santa Monica Municipal Code, including SMMC section 7.16.020. At minimum each property must have installed the following water-efficient fixtures:

(1) All toilets must flush no more than 1.6 gallons per flush;

(2) All showerheads installed must emit no more than 2.5 gallons;

(3) All hand sink faucets must not emit more than 2.5 gallons per minute in residential properties and no more than 0.5 gallons per minute in commercial properties;

(4) All kitchen sink faucets must not emit more than 2.5 gallons per minute;

(5) All urinals must flush no more than 1.0 gallons per flush.

Any variance granted shall be based upon the water consumption rates of similar water users, properties or businesses.

Section 12: Additional Requirements

The Director of Public Works, or his or her designee, may implement additional requirements or make changes to the existing requirements in order to meet water reduction goals.

Section 13: Definitions

Allowance. The amount of water assigned to water customers based on customer type;

Billing Period. The billing period is approximately 60 days between water meter readings;

Billing Unit. The measure of water in hundred cubic feet (HCF). One HCF equals Seven Hundred Forty-Eight gallons (748) of water;

Commercial Account. Any water customer whose property not designated as single family, multi-family or landscape only. This may include multi-use properties, schools, businesses;

Essential Water Use. The water needed for consumption and sanitation that meets basic health and safety needs, such as water needed for drinking, toilet flushing, showering;

HCF. The billing measurement for water in hundred cubic feet. One HCF is equal to 748 gallons;

Irrigation. Any system for distribution of pressurized water in the landscape, including but not limited to any system in which any portion is installed below grade or affixed to any structure;

Landscaping. Modification of the ground surface with live planting materials such as trees, shrubs, turf, groundcover or other horticultural

materials; as well as non-living materials such as mulch, synthetic turf, hardscape, or stone;

Landscape Only Account. Any water meter installed to measure the flow of water for irrigation and landscape purposes only;

Master Meter Account. A meter that serves a multi-family building and may include water used for common areas such as laundry, irrigation equipment and pools;

Multi-Family. A residential property with three or more units on the premises. This may include master metered or individually metered units;

Multi-Family Individual Meter Account. A meter that serves only one unit and does not include outdoor or landscape water use;

New Account. A new water service connection where one was not previously installed;

Non-essential Water Use. Water used for purposes other than consumption and sanitation that is not required to maintain health and safety, such as landscape irrigation, water features;

Person. Any individual, corporation, organization, business, trust, partnership, limited partnership, association, firm, company, joint stock company, joint venture, commission or any other legal entity;

Potable Water. Water suitable or intended for human consumption;

Single Family. A residential property with one or two units;

Shortage. The actual demand for water placed upon the water supply system by water customers which exceeds the actual supply, where the actual supply of water is the amount of water available for delivery from the municipal water supply system for subsequent delivery to water customers;

Summer Seasonal Use. Water demand between May 1st through October 31st;

Water: All potable water supplied from the municipal water supply system to any water customer. Non-potable water is excluded;

Water Customer. The person designated on the water account records maintained by the City as the person responsible for payment of charges incurred for the use of the water supply system, or any person who uses water at the premises served;

Water Demand. The amount of water used by water customers;

Winter Seasonal Use. Water demand between November 1st through April 30th.

Exhibit 1 – Residential Water Use Allowance Formulas

Summary of Allowances

Residential Water Customers
Single Family and Multi Family Master Meter Accounts
A water use allowance is a specified amount of water assigned to each residential water customer of the City of Santa Monica for the duration of a declared water shortage. The water allowance is calculated using a base amount (essential water use) plus an additional amount based on the customers past water usage (non-essential water use) then adjusted for summer and winter seasonal uses.

Multi-Family Individual Meter Accounts
A water use allowance is a specified amount of water assigned to each residential water customer of the City of Santa Monica for the duration of a declared water shortage. The water allowance is calculated using a base amount (essential water use).

Residential Water Allowance Formulas[2]

Single Family and Multi-Family Master Meter Account:
Water Allowance =
essential water + non-essential water + seasonal water adjustment

Multi-Family Individual Meter Account:
Water Allowance = essential water

Assumptions for Calculations:

1. Non-essential Use= average use – essential water use
2. Baseline Year (s) of Water Demand determined at time of shortage
3. Baseline Residential Water Demand determined at time of shortage
4. Residential Population as determined by the City's Planning Department at the time of shortage
5. Number of Single Family Residents = 4
6. Number of Multi-Family Residents = 1.5
7. Summer Season is defined as June through October
8. Winter Season is defined as November through May

[2] 2007 Urban Drought Guidebook, State of California, Department of Water Resources.

Table 6: Water Allowances for Each Stage

	Stage 1 & 2	Stage 3 & 4
Allowance for Single-Family Property & Multi-Family Master Meter	68 gallons per capita per day + non-essential allowance	50 gallons per capita per day + non-essential allowance
Allowance for Multi-Family Property Individual Unit Meter	68 gallons per capita per day	50 gallons per capita per day

Table 7: Essential Water Use Gallons Per Capita Day Calculation Stage 1 & 2

Allocated water use is 68 gallons per capita per day (gpcd)		
Toilets	5 flushes x 1.6 gpf	8.0
Shower/bath	5 min x 2.5 gpm	12.5
Clothes Washer	1/3 load	6.0
Kitchen/Dishwasher	4 gpcd	4.0
Bathroom Sinks	4 gpcd	4.0
Inside Total (gpcd)		34.5
Cleaning/outdoor Use		33.5
TOTAL		68.0 gpcd

Table 8: Essential Water Use Gallons Per Capita Day Calculation Stage 3 & 4

Allocated water use is 50 gallons per capita per day (gpcd)		
Toilets	5 flushes x 1.6 gpf	8.0
Shower/bath	5 min x 2.5 gpm	12.5
Clothes Washer	1/3 load	6.0
Kitchen/Dishwasher	4 gpcd	4.0
Bathroom Sinks	4 gpcd	4.0
Inside Total (gpcd)		34.5
Cleaning/outdoor Use		15.5
TOTAL		50.0 gpcd

Table 9: Essential Water Use Billing Unit (HCF) Calculations

	Stage 1 & 2	Stage 3 & 4
Single Family Water Account	132 HCF/year	98 HCF/year
Multi-Family Master Meter Water Account	48 HCF/year/unit	37 HCF/year/unit

Table 10: Non-essential Water Use Calculation in HCF Calculations

	Stage 1 through 4
Non-essential Use	**Available water – essential water**
Seasonal Adjustment	**Avg. usage – the minimum allowance x percent reduction in total non-essential water use**

Calculation for Determining a Water Allowance for an Individual Residential Water Customer

Residential Water Use Allowance (RWUA) = essential use + non-essential + adjustment for winter and summer seasons.

1. **Total residential customers essential allowance (TW)**=
   gallons per capita per day) * (population of Santa Monica) * (365 days) =
   (gallons per year / 325,800 gallons) = xxx AFY*

   A. **Single Family Water Customer Allowance** (assumes four residents):
   (68 gpcd) * (4 people) = [(272 gpd) * (365 days)] = $\left(\frac{99280}{748}\right)$ = 132 HCF/year

   B. **Multi-Family Water Customer Allowance** (assumes one and a half residents):
   (68 gpcd) * (1.5 people) = [(102 gpd) * (365 days)] = $\left(\frac{74460}{748}\right)$ = 50 HCF/year

2. **Total Residential Non-essential Water Use Allowance**:
   Available residential water – essential water use = non-essential water use
   Average year use – essential water use = avg. non-essential water use
   $\left(\frac{Non-essential}{avg.non-essential}\right)$ = percentage total non-essential water use (TNW)

3. **Individual Residential Water Customer Water Allowance**:
   A. Yearly Allowance= [(avg. customer use – essential water use) * TNW %]+ essential water use
   B. Percentage Reduction for this household = $\left(\frac{This\ year's\ water\ allowance}{Average water use}\right)$

4. **Seasonal Adjustment**
   A. Winter billing period difference = (winter avg. – minimum allotment) x TNW%
   B. Summer billing period difference = (summer avg.- minimum allotment) x TNW%

*latest population number from CSM Planning Department and corresponding water demand from the Public Works Department will be used to determine the TW

Residential Water Allowance Examples

Sample Allowance for Residential Water Customers

Assumptions:
Stage 1 – 15% Reduction
Population: 88,000
Average Residential Water Use: 9,300 AF*
Available Residential Water: 7,905 AF (9,300 AF less 15%)

1. **Essential Water Use**

68	Gallons Per Capita Per Day (gpcd)
88,000	Population
365	Days in a Year
2,184,160,000	Gallons Per Year
325,800	Number of Gallons in an Acre Foot
6,702	Acre Feet Available for Essential Water Use

(68)(88,000)(365) = (2,184,160,000/325,800) = 6,702 AF Essential Water Use

2. **Non-essential Water Use**

7,905 AF	Available Residential Water Less
6,702 AF	Essential Water Use equals
1,203 AF	Non-Essential Water Use
9,300 AF	Average Residential Water Use
6,702 AF	Essential Use equals
2,598 AF	Average Non-Essential Use
1,203 AF	Non-Essential Water Use divided by
2,598 AF	Average Non-Essential Use equals
46%	Percentage Reduction Required per Customer for Non-Essential Water Use

*AF = Acre Feet, or 325,800 gallons

Yearly Allowance for a Single Family Home with 4 residents

2004-2006 average yearly water use = 1284 HCF

(This example is a non-conserving single family home)

Table 11: Single Family Water Allowance Chart Example

	Stage 1			
Essential	132	Per Table 9		
Non-Essential	622	Average Annual Use less Essential Use at 46% Reduction		
Yearly Allowance	754	Sum of Essential Use and Non-Essential Use after Reduction		
Reduction %	46%	Amount required to reduce, or 54% available		

Table 12: Single Family Bi-Monthly Average Water Use Example

Year	2004	2005	2006	Average
Nov-Dec	153	163	166	161
Jan-Feb	188	135	147	157
Mar-Apr	155	156	179	163
May-Jun	253	253	189	232
Jul-Aug	268	262	344	291
Sep-Oct	254	292	295	280
Annual Use	1271	1261	1320	1284

Table 13: Single Family Winter Seasonal Adjustment Example

	Nov-Dec	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sep-Oct	total
Essential Use per bill in HCF	22	22	22	22	22	22	132
Seasonal Adjustment (actual use less 22 less 46%)	75	73	77	113	145	139	622
TOTAL PER BILL	97	95	99	135	167	161	754

Yearly Allowance for a Multi-Family Master Metered Six Unit Building Assuming 9 Residents

2004-2006 average yearly water use = 340 HCF

Table 14: 6-Unit Master Metered Building Water Allowance Chart Example

	Stage 1			
Essential	288	Per Table 9 (6 units X 48 HCF)		
Non-Essential	28	Average Annual Use less Essential Use at 46% Reduction		
Yearly Allowance	316	Sum of Essential Use and Non-Essential Use after Reduction		
Reduction %	46%	Amount required to reduce, or 54% available		

Table 15: 6-unit Master Metered Building Bi-Monthly Average Water Use Example

Year	2004	**2005**	**2006**	**Average**
Nov-Dec	66	58	48	57
Jan-Feb	53	83	56	64
Mar-Apr	55	55	36	49
May-Jun	55	59	57	57
Jul-Aug	65	68	42	58
Sep-Oct	58	54	52	55
Annual Use				340

Table 16: Sample 6-unit Master Metered Building Bi-monthly Winter Seasonal Adjustment Example

	Nov-Dec	**Jan-Feb**	**Mar-Apr**	**May-Jun**	**Jul-Aug**	**Sep-Oct**	**total**
Essential Use per bill in HCF	48	48	48	48	48	48	288
Seasonal Adjustment (actual use less 48 less 46%)	5	8	0	5	6	4	28
TOTAL PER BILL	53	56	48	53	54	52	316

Exhibit 2 – Commercial and Landscape Only Water Use Allowance Formulas

Commercial and Landscape Only Water Customers

A water use allowance is a percent reduction in the amount of water available for each commercial water customer of the City of Santa Monica for the duration of a declared water shortage.

Commercial Water Allowance Formula

The water use allowance is a percentage of the previous year's average water usage per billing period per the table below.

Table 17: Commercial Water Allowance Formula

	Stage 1	Stage 2	Stage 3	Stage 4
% Water Available per Customer	95%	90%	85%	80%

Commercial Example

Average water use in previous year = 5592 HCF

Table 18: Commercial Water Customer Example

	Stage 1	Stage 2	Stage 3	Stage 4
Water Allowance	5312 HCF	5033 HCF	4253 HCF	4474 HCF

Landscape Only Water Allowance Formula

The water use allowance is a percentage of the previous year's average water usage per billing period. The percent reduction will be equal to Stages 1 – 4 in per Table 2.

Table 19: Landscape Only Water Allowance

	Stage 1	Stage 2	Stage 3	Stage 4
% Water Available per Customer	85%	80%	70%	50%

Landscape Only Example

Average water use in previous year = 250 HCF

Table 20: Landscape Only Customer Example

	Stage 1	Stage 2	Stage 3	Stage 4
Water Allowance	213 HCF	200 HCF	175 HCF	125 HCF

Exhibit 3 – Calculation Templates

The columns in this exhibit are intentionally left blank.

Table 21: Sample Supply Projections

PROJECTED SUPPLY INFORMATION IN ACRE FEE (AF)				
Source	**Normal/Avg**	**Previous Year**	**Current Year**	**Next Year**
Groundwater				
Imported MWD Water				
Recycled Water				
TOTAL				
% Shortage				
Average Demand				
Additional Supply Needed				
New Total				
% Supply Shortage				

Table 22: Baseline Water Use Data

	Year 1	**Year 2**	**Year 3**	**Year 4**	**Average Use**
Total Single Family Water Use (AF)					
Total Multi-Family Water Use (AF)					
Total Commercial Water Use (AF)					
Total Landscape Water Use (AF)					
TOTAL					

Table 23 :Customer Reduction Goals

Water Use by Customer Type	Baseline Water Sales (AF)	% of Total Sales	Stage 1 15%		Stage 2 20%		Stage 3 30%		Stage 4 50%+	
			Goal (%)	Sales (AF)	Goal (5)	Sales (AF)	Goal (%)	Sales (AF)	Goal (%)	Sales (AF)
Groundwater										
Imported MWD										
SMURRF										
TOTAL										

Table 24: Baseline Population

Number of Residents	
Source of Data	

Exhibit 4 – Water Shortage Response Team

Table 25: Water Shortage Response Team Sheet

Title	First Name	Last Name	Primary Phone	Phone	Emergency Number	Fax	Email
Team Leader							
Water Resources Manager							
Water Treatment							
Water/Wastewater Operations							
Finance							
Conservation							
Engineering							
Customer Service							
Public Relations Manager							
Law Enforcement							
Fire							
Community Maintenance							

Team Leader: Coordinates the WSRP, mobilizes the team as needed, and oversees implementation of the WSRP.
Water Resources Manager: Manages day-to-day operations of the WSRP.
Water Production/Treatment: Ensures water quality standards are met.
Wastewater Operations: Ensures water quality standards are met.
Finance: Balances impacts of water reduction and income.
Conservation: Develops and implements water conservation programs during the shortage.
Engineering: Ensures water supplies are met/infrastructure maintenance/repair/replacement.
Customer Service: Provides pertinent information to water customers.
Public Relations Manager: Provides pertinent information to the media, City Council and City Staff.
Law Enforcement: Protects the public and enforces laws.
Fire: Protects the public
Community Maintenance: Oversees water use at City facilities and landscaping.

Appendix H: City Ordinance No. ( ) Efficient Landscape Ordinance

City of Santa Monica 2010 Urban Water Management Plan

Water-Efficient Landscape and Irrigation Standards

Revised 11/3/09

The following <u>standards are required</u> for the design, installation and maintenance of landscape and irrigation systems in the City of Santa Monica per the Santa Monica Municipal Code (SMMC) 8.108.

These requirements are based on the California Department of Water Resources State Model Water Efficient Landscape Ordinance and the Irrigation Association's *Turf & Landscape Irrigation Best Management Practices*, 2005 edition and tailored to the ordinances, policies and climate of the City of Santa Monica.

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Watershed Management Section
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Santa Monica, CA 90401
www.sustainablesm.org/landscape

City of
Santa Monica®

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Section 1: Definitions

For purposes of the Water-Efficient Landscape and Irrigation Standards, the following words or phrases shall be defined as follows:

A. **Anti Siphon Valve.** Backflow device configured with a single moving part, a float, which moves up or down to allow atmospheric air into the piping system to prevent back siphoning of water from sprinkler lines into the drinking water. Must be installed at least 6 inches above the highest sprinkler, elevated piping or emission outlet in the valve.
B. **Bubbler.** Water emission device that tends to bubble water directly to the ground or that throw water a short distance, on the order of one foot, (300 mm) before water contacts the ground surface.
C. **Drip Irrigation.** Method of micro irrigation wherein water is applied to the soil surface as drops or small streams through emitters on or within polyethylene tubing at less than 2 gallons per hour.
D. **In-line Remote Control Valve.** Valve which is actuated by an automatic controller by electric or hydraulic means.
E. **Multi Outlet Emitter.** A point source emission device consisting of two or more drip emitters connected to 1/4 inch or 1/8 inch distribution tubing.
F. **New Landscaped Area.** A new landscaped area or modifications to an existing landscaped area as part of a major remodel or substantial remodel or new construction.
G. **Plant Material.** Living plants, trees, shrubs, groundcovers, grasses and edible plants.
H. **Point of Connection.** Location where irrigation system is connected to the water supply.
I. **Precipitation Rate.** The rate at which water is applied to a landscape area by an irrigation system or watering device measured in inches per hour.
J. **Spray head**. Sprinkler head that does not rotate.
K. **Sprinkler.** Any watering device which distributes water by projecting it into the air.
L. **Turfgrass**. Any plant listed as turfgrass in WUCOLS.
M. **Watering Device.** Any device for distribution of pressurized water to landscaping.
N. **WUCOLS.** Water Use Classification of Landscape Species published by the California Department of Water Resources.
O. **Valve.** A device that opens and closes to allow pressurized water to flow through pipes.

Section 2: Plan Submittal Requirements for Major Remodel, Substantial Remodel or New Construction Projects.

The following items will be required prior to the issuance of a building permit. Any revisions to the approved plans will require re-submittal and approval.

A. Landscape Plan.

a. The landscape plan may be designed by an unlicensed landscape designer, licensed landscape architect, or licensed architect. The final landscape plan shall be signed by a licensed landscape architect or architect prior to submittal for approval.

b. Include the name, size, quantity, location and water use needs of each plant; specify soil amendments as necessary; mulch type, depth and location. Include hydrozones for all plants.

c. Include the following measurements in square feet: parcel size including parkway, total building footprints, total existing hardscape, total existing landscape area, and total area to be landscaped.

d. If using non-fruiting, non-invasive, sterile varieties or cultivars of invasive plants, specify this on the plans.

e. Include planting specifications.

f. Include a **Hydrozone Matrix** with planting areas arranged into hydrozones according to watering needs. Describe for each zone the following: the square footage, percentage of total landscaped area, plant type, hydrozone basis, hydrozone description, exposure or micro-climate, irrigation method, irrigation devices (including manufacturer / model / number), zone pressure, precipitation rates, zone gallons per minute, and controller station number, and total feet of drip tubing used.

g. Include a **Soil Analysis Report** which may include but is not limited to soil texture; infiltration rate or soil texture infiltration rate table; pH; total soluble salts; sodium; percent organic matter; and recommendations determined by laboratory test.

h. Submitted plans must include the following notation:

i. "Landscape plans, when submitted, shall comply with SMMC 9.04.08.02.070(I)."
ii. "For open-trench and final inspections, call Building and Safety at (310) 458-8355."
iii. "Parkway permits must be obtained from and approved by the Public Works Department."
iv. "Prior to construction of landscaped area or irrigation, the contractor must obtain and review a copy of the Water-Efficient Landscape and Irrigation Standards."
v. "All landscaping and irrigation systems must comply with all local, state, and federal laws and regulations."

B. Irrigation Plan.

a. The irrigation plan may be designed by an unlicensed landscape designer, unlicensed irrigation designer, licensed landscape architect, or licensed architect. The final irrigation plan shall be signed by a licensed landscape architect or architect prior to submittal for approval.

b. Include point of connection, water supply type (potable, graywater, cistern, recycled).

c. Include all parts and their make and model, including but not limited to: pressure regulators, valves, backflow prevention devices, filters, piping and piping depth, pressurized main lines and lateral lines, sprinkler heads showing head-to-head coverage, drip irrigation components and drip irrigation layout.

d. Include a static pressure reading for the irrigation system measured from the point of connection.

e. Include irrigation details, with applicable detailed drawings, and specifications.

f. Irrigation design shall accommodate hydrozones accordingly. For example; separate zones may be required for trees, shrubs, flowers, shady or sunny areas, drip irrigation and/or sprinklers.

g. Submitted plans must include the following notation:
   i. "The irrigation system must comply with all local, state, and federal laws and regulations."
   ii. "The irrigation designer or landscape architect or landscape designer shall

perform one or more site observations during system installation to check for adherence to the design, including the proper installation of the backflow prevention assembly, main line, laterals, valves, sprinkler heads, drip irrigation equipment, control wire, controllers, and sensors and should assure that the intent of the irrigation design has been preserved."

C. Grading Plan.

a. A grading plan shall be prepared by a civil engineer.

b. Grade so that all irrigation and rainfall remains within property lines and does not sheet flow on to impermeable hardscapes.

c. The project applicant shall submit a landscape grading plan that indicates finished configurations and elevations of the landscaped area including but not limited to:
    i. Drainage patterns with arrows:
        a. Slope of site
        b. Slope of landscaped area and paved areas
        c. Height of graded slopes
    ii. Pad elevations
    iii. Finished grade

D. Urban Runoff Reduction Plan.

a. If urban runoff reduction is required per Section 7.10.050 no additional plans are required for compliance with these Standards.

E. Tree Protection Plan.

a. Tree Protection Plan requirements can be found at on the City's website at http://www01.smgov.net/cmd/landscape.htm.

Section 3: Requirements for New Landscaped Areas for Major Remodel, Substantial Remodel or New Construction Projects

A. Plant Material Requirements

a. The maximum area permitted for installation of turfgrass and high water need plants defined for Region 3 in the current edition of the Water Use Classification for Landscape Species (WUCOLS) issued by the Department of Water Resources is twenty percent of the total landscaped area. Alternative documentation of water use may be presented for plants not listed in WUCOLS. Public agencies are exempt from this requirement.
b. Turfgrass is not allowed on slopes greater than 25% where the toe of the slope is adjacent to an impermeable hardscape and where 25% means 1 foot of vertical elevation change for every 4 feet of horizontal length (rise divided by run x 100 = slope percent).
c. Plants listed in the current Invasive Plant Inventory for the southwest region by the California Invasive Plant Council are prohibited, except for known non-fruiting, non-invasive, sterile varieties or cultivars.
d. Multi-family property units and commercial property units are subject to the requirements of SMMC Section 9.04.10.04.
e. Single family properties are not required to install plant material.
f. Plants shall be grouped together into hydrozones based on similar watering needs.
g. Root vegetables shall not be irrigated with graywater.

B. Amendments and Mulch Requirements

a. Soil amendments shall be added based upon soil analysis results and recommendations performed by a soil laboratory.
b. A minimum two inch (2") layer of mulch shall be applied on all exposed soil surfaces, except in areas covered by groundcovers.
c. No mulch shall be applied within twenty-four inches (24") of the base of trees.

C. Irrigation System Requirements

a. General Irrigation Requirements

i. Landscape areas may be watered by hand, manual or automatic irrigation systems. Permanent irrigation systems are not required. Hoses shall be equipped with an automated, shut off nozzle and a hose bibb vacuum breaker.
ii. Irrigation systems must be designed and installed in such a manner that a precipitation rate of 0.75 inches per hour is not exceeded in any portion of the landscape.
iii. Sprinklers, drip irrigation and bubblers must be on separate valves.
iv. Design landscape and irrigation systems in parkways according to all local,

state, and federal laws and regulations. Installation of an irrigation system within a parkway cannot result in the damage of the roots of any existing street trees.

v. Graywater irrigation systems must conform to Title 24, Part 5, Chapter 16A of the California Building Code as adopted by the City of Santa Monica.

vi. Cistern irrigation systems must conform to all local, state, and federal laws and regulations.

vii. Low head drainage is prohibited. Anti-drain valves or check valves in sprinkler heads and drip emitter devices are required as necessary to prevent low head drainage.

viii. Specify pressure regulation to insure that the dynamic pressure at each emission device is within the manufacturer's recommended pressure range for optimal performance.

ix. Pressure regulation may include a single master filter and/or master pressure regulator may be used for the entire system, located after the backflow device and/or master valve. In this case, if the system does not include a master valve, heavy-duty grade filters and pressure regulators that can tolerate constant pressurization must be used.

b. Water Supply & Meter

i. Manual shut-off valves (such as a gate valve, ball valve, or butterfly valve) shall be required, as close as possible to the point of connection of the water supply, to minimize water loss in case of an emergency (such as a main line break) or routine repair.

ii. Cross-Connection Prevention (Backflow Prevention) as required by SMMC Section 7.12.370.

c. Pipes

i. Specify main and lateral pipe sizes that will result in the velocity of water moving through these pipes at a rate not exceeding 7.5 feet per second.

ii. Use Schedule 40 or Class 315 solvent weld-type PVC pipe for mains, below grade laterals, or piping under roadways. Class 125 pipe is not permitted.

iii. IPS Flexible PVC Pipe may be substituted for rigid PVC pipe below grade (in lateral lines only) to avoid underground obstructions encountered during trenching or tunneling.

iv. Above grade pipes use Schedule 80 or metal piping.

v. Pipe laid in the same trench must be laid side-by-side and not overlapped. Provide 3 inch vertical and horizontal clearance between irrigation lines and 6 inch clearance between lines of other work. Do not install parallel lines directly over any other line.

vi. PVC fittings must be of the same chemical compound as pipe on which they are installed.

vii. PVC cement must be of an appropriate chemical compound for the pipe on which it is used.

viii. Trench or tunnel depth must be sufficient to obtain a minimum depth of cover over the installed pipe and control wire which conforms to the following dimensions. Where pipe and/or conduit are placed below paving or hardscape the minimum burial depths are:

Pressure Lines ≤2 inches in landscaping	12"
Pressure Lines >2 inches in landscaping	18"
Pressure Lines under non-vehicular paving	18"
Pressure Lines under vehicular paving	24"
Non-pressure Lines ≤2 inches in landscaping	8"
Non-pressure Lines >2 inches in landscaping	12"
Non-pressure Lines under non-vehicular paving	12"
Non-pressure Lines under vehicular paving	18"
Conduit in landscaping	12"
Conduit under non-vehicular paving	18"
Conduit under vehicular paving	24"

d. Automatic Irrigation Controller

i. Weather-based irrigation controllers (WBIC) are required. Only Smart Water Application Technologies tested and published WBICs are permitted.

e. Sprinkler Irrigation Requirements

i. Sprinklers shall have a minimum operational lower quarter distribution uniformity of 71%.

ii. No sprinklers shall be located within twenty-four inches (24") of any trees or impermeable hardscape, including but not limited to sidewalks, driveways, alleys, streets, walkways, fencing.

iii. Irrigation shall not runoff nor overspray onto impermeable surfaces including but not limited to buildings, fencing, property line, public right-of-way.

iv. Sprinkler heads on the same valve shall have matched precipitation rates. The precipitation rate shall not exceed 0.75 inches per hour.

v. Spray heads with or without multi-stream, multi-trajectory rotating nozzles, shall have built-in pressure regulation in the body or stem or shall have pressure regulating swing joints.

vi. Sprinkler heads shall have swing joints or other riser-protection components.

vii. Sprinkler heads must have a minimum of head-to-head coverage (minimum of 50% of diameter). Wind derating, if used, should be based on wind criteria for the time period that the system is normally operated.

f. Drip Irrigation Requirements

i. Drip irrigation shall have a minimum operational lower quarter emission uniformity of 80%.
ii. Drip irrigation is required for all plants one-gallon or larger in size. Exception: Tree Bubblers emitting 0.5 gallons per minute or less may be used for 24" box or larger. Specify tree watering devices for below grade installation. A precipitation rate of 0.75 inches per hour cannot be exceeded.
iii. Trees shall be irrigated on a separate valve.
iv. Drip irrigation emitters shall emit no more than 2.0 gallons per hour.
v. Multi-outlet emitters are prohibited.
vi. Container Plantings and Raised Plant Beds may use 1/4" or 1/8" solid tubing (also referred to as "spaghetti" tubing,) nowhere else may ¼" or 1/8" solid tubing be used for irrigation.
vii. Drip irrigation valve assemblies are required for each drip zone and must include:
    1. Anti-siphon valve if a master backflow protection device is not specified;
    2. In-line remote control valves, only if there is a master backflow prevention device at the Point of Connection;
    3. pressure regulator;
    4. Filter with a 150 – 200 mesh, wye or tee filter with a stainless steel screen;
    5. Pressure regulator and remote control valve must have a minimum flow rate that is lower than the zone flow rate.
viii. "Twist-lock" type fittings are prohibited.
ix. Wire stakes shall be U-shaped galvanized steel wire stakes and shall be installed at minimum every 3 feet.
x. Drip tubing shall be made of polyethylene.

g. Installation Requirements

i. Contact all appropriate utility companies prior to beginning installation, to locate underground utilities including gas lines, electrical, telephone, cable, and so forth. State laws require anyone who digs to notify utility companies before starting. The installation should not be started until all underground utilities are located and marked and plans have been approved.
ii. Install the irrigation system according to the approved design, specifications and manufacturer's published performance standards.
iii. An open-trench inspection by city staff is required prior to covering below grade pipes, laterals and mains.
iv. Installer shall test the irrigation system to verify that it meets the approved design and specifications.

v. Installer must program the WBIC.
vi. Final inspection by city staff is required prior to certificate of occupancy to ensure that the system was built to approved plans and specifications.
vii. Provide the property owner or his/her agent with keys, tools, warranties and operating instructions for all equipment.

h. As-Built Plans

i. Provide a complete As-Built set of plans to the property owner.

Section 4: Modifications to Any Existing Landscaped Areas Excluding Major Remodel, Substantial Remodel or New Construction Projects

A. New Landscaping Requirements - The following requirements apply when all new plant materials are installed, excluding street trees:

a. Plant Material

i. When installing all new plant material in the landscaped area, excluding street trees, the maximum area permitted for installation of turfgrass and high water need plants defined for Region 3 in the current edition of the Water Use Classification for Landscape Species (WUCOLS) issued by the Department of Water Resources is twenty percent of the total landscaped area. Alternative documentation of water use may be presented for plants not listed in WUCOLS. Public agencies are exempt from this requirement.

ii. Turfgrass is not allowed on slopes greater than 25% where the toe of the slope is adjacent to an impermeable hardscape and where 25% means 1 foot of vertical elevation change for every 4 feet of horizontal length (rise divided by run x 100 = slope percent).

iii. Plants listed in the current Invasive Plant Inventory for the southwest region by the California Invasive Plant Council are prohibited, except for known non-fruiting, non-invasive, sterile varieties or cultivars.

iv. Planted areas shall be covered with a minimum of two inches (2") of organic mulch, except in areas covered by groundcovers or within twenty-four (24") inches of the base of a tree.

v. Root vegetables shall not be irrigated with graywater.

vi. Multi-family property units and commercial property units are subject to the requirements of SMMC Section 9.04.10.04.

vii. Single family residences are not required to have plant material.

b. Amendments and Mulch Requirements

i. A minimum two inch (2") layer of mulch shall be applied on all exposed soil surfaces, except in areas covered by groundcovers.

ii. No mulch shall be applied within twenty-four inches (24") of the base of trees.

B. Existing Landscaping Requirements - The following requirements apply when existing plant materials are replaced, excluding street trees:

a. Plant Material

i. For commercial and multi-family properties, plant replacements must comply with SMMC Section 9.04.10.04.100 (b).

ii. Single family residences are not required to have plant material.
iii. Root vegetables shall not be irrigated with graywater.

b. Mulch Requirements

i. A minimum two inch (2") layer of mulch shall be applied on all exposed soil surfaces, except in areas covered by groundcovers.
ii. No mulch shall be applied within twenty-four inches (24") of the base of trees.

c. Irrigation System Requirements

i. **General System Requirements**

1. Landscaped areas may be watered by hand, manual or automatic irrigation systems. Hoses shall be equipped with an automated, shut off nozzle and a hose bibb vacuum breaker.
2. All existing irrigation systems must conform to SMMC Section 7.12.370 Cross-Connection Prevention and SMMC 7.16.020 Water Conservation Requirements.
3. Specify pressure regulation to insure that the dynamic pressure at each emission device is within the manufacturer's recommended pressure range for optimal performance.
4. Pressure regulation may include a single master filter and/or master pressure regulator may be used for the entire system, located after the backflow device and/or master valve. In this case, if the system does not include a master valve, heavy-duty grade filters and pressure regulators that can tolerate constant pressurization must be used.
5. Design landscape and irrigation systems in parkways according to all local, state, and federal laws and regulations. Installation of an irrigation system within a parkway cannot result in the damage of the roots of any existing street trees.
6. New irrigation systems must be designed and installed in such a manner that a precipitation rate of 0.75 inches per hour is not exceeded in any portion of the landscape.
7. Low head drainage is prohibited. Anti-drain valves or check valves in sprinkler heads and drip emitter devices are required as necessary to prevent low head drainage.

ii. **Requirements for New Sprinkler Irrigation or Replacement of Existing Sprinkler Irrigation**

1. No sprinklers shall be located within twenty-four inches (24") of any trees or impermeable hardscape, including but not limited to sidewalks, driveways, alleys, streets, walkways, fencing. Public agencies are exempt from this requirement.

2. When a sprinkler head is changed, all of the sprinkler heads on the same irrigation valve must be changed to the same manufacturer make and type.
3. All new or replaced sprinkler heads on the same valve shall have matched precipitation rates. The precipitation rate shall not exceed 0.75 inches per hour.
4. All new or replaced sprinkler heads must have a minimum head-to-head coverage (minimum of 50% of diameter). Wind derating, if used, should be based on wind criteria for the time period that the system is normally operated.
5. All new or replaced spray heads, with or without multi-stream, multi-trajectory rotating nozzles, shall have built-in pressure regulation in the body or stem or shall have pressure regulating swing joints.
6. All new or replaced sprinkler heads shall have swing joints or other riser-protection components.

iii. **Requirements for New Drip Irrigation or Replacement of Existing Drip Irrigation**

1. Drip irrigation emitters shall emit no more than 2.0 gallons per hour.
2. Drip irrigation is required for all new plant materials that are 1 gallon or larger in size within a new hydrozone. Exception: Tree Bubblers emitting 0.5 gallons per minute or less may be used for existing trees.
3. For existing plant material that is 1 gallon or larger and a new irrigation system is installed for that hydrozone, the irrigation system must be a drip irrigation system. Exception: Tree Bubblers emitting 0.5 gallons per minute or less may be used for existing trees.
4. Newly planted trees shall be irrigated on a separate irrigation valve. Tree Bubblers emitting 0.5 gallons per minute or less may be used for new trees 24 inch box or larger. Specify tree watering devices for below grade installation. A precipitation rate of 0.75 inches per hour cannot be exceeded.
5. The installation of multi-outlet emitters is prohibited.
6. Container Plantings and Raised Plant Beds may use ¼ inch or 1/8 inch solid tubing (also referred to as "spaghetti" tubing,) nowhere else may ¼ inch or 1/8 inch solid tubing be used for irrigation.
7. The installation of new drip irrigation systems require drip valve assemblies for each drip zone and must include:
    a. Anti-siphon valve if a master backflow protection device is not specified;

   b. In-line remote control valves only if there is a master backflow prevention device at the Point of connection;
   c. pressure regulator;
   d. Filter with a 150 – 200 mesh, wye or tee filter with a stainless steel screen;
   e. Pressure regulator and remote control valve must have a minimum flow rate that is lower than the zone flow rate.
8. "Twist-lock" type fittings are prohibited.
9. Wire stakes shall be U-shaped galvanized steel wire stakes and installed every 3 feet.
10. Drip tubing shall be made of polyethylene.

Section 5 Water Features

A. All fountains, ponds or other decorative water features in the landscaped area, excluding swimming pools or spas, shall have a maximum total cumulative exposed water surface area of twenty-five square feet.
B. All allowed water features shall use a water recirculation system.
C. All water sprayed into the air from allowed water features must remain within the water feature and shall not be allowed to spray or run onto surrounding landscape or impermeable hardscape areas.
D. Public agencies are exempt from all requirements of Section 5 of these Standards.

Section 6 Landscape and Irrigation System Maintenance

A. Irrigation systems must be maintained according to the manufacturers' specifications and in accordance with all local, state and federal laws and regulations.

B. Landscapes shall be maintained to ensure water use efficiency using sustainable or environmentally-friendly practices for overall landscape maintenance.

C. All landscaped areas shall be permanently maintained and kept free of weeds, debris, and litter. For single family properties, all plant materials shall be maintained in a healthy growing condition and diseased or dead plant materials shall be replaced, in kind, pursuant to the approved plans within thirty days. Alternatively, diseased or dead plant materials may be replaced with plant materials that have low water needs, as rated in the current edition of the Water Use Classification of Landscape Species published by the California Department of Water Resources, or equivalent documentation.

D. Multi-family property units and commercial property units are subject to the requirements of SMMC Section 9.04.10.04.

E. Chemical products used for plant pest control or fertilizing plant material shall meet EPA approval.

F. Maintenance of parkways is the responsibility of the adjacent property owner, in accordance with SMMC 9.04.10.04.100j

Appendix I: MWD 2010 RUWMP Sections II & IV

City of Santa Monica 2010 Urban Water Management Plan

Planning for the Future

2

The purpose of this section is to show how Metropolitan plans to meet Southern California's water supply needs in the future. In its role as supplemental supplier to the Southern California water community, Metropolitan faces ongoing challenges in meeting the region's needs for water supply reliability and quality. Increased environmental regulations and competition for water from outside the region have resulted in changes in delivery patterns and timing of imported water supply availability. At the same time, the Colorado River watershed has experienced a protracted drought since 1999 while total water demand continues to rise within the region because of population and economic growth.

As described in the previous chapter, the water used in Southern California comes from a number of sources. About one-third comes from local sources, and the remainder is imported from three sources: the Colorado River, the Sacramento-San Joaquin River Delta (via the State Water Project), and the Owens Valley and Mono Basin (through the Los Angeles Aqueducts).[1]

Because of competing needs and uses associated with these resources, and because of concerns related to regional water operations, Metropolitan has undertaken a number of planning initiatives over the past fifteen years. This Regional Urban Water Management Plan summarizes these efforts, which include the Integrated Resources Plan (IRP), two IRP Updates, the Water Surplus and Drought Management Plan, the Water Supply Allocation Plan, and the Long-term Conservation Plan. Collectively, they provide a policy framework with guidelines and resource targets for Metropolitan to follow into the future.

While Metropolitan coordinates regional water supply planning for the region through its inclusive integrated planning processes, Metropolitan's member agencies also conduct their own planning analyses – including their own urban water management plans – and may develop projects independently of Metropolitan. Appendix A.5 shows a list of these potential local projects provided to Metropolitan by its member agencies.

[1] Although the water from the Los Angeles Aqueduct is imported, Metropolitan considers it a local source because it is managed by the Los Angeles Department of Water and Power and not by Metropolitan.

2.1 Integrated Resource Planning

The 1996 IRP Process

Acknowledging the importance of water to the economic and social well-being of Southern California, Metropolitan has gradually shifted roles from an exclusive supplier of imported water to a regional water planner working in collaboration with its member agencies. After the drought of 1987-1992, Metropolitan recognized the changed conditions and the need to develop a long-term water resources strategy to fulfill the agency's mission of providing a high-quality reliable water supply to its service area. This planning process that was undertaken is now known as the Integrated Resources Plan (IRP). The first IRP was adopted by Metropolitan's Board in 1996 and guided by six objectives established early in the process:

1. Ensuring Reliability
2. Ensuring Affordability
3. Ensuring Water Quality
4. Maintaining Diversity
5. Ensuring Flexibility
6. Acknowledging Environmental and Institutional Constraints.

One of the fundamental outcomes of the IRP was the recognition that regional water supply reliability could be achieved through the implementation of a diverse portfolio of resource investments and conservation measures. The resulting IRP strategy was a balance between demand management and supply augmentation. For example, in its dry year profile, the resource framework counted on almost equal proportion of water conservation and recycled water as withdrawal from storage and water transfers. The IRP also balanced between the use of local resources and imported supplies. In a dry year, about 55 percent of the region's water resources come from local resources and conservation. Additionally, through the IRP process Metropolitan found solutions that offer long-term reliability at the lowest possible cost to the region as a whole.

The 1996 IRP, as a blueprint to resource program implementation, also established the "Preferred Resource Mix that would provide the Metropolitan region with reliable and affordable water supplies through 2020.

The IRP provided details on the Preferred Resource Mix and guidelines to established broad resource targets for each of the major supplies available to the region including:

- Conservation
- Local Resources - Water Recycling, Groundwater Recovery and Desalination
- Colorado River Supplies and Transfers
- State Water Project Improvement
- In-Region Surface Reservoir Storage
- In-Region Groundwater Storage

The 2004 IRP Update

In 2004, the Metropolitan Board adopted an updated IRP. Various legislative issues concerning population growth and water supply called for further planning considerations of these changed conditions. This IRP Update had three objectives:

1. Review the goals and achievements of the 1996 IRP
2. Identify the changed conditions for water resource development
3. Update resource development targets through 2025

The 2004 IRP process fulfilled the new objectives and updated the long-term plan to account for new water planning legislation. The updated plan contained resource development targets through 2025, which reflected changed conditions; particularly increased conservation savings, planned increases in local supplies and uncertainties. The 2004 IRP also explicitly recognized the need to handle uncertainties inherent in any planning process. For the water industry, some of these uncertainties are the level of population and economic growth which directly drive water demands, water quality regulations, new chemicals

found to be unhealthful, endangered species affecting sources of supplies, and periodic and new changes in climate and hydrology. As a result, a key component of the Updated Plan was the addition of a 10 percent planning buffer. The planning buffer provided for the identification of additional supplies, both imported and locally developed, that can be implemented to address uncertainty in future supplies and demands.

2010 Integrated Water Resources Plan Update

Metropolitan and its member agencies face increasing uncertainties and challenges as they plan for future water supplies. The 1996 and 2004 IRP resource strategies emphasized the need for a diverse and adaptable water supply strategy to cope with changing circumstances and conditions. Recent history and events have highlighted several emerging trends that need to be addressed in the context of the region's water supply planning and reliability. These trends cover a wide range of considerations including climate change, energy use and greenhouse gas emissions, endangered species protection and conveyance needs in the Sacramento-San Joaquin River Delta system. These trends point strongly to the importance of updating the region's Integrated Resources Plan, and to the need to solidify adaptive strategies to address additional challenges into the long-term future.

The basic objectives of the current IRP process are to:

1. Review the achievements of the 1996 IRP and the 2004 Update
2. Identify changing conditions affecting water resource development
    - Attention will be given to emerging factors and considerations, such as the current drought, climate change, energy use, and changes in Delta pumping operations
3. Update resource development targets through 2030
    - Discussion will focus on adaptation to future uncertainties, and potential alternatives for further diversifying Metropolitan's water resource portfolio and increasing supply reliability in the face of changing circumstances

Public Process

The current IRP Update process has sought input from member agencies, retail water agencies, other water and wastewater managers, environmental, business and community interests. In the fall of 2008, Metropolitan's senior management, Board of directors, member agency managers, elected officials, and community groups collectively discussed strategic direction and regional water solutions at a series of four stakeholder forums; nearly 600 stakeholders participated in the forums.

Similar types of ideas and issues were raised by the participants at all the forums, emphasizing the importance of local resources development and resolving issues with the Delta. Participants suggested that Metropolitan should take a leadership position in several areas including:

- Providing outreach to legislators concerning needs for water supply reliability and quality improvements
- Developing brine lines to enhance recycled water use
- Fostering partnerships with energy utilities
- Building relationships with environmental community
- Participating in research and development of new technologies
- Providing assistance to retail agencies in designing "correct" tiered rate structures

Technical Workgroup Process

Following the stakeholder forums, Metropolitan embarked upon a Technical Workgroup Process to further explore some of the issues and opportunities identified by forum participants. To facilitate the workgroup process, the technical discussions were grouped into six resource areas:

- Conservation
- Graywater
- Groundwater
- Recycled water
- Stormwater / Urban Runoff
- Seawater Desalination

The Technical Workgroup process provided a forum for review of the issues associated with each area, and in-depth discussions with area experts. The workgroups included member agency and retail agency staff, other non-governmental organizations, and staff from wastewater and stormwater management agencies, as well as Metropolitan staff and consultants.

Strategic Policy Review

As part of the current IRP update process, Metropolitan's Board initiated a Strategic Policy Review. This Review examined the ramifications of alternative roles for Metropolitan, member agencies and local retail agencies in future development of water resources. The process explored three alternative policy cases:

1. Current approach – continuation of IRP policies and partnerships with member agencies
2. Imported focus – Metropolitan focuses on addressing Delta issues, imported supplies and water transfers and leaves local supply development entirely to member agencies
3. Enhanced Regional focus – Metropolitan examines new approaches, up to and including development and ownership for implementing large regional scale water recycling, groundwater recharge and seawater desalination

A study of water supply reliability and cost impacts associated with these approaches found that it is in the region's best interest for Metropolitan to continue to explore ways of increasing regional reliability and not limiting itself to singular areas like addressing Delta issues. The study results under this process was a broader view of Metropolitan's role in comprehensive planning and implementation for regional reliability; adopting an adaptive resource development plan for the future may provide the most benefit for the region. In this adaptive approach, Metropolitan may need to take on an enhanced role in local supply development, in order to best adapt and respond to changing regional conditions and lay a solid foundation for future reliability. This role could include the creation of partnership with local agencies or Metropolitan's direct ownership of local projects to ensure regional reliability. The adaptive approach would be incorporated into the 2010 IRP for Board consideration.

Uncertainty Analysis

A major component of the current IRP update effort is to explicitly reflect uncertainty in Metropolitan's future water management environment. This involves evaluating a wider range of water management strategies, and seeking robust and adaptive plans that respond to uncertain conditions as they evolve over time, and that ultimately will perform adequately under a wide range of future conditions. The potential impacts and risks associated with climate change, as well as other major uncertainties and vulnerabilities, will be incorporated in to the update and accounted for. A key evolution from the 2004 IRP will be the identification of vulnerabilities and contingency actions that will extend the concept of a Planning Buffer into tangible actions that will enable construction and implementation of contingency supplies if they are needed.

Adaptive Planning Implementation

Regional water supply reliability largely depends on Metropolitan's preparedness to adapt to supply uncertainties. An adaptive management approach was utilized in developing a strategy that will prepare the region to deal with unforeseen supply shortages. An important step in this approach is identifying where additional water supply will come from. Four local water sources were considered:

- Stormwater
- Recycled Water
- Graywater
- Seawater

The stakeholder groups established during the IRP process evaluated the viability of using one or more of these resources to supplement existing water supply in the region. The stakeholders (e.g., member agencies, retail agencies, and industry experts) gathered important information on each resource such as regional development status, yield potential, and implementation challenges.

Another key aspect of this strategy is determining what actions are required to eliminate or mitigate the implementation challenges in developing these resources. The adaptive approach essentially provides a blueprint on how to address these challenges and develop supply within each resource.

The most important aspect of this strategy is the adaptive management approach used in responding to potential water supply shortage. The implementation elements identified within each blueprint can be executed at varying levels of urgency. Under the adaptive approach, Metropolitan developed three alternative implementation schedules for each resource:

- Status Quo
- Proactive
- Aggressive

Status Quo entails delaying action until a trigger is met. A trigger sets the point in time at which a potential shortage is identified and when deliberate action is taken to mitigate that shortage. The Proactive schedule implements low-risk actions early-on regardless of whether a trigger occurs. Implementing these low-risk actions shortens the overall time required to complete the implementation schedule. The Aggressive option implements both low-risk and medium-to-high risk actions that may require significant investment (e.g. land acquisition). By initiating these actions early-on, the overall implementation time can be shortened significantly. Table 2-1 highlights the differences between each schedule.

Table 2-1
Schedule Options

Schedule Option	Brief Description	Timeframe from Trigger to Production Yield	Financial Risk
Status Quo	Delay action until the adaptive management trigger occurs	Long	Low
Proactive	Begin planning actions (generally lower cost) before the adaptive management trigger occurs	Medium	Medium
Aggressive	Perform project implementation actions, such as land acquisition, before the adaptive management trigger occurs	Short	High

This strategy also utilizes an adaptive approach for determining an optimal project mix, or portfolio, used to meet a supply gap. The portfolio can comprise of projects from any of the four resources. Project drivers such as cost, yield, implementation time, and location of the project will be used to create customized portfolios that could address specific needs. For example, if a water supply shortage is occurring in a specific area, the portfolio could contain projects that serve that area. Another example might entail selecting projects that have the shortest implementation time in order to expedite supply development. Yet another example might involve selecting the most cost-efficient projects ($/AF) regardless of implementation time or location if minimizing costs is of highest priority. Furthermore, the number of projects within a portfolio is scalable based on the level of shortage at hand. This comprehensive approach is illustrated in Figure 2-1.

Metropolitan's adaptive approach is basically organized into four individual sections referred to as Foundational Studies. These individual studies discuss in detail the implementation challenges and recommended action for each resource. The first step in developing planning actions is categorizing the implementation challenges within each resource. In most cases the categories represent common themes such as establishing funding projects (Funding) or garnering legislative support (Legislative). The next step in developing planning actions is identifying implementation elements that mitigate the implementation challenges. This step involves identifying specific actions that are needed to support each implementation element. The last step in this process is developing of timelines and implementation schedules. Three alternative implementation schedules are developed for each resource.

Tables 2-2 through 2-5 summarize the categories and implementation elements for each resource. Detailed actions and schedules can be found in the foundational studies.

Figure 2-1 Comprehensive Approach

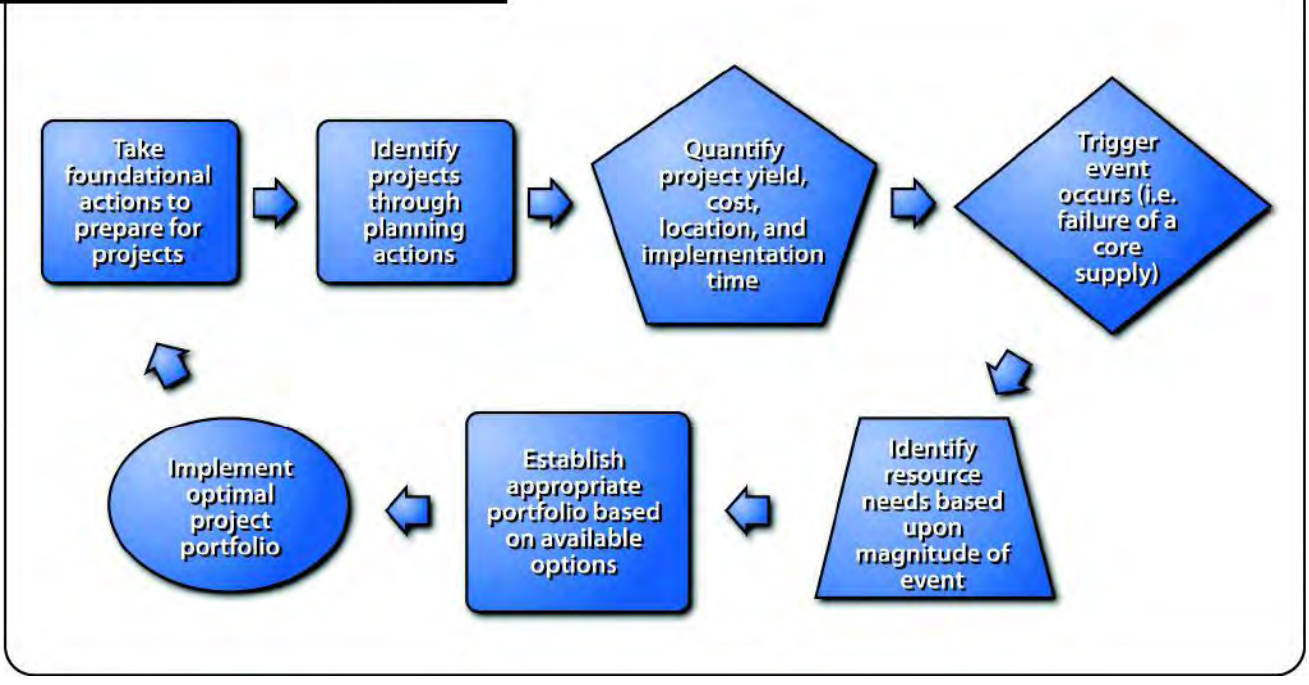

Table 2-2
Stormwater Issue Categories and Implementation Elements

Category	Implementation Element
Data Management	Regional Water Supply Project Database
Legislative/Regulatory/Education	Regional Synergy Task Force
Procedural	Regional Implementation Partnerships
Technical	Regional Feasibility Study
Funding	Funding Strategy Plan
Operational	Local Resource Baseline Plan
Implementation Planning	Alternatives Analysis Plan
Project Implementation	Incentive Programs Land Acquisition Advanced Planning Design Construction
Post Construction	O&M Performance Monitoring

Table 2-3
Recycled Water Issue Categories and Implementation Elements

Category	Implementation Element
Public Perception	Recycled Marketing Campaign Recycled Water Educational Campaign
Legislative	Recycled Water Legislative Task Force
Funding	Regional Recycled Water Finance Committee
Procedural	Regional Recycled Water Permitting and Inspection JPA Regional Recycled Water Policy Task Force
Operational	Regional Salt Management Plan Regional Basin Management Plan Recycled Water Blue Ribbon Panel (SWRCB) Regional Recycled Water Facility Plan
Facility	Regional Project (CIP) Implementation Joint Groundwater Replenishment Project

Table 2-4
Graywater Issue Categories and Implementation Elements

Category	Implementation Element
Public Perception	Graywater Marketing Campaign Graywater Educational Campaign
Legislative	Graywater Legislative Task Force
Technical	Regional Graywater Feasibility Study
Funding	Regional Graywater Finance Committee
Procedural	Regional Graywater Permitting and Inspection Regional Graywater Policy Task Force
Operational	Regional Graywater Management Plan
Construction	Regional Project Implementation

Table 2-5
Desalination Issue Categories and Implementation Elements

Category	Implementation Element
Data Management	Regional Water Supply Project Database
Legislative/Regulatory/Education	Regional Synergy Task Force
Procedural	Regional Implementation Partnerships
Technical	Regional Feasibility Study
Funding	Funding Strategy Plan
Operational	Local Resource Baseline Plan
Project Implementation	Incentive Programs Alternatives Analysis Plan Land Acquisition Advanced Planning Design Construction
Post Construction	O&M Performance Monitoring

Innovative approaches are critical to meeting the water supply needs of Southern California. Maintaining reliable water supplies given regulatory uncertainty, competing uses of groundwater and surface water, and overall variability in water supply is a growing challenge. An adaptive regional approach that develop, promote, and practice integrated regional water management of both traditional and emerging supplies may be the key to continued regional reliability.

2.2 Evaluating Supply Reliability

The Urban Water Management Plan Act requires that three basic planning analyses be conducted to evaluate supply reliability. The first is a water supply reliability assessment requiring development of a detailed evaluation of the supplies necessary to meet projected demands over at least a 20-year period. This analysis is to consider average, single-year and multi-year drought conditions. The second is a water shortage contingency plan which documents the actions that would be implemented in addressing up to a 50 percent reduction in an agency's supplies. Finally, a plan must be developed specifying the steps that would be taken under a catastrophic interruption in water supplies.

To address these three requirements, Metropolitan developed estimates of future demands and supplies from local sources and from Metropolitan. Supply and demand analyses for the single- and multi-year drought cases were based on conditions affecting the SWP. For this supply source, the single driest year was 1977 and the three-year dry period was 1990-1992. The SWP is the appropriate point of reference for these analyses since it is Metropolitan's largest and most variable supply. For the "average" year analysis 83 years of historic hydrology (1922-2004) were used to estimate supply and demand.

Estimating Demands on Metropolitan

Metropolitan developed its demand forecast by first estimating total retail demands for its service area and then factoring out water savings attributed to conservation.[2] Projections of local supplies then were derived using data on current and expected local supply programs and the IRP Local Resource Program Target. The resulting difference between total demands net of conservation and local supplies is the expected regional demands on Metropolitan supplies. These various estimates are shown in Tables 2-6 through 2-8. Major categories used in these tables are defined below.

Total Demands

Total demand is the sum of retail demand for M&I and agricultural, seawater barrier demand, and replenishment demand. Total demand represents the total amount of water needed by the member agencies. Total demands include:

- Retail Municipal and Industrial (M&I) — Retail Municipal and Industrial (M&I) demands represent the full spectrum of urban water use within the region. These include residential, commercial, industrial, institutional and un-metered water uses. To forecast urban water demands Metropolitan used the MWD-MAIN Water Use Forecasting System (MWD-Main), consisting of econometric models that have been adapted for conditions in Southern California. The demographic and economic data used in developing these forecasts were taken from the Southern California Association of Government's (SCAG) 2007 Regional Transportation Plan and from the San Diego County Association of Government's (SANDAG) Series 12: 2050 Regional Growth Forecast (Feb 2010). The SCAG and SANDAG regional growth forecasts are the core assumptions that drive the estimating equations in Metropolitan's MWD-MAIN demand forecasting model. SCAG and SANDAG's projections undergo extensive local review and incorporate zoning information from city and county general plans and are backed by Environmental Impact Reports.

  Impacts of potential annexation are not included in the demand projections for the 2010 RUWMP. However, Metropolitan's Review of Annexation Procedures concluded that the impacts of annexation within the service area beyond 2020 would not exceed 2 percent of overall demands.

[2] Information generated as part of this analysis are contained in Appendix A-1.

- Retail Agricultural Demand — Retail agricultural demands consist of water use for irrigating crops. Member agencies estimate agricultural water use based on many factors, including farm acreage, crop types, historical water use, and land use conversion. Each member agency estimates their agricultural demand differently, depending on the availability of information. Metropolitan relies on member agencies' estimates of agricultural demands for the 2010 RUWMP
- Seawater Barrier Demand — Seawater barrier demands represent the amount of water needed to hold back seawater intrusion into the coastal groundwater basins. Groundwater management agencies determine the barrier requirements based on groundwater levels, injection wells, and regulatory permits.
- Replenishment Demand — Replenishment demands represent the amount of water member agencies plan to use to replenish their groundwater basins. For the 2010 RUWMP, replenishment deliveries are not included as part of firm demands.

Conservation Adjustment

The conservation adjustment subtracts estimated conservation from total retail demand. The conservation estimates consist of three types:

- Code-Based Conservation — Water savings resulting from plumbing codes and other institutionalized water efficiency measures.
- Active Conservation — Water saved as a direct result of programs and practices directly funded by a water utility (e.g., measures outlined by the California Urban Water Conservation Council's "Best Management Practices"). Water savings from active conservation currently completed will decline to zero as the lifetime of those devices is reached. This will be offset by an increase in water savings for those devices that are mandated by law, plumbing codes or other efficiency standards.
- Price Effect Conservation — Reductions in customer use attributable to changes in the real (inflation adjusted) cost of water.

Water Use Reduction Target

On November 10, 2009, the state Legislature passed Senate Bill 7 as part of the Seventh Extraordinary Session, referred to as SBX7-7. This new law is the water conservation component of the historic Delta legislative package, and seeks to achieve a 20 percent statewide reduction in urban per capita water use in California by December 31, 2020. According to Water Code §10608.36, wholesale agencies are required to include in their UWMPs an assessment of present and proposed future measures, programs, and policies that would help achieve the water use reductions required under SBX7-7. Urban wholesale water suppliers are not required to comply with the target-setting and reporting requirements of SBX7-7. Additional discussion of the water reduction target is included in Section 3.7.

Based on Metropolitan's analysis of population and demand and the methodologies for setting targets described in the legislation, compliance with 20x2020 on an individual agency basis throughout the region would result in reduced potable demand of 380 TAF in 2020 through additional conservation and/or recycling. This estimated amount is reflected in the projected demand tables under 20x2020 Retail Compliance.

Local Supplies

Local supplies represent a spectrum of water produced by the member agencies to meet their total demands. Local supplies are a key component in determining how much Metropolitan supply is needed to supplement member agencies local supplies to meet their total demand. Projections of local supplies relied on information gathered from a number of sources including past urban water management plans, Metropolitan's annual local production surveys, and

communications between Metropolitan and member agency staff. Local supplies include:

- Groundwater and Surface Water — Groundwater production consists of extractions from local groundwater basins. Surface water comes from stream diversions and rainwater captured in reservoirs.
- The Los Angeles Aqueduct — A major source of imported water is conveyed from the Owens Valley via the Los Angeles Aqueduct (LAA) by LADWP. Although LADWP imports water from outside of Metropolitan's service area, Metropolitan classifies water provided by the LAA as a local resource because it is developed and controlled by a local agency.
- Seawater desalination — Seawater desalinated for potable use.
- Groundwater Recovery and Recycled Water — Locally developed and operated, groundwater recovery projects treat contaminated groundwater to meet potable use standards. Recycled water projects recycle wastewater for municipal and industrial use.
- Non-Metropolitan Imports — Water supplies imported by member agencies from sources outside of the Metropolitan service area.

The local supply projections presented in demand tables include existing projects that are currently producing water and projects that are under construction. Appendix A.5 contains a complete list of existing, under construction, fully designed with appropriated funds, feasibility, and conceptual projects that are within the service area.

Firm Demands

After calculating the expected regional demands on Metropolitan supplies, projected firm demands were calculated based on Metropolitan's established reliability goal. For the purposes of reliability planning, the 1996 IRP established a reliability goal that states that full service demands at the retail level would be satisfied under all "foreseeable hydrologic" conditions through 2020. This principle has been retained in the current update.

This goal allows for intermittent interruptions to non-firm, discounted rate supplies sold under the Replenishment and Interim Agricultural Water Programs. Thus, firm demand on Metropolitan equals Full Service demands (Tier I and Tier II). For the purpose of analysis, "foreseeable hydrologic conditions" is understood to mean under "historical hydrology," which presently covers the range of historical hydrology spanning the years 1922 through 2004. Tables 2-6 through 2-8 show estimates of firm demands on Metropolitan for single dry-year, multiple dry-year, and average year.

Table 2-6
Metropolitan Regional Water Demands
Single Dry Year
(Acre-Feet)

		2015	2020	2025	2030	2035
A.	**Total Demands[1]**	**5,480,000**	**5,662,000**	**5,804,000**	**5,961,000**	**6,101,000**
	Retail Municipal and Industrial	5,000,000	5,194,000	5,354,000	5,515,000	5,653,000
	Retail Agricultural	231,000	213,000	193,000	186,000	186,000
	Seawater Barrier	71,000	72,000	72,000	72,000	72,000
	Groundwater Replenishment	177,000	184,000	186,000	188,000	191,000
B.	**Total Conservation**	**936,000**	**967,000**	**1,033,000**	**1,096,000**	**1,156,000**
	Existing Active (through 2009)[2]	97,000	46,000	16,000	2,000	0
	Code-based and Price-Effect	589,000	671,000	766,000	844,000	906,000
	Pre-1990 Conservation	250,000	250,000	250,000	250,000	250,000
C.	**SBx7-7 Water Conservation**	**190,000**	**380,000**	**380,000**	**380,000**	**380,000**
	20% by 2020 Retail-Level Compliance	190,000	380,000	380,000	380,000	380,000
D.	**Total Local Supplies**	**2,260,000**	**2,322,000**	**2,366,000**	**2,405,000**	**2,419,000**
	Groundwater	1,457,000	1,395,000	1,407,000	1,423,000	1,416,000
	Surface Water	98,000	97,000	97,000	97,000	97,000
	Los Angeles Aqueduct	66,000	66,000	66,000	66,000	66,000
	Groundwater Recovery	101,000	108,000	114,000	120,000	126,000
	Total Recycling	348,000	375,000	394,000	410,000	426,000
	Other Imported Supplies	190,000	281,000	288,000	288,000	288,000
E.	**Total Metropolitan Demands (E=A-B-C-D)**	**2,094,000**	**1,993,000**	**2,025,000**	**2,080,000**	**2,146,000**
	Full Service (Tier I and Tier II)	1,991,000	1,889,000	1,921,000	1,974,000	2,039,000
	Replenishment Service[3]	103,000	103,000	104,000	106,000	107,000
	Interim Agricultural Water Program[4]	0	0	0	0	0
3	**Firm Demands on Metropolitan[5]**	**1,991,000**	**1,889,000**	**1,921,000**	**1,974,000**	**2,039,000**

Notes:
All units are acre-feet unless specified, rounded the nearest thousand.
Totals may not sum due to rounding.
[1] Growth projections are based on SCAG 2007 Regional Transportation Plan and SANDAG Series 12 2050 Regional Growth Forecast (Feb 2010).
[2] Includes code-based, price-effect and existing active savings through 2009; does not include future active conservation savings. 1990 is base year.
[3] Replenishment Service as defined in MWD Administrative Code Section 4114. Replenishment service includes direct and in-lieu replenishment.
[4] IAWP deliveries will be phased out by 2013.
[5] Firm demand on Metropolitan equals Full Service demands plus 70% of the Interim Agricultural Water Program demands.

Table 2-7
Metropolitan Regional Water Demands
Multiple Dry Year
(Acre-Feet)

		2015	2020	2025	2030	2035
A.	**Total Demands[1]**	**5,478,000**	**5,702,000**	**5,862,000**	**6,017,000**	**6,161,000**
	Retail Municipal and Industrial	5,004,000	5,232,000	5,409,000	5,572,000	5,715,000
	Retail Agricultural	231,000	214,000	195,000	185,000	184,000
	Seawater Barrier	71,000	71,000	72,000	72,000	72,000
	Groundwater Replenishment	172,000	184,000	187,000	188,000	190,000
B.	**Total Conservation**	**936,000**	**967,000**	**1,033,000**	**1,096,000**	**1,156,000**
	Existing Active (through 2009)[2]	97,000	46,000	16,000	2,000	0
	Code-based and Price-Effect	589,000	671,000	766,000	844,000	906,000
	Pre-1990 Conservation	250,000	250,000	250,000	250,000	250,000
C.	**SBx7-7 Water Conservation**	**190,000**	**380,000**	**380,000**	**380,000**	**380,000**
	20% by 2020 Retail-Level Compliance	190,000	380,000	380,000	380,000	380,000
D.	**Total Local Supplies**	**2,171,000**	**2,305,000**	**2,343,000**	**2,378,000**	**2,402,000**
	Groundwater	1,386,000	1,389,000	1,389,000	1,397,000	1,396,000
	Surface Water	91,000	91,000	91,000	91,000	91,000
	Los Angeles Aqueduct	63,000	67,000	71,000	75,000	78,000
	Groundwater Recovery	100,000	107,000	113,000	119,000	125,000
	Total Recycling	340,000	370,000	390,000	407,000	423,000
	Other Imported Supplies	191,000	282,000	288,000	288,000	288,000
E.	**Total Metropolitan Demands (E=A-B-C-D)**	**2,154,000**	**2,049,000**	**2,106,000**	**2,163,000**	**2,224,000**
	Full Service (Tier I and Tier II)	2,056,000	1,947,000	2,003,000	2,059,000	2,119,000
	Replenishment Service[3]	97,000	102,000	103,000	104,000	104,000
	Interim Agricultural Water Program[4]	0	0	0	0	0
F.	**Firm Demands on Metropolitan[5]**	**2,056,000**	**1,947,000**	**2,003,000**	**2,059,000**	**2,119,000**

Notes:
All units are acre-feet unless specified, rounded the nearest thousand.
Totals may not sum due to rounding.
[1]Growth projections are based on SCAG 2007 Regional Transportation Plan and SANDAG Series 12 2050 Regional Growth Forecast (Feb 2010).
[2]Includes code-based, price-effect and existing active savings through 2009; does not include future active conservation savings. 1990 is base year.
[3]Replenishment Service as defined in MWD Administrative Code Section 4114. Replenishment service includes direct and in-lieu replenishment.
[4]IAWP deliveries will be phased out by 2013.
[5]Firm demand on Metropolitan equals Full Service demands plus 70% of the Interim Agricultural Water Program demands.

Table 2-8
Metropolitan Regional Water Demands
Average Year
(Acre-Feet)

		2015	2020	2025	2030	2035
A.	**Total Demands[1]**	**5,449,000**	**5,632,000**	**5,774,000**	**5,930,000**	**6,069,000**
	Retail Municipal and Industrial	4,978,000	5,170,000	5,330,000	5,491,000	5,627,000
	Retail Agricultural	222,000	205,000	186,000	179,000	180,000
	Seawater Barrier	71,000	72,000	72,000	72,000	72,000
	Groundwater Replenishment	178,000	185,000	187,000	189,000	191,000
B.	**Total Conservation**	**936,000**	**967,000**	**1,033,000**	**1,096,000**	**1,156,000**
	Existing Active (through 2009)[2]	97,000	46,000	16,000	2,000	0
	Code-based and Price-Effect	589,000	671,000	766,000	844,000	906,000
	Pre-1990 Conservation	250,000	250,000	250,000	250,000	250,000
C.	**SBx7-7 Water Conservation**	**190,000**	**380,000**	**380,000**	**380,000**	**380,000**
	20% by 2020 Retail-Level Compliance	190,000	380,000	380,000	380,000	380,000
D.	**Total Local Supplies**	**2,395,000**	**2,522,000**	**2,553,000**	**2,581,000**	**2,603,000**
	Groundwater	1,429,000	1,430,000	1,429,000	1,431,000	1,431,000
	Surface Water	103,000	102,000	102,000	102,000	102,000
	Los Angeles Aqueduct	224,000	225,000	226,000	229,000	230,000
	Groundwater Recovery	101,000	108,000	114,000	120,000	126,000
	Total Recycling	348,000	375,000	394,000	410,000	426,000
	Other Imported Supplies	190,000	281,000	288,000	288,000	288,000
E.	**Total Metropolitan Demands (E=A-B-C-D)**	**1,928,000**	**1,763,000**	**1,808,000**	**1,874,000**	**1,931,000**
	Full Service (Tier I and Tier II)	1,826,000	1,660,000	1,705,000	1,769,000	1,826,000
	Replenishment Service[3]	102,000	103,000	103,000	104,000	105,000
	Interim Agricultural Water Program[4]	0	0	0	0	0
F.	**Firm Demands on Metropolitan[5]**	**1,826,000**	**1,660,000**	**1,705,000**	**1,769,000**	**1,826,000**

Notes:
All units are acre-feet unless specified, rounded the nearest thousand.
Totals may not sum due to rounding.
[1] Growth projections are based on SCAG 2007 Regional Transportation Plan and SANDAG Series 12 2050 Regional Growth Forecast (Feb 2010).
[2] Includes code-based, price-effect and existing active savings through 2009; does not include future active conservation savings. 1990 is base year.
[3] Replenishment Service as defined in MWD Administrative Code Section 4114. Replenishment service includes direct and in-lieu replenishment.
[4] IAWP deliveries will be phased out by 2013.
[5] Firm demand on Metropolitan equals Full Service demands plus 70% of the Interim Agricultural Water Program demands.

2.3 Water Supply Reliability

After estimating demands for single dry year, multiple dry years, and average years the water reliability analysis requires urban water suppliers to identify projected supplies to meet these demands. Table 2-9 summarizes the sources of supply for the single dry year (1977 hydrology), while Table 2-10 shows the region's ability to respond in future years under a repeat of the 1990-92 hydrology. Table 2-10 provides results for the average of the three dry years rather than a year-by-year detail, because most of Metropolitan's dry-year supplies are designed to provide equal amounts of water over each year of a three-year period. These tables show that the region can provide reliable water supplies under both the single driest year and the multiple dry year hydrologies. Table 2-11 reports the expected situation on average over all of the historic hydrologies. Appendix A.3 contains detailed justifications for the sources of supply used for this analysis.

Metropolitan' s supply capabilities are evaluated using the following assumptions:

Colorado River Aqueduct Supplies

Colorado River Aqueduct supplies include supplies that would result from existing and committed programs and from implementation of the Quantification Settlement Agreement (QSA) and related agreements. The QSA, which is the subject of current litigation, is a component of the California Plan and establishes the baseline water use for each of the agreement parties and facilitates the transfer of water from agricultural agencies to urban uses. A detailed discussion of the QSA is included in Section 3. Colorado River transactions are potentially available to supply additional water up to the CRA capacity of 1.25 MAF on an as-needed basis.

State Water Project Supplies

State Water Project (SWP) supplies are estimated using the draft 2009 SWP Delivery Reliability Report distributed by DWR in December 2009. The draft 2009 reliability report presents the current DWR estimate of the amount of water deliveries for current (2009) conditions and conditions 20 years in the future. These estimates incorporate restrictions on SWP and Central Valley Project (CVP) operations in accordance with the biological opinions of the U.S. Fish and Wildlife Service and National Marine Fishery Service issued on December 15, 2008, and June 4, 2009, respectively. Under the 2009 draft reliability report, the delivery estimates for the SWP for current (2009) conditions as percentage of maximum Table A amounts, are seven percent, equivalent to 134 TAF, under a single dry-year (1977) condition and 60%, equivalent to 1.15 MAF, under long-term average condition.

In dry, below-normal conditions, Metropolitan has increased the supplies received from the California Aqueduct by developing flexible Central Valley storage and transfer programs. Over the last two years under the pumping restrictions of the SWP, Metropolitan has worked collaboratively with the other contractors to develop numerous voluntary Central Valley storage and transfer programs. The goal of this storage/transfer programs is to develop additional dry-year supplies that can be conveyed through the available Banks pumping capacity to maximize deliveries through the California Aqueduct during dry hydrologic conditions and regulatory restrictions.

Delta Improvements

The listing of several fish species as threatened or endangered under the federal or California Endangered Species Acts (ESAs) have adversely impacted operations and limited the flexibility of the SWP. In response to court decisions related to the Biological Opinions for fish species listed under the ESAs, DWR altered the operations of the SWP. This resulted in export restrictions and reduced SWP deliveries. In June 2007, Metropolitan's Board approved a Delta Action Plan that provides a framework for staff to pursue actions with other agencies and stakeholders to build a sustainable Delta and reduce conflicts between water supply conveyance

and the environment. The Delta Action Plan aims to prioritize immediate short-term actions to stabilize the Delta while an ultimate solution is selected, and mid-term steps to maintain the Bay-Delta while the long-term solution is implemented.

In the near-term, the physical and operational actions in the Bay-Delta being developed include measures that protect fish species and reduce supply impacts with the goal of reducing conflicts between water supply conveyance and environmental needs. The potential for increased supply due to these near-term fixes is included in the 2010 RUWMP as a 10 percent increase in water supplies obtained from the SWP allocation for the year. In evaluating the supply capabilities for the 2010 RUWMP, additional supplies from this interim fix are assumed to materialize by 2013. Also included as a possible near-term fix for the Bay-Delta is the proposed Two-Gate System demonstration program, which would provide movable barriers on the Old and Middle Rivers to modify flows and prevent fish from being drawn toward the Bay-Delta pumping plants. The Two-Gate System is anticipated to protect fish and increase SWP supplies.

Operational constraints likely will continue until a long-term solution to the problems in the Bay-Delta is identified and implemented. State and federal resource agencies and various environmental and water user entities are currently engaged in the development of the Bay Delta Conservation Plan (BDCP), which is aimed at addressing the basic elements that include the Delta ecosystem restoration, water supply conveyance, and flood control protection and storage development. In dealing with these basic issues, the ideal solutions sought are the ones that address both the physical changes required as well as the financing and governance. In evaluating the supply capabilities for the 2010 RUWMP, Metropolitan assumed a new Delta conveyance is fully operational by 2022 that would return supply reliability similar to 2005 condition, prior to supply restrictions imposed due to the Biological Opinions. This assumption is consistent with Metropolitan's long-term Delta Action Plan that recognizes the need for a global, comprehensive approach to the fundamental issues and conflicts to result in a sustainable Bay-Delta, sufficient to avoid biological opinion restrictions on planned SWP deliveries to Metropolitan and the other SWP Contractors. Further, recently passed state legislation included pathways for establishing governance structures and financing approaches to implement and manage the identified elements.

Storage

A key component of Metropolitan's water supply capability is the amount of water in Metropolitan's storage facilities. Storage is a major component of Metropolitan's dry-year resource management strategy. Metropolitan's likelihood of having adequate supply capability to meet projected demands, without implementing the Water Supply Allocation plan (WSAP), is dependent on its storage resources.

In developing the supply capabilities for the 2010 RUWMP, Metropolitan assumed a simulated median storage level going into each of five-year increments based on the balances of supplies and demands. Under the median storage condition, there is an estimated 50 percent probability that storage levels would be higher than the assumption used, and a 50 percent probability that storage levels would be lower than the assumption used. All storage capability figures shown in the 2010 RUWMP reflect actual storage program conveyance constraints. It is important to note that under some conditions, Metropolitan may choose to implement the WSAP in order to preserve storage reserves for a future year, instead of using the full supply capability. This can result in impacts at the retail level even under conditions where there may be adequate supply capabilities to meet demands.

Table 2-9
Single Dry-Year
Supply Capability[1] and Projected Demands
Repeat of 1977 Hydrology
(acre-feet per year)

Forecast Year	2015	2020	2025	2030	2035
Current Programs					
In-Region Storage and Programs	685,000	931,000	1,076,000	964,000	830,000
California Aqueduct[2]	522,000	601,000	651,000	609,000	610,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply[3]	1,416,000	1,824,000	1,669,000	1,419,000	1,419,000
Aqueduct Capacity Limit[4]	*1,250,000*	*1,250,000*	*1,250,000*	*1,250,000*	*1,250,000*
Colorado River Aqueduct Capability	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Capability of Current Programs	**2,457,000**	**2,782,000**	**2,977,000**	**2,823,000**	**2,690,000**
Demands					
Firm Demands of Metropolitan	1,991,000	1,889,000	1,921,000	1,974,000	2,039,000
IID-SDCWA Transfers and Canal Linings	180,000	273,000	280,000	280,000	280,000
Total Demands on Metropolitan[5]	**2,171,000**	**2,162,000**	**2,201,000**	**2,254,000**	**2,319,000**
Surplus	**286,000**	**620,000**	**776,000**	**569,000**	**371,000**
Programs Under Development					
In-Region Storage and Programs	206,000	306,000	336,000	336,000	336,000
California Aqueduct	556,000	556,000	700,000	700,000	700,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply[3]	187,000	187,000	187,000	182,000	182,000
Aqueduct Capacity Limit[4]	*0*	*0*	*0*	*0*	*0*
Colorado River Aqueduct Capability	0	0	0	0	0
Capability of Proposed Programs	**762,000**	**862,000**	**1,036,000**	**1,036,000**	**1,036,000**
Potential Surplus	**1,048,000**	**1,482,000**	**1,812,000**	**1,605,000**	**1,407,000**

[1] Represents Supply Capability for resource programs under listed year type.

[2] California Aqueduct includes Central Valley transfers and storage program supplies conveyed by the aqueduct.

[3] Colorado River Aqueduct includes water management programs, IID-SDCWA transfers and canal linings conveyed by the aqueduct.

[4] Maximum CRA deliveries limited to 1.25 MAF including IID-SDCWA transfers and canal linings.

[5] Firm demands are adjusted to include IID-SDCWA transfers and canal linings. These supplies are calculated as local supply, but need to be shown for the purposes of CRA capacity limit calculations without double counting.

Table 2-10
Multiple Dry-Year
Supply Capability[1] and Projected Demands
Repeat of 1990-1992 Hydrology
(acre-feet per year)

Forecast Year	2015	2020	2025	2030	2035
Current Programs					
In-Region Storage and Programs	246,000	373,000	435,000	398,000	353,000
California Aqueduct[2]	752,000	794,000	835,000	811,000	812,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply[3]	1,318,000	1,600,000	1,417,000	1,416,000	1,416,000
Aqueduct Capacity Limit[4]	*1,250,000*	*1,250,000*	*1,250,000*	*1,250,000*	*1,250,000*
Colorado River Aqueduct Capability	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Capability of Current Programs	**2,248,000**	**2,417,000**	**2,520,000**	**2,459,000**	**2,415,000**
Demands					
Firm Demands of Metropolitan	2,056,000	1,947,000	2,003,000	2,059,000	2,119,000
IID-SDCWA Transfers and Canal Linings	180,000	241,000	280,000	280,000	280,000
Total Demands on Metropolitan[5]	**2,236,000**	**2,188,000**	**2,283,000**	**2,339,000**	**2,399,000**
Surplus	**12,000**	**229,000**	**237,000**	**120,000**	**16,000**
Programs Under Development					
In-Region Storage and Programs	162,000	280,000	314,000	336,000	336,000
California Aqueduct	242,000	273,000	419,000	419,000	419,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply[3]	187,000	187,000	187,000	182,000	182,000
Aqueduct Capacity Limit[4]	*0*	*0*	*0*	*0*	*0*
Colorado River Aqueduct Capability	0	0	0	0	0
Capability of Proposed Programs	**404,000**	**553,000**	**733,000**	**755,000**	**755,000**
Potential Surplus	**416,000**	**782,000**	**970,000**	**875,000**	**771,000**

[1] Represents Supply Capability for resource programs under listed year type.

[2] California Aqueduct includes Central Valley transfers and storage program supplies conveyed by the aqueduct.

[3] Colorado River Aqueduct includes water management programs, IID-SDCWA transfers and canal linings conveyed by the aqueduct.

[4] Maximum CRA deliveries limited to 1.25 MAF including IID-SDCWA transfers and canal linings.

[5] Firm demands are adjusted to include IID-SDCWA transfers and canal linings. These supplies are calculated as local supply, but need to be shown for the purposes of CRA capacity limit calculations without double counting.

Table 2-11
AverageYear
Supply Capability[1] and Projected Demands
Average of 1922-2004 Hydrologies
(acre-feet per year)

Forecast Year	2015	2020	2025	2030	2035
Current Programs					
In-Region Storage and Programs	685,000	931,000	1,076,000	964,000	830,000
California Aqueduct[2]	1,550,000	1,629,000	1,763,000	1,733,000	1,734,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply[3]	1,507,000	1,529,000	1,472,000	1,432,000	1,429,000
Aqueduct Capacity Limit[4]	*1,250,000*	*1,250,000*	*1,250,000*	*1,250,000*	*1,250,000*
Colorado River Aqueduct Capability	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Capability of Current Programs	**3,485,000**	**3,810,000**	**4,089,000**	**3,947,000**	**3,814,000**
Demands					
Firm Demands of Metropolitan	1,826,000	1,660,000	1,705,000	1,769,000	1,826,000
IID-SDCWA Transfers and Canal Linings	180,000	273,000	280,000	280,000	280,000
Total Demands on Metropolitan[5]	**2,006,000**	**1,933,000**	**1,985,000**	**2,049,000**	**2,106,000**
Surplus	**1,479,000**	**1,877,000**	**2,104,000**	**1,898,000**	**1,708,000**
Programs Under Development					
In-Region Storage and Programs	206,000	306,000	336,000	336,000	336,000
California Aqueduct	382,000	383,000	715,000	715,000	715,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply[3]	187,000	187,000	187,000	182,000	182,000
Aqueduct Capacity Limit[4]	*0*	*0*	*0*	*0*	*0*
Colorado River Aqueduct Capability	0	0	0	0	0
Capability of Proposed Programs	**588,000**	**689,000**	**1,051,000**	**1,051,000**	**1,051,000**
Potential Surplus	**2,067,000**	**2,566,000**	**3,155,000**	**2,949,000**	**2,759,000**

[1] Represents Supply Capability for resource programs under listed year type.

[2] California Aqueduct includes Central Valley transfers and storage program supplies conveyed by the aqueduct.

[3] Colorado River Aqueduct includes water management programs, IID-SDCWA transfers and canal linings conveyed by the aqueduct.

[4] Maximum CRA deliveries limited to 1.25 MAF including IID-SDCWA transfers and canal linings.

[5] Firm demands are adjusted to include IID-SDCWA transfers and canal linings. These supplies are calculated as local supply, but need to be shown for the purposes of CRA capacity limit calculations without double counting.

2.4 Water Shortage Contingency Analysis

In addition to the Water Supply Reliability analysis addressing average year and drought conditions, the Act requires agencies to document the stages of actions that it would undertake in response to water supply shortages, including up to a 50 percent reduction in its water supplies. Metropolitan has captured this planning in its Water Surplus and Drought Management Plan (WSDM Plan) which guides Metropolitan's planning and operations during both shortage and surplus conditions. Furthermore, Metropolitan developed the WSAP which provides a standardized methodology for allocating supplies during times of shortage.

Water Surplus and Drought Management Plan

In April 1999, Metropolitan's Board adopted the Water Surplus and Drought Management Plan (WSDM Plan) [3], included in Appendix A.4. 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 Metropolitan will execute during surpluses and shortages to minimize the probability of severe shortages and reduce the possibility of extreme shortages and shortage allocations. Unlike Metropolitan'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 Development

Metropolitan and its member agencies jointly developed the WSDM Plan during 1998 and 1999. This planning effort included more than a dozen half-day and full-day workshops and more than three dozen meetings between Metropolitan and member agency staff. The result of the planning effort is a consensus plan that addresses a broad range of regional water management actions and strategies.

WSDM Plan Principles and Goals

The guiding principle of the WSDM plan is to manage Metropolitan's water resources and management programs to maximize management of wet year supplies and minimize adverse impacts of water shortages to retail customers. From this guiding principle came the following supporting principles:

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

The WSDM plan also declared that if mandatory import water allocations become necessary, they would be calculated on the basis of need, as opposed to any type of historical purchases. The WSDM plan contains the following considerations that would go into an equitable allocation of imported water:

- Impact on retail consumers and regional economy
- Investments in local resources, including recycling and conservation
- Population growth
- Changes and/or losses in local supplies
- Participation in Metropolitan's Non-firm (interruptible) programs
- Investment in Metropolitan's facilities

WSDM Plan Implementation

Each year, Metropolitan 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

[3] Metropolitan Water District of Southern California. *Water Surplus and Drought Management Plan,* Report No. 1150, August, 1999.

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 Metropolitan's existing and expected resource mix.

Surplus Stages

Metropolitan's supply situation 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 Metropolitan's storage portfolio. Deliveries for storage in the DVL and in the SWP terminal reservoirs continue through each surplus stage provided there is available storage capacity. Withdrawals from DVL 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: Metropolitan can meet full-service demands and partially meet or fully meet interruptible demands, using stored water or water transfers as necessary.

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

Extreme Shortage: Metropolitan 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 Metropolitan'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 Metropolitan 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, Metropolitan will meet demands by withdrawing water from storage. At shortage stages 5 through 7, Metropolitan 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 2-2 shows the actions under surplus and shortage stages when an 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 Metropolitan will implement its Water Supply Allocation Plan[4] (WSAP) to allocate available supply fairly and efficiently to full-service customers.

Water Supply Allocation Plan

In February 2008 Metropolitan's Board adopted the WSAP. The WSAP includes the specific formula for calculating member agency supply allocations and the key implementation elements needed for administering an allocation.

The WSAP was developed in consideration of the principles and guidelines described in the

[4] Metropolitan Water District of Southern California, Water Supply Allocation Plan, June 2009.

WSDM Plan, with the objective of creating an equitable needs-based allocation. 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 Metropolitan supplies of up to 50 percent. The formula takes into account growth, local investments, changes in supply conditions and the demand hardening aspects of non-potable recycled water use and the implementation of conservation savings programs.

Water Supply Allocation Plan Development

Between July 2007 and February 2008, Metropolitan staff worked jointly with Metropolitan's member agencies to develop the WSAP. Throughout the development process Metropolitan's Board was provided with regular progress reports on the status of the WSAP The WSAP was adopted at the February 12, 2008 Board meeting.

The WSAP Formula

The WSAP formula is calculated in three steps: base period calculations, allocation year calculations, and supply allocation calculations. The first two steps involve standard computations, while the third step contains specific methodology developed for the WSAP.

Step 1: Base Period Calculations

The first step in calculating a water supply allocation is to estimate water supply and demand using a historical base period with established water supply and delivery data. The base period for each of the different categories of demand and supply is calculated using data from the three most recent non-shortage years, 2004-2006.

Step 2: Allocation Year Calculations

The next step in calculating the water supply allocation is estimating water needs in the allocation year. This is done by adjusting the base period estimates of retail demand for population or economic growth and changes in local supplies.

Step 3: Supply Allocation Calculations

The final step is calculating the water supply allocation for each member agency based on the allocation year water needs identified in Step 2. Each element and its application in the allocation formula is discussed in detail in Metropolitan's Water Supply Allocation Plan.[5]

Annual Reporting Schedule on Supply/ Demand Conditions

Managing Metropolitan's water supply resources to minimize the risk of shortages requires timely and accurate information on changing supply and demand conditions throughout the year. To facilitate effective resource management decisions, the WSDM Plan includes a monthly schedule for providing supply/demand information to Metropolitan's senior management and Board, and for making resource allocation decisions. Table 2-12 shows this schedule.

[5] Metropolitan Water District of Southern California, Water Supply Allocation Plan, June 2009.

Figure 2-2 Resource Stages, Anticipated Actions, And Supply Declarations

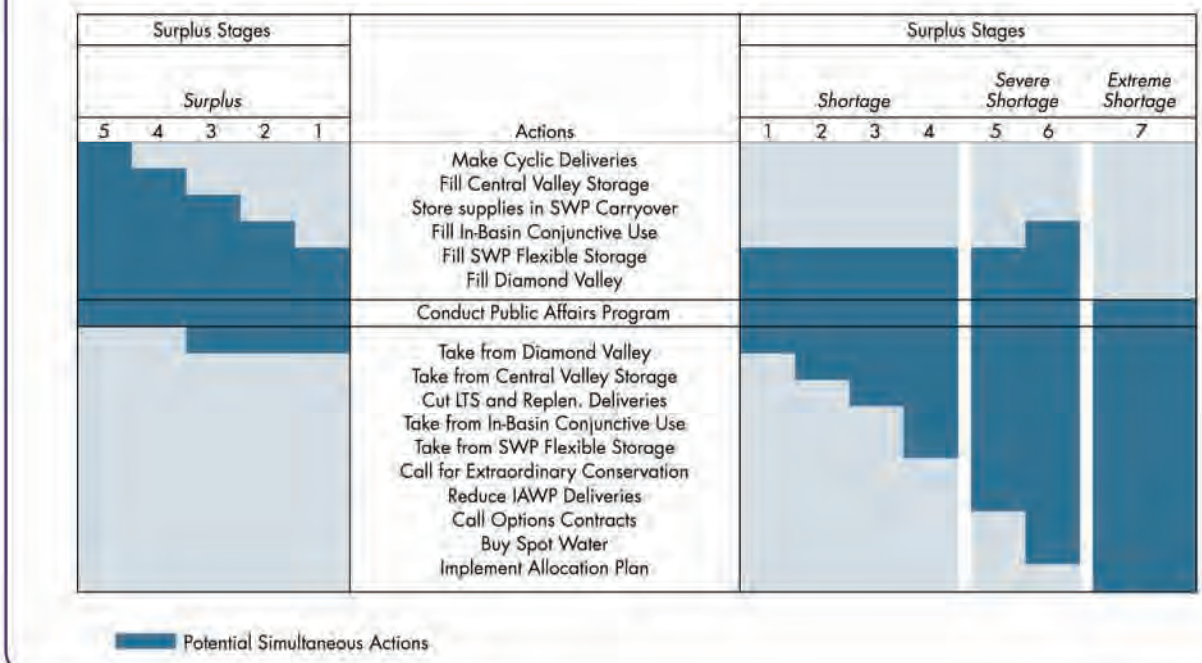

Table 2-12
Schedule of Reporting and Resource Allocation Decision-Making

Month	Information Report/Management Decision
January	Initial supply/demand forecasts for year
February - March	Update supply/demand forecasts for year
April - May	Finalize supply/demand forecasts Management decisions re: Contractual Groundwater and Option Transfer Programs Board decision re: Need for Extraordinary Conservation
October - December	Report on Supply and Carryover Storage
October	Management decisions re: Delivery Interruptions for the Replenishment and Interim Agricultural Water Programs

2.5 Catastrophic Supply Interruption Planning

The third type of planning needed to evaluate supply reliability is a catastrophic supply interruption plan that documents the actions necessary for a catastrophic interruption in water supplies. For Metropolitan this planning is captured in the analysis that went into developing the Emergency Storage Requirements.

Emergency Storage Requirements

Metropolitan established its criteria for determining emergency storage requirements in the October 1991 Final Environmental Impact Report for the Eastside Reservoir, which is now named Diamond Valley Lake. These criteria were again discussed in the 1996 IRP. Metropolitan's Board has approved both of these documents.

Emergency storage requirements are based on the potential of a major earthquake damaging the aqueducts that transport Southern California's imported water supplies (SWP, CRA, and Los Angeles Aqueduct). The adopted criteria assume that damage from such an event could render the aqueducts out of service for six months. Therefore, Metropolitan has based its planning on a 100 percent reduction in its supplies for a period of six months, which is a greater shortage than required by the Act.

To safeguard the region from catastrophic loss of water supply, Metropolitan has made substantial investments in emergency storage. The emergency plan outlines that under such a catastrophe, non-firm service deliveries would be suspended, and firm supplies to member agencies would be restricted by a mandatory cutback of 25 percent from normal-year demand levels. At the same time, water stored in surface reservoirs and groundwater basins under Metropolitan's interruptible program would be made available, and Metropolitan would draw on its emergency storage, as well as other available storage. Metropolitan has reserved up to half of DVL storage to meet such an emergency, while the remainder is available for dry-year and seasonal supplies. In addition, Metropolitan has access to emergency storage at its other reservoirs, at the SWP terminal reservoirs, and in its groundwater conjunctive use storage accounts. With few exceptions, Metropolitan can deliver this emergency supply throughout its service area via gravity, thereby eliminating dependence on power sources that could also be disrupted by a major earthquake. The WSDM Plan shortage stages will guide Metropolitan's management of available supplies and resources during the emergency to minimize the impacts of the catastrophe.

Electrical Outages

Metropolitan has also developed contingency plans that enable it to deal with both planned and unplanned electrical outages. These plans include the following key points:

- In event of power outages, water supply can be maintained by gravity feed from regional reservoirs such as DVL, Lake Mathews, Castaic Lake and Silverwood Lake.
- Maintaining water treatment operations is a key concern. As a result, all Metropolitan treatment plants have backup generation sufficient to continue operating in event of supply failure on the main electrical grid.
- Valves at Lake Skinner can be operated by the backup generation at the Lake Skinner treatment plant.
- Metropolitan owns mobile generators that can be transported quickly to key locations if necessary.

2.6 Other Supply Reliability Risks

Metropolitan provides water to a broad and heterogeneous service area with water supplies from a variety of sources and geographic regions. Each of these demand areas and supplies has its own unique set of benefits and challenges. Among the challenges Metropolitan faces are the following:

Supplies

- The region and Colorado River Basin have been experiencing drought conditions for multiple years.
- Endangered species protections and conveyance needs in the Sacramento-San Joaquin River Delta System have resulted in operational constraints particularly important because pumping restrictions impact many water resource programs – SWP supplies and additional voluntary transfers, Central Valley storage and transfers, in-region groundwater storage and in-region surface water storage.
- Changing climate patterns are predicted to shift precipitation patterns and possibly affect water supply.
- Difficulty and implications of environmental review, documentation, and permitting for multi-year transfer agreements, recycled water projects and seawater desalination plants.
- Public perception of recycled water use for replenishment.

Operations and Water Quality

- The cost and use of energy and greenhouse gas emissions.
- Water quality regulations and issues like the quagga mussels within the Colorado River Aqueduct. Controlling the spread and impacts of the quagga mussels will require more extensive maintenance and reduced operational flexibility.
- Salt and concentrate balance from variety of sources.

Demand

- Uncertain population and economic growth
- Uncertain location of growth
- Uncertain housing stock and density

The challenges posed by continued population growth, environmental constraints on the reliability of imported supplies, and new uncertainties imposed by climate change demand that Metropolitan assert the same level of leadership and commitment to taking on large-scale regional solutions to providing water supply reliability. New solutions are available in the form of dramatically improved water-use efficiency, indirect potable use of recycled water, and large-scale application of ocean desalinization.

Climate Change

Climate change adds its own new uncertainties to the challenges of planning. Metropolitan's water supply planning has been fortunate in having almost one-hundred years of hydrological data regarding weather and water supply. This history of rainfall data has provided a sound foundation for forecasting both the frequency and the severity of future drought conditions, as well as the frequency and abundance of above-normal rainfall. But, weather patterns can be expected to shift dramatically and unpredictably in a climate driven by increased concentrations of carbon dioxide in the atmosphere, as experienced in Australia. These changes in weather significantly affect water supply planning, irrespective of the debate associated with the sources and cause of increasing concentrations of greenhouse gasses. As a major steward of the region's water supply resources, Metropolitan is committed to performing its due diligence with respect to climate change.

Potential Impacts

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; and
- Rising sea levels resulting in
  - Increased risk of damage from storms, high-tide events, and the erosion of levees; and
  - Potential pumping cutbacks on the SWP and Central Valley Project (CVP).

Other important issues of concern due to global climate change include:

- Effects on local supplies such as groundwater;
- 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; and
- Alterations to power generation and pumping regimes.

Metropolitan's Activities Related to Climate Change Concerns

An extended Colorado River drought put climate change on Metropolitan's radar screen in the mid-1990s. In 2000, Metropolitan's Board received a briefing on the potential impacts of climate change on water supply by leading experts in the field. Metropolitan then hosted a California Water Plan meeting on climate change and a held Drought Preparedness Workshop on similar issues. In March 2002, the Board adopted policy principles on global climate change as related to water resource planning. The Principles stated in part that 'Metropolitan 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.'

Knowledge Sharing and Research Support

Metropolitan is an active and founding member of the Water Utility Climate Alliance (WUCA). WUCA consists of ten nationwide water providers collaborating on climate change adaptation and green house gas mitigation issues. As a part of this effort, WUCA pursues a variety of activities on multiple fronts.

WUCA monitors development of climate change-related research, technology, programs and federal legislation. Activities to date include such things as:

- 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

In addition to supporting federal and regional efforts, WUCA released a white paper entitled "Options for Improving Climate Modeling to Assist Water Utility Planning for Climate Change" in January 2010. The purpose of this paper was to assess Global Circulation Models, identify key aspects for water utility planning and make seven initial recommendations for how climate modeling

and downscaling techniques can be improved so that these tools and techniques can be more useful for the water sector.

In order to address water provider-specific needs, WUCA has focused not only on climate change science and Global Circulation Models, but on how best to incorporate that knowledge into water planning. This was explored more thoroughly in a second January 2010 white paper on decision support methods for incorporating climate change uncertainty into water planning. This paper assessed five known decision support approaches for applicability in incorporating Climate Change uncertainty in water utility planning and identified additional research needs in the area of decision support methodologies.

In addition to these efforts, the member agencies of WUCA annually share individual agency actions to mitigate greenhouse gas emissions to facilitate further implementation of these programs. At a September 2009 summit at the Aspen Global Change Institute WUCA, members met with global climate modelers, along with federal agencies, academic scientists, and climate researchers to establish collaborative directions to progress climate science and modeling efforts. WUCA continues to pursue these opportunities and partnerships with water providers, climate scientists, federal agencies, research centers, academia and key stakeholders.

Metropolitan also continues to pursue knowledge sharing and research support activities outside of WUCA. Metropolitan regularly provides input and direction on California legislation related to climate change issues. Metropolitan is active in collaborating with other state and federal agencies, as well as non-governmental organizations on climate change related planning issues. The following list provides a sampling of entities that Metropolitan has recently worked with on a collaborative basis:

- U.S. Bureau of Reclamation
- U.S. Army Corps of Engineers
- American Water Works Association Research Foundation
- National Center for Atmospheric Research
- California Energy Commission
- California Department of Water Resources

Quantification of Current Research

Metropolitan continues to incorporate current climate change science into its planning efforts. A major component of the current IRP update effort is to explicitly reflect uncertainty in Metropolitan's future water management environment. This involves evaluating a wider range of water management strategies, and seeking robust and adaptive plans that respond to uncertain conditions as they evolve over time, and that ultimately will perform adequately under a wide range of future conditions. The potential impacts and risks associated with climate change, as well as other major uncertainties and vulnerabilities, will be incorporated into the update and accounted. Overall, Metropolitan's planning activities strive to support the Board adopted policy principles on climate change by:

- Supporting reasonable, economically viable, and technologically feasible management strategies for reducing impacts on water supply
- Supporting flexible "no regret" solutions that provide water supply and quality benefits while increasing the ability to manage future climate change impacts, and

- Evaluating staff recommendations regarding climate change and water resources against the California Environmental Quality Act (CEQA) to avoid adverse effects on the environment.

Implementation of Programs and Policies

Metropolitan has made great efforts to implement greenhouse gas mitigation programs and policies for its facilities and operations. To date, these programs and policies have focused on:

- Exploring water supply/energy relationships and opportunities to increase efficiencies;
- Joining the California Climate Action Registry;
- Acquiring "green" fleet vehicles, and supporting an employee Rideshare program;
- Developing solar power at the Skinner water treatment plant; and
- Identifying and pursuing development of "green" renewable water and energy programs that support the efficient and sustainable use of water.

Metropolitan also continues to be a leader in efforts to increase regional water use efficiency. Metropolitan has worked to increase the availability of incentives for local conservation and recycling projects, as well as supporting conservation Best Management Practices for industry and commercial businesses.

2.7 Pricing and Rate Structures

Revenue Management

A high proportion of Metropolitan's revenues come from volumetric water rates; during the last five fiscal years through 2008-09, water sales revenues were approximately 75 percent of Metropolitan's total revenues. As a result, Metropolitan's revenues vary according to regional weather and the availability of statewide water supplies. In dry years, local demands increase and Metropolitan may receive higher than anticipated revenues due to increased sales volumes. In contrast, in wet years demands decrease, and revenues drop due to lower sales volumes. In addition, statewide supply shortages such as those in 1991 and 2009 also affect Metropolitan's revenues. Such revenue surpluses and shortages could cause instability in water rates. To mitigate this risk, Metropolitan maintains financial reserves, with a minimum and maximum balance, to stabilize water rates during times of reduced water sales. The reserves hold revenues collected during times of high water sales and are used to offset the need for revenues during times of low sales.

Another way to mitigate rate increases is by generating a larger portion of revenues from fixed sources. Metropolitan currently has two fixed charges, the Readiness-to-Serve Charge and the Capacity Charge. Metropolitan also collects tax revenue from taxable property within its boundaries. For the last five fiscal years the revenues from fixed charges generated almost 18 percent of all Metropolitan revenues. RTS revenues have been increasing gradually, from $80 million in 2007, to $114 million in 2010, $125 million in 2011, and $146 million in 2012.

Finally, Metropolitan generates a significant amount of revenue from interest income, hydroelectric power sales, and miscellaneous income such as rents and leases. For the last five fiscal years, these averaged almost 7 percent of all Metropolitan revenues. These internally generated revenues are referred to as revenue offsets and reduce the amount of revenue that has to be collected from rates and charges.

Elements of Rate Structure

This section provides an overview of Metropolitan's rate structure. The different elements of the rate structure are discussed below and summarized in Table 2-13.

System Access Rate (SAR)

The SAR is a volumetric system-wide rate levied on each acre-foot of water that moves through the Metropolitan system. All system users (member agency or third party) pay the SAR to use Metropolitan's conveyance and distribution system. The SAR recovers the cost of providing conveyance and distribution capacity to meet average annual demands.

Water Stewardship Rate (WSR)

The WSR recovers the costs of providing financial incentives for existing and future investments in local resources including conservation and recycled water. These investments or incentive payments are identified as the "demand management" service function in the cost of service process. The WSR is a volumetric rate levied on each acre-foot of water that moves through the Metropolitan system.

System Power Rate (SPR)

The SPR recovers the costs of energy required to pump water to Southern California through the SWP and Colorado River Aqueduct. The cost of power is recovered through a uniform volumetric rate. The SPR is applied to all deliveries to member agencies.

Treatment Surcharge

The treatment surcharge recovers the costs of providing treated water service through a uniform, volumetric rate. The treatment surcharge recovers all costs associated with providing treated water service, including commodity, demand and standby related costs.

Capacity Charge

The capacity charge is levied on the maximum summer day demand placed on the system between May 1 and September 30 for a three-calendar year period. Demands measured for the purposes of billing the capacity charge include all firm demand and agricultural demand, including wheeling service and exchanges. Replenishment service is not included in the measurement of peak day demand for purposes of billing the capacity charge.

The capacity charge is intended to pay for the cost of peaking capacity on Metropolitan's system, while providing an incentive for local agencies to decrease their use of the Metropolitan system to meet peak day demands and to shift demands into lower use time periods. Over time, a member agency will benefit from local supply investments and operational strategies that reduce its peak day demand on the system in the form of a lower total capacity charge.

Readiness-To-Serve Charge (RTS)

The costs of providing standby service, including emergency storage and those standby costs related to the conveyance and aqueduct system, are recovered by the RTS.

The RTS is allocated to the member agencies based on each agency's proportional share of a ten-year rolling average of all firm deliveries (including water transfers and exchanges that use Metropolitan system capacity). The ten-year rolling average does not include replenishment service and interim agricultural deliveries because these deliveries will be the first to be curtailed in the event of an emergency. A ten-year rolling average leads to a relatively stable RTS allocation that reasonably represents an agency's potential long-term need for standby service under different demand conditions. Member agencies may choose to have a portion of their total RTS obligation offset by standby charge collections levied by Metropolitan on behalf of the member agency. These standby charges are assessed on parcels of land within the boundaries of a given member agency.

Tier 1 Supply Rate

The costs of maintaining existing supplies and developing additional supplies are recovered through a two-tiered pricing approach. The Tier 1 Supply Rate recovers the majority of the supply costs and reflects the cost of existing supplies. Each member agency has a predetermined amount of water that can be purchased at the lower Tier 1 Supply Rate in a calendar year. Purchases in excess of this limit will be made at the higher Tier 2 Supply Rate.

The Tier 1 Supply rate includes a Delta Supply Surcharge of $69 per AF in 2010, $51 per AF in 2011 and $58 per AF in 2012. This surcharge reflects the impact on Metropolitan's water supply rates due to lower deliveries from the SWP as a result of pumping restrictions designed to protect endangered fish species. The Delta Supply Surcharge will remain in effect until a long-term solution for the delta was achieved or until interim facility improvements restore SWP yield.

Tier 2 Supply Rate

The Tier 2 Supply Rate reflects Metropolitan's cost of developing long-term firm supplies. The Tier 2 Supply Rate recovers a greater proportion of the cost of developing additional supplies from member agencies that have increasing demands on the Metropolitan system.

Replenishment Program and Agricultural Water Program

Metropolitan currently administers two pricing programs that make surplus system supplies (system supplies in excess of what is needed to meet consumptive municipal and industrial demands) available to the member agencies at a discounted water rate. The Replenishment Program provides supplies, when available, for the purpose of replenishing local storage. The Interim Agricultural Water Program (IAWP) makes surplus water available for agricultural purposes. In October 2008, the Board

approved a phase out of the IAWP by 2013. Because of the critically dry conditions and uncertainty about future supply, discounted replenishment deliveries have been curtailed for the past three years. If water supply conditions improve and surplus water becomes available, Metropolitan could make Replenishment service available to its member agencies at discounted rates, subject to meeting Metropolitan's storage objectives to meet full service demands.

Table 2-13
Rate Structure Components

Rate Design Elements	Service Provided/ Costs Recovered	Type of Charge
System Access Rate	Conveyance/Distribution (Average Capacity)	Volumetric ($/AF)
Water Stewardship Rate	Conservation/Local Resources	Volumetric ($/AF)
System Power Rate	Power	Volumetric ($/AF)
Treatment Surcharge	Treatment	Volumetric ($/AF)
Capacity Charge	Peak Distribution Capacity	Fixed/Volumetric ($/cfs)
Readiness-To-Serve Charge	Conveyance/Distribution/Emergency Storage(Standby Capacity)	Fixed ($Million)
Tier 1 Supply Rate	Supply	Volumetric/Fixed ($/AF)
Tier 2 Supply Rate	Supply	Volumetric ($/AF)
Surplus Water Rates	Replenishment/Agriculture	Volumetric ($/AF)

The following tables provide further information regarding Metropolitan's rates. Table 2-14 summarizes the rates and charges effective January 1, 2010, January 1, 2011, and January 1, 2012. Average costs by member agency will vary depending upon an agency's RTS allocation, Capacity Charge and relative proportions of treated and untreated Tier 1, Tier 2, replenishment, and agricultural water purchases. Table 2-15 provides the details of the Capacity Charge, calculated for calendar year 2011.

Table 2-16 provides the details of the Readiness-to-Serve Charge calculation for calendar year 2011 broken down by member agency. Table 2-17 provides the current Purchase Order commitment quantities that member agencies will purchase from Metropolitan over the 10-year period starting January 2003 through December 2012. Tier 1 limits for each member agency are also shown in this table.

Table 2-14
Metropolitan Water Rates and Charges

Effective	Jan 1, 2010	Jan 1, 2011	Jan 1, 2012
Tier 1 Supply Rate ($/AF)	$101	$104	$106
Delta Supply Surcharge ($/AF)	$69	$51	$58
Tier 2 Supply Rate ($/AF)	$280	$280	$290
System Access Rate ($/AF)	$154	$204	$217
Water Stewardship Rate ($/AF)	$41	$41	$43
System Power Rate ($/AF)	$119	$127	$136
Full Service Untreated Volumetric Cost ($/AF)			
Tier 1	$484	$527	$560
Tier 2	$594	$652	$686
Replenishment Water Rate Untreated ($/AF)	$366	$409	$442
Interim Agricultural Water Program Untreated ($/AF)	$416	$482	$537
Treatment Surcharge ($/AF)	$217	$217	$234
Full Service Treated Volumetric Cost ($/AF)			
Tier 1	$701	$744	$794
Tier 2	$811	$869	$920
Treated Replenishment Water Rate ($/AF)	$558	$601	$651
Treated Interim Agricultural Water Program ($/AF)	$615	$687	$765
Readiness-to-Serve Charge ($M)	$114	$125	$146
Capacity Charge ($/cfs)	$7,200	$7,200	$7,400

Table 2-15
Capacity Charge Detail

Agency	Peak Day Demand (cfs) (May 1 through September 30) Calendar Year				Calendar Year 2011 Capacity Charge ($7,200/cfs)
	2007	2008	2009	3-Year Peak	
Anaheim	37.9	36.1	40.7	40.7	$ 293,040
Beverly Hills	33.9	32.9	31.0	33.9	244,080
Burbank	33.7	34.2	21.6	34.2	246,240
Calleguas	260.8	250.0	192.8	260.8	1,877,760
Central Basin	125.9	102.7	94.7	125.9	906,480
Compton	7.1	4.9	5.9	7.1	51,120
Eastern	303.0	263.1	227.8	303.0	2,181,600
Foothill	25.4	21.5	24.3	25.4	182,880
Fullerton	36.9	27.1	37.4	37.4	269,280
Glendale	54.6	55.7	56.0	56.0	403,200
Inland Empire	176.2	125.8	106.1	176.2	1,268,640
Las Virgenes	45.3	45.3	42.7	45.3	326,160
Long Beach	61.3	68.1	67.2	68.1	490,320
Los Angeles	768.5	821.9	698.2	821.9	5,917,680
MWDOC	469.2	453.7	489.5	489.5	3,524,400
Pasadena	58.5	55.6	50.2	58.5	$421,200
San Diego [1]	1278.4	1039.9	1055.3	1278.4	9,204,480
San Fernando	6.5	0.1	0.0	6.5	$46,800
San Marino	5.2	5.2	3.5	5.2	$37,440
Santa Ana	29.7	14.5	16.4	29.7	213,840
Santa Monica	27.6	26.2	25.0	27.6	198,720
Three Valleys	171.4	168.1	132.7	171.4	1,234,080
Torrance	41.6	35.5	39.3	41.6	299,520
Upper San Gabriel	63.8	36.9	27.6	63.8	459,360
West Basin	262.3	243.3	221.3	262.3	1,888,560
Western	289.1	271.4	219.9	289.1	2,081,520
Total	**4,673.8**	**4,239.7**	**3,927.1**	**4,759.5**	**$ 34,268,400**

Totals may not foot due to rounding

Table 2-16
Readiness-to-Serve Charge (by Member Agency)
Calendar Year 2011 RTS charge

Member Agency	Rolling Ten-Year Average Firm Deliveries (Acre-Feet) FY1999/00 - FY2008/09	RTS Share	12 months @ $125 million per year (1/11-12/11)
Anaheim	20,966	1.11%	$ 1,382,122
Beverly Hills	12,737	0.67%	839,692
Burbank	12,908	0.68%	850,938
Calleguas MWD	113,610	5.99%	7,489,554
Central Basin MWD	63,256	3.34%	4,170,058
Compton	3,146	0.17%	207,408
Eastern MWD	92,013	4.85%	6,065,789
Foothill MWD	11,570	0.61%	762,706
Fullerton	9,694	0.51%	639,087
Glendale	24,150	1.27%	1,592,015
Inland Empire Utilities Agency	61,205	3.23%	4,034,823
Las Virgenes MWD	23,282	1.23%	1,534,813
Long Beach	36,970	1.95%	2,437,211
Los Angeles	314,757	16.60%	20,749,798
Municipal Water District of Orange County	231,692	12.22%	15,273,878
Pasadena	23,397	1.23%	1,542,428
San Diego County Water Authority	491,238	25.91%	32,384,010
San Fernando	119	0.01%	7,819
San Marino	1,001	0.05%	65,963
Santa Ana	12,743	0.67%	840,028
Santa Monica	12,794	0.67%	843,429
Three Valleys MWD	73,095	3.85%	4,818,678
Torrance	20,742	1.09%	1,367,401
Upper San Gabriel Valley MWD	15,631	0.82%	1,030,447
West Basin MWD	141,522	7.46%	9,329,606
Western MWD	71,906	3.79%	4,740,301
MWD Total	**1,896,143**	**100.00%**	**$ 125,000,000**

Totals may not foot due to rounding

Table 2-17
Purchase Order Commitments and Tier 1 Limits (by Member Agency)

	2011 Tier 1 Limit with Opt-outs	Purchase Order Commitment (acre-feet)
Anaheim	22,240	148,268
Beverly Hills	13,380	89,202
Burbank	16,336	108,910
Calleguas	110,249	692,003
Central Basin	72,361	482,405
Compton	5,058	33,721
Eastern	87,740	504,664
Foothill	10,997	73,312
Fullerton	11,298	75,322
Glendale	26,221	174,809
Inland Empire	59,792	398,348
Las Virgenes	21,087	137,103
Long Beach	39,471	263,143
Los Angeles	304,970	2,033,132
MWDOC	228,130	1,486,161
Pasadena	21,180	141,197
San Diego	547,239	3,342,571
San Fernando	630	-
San Marino	1,199	-
Santa Ana	12,129	80,858
Santa Monica	11,515	74,062
Three Valleys	70,474	469,331
Torrance	20,967	139,780
Upper San Gabriel	16,512	110,077
West Basin	156,874	1,045,825
Western	69,720	391,791
Total	**1,957,768**	**12,495,995**

Totals may not foot due to rounding.

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Water Quality 4

Metropolitan's planning efforts have recognized the importance of the quality of its water supplies. To the extent possible, Metropolitan responds to water quality concerns by concentrating on protecting the quality of the source water and developing water management programs that maintain and enhance water quality. Contaminants that cannot be sufficiently controlled through protection of source waters must be handled through changed water treatment protocols or blending. These practices can increase costs and/or reduce operating flexibility and safety margins. In addition, Metropolitan has developed enhanced security practices and policies in response to national security concerns.

Background

Implementing the major components of Metropolitan's planning efforts – groundwater storage, recycled water, and minimized impacts on the Delta – requires meeting specific water quality targets for imported water. Metropolitan has two major sources of water: the Colorado River and the State Water Project (SWP). Groundwater inflows are also received into the SWP through groundwater banking programs in the Central Valley. Each source has specific quality issues, which are summarized in this section. To date, Metropolitan has not identified any water quality risks that cannot be mitigated. As described in this section, the only potential effect of water quality on the level of water supplies based on current knowledge could result from increases in the salinity of water resources. If diminished water quality caused a need for membrane treatment, Metropolitan could experience losses of up to 15 percent of the water processed. However, Metropolitan would only process a small proportion of the affected water and would reduce total salinity by blending the processed water with the remaining unprocessed water. Thus, Metropolitan anticipates no significant reductions in water supply availability from these sources due to water quality concerns over the study period.

Colorado River

High salinity levels represent a significant issue associated with Colorado River supplies. In addition, Metropolitan has been engaged in efforts to protect its Colorado River supplies from threats of uranium, perchlorate and Chromium VI, which are discussed later in this chapter. Metropolitan has also been active in efforts to protect these supplies from potential increases in nutrient loading due to urbanization, as well as investigating the sources and occurrence of constituents of emerging concern, such as N-nitrosodimethylamine (NDMA) and pharmaceuticals and personal care products (PPCPs). Metropolitan fully expects its source water protection efforts to be successful, so the only foreseeable water quality constraint to the use of Colorado River water will be the need to blend (mix) it with SWP supplies to meet the adopted salinity standards.

State Water Project

The key water quality issues on the SWP are disinfection byproduct precursors, in particular, total organic carbon and bromide. Metropolitan is working to protect the water quality of this source, but it has needed to upgrade its water treatment

plants to deal adequately with disinfection byproducts. Disinfection byproducts result from total organic carbon and bromide in the source water reacting with disinfectants at the water treatment plant, and they may place some near term restrictions on Metropolitan's ability to use SWP water. Metropolitan expects these treatment restrictions to be overcome through the addition of ozone disinfection at its treatment plants. Arsenic is also of concern in some groundwater storage programs. Groundwater inflows into the California Aqueduct are managed to comply with regulations and protect downstream water quality while meeting supply targets. Additionally, nutrient levels are significantly higher in the SWP system than within the Colorado River, leading to the potential for algal related concerns that can affect water management strategies. Metropolitan is engaged in efforts to protect the quality of SWP water from potential increases in nutrient loading from wastewater treatment plants. Also, as in the Colorado River watershed, Metropolitan is active in studies on the occurrence, sources, and fate and transport of constituents of emerging concern, such as NDMA and PPCPs.

Local Agency Supplies and Groundwater Storage

New standards for contaminants, such as arsenic, and other emerging standards may add costs to the use of groundwater storage and may affect the availability of local agency groundwater sources. These contaminants are not expected to affect the availability of Metropolitan supplies, but they may affect the availability of local agency supplies, which could in turn affect the level of demands on Metropolitan supplies if local agencies abandon supplies in lieu of treatment options. Metropolitan has not analyzed the effect that many of these water quality issues could have on local agency supply availability. There have, however, been some investigations into the supply impacts of perchlorate groundwater contamination as indicated later in this section.

In summary, the major regional concerns include the following:

- Salinity
- Perchlorate
- Total organic carbon and bromide (disinfection byproduct precursors)
- Nutrients (as it relates to algal productivity)
- Arsenic
- Uranium
- Chromium VI
- N-nitrosodimethylamine (NDMA)
- Pharmaceuticals and personal care products (PPCPs)

Metropolitan has taken several actions and adopted programs to address these contaminants and ensure a safe and reliable water supply. These actions, organized by contaminant, are discussed below. Another constituent previously identified in the 2005 RUWMP as a regional concern, methyl tertiary-butyl ether (MTBE), is now a decreasing concern due to the elimination of this chemical as a gasoline additive in California. This is also further discussed below, along with other water quality programs that Metropolitan has been engaged in to protect its water supplies.

Issues of Concern

Salinity

Imported water from the Colorado River has high salinity levels, so it must be blended (mixed) with lower-salinity water from the SWP to meet salinity management goals. Higher salinity levels in either Colorado River water or groundwater would increase the proportion of SWP supplies required to meet the adopted imported water salinity objectives. Metropolitan adopted an imported water salinity goal because higher salinity could increase costs and reduce operating flexibility. For example,

1. If diminished water quality causes a need for membrane treatment, the process typically results in losses of up to 15 percent of the water processed. These losses result both in an increased requirement for additional water supplies and environmental constraints related to brine disposal. In addition, the process is costly. However, only a portion of the imported water would need to be processed, so the possible loss in supplies is small.
2. High total dissolved solids (TDS) in water supplies leads to high TDS in wastewater, which lowers the usefulness and increases the cost of recycled water.
3. Degradation of imported water supply quality could limit the use of local groundwater basins for storage because of standards controlling the quality of water added to the basins.

In addition to the link between water supply and water quality, Metropolitan has identified economic benefits from reducing the TDS concentrations of water supplies. Estimates show that a simultaneous reduction in salinity concentrations of 100 milligrams per liter (mg/L) in both the Colorado River and SWP supplies will yield economic benefits of $95 million per year within Metropolitan's service territory.[1] This estimate has added to Metropolitan's incentives to reduce salinity concentrations within the region's water supplies.

For all of these reasons, Metropolitan's Board approved a Salinity Management Policy on April 13, 1999. The policy set a goal of achieving salinity concentrations in delivered water of less than 500 mg/L TDS. The Salinity Management Policy is further discussed later in this section.

Within Metropolitan's service area, local water sources account for approximately half of the salt loading, and imported water accounts for the remainder. All of these sources must be managed appropriately to sustain water quality and supply reliability goals. The following sections discuss the salinity issues relevant to each of Metropolitan's major supply sources.

Colorado River

Water imported via the Colorado River Aqueduct (CRA) has the highest level of salinity of all of Metropolitan's sources of supply, averaging around 630 mg/L since 1976. Concern over salinity levels in the Colorado River has existed for many years. To deal with the concern, the International Boundary and Water Commission approved Minute No. 242, Permanent and Definitive Solution to the International Problem of the Salinity of the Colorado River in 1973, and the President approved the Colorado River Basin Salinity Control Act in 1974. High TDS in the Colorado River as it entered Mexico and the concerns of the seven basin states regarding the quality of Colorado River water in the United States drove these initial actions. To foster interstate cooperation on this issue, the seven basin states formed the Colorado River Basin Salinity Control Forum (Forum).

The salts in the Colorado River system are indigenous and pervasive, mostly resulting from saline sediments in the Basin that were deposited in prehistoric marine environments. They are easily eroded, dissolved, and transported into the river system. The Colorado River Basin Salinity Control Program is designed to prevent a portion of this abundant salt supply from moving into the river system. The program targets the interception and control of non-point sources, such as surface runoff, as well as wastewater and saline hot springs.

The Forum proposed, the states adopted, and the U. S. Environmental Protection Agency (USEPA) approved water quality standards in 1975, including numeric criteria and a plan for controlling salinity increases. The standards require that the plan ensure that the flow-weighted average annual salinity remain at or below the 1972 levels,

[1] Metropolitan Water District of Southern California and U.S. Bureau of Reclamation, Salinity Management Study: Final Report (June 1999)

while the Basin states continue to develop their 1922 Colorado River Compact-apportioned water supply. The Forum selected three stations on the main stream of the lower Colorado River as appropriate points to measure the river's salinity. These stations and numeric criteria are (1) below Hoover Dam, 723 mg/l; (2) below Parker Dam, 747 mg/l; and (3) at Imperial Dam, 879 mg/l. The numeric criteria are flow-weighted average annual salinity values.

By some estimates, concentrations of salts in the Colorado River cause approximately $353 million in quantified damages in the lower Basin each year. The salinity control program has proven to be very successful and cost-effective. Salinity control projects have reduced salinity concentrations of Colorado River water on average by over 100 mg/L or $264 million per year (2005 dollars) in avoided damages.

During the high water flows of 1983-1986, salinity levels in the CRA dropped to a historic low of 525 mg/L. However, during the 1987-1992 drought, higher salinity levels of 600 to 650 mg/L returned. TDS in Lake Havasu was measured at 628 mg/L in November 2009.

State Water Project

Water supplies from the SWP have significantly lower TDS concentrations than the Colorado River, averaging approximately 250 mg/L in water supplied through the East Branch and 325 mg/L on the West Branch over the long-term, with short term variability as a result of hydrologic conditions.[2] Because of this lower salinity, Metropolitan blends SWP water with high salinity CRA water to reduce the salinity concentrations of delivered water. However, both the supply and the TDS concentrations of SWP water can vary significantly in response to hydrologic conditions in the Sacramento-San Joaquin watersheds.

As indicated above, the TDS concentrations of SWP water can vary widely over short periods of time. These variations reflect seasonal and tidal flow patterns, and they pose an additional problem for use of blending as a management tool to lower the higher TDS from the CRA supply. For example, in the 1977 drought, the salinity of SWP water reaching Metropolitan increased to 430 mg/L, and supplies became limited. During this same event, salinity at the SWP's Banks pumping plant exceeded 700 mg/L. Under similar circumstances, Metropolitan's 500 mg/L salinity objective could only be achieved by reducing imported water from the CRA. Thus, it may not always be possible to maintain both the salinity objective and water supply reliability unless salinity concentrations of source supplies can be reduced.

A federal court ruling and a resulting biological opinion issued through consultation with U.S. Fish and Wildlife Service addressing the effects of the water supply pumping operations on Delta smelt has limited SWP exports at specified times of the year since December 2007. These restrictions have increased reliance on higher salinity Colorado River water, impacting the ability at times to meet Metropolitan's goal of 500 mg/L TDS at its blend plants. Drought conditions leading to lower SWP water supply allocations in recent years also affects Metropolitan's ability to meet its salinity goal.

TDS objectives in Article 19 of the SWP Water Service Contract specify a ten-year average of 220 mg/L and a maximum monthly average of 440 mg/L. These objectives have not been met, and Metropolitan is working with DWR and other agencies on programs aimed at reducing salinity in Delta supplies. These programs aim to improve salinity on the San Joaquin River through modifying agricultural drainage and developing comprehensive basin plans. In addition, studies are underway to evaluate the benefits in reduced salinity of modifying levees in Franks Tract and other flooded islands in the Delta, or by placing operable gates in

[2] The higher salinity in the West Branch deliveries is due to salt loadings from local streams, operational conditions, and evaporation at Pyramid and Castaic Lakes.

strategic locations to impede transport of seawater derived salt.

Recycled Water

Wastewater flows always experience significantly higher salinity concentrations than the potable water supply. Typically, each cycle of urban water use adds 250 to 400 mg/L of TDS to the wastewater. Salinity increases tend to be higher where specific commercial or industrial processes add brines to the discharge stream or where brackish groundwater infiltrates into the sewer system.

Where wastewater flows have high salinity concentrations, the use of recycled water may be limited or require more expensive treatment. Landscape irrigation and industrial reuse become problematic at TDS concentrations of over 1,000 mg/L. Some crops are particularly sensitive to high TDS concentrations, and the use of high-salinity recycled water may reduce yields of these crops. In addition, concern for the water quality in groundwater basins may lead to restrictions on the use of recycled water on lands overlying those basins.

These issues are exacerbated during times of drought, when the salinity of imported water supplies increases because of increased salinity in wastewater flows and recycled water. Basin management plans and recycled water customers may restrict the use of recycled water at a time when its use would be most valuable. To maintain the cost-effectiveness of recycled water, therefore, the salinity level of the region's potable water sources and wastewater flows must be controlled.

In May 2009, the State Water Resources Control Board (SWRCB) adopted a Recycled Water Policy[3] to help streamline the permitting process and help establish uniform statewide criteria for recycled water projects. This policy promotes the development of watershed- or basin-wide salt management plans (to then be adopted by the respective Regional Boards) to meet water quality objectives and protect beneficial uses, rather than imposing project-by-project restrictions. The Recycled Water Policy identifies several criteria to guide recycled water irrigation or groundwater recharge project proponents in developing a salt (and nutrient) management plan.

Groundwater Basins

Increased TDS in groundwater basins occurs either when basins near the ocean are overdrafted, leading to seawater intrusion, or when agricultural and urban return flows add salts to the basins. Much of the water used for agricultural or urban irrigation infiltrates into the aquifer, so where irrigation water is high in TDS or where the water transports salts from overlying soil, the infiltrating water will increase the salinity of the aquifer. In addition, wastewater discharges in inland regions may lead to salt buildup from fertilizer and dairy waste. In the 1950s and 1960s, Colorado River water was used to recharge severely overdrafted aquifers and prevent saltwater intrusion. As a result, the region's groundwater basins received more than 3.0 MAF of this high-TDS imported water, significantly impacting salt loadings.

In the past, these high salt concentrations have caused some basins within Metropolitan's service area to be unsuitable for municipal uses if left untreated. The Arlington Basin in Riverside and the Mission Basin in San Diego required demineralization before they could be returned to municipal service. The capacity of the larger groundwater basins makes them better able to dilute the impact of increasing salinity. While most groundwater basins within the region still produce water of acceptable quality, this resource must be managed carefully to minimize further degradation. Even with today's more heightened concern regarding salinity, approximately 600,000 tons of salts per year accumulate within the region, leading to ever-increasing salinity concentrations in many groundwater basins.

[3] http://www.swrcb.ca.gov/water_issues/programs/water_recycling_policy/docs/recycledwaterpolicy_approved.pdf

Table 4-1 shows the salinity from existing productive groundwater wells within the region, and Figure 4-1 shows the distribution of those salinity concentrations. To protect the quality of these basins, regional water quality control boards often place restrictions on the salinity concentrations of water used for basin recharge or for irrigation of lands overlying the aquifers. Those situations may restrict water reuse and aquifer recharge, or they may require expensive mitigation measures.

Metropolitan has participated with water and wastewater agencies and the Santa Ana Regional Water Quality Control Board (Regional Board) in a coordinated program to develop water quality data for local and imported supplies used to recharge groundwater basins in the Santa Ana River watershed.[4] In January 2008, this workgroup submitted its "Cooperative Agreement to Protect Water Quality and Encourage the Conjunctive Uses of Imported Water in the Santa Ana River Basin" to the Santa Ana Regional Board. This initial agreement addresses nitrogen and TDS and includes the following tasks:

1. Prepare a projection of ambient water quality in each groundwater management zone at six-year intervals for the subsequent 20 years.
2. Determine the impacts of foreseeable recharge projects and compare to baseline ambient water quality with salinity objectives.
3. Compare current water quality in each groundwater management zone with the ambient water quality projection made six years earlier, together with an evaluation of the reason(s) for any differences.

The Salinity Management Policy

The Salinity Management Policy adopted by Metropolitan's Board specified a salinity objective of 500 mg/L for blended imported water. It also identified the need for both local and imported water sources to be managed comprehensively to maintain the ability to use recycled water and groundwater. To achieve these targets, SWP water supplies are blended with Colorado River supplies. Using this approach, the salinity target could be met in seven out of ten years. In the other three years, hydrologic conditions would result in increased salinity and reduced volume of SWP supplies. Metropolitan has alerted its local agencies that such conditions are inevitable, and that despite its best efforts, high salinity could be a concern at such times. Metropolitan has also urged its member agencies to structure the operation of their local projects and groundwater so they are prepared to mitigate the effect of higher salinity levels in imported waters. In addition, Metropolitan will concentrate on obtaining better quality water in the spring/summer months (April through September) to maximize the use of recycled water in agriculture.

Table 4-1
Salinity Levels at Productive Groundwater Wells

TDS Concentration (mg/L)	Annual Production (Million Acre-Feet)	Percent of Production
Less than 500	1.06	78
500 to 1,000	0.15	11
Greater than 1,000	0.15	11
Total	**1.36**	**100**

Source: Metropolitan Water District of Southern California, Salinity Management Study, Final Report, June 1999.

[4] http://www.swrcb.ca.gov/rwqcb8/board_decisions/adopted_orders/orders/2008/08_019.pdf

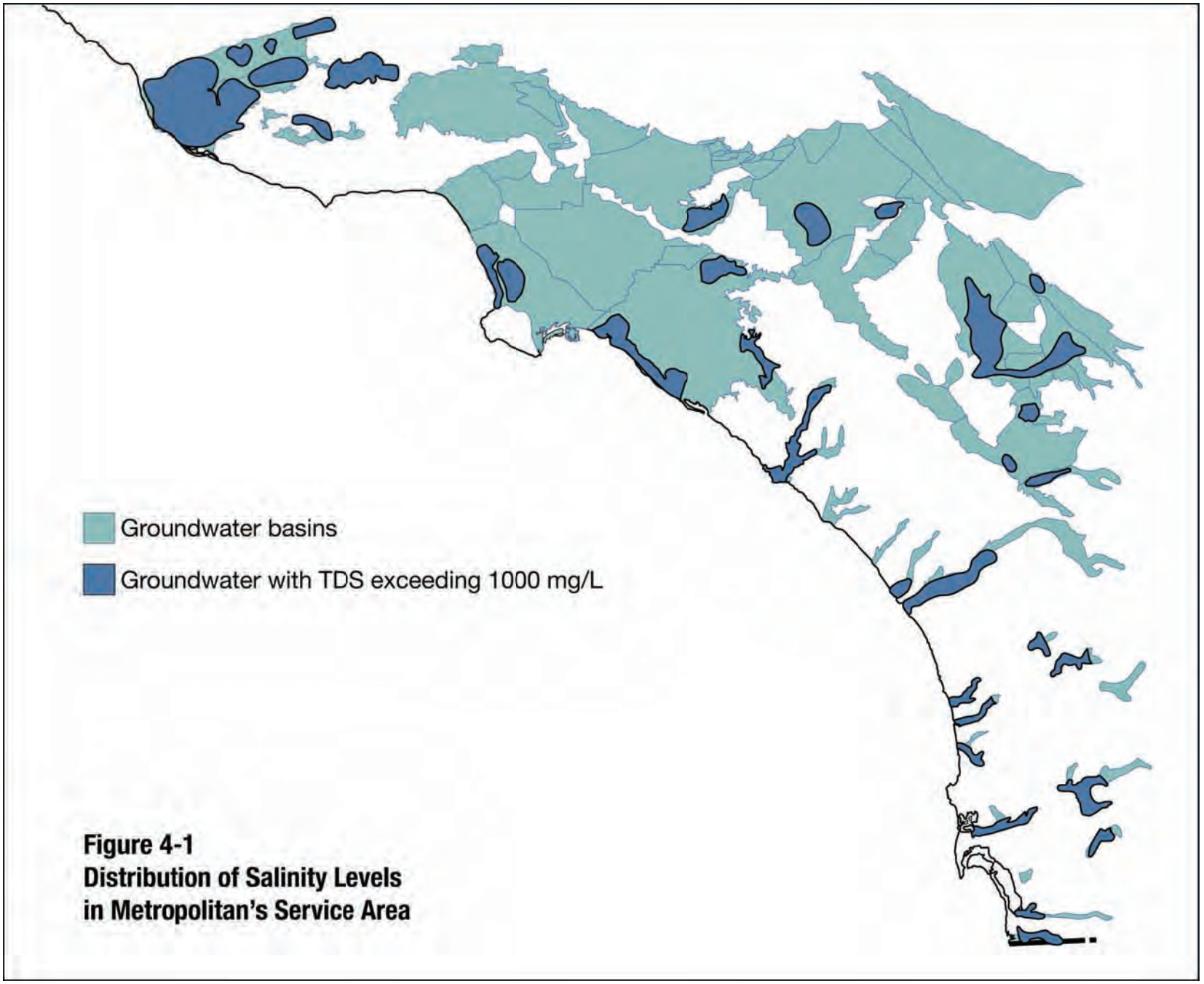

Figure 4-1
Distribution of Salinity Levels in Metropolitan's Service Area

Perchlorate

Perchlorate compounds are used as a main component in solid rocket propellant, and are also found in some types of munitions and fireworks. Perchlorate compounds quickly dissolve and become highly mobile in groundwater. Unlike many other groundwater contaminants, perchlorate neither readily interacts with the soil matrix nor degrades in the environment. Conventional drinking water treatment (as utilized at Metropolitan's water treatment plants) is not effective in removing perchlorate.

The primary human health concern related to perchlorate is its effects on the thyroid. Perchlorate interferes with the thyroid's ability to produce hormones required for normal growth and development. Pregnant women who are iodine deficient and their fetuses, infants and small children with low dietary iodide intake and individuals with hypothyroidism may be more sensitive to the effects of perchlorate.

The California Department of Public Health (CDPH) established a primary drinking water standard for perchlorate with an MCL of 6 micrograms per liter (μg/L)[5] effective October 18, 2007. There is currently no federal drinking water standard for perchlorate, but the USEPA is in the process of making its final regulatory determination for this contaminant. A regulatory determination would be the first step toward developing a national drinking water standard. Metropolitan has offered comments to USEPA during this regulatory process, focusing on the need to protect the Colorado River and to address cleanup of impacted water supplies as a result of federal institutions within its service area. In essence, Metropolitan urged for necessary actions to ensure expedited cleanup in areas that a California drinking water standard could not be enforced.

Perchlorate was first detected in Colorado River water in June 1997 and was traced back to Las Vegas Wash. The source of contamination was found to be emanating from a chemical manufacturing facility in Henderson, Nevada, now owned by Tronox, Inc. Tronox is currently responsible for the ongoing perchlorate remediation of the site. Another large perchlorate groundwater plume is also present in the Henderson area from a second industrial site, and although not known to have reached Las Vegas Wash yet, remediation activities are ongoing for cleanup of that plume by American Pacific Corporation (AMPAC).

Following the detection of perchlorate in the Colorado River, Metropolitan, along with USEPA and agencies in Nevada including the Nevada Division of Environmental Protection (NDEP), organized the forces necessary to successfully treat and decrease the sources of perchlorate loading. Under NDEP oversight, remediation efforts began in 1998 and treatment operations became fully operational in 2004. These efforts have reduced perchlorate loading into Las Vegas Wash from over 1000 lbs/day (prior to treatment) to 60-90 lbs/day since early 2007. This has resulted in over 90 percent reduction of the perchlorate loading entering the Colorado River system. In January 2009, Tronox filed for Chapter 11 bankruptcy protection citing significant environmental liabilities taken from the previous site owner. Tronox has continued operating its remediation system during the bankruptcy proceedings.

Perchlorate levels in Colorado River water at Lake Havasu have decreased significantly in recent years from its peak of 9 μg/L in May 1998 as a result of the aggressive clean-up efforts. Levels have remained less than 6 μg/L since October 2002, and have been typically less than 2 μg/L since June 2006. Metropolitan routinely monitors perchlorate at 34 locations within its system and levels currently remain at non-detectable levels (below 2 μg/L). Metropolitan has not detected perchlorate in the SWP since monitoring began in 1997.

[5] 1 microgram per liter is equivalent to 1 part per billion

Perchlorate has also been found in groundwater basins within Metropolitan's service area, largely from local sources. The vast majority of locations where perchlorate has been detected in the groundwater are associated with the manufacturing or testing of solid rocket fuels for the Department of Defense and the National Aeronautics and Space Administration (NASA), or with the manufacture, storage, handling, or disposal of perchlorate (such as Aerojet in Azusa in the Main San Gabriel Basin and the Jet Propulsion Laboratory/NASA in the Raymond Basin). Past agricultural practices using fertilizers laden with naturally occurring perchlorate have also been implicated in some areas.

Metropolitan has conducted several surveys to determine the impact of perchlorate on its member and retail agencies. As of October 2007, 18 member agencies have detected perchlorate in their service areas at levels greater than 4 μg/L, while 11 have detected levels greater than 6 μg/L in at least 101 out of 1337 wells (7.6 percent). Member and retail agencies have shut down 32 wells over the years due to perchlorate contamination, losing more than 52.5 TAF per year of their groundwater production. Many of these agencies have built new wells, blended their water, or installed ion exchange treatment systems to reduce perchlorate levels, thus lowering their potential additional demand for Metropolitan water supplies to about 15 TAF per year.

Metropolitan has investigated technologies to mitigate perchlorate contamination. Perchlorate cannot be removed using conventional water treatment. Nanofiltration and reverse osmosis do work effectively but at a very high cost. Aerojet has implemented biological treatment through fluidized bed reactors (FBR) in Rancho Cordova and is re-injecting the treated water into the ground. Tronox also utilizes an FBR process train for the cleanup of their Henderson site. A number of sites in Southern California have successfully installed ion exchange systems to treat perchlorate impacted groundwater. The city of Pasadena has been using ion exchange treatment at one well site and, in November 2009, completed a study of biological treatment for perchlorate removal in groundwater. Funding for this study was provided through a Congressional mandate from USEPA to Metropolitan.

Treatment options are available to recover groundwater supplies contaminated with perchlorate. However, it is very difficult to predict whether treatment will be pursued to recover all lost production because local agencies will make decisions based largely on cost considerations, ability to identify potentially responsible parties for cleanup, and the availability of alternative supplies.

Total Organic Carbon and Bromide

Disinfection byproducts (DBPs) form when source water containing high levels of total organic carbon (TOC) and bromide is treated with disinfectants such as chlorine or ozone. Studies have shown a link between certain cancers and DBP exposure. In addition, some studies have shown an association between reproductive and developmental effects and chlorinated water. While many DBPs have been identified and some are regulated under the Safe Drinking Water Act, there are others that are not yet known. Even for those that are known, the potential adverse health effects may not be fully characterized.

Water agencies began complying with new regulations to protect against the risk of DBP exposure in January 2002. This rule, known as the Stage 1 Disinfectants and Disinfection Byproducts (D/DBP) Rule, required water systems to comply with new MCLs and a treatment technique to improve control of DBPs. USEPA then promulgated the Stage 2 D/DBP Rule in January 2006 that makes regulatory compliance more challenging as compliance is based on a locational basis, rather than on a distribution system-wide basis.

Existing levels of TOC and bromide in Delta water supplies present significant concern for Metropolitan's ability to maintain safe drinking water supplies and comply with regulations. Levels of these constituents in SWP water

increase several fold due to agricultural drainage and seawater intrusion as water moves through the Delta. One of Metropolitan's primary objectives for the CALFED Bay-Delta process is protection and improvement of the water quality of its SWP supplies to ensure compliance with current and future drinking water regulations. Source water protection of SWP water supplies is a necessary component of meeting these requirements cost effectively.

The CALFED Record of Decision released in August 2000 adopted the following water quality goals for TOC and bromide:

- Average concentrations at Clifton Court Forebay and other southern and central Delta drinking water intakes of 50 µg/L bromide and 3.0 mg/L total organic carbon, or
- An equivalent level of public health protection using a cost-effective combination of alternative source waters, source control, and treatment technologies.

CALFED's Bay-Delta Program calls for a wide array of actions to improve Bay-Delta water quality, ranging from improvements in treatment technology to safeguarding water quality at the source. These actions include conveyance improvements, alternative sources of supply, changes in storage and operations, and advanced treatment by water supply agencies.

Source water quality improvements must be combined with cost-effective water treatment technologies to ensure safe drinking water at a reasonable cost. Metropolitan has five treatment plants: two that receive SWP water exclusively, and three that receive a blend of SWP and Colorado River water. In 2003 and 2005, Metropolitan completed upgrades to its SWP-exclusive water treatment plants, Mills and Jensen, respectively, to utilize ozone as its primary disinfectant. This ozonation process avoids the production of certain regulated disinfection byproducts that would otherwise form in the chlorine treatment of SWP water. The non-ozone plants utilizing blended water have met federal guidelines for these byproducts through managing the blend of SWP and Colorado River water. To maintain the byproducts at a level consistent with federal law, Metropolitan limits the percentage of water from the SWP used in each plant. In mid 2010, Metropolitan anticipates ozone at the Skinner water treatment plant to come online. Metropolitan's Board has also adopted plans to install ozonation at its other two blend plants with a total estimated ozone retrofit program cost of $1.2 billion for all five plants.

Nutrients

Elevated levels of nutrients (phosphorus and nitrogen compounds) can stimulate nuisance algal and aquatic weed growth that affects consumer acceptability, including the production of noxious taste and odor compounds and algal toxins. In addition to taste and odor toxin concerns, increases in algal and aquatic weed biomass can impede flow in conveyances, shorten filter run times and increase solids production at drinking water treatment plants, and add to organic carbon loading. Further, nutrients can provide an increasing food source that may lead to the proliferation of quagga and zebra mussels, and other invasive biological species. Studies have shown phosphorus to be the limiting nutrient in both SWP and Colorado River supplies. Therefore, any increase in phosphorus loading has the potential to stimulate algal growth, leading to the concerns identified above.

SWP supplies have significantly higher nutrient levels than Colorado River supplies. Wastewater discharges, agricultural drainage, and nutrient-rich soils in the Delta are primary sources of nutrient loading to the SWP. Metropolitan and other drinking water agencies receiving Delta water have been engaged in efforts to minimize the effects of nutrient loading from Delta wastewater plants. Metropolitan reservoirs receiving SWP water have experienced numerous taste and

odor episodes in recent years. For example, in 2005, Metropolitan reservoirs experienced 12 taste and odor events requiring treatment. A taste and odor event can cause a reservoir to be bypassed and potentially have a short-term effect on the availability of that supply. Metropolitan has a comprehensive program to monitor and manage algae in its source water reservoirs. This program was developed to provide an early warning of algae related problems and taste and odor events to best manage water quality in the system.[6]

Although phosphorus levels are much lower in the Colorado River than the SWP, this nutrient is still of concern. Despite relatively low concentrations (Colorado River has been considered an oligotrophic, or low-productivity, system), any additions of phosphorus to Colorado River water can result in increased algal growth. In addition, low nutrient Colorado River water is relied upon by Metropolitan to blend down the high nutrient SWP water in Metropolitan's blend reservoirs. With population growth expected to continue in the future (e.g., Las Vegas area), ensuring high levels of treatment at wastewater treatment plants to maintain existing phosphorus levels will be critical in minimizing the operational, financial, and public health impacts associated with excessive algal growth and protect downstream drinking water uses. In addition, Metropolitan continues its involvement with entities along the lower Colorado River seeking to enhance wastewater management (and therefore better manage nutrient impacts) within river communities.

Although current nutrient loading is of concern for Metropolitan and is anticipated to have cost implications, with its comprehensive monitoring program and response actions to manage algal related issues, there should be no impact on availability of water supplies. Metropolitan's source water protection program will continue to focus on preventing increases in future nutrient loading as a result of urban and agricultural sources.

Arsenic

Arsenic is a naturally occurring element found in rocks, soil, water, and air. It is used in wood preservatives, alloying agents, certain agricultural applications, semi-conductors, paints, dyes, and soaps. Arsenic can get into water from the natural erosion of rocks, dissolution of ores and minerals, runoff from agricultural fields, and discharges from industrial processes. Long-term exposure to elevated levels of arsenic in drinking water has been linked to certain cancers, skin pigmentation changes, and hyperkeratosis (skin thickening).

The MCL for arsenic in domestic water supplies was lowered to 10 μg/L, with an effective date of January 2006 in the federal regulations, and an effective date of November 2008 in the California regulations. The standard impacts both groundwater and surface water supplies. Historically, Metropolitan's water supplies have had low levels of this contaminant and would not require treatment changes or capital investment to comply with this new standard. However, some of Metropolitan's water supplies from groundwater storage programs are at levels near the MCL. These groundwater storage projects are called upon to supplement flow only during low SWP allocation years. Metropolitan has had to restrict flow from one program to limit arsenic increases in the SWP. Implementation of a pilot arsenic treatment facility by one groundwater banking partner has also resulted in increased cost. Moreover, Metropolitan has invested in solids handling facilities and implemented operational changes to manage arsenic in the solids resulting from the treatment process.

In April 2004, California's Office of Environmental Health Hazard Assessment (OEHHA) set a public health goal for arsenic

[6] William D. Taylor et al., *Early Warning and Management of Surface Water Taste-and-Odor Events*, Project No. 2614 (Denver, CO: American Water Works Association Research Foundation, 2006)

of 0.004 µg/L, based on lung and urinary bladder cancer risk. Monitoring results submitted to CDPH in 2001-2003 showed that arsenic is ubiquitous in drinking water sources, reflecting its natural occurrence. They also showed that many sources have arsenic detections above the 10 µg/L MCL. Southern California drinking water sources that contain concentrations of arsenic over 10 µg/L include San Bernardino (64 sources), Los Angeles (48 sources), Riverside (26 sources), Orange (4 sources), and San Diego (5 sources).[7]

The state detection level for purposes of reporting (DLR) of arsenic is 2 µg/L. Between 2001 and 2008, arsenic levels in Metropolitan's water treatment plant effluents ranged from not detected (< 2 µg/L) to 2.9 µg/L. For Metropolitan's source waters, levels in Colorado River water have ranged from not detected to 3.5 µg/L, while levels in SWP water have ranged from not detected to 4.0 µg/L. Increasing coagulant doses at water treatment plants can reduce arsenic levels for delivered water.

Some member agencies may face greater problems with arsenic compliance. A 1992 study for Central Basin Municipal Water District, for example, indicated that some of the Central Basin wells could have difficulty in complying with a lowered standard.[8] Water supplies imported by the Los Angeles Department of Water and Power may also contain arsenic above the MCL. The cost of arsenic removal from these supplies could vary significantly.

Uranium

A 16-million-ton pile of uranium mill tailings near Moab, Utah lies approximately 750 feet from the Colorado River. Due to the proximity of the pile to the Colorado River, there is a potential for the tailings to enter the river as a result of a catastrophic flood event or other natural disaster. In addition, contaminated groundwater from the site is slowly seeping into the river. The U.S. Department of Energy (DOE) is responsible for remediating the site, which includes removal and offsite disposal of the tailings and onsite groundwater remediation.

Previous investigations have shown uranium concentrations contained within the pile at levels significantly above the California MCL of 20 picocuries per liter (pCi/L). Metropolitan has been monitoring for uranium in the Colorado River Aqueduct and at its treatment plants since 1986. Monitoring at Lake Powell began in 1998. Uranium levels measured at Metropolitan's intake have ranged from 1-6 pCi/L, well below the California MCL. Conventional drinking water treatment, as employed at Metropolitan's water treatment plants, can remove low levels of uranium, however these processes would not be protective if a catastrophic event washed large volumes of tailings into the Colorado River. Public perception of drinking water safety is also of particular concern concerning uranium.

Remedial actions at the site since 1999 have focused on removing contaminated water from the pile and groundwater. Through 2009, over 2,700 pounds of uranium in contaminated groundwater have been removed. In July 2005, DOE issued its Final Environmental Impact Statement with the preferred alternative of permanent offsite disposal by rail to a disposal cell at Crescent Junction, Utah, located approximately 30 miles northwest of the Moab site.

Rail shipment and disposal of the uranium mill tailings pile from the Moab, Utah site began in April 2009. Through March 2010, DOE has shipped over 1 million tons of mill tailings to the Crescent Junction disposal cell. Using American Recovery and Reinvestment Act (ARRA) 2009 funding, DOE has increased shipments in order to meet its ARRA project

[7] From the CDPH web site: http://www.cdph.ca.gov/certlic/drinkingwater/Pages/Arsenic.aspx . Note that the numbers reported there may change because the website is frequently updated.

[8] *Summary Review on the Occurrence of Arsenic in the Central Groundwater Basin, Los Angeles County, California*, prepared by Richard C. Slade & Associates, Sept. 7, 1993.

commitment to ship an additional 2 million tons of mill tailings by September 2011 and accelerate overall clean-up of the site. DOE estimates completing movement of the tailings pile by 2025, with a goal of 2019 should additional funding be secured. Metropolitan continues to track progress of the remediation efforts, provide the necessary legislative support for rapid cleanup, and work with Congressional representatives to support increased annual appropriations for this effort.

Another uranium-related issue began receiving attention in 2008 due to a renewed worldwide interest in nuclear energy and the resulting increase in uranium mining claims filed throughout the western United States. Of particular interest were thousands of mining claims filed near Grand Canyon National Park and the Colorado River. Metropolitan has since sent letters to the Secretary of Interior to highlight source water protection and consumer confidence concerns related to uranium exploration and mining activities near the Colorado River, and advocate for close federal oversight over these activities. In 2009, Secretary of Interior Ken Salazar announced the two-year hold on new mining claims on 1 million acres adjacent to the Grand Canyon to allow necessary scientific studies and environmental analyses to be conducted. In 2009, H.R. 644 – Grand Canyon Watersheds Protection Act was introduced and if enacted, would permanently withdraw areas around the Grand Canyon from new mining activities.

Chromium VI

Chromium is a naturally occurring element found in rocks, soil, plants, and animals. Chromium III is typically the form found in soils and is an essential nutrient that helps the body use sugar, protein, and fat. Chromium VI is used in electroplating, stainless steel production, leather tanning, textile manufacturing, dyes and pigments, wood preservation and as an anti-corrosion agent. Chromium occurs naturally in deep aquifers and can also enter drinking water through discharges of dye and paint pigments, wood preservatives, chrome plating liquid wastes, and leaching from hazardous waste sites. In drinking water, Chromium VI is very stable and soluble in water, whereas chromium III is not very soluble. Chromium VI is the more toxic species and is known to cause lung cancer in humans when inhaled, but the health effects in humans from ingestion are still in question. There is evidence that when Chromium VI enters the stomach, gastric acids may reduce it to chromium III. However, recent studies conducted by the National Toxicology Program have shown that Chromium VI can cause cancer in animals when administered orally.

Currently, there are no drinking water standards for Chromium VI. Total chromium (including chromium III and Chromium VI) is regulated in California with an MCL of 50 μg/L. On August 20, 2009, OEHHA released a draft public health goal (PHG) of 0.06 μg/L for Chromium VI in drinking water. The PHG is a health-protective, non-regulatory level that will be used by CDPH in its development of an MCL. CDPH will set the MCL as close to the PHG as technically and economically feasible.

Metropolitan utilizes an analytical method with a minimum reporting level of 0.03 μg/L, which is less than the State detection level for purposes of reporting (DLR) of 1 μg/L. The results from all of Metropolitan's source and treated waters are less than the State DLR of 1 μg/L (except for one detection of 1 μg/L at the influent to the Mills water treatment plant). The following summarizes Chromium VI levels found in Metropolitan's system:

- In the past 10 years, results of source and treated water monitoring for Chromium VI indicate: Levels in Colorado River water are mostly not detected (<0.03 μg/L) but when detected range from 0.03 – 0.08 μg/L. SWP levels range from 0.03 – 0.8 μg/L. Treated water levels range from 0.03 – 0.7 μg/L.

- There is a slight increase in Chromium VI in the treated water from the oxidation (chlorination and ozonation) of natural background chromium (total) to Chromium VI.
- Colorado River monitoring results upstream and downstream of the Topock site (discussed below) have ranged from not detected (<0.03 μg/L) to 0.06 μg/L.
- Chromium VI in Metropolitan's groundwater pump-in storage programs in the Central Valley has ranged from not detected (< 1 μg/L) to 9.1 μg/L with the average for the different programs from 1.4 to 5.0 μg/L.
- Chromium VI has been detected in a groundwater aquifer on the site of a Pacific Gas and Electric (PG&E) gas compressor station located along the Colorado River near Topock, Arizona.

PG&E used Chromium VI as an anti-corrosion agent in its cooling towers from 1951 to 1985. Wastewater from the cooling towers was discharged from 1951 to 1968 into a dry wash next to the station. Monitoring wells show the plume concentration has peaked as high as 16,000 μg/L. PG&E operates an interim groundwater extraction and treatment system that is protecting the Colorado River. Quarterly monitoring of the river has shown levels of Chromium VI less than 1 μg/L, which are considered background levels. The California Department of Toxic Substances Control and the U. S. Department of Interior are the lead state and federal agencies overseeing the cleanup efforts. Metropolitan participates through various stakeholder workgroups and partnerships that include state and federal regulators, Indian tribes, and other stakeholders (e.g., Colorado River Board) involved in the corrective action process. In 2010, it is anticipated that a final treatment alternative will be selected, and an Environmental Impact Report will be released for the recommended cleanup alternative.

The federal- and state-approved technologies for removing total chromium from drinking water include coagulation/ filtration, ion exchange, reverse osmosis, and lime softening. Potential treatment technologies for Chromium VI in drinking water may include reduction/chemical precipitation, an ion exchange, or reverse osmosis. For several years, the cities of Glendale, Burbank, and Los Angeles have been voluntarily limiting Chromium VI levels in their drinking water to 5 μg/L, an order of magnitude lower than the current statewide total chromium standard of 50 μg/L. The experience of these agencies in the treatment of water containing Chromium VI will be helpful in CDPH's evaluations of treatment technologies and associated costs, which are required as part of a proposed MCL regulation package.

N-Nitrosodimethylamine

N-Nitrosodimethylamine (NDMA) is part of a family of organic chemicals called nitrosamines and is a byproduct of the disinfection of some natural waters with chloramines. Metropolitan utilizes chloramines as a secondary disinfectant at its treatment plants. Wastewater treatment plant effluent and agricultural runoff can contribute organic material into source waters which react to form NDMA at water treatment plants. Certain polymers can also contribute NDMA precursor materials. Some NDMA control measures or removal technologies may be required to avoid adverse impacts on Southern California drinking water supplies. Metropolitan is involved in several projects to understand the watershed sources and occurrence of NDMA precursors in Metropolitan source waters, and to develop treatment strategies to minimize NDMA formation in drinking water treatment plants and distribution systems. Special studies conducted at Metropolitan have shown removal of NDMA using advanced oxidation processes. Other treatment process such as biological, membrane, and carbon adsorption need to be evaluated for NDMA removal.

USEPA considers NDMA to be a probable human carcinogen. USEPA placed NDMA in the Unregulated Contaminant Monitoring

Regulation 2 (UCMR2) and on the Contaminant Candidate List 3 (CCL3). CDPH also considers NDMA to be a probable human carcinogen. CDPH has not established a MCL for NDMA. However, in 1998 CDPH established a notification level of 0.01 µg/L. Occurrences of NDMA in treated water supplies at concentrations greater than 0.01 µg/L are recommended to be included in the utility's annual Consumer Confidence Report. In December 2006, OEHHA set a public health goal for NDMA of 0.003 µg/L. Metropolitan has monitored its source waters (at treatment plant influents) and treated waters on a quarterly basis since 1999. Test results for the presence of NDMA in Metropolitan's system have ranged from non-detect (reporting limit of 0.002 µg/L) to 0.014 µg/L. Preliminary data from UCMR2 confirm that the presence of NDMA is not limited to Metropolitan waters, but is widespread. NDMA, or a broader class of nitrosamines, may likely be the next disinfection byproduct(s) to be regulated by USEPA.

Pharmaceuticals and Personal Care Products

Pharmaceuticals and personal care products (PPCPs) are a growing concern to the water industry. Numerous studies have reported the occurrence of these emerging contaminants in treated wastewater, surface water, and sometimes, in finished drinking water in the United States and around the world. The sources of PPCPs in the aquatic environment include (but may not be limited to) treated wastewater and industrial discharge, agricultural run-off, and leaching of municipal landfills. Currently, there is no evidence of human health risks from long-term exposure to the low concentrations (low ng/L; parts per trillion) of PPCPs found in some drinking water. Furthermore, there are no regulatory requirements for PPCPs in drinking water. In October 2009, USEPA included 13 PPCPs on the CCL3; however, currently there are no standardized analytical methods for these compounds.

In 2007, Metropolitan implemented a monitoring program to determine the occurrence of PPCPs and other organic wastewater contaminants in Metropolitan's treatment plant effluents and selected source water locations within the Colorado River and SWP watersheds. Some PPCPs have been detected at very low ng/L levels, which is consistent with reports from other utilities. However, analytical methods are still being refined and more work is required to fully understand occurrence issues. Metropolitan has been actively involved in various studies related to PPCPs, including analytical methods improvements, and characterization of drinking water sources in California.

Metropolitan has participated with water and wastewater agencies and the Santa Ana Regional Board in a coordinated program to address emerging constituents relevant to local and imported supplies used to recharge groundwater basins in the Santa Ana River watershed. As part of the Regional Board-adopted "Cooperative Agreement to Protect Water Quality and Encourage the Conjunctive Uses of Imported Water in the Santa Ana River Basin", there are provisions for the workgroup to initiate development of monitoring for emerging unregulated constituents. Metropolitan, Orange County Water District, and the National Water Research Institute provided substantial input to the workgroup through its two-year monitoring study of emerging constituents in waters found throughout watersheds of the SWP, Colorado River, and Santa Ana River. In April 2009, the workgroup completed its Phase I Report summarizing its findings and recommendations regarding investigation into emerging constituents in water supplies. In December 2009, the workgroup submitted its proposed 2010/11 plan for monitoring of emerging constituents in imported and local waters. The workgroup also provided input to a Blue Ribbon Panel convened by the State Water Resources Control Board to review the emerging science of unregulated chemicals as it relates to the use of recycled water for irrigation and groundwater recharge.

Decreasing Concerns

Methyl Tertiary-Butyl Ether

Methyl tertiary-butyl ether (MTBE) was the primary oxygenate in virtually all the gasoline used in California, prior to the discovery that MTBE had contaminated groundwater supplies and was also found in surface water supplies. MTBE was banned in California as of December 31, 2003, although the concentration of MTBE in gasoline blends was voluntarily reduced beginning in January 2003. MTBE has subsequently been replaced by ethanol which is now the primary oxygenate in use. CDPH has adopted a primary MCL of 13 μg/L for MTBE based on carcinogenicity studies in animals. MTBE also has a California secondary MCL of 5 μg/L, which was established based on taste and odor concerns.

MTBE was introduced into surface water bodies from the motor exhausts of recreational watercraft. At Diamond Valley Lake and Lake Skinner, Metropolitan has taken steps to reduce the potential for MTBE contamination. In 2003, Metropolitan's Board authorized a non-polluting boating program for these reservoirs that calls for specific boat requirements (MTBE-free fuel and clean burning engines) and a monitoring program that will show if MTBE or other gasoline contaminants appear at the lake. Metropolitan regularly monitors its water supply for contamination from MTBE and other oxygenates. In recent years, MTBE testing results in source waters have remained at non-detectable levels (below 3 μg/L).

MTBE still presents a significant problem to local groundwater basins. Leaking underground storage tanks and poor fuel-handling practices in the past at local gas stations may provide a large source of MTBE. MTBE is very soluble in water and has low affinity for soil particles, so it moves quickly into the groundwater. Within Metropolitan's service area, local groundwater producers have been forced to close some of their wells due to MTBE contamination. MTBE is also resistant to chemical and microbial degradation in water, making treatment more difficult than the treatment of other gasoline components. A combination of an advanced oxidation process (typically ozone and hydrogen peroxide) followed by granular activated carbon has been found to be effective in reducing the levels of these contaminants.

Although some groundwater supplies remain contaminated with this highly soluble chemical, contamination of Metropolitan's surface water supplies are no longer a problem. Further, improved underground storage tank requirements and monitoring, and the phase-out of MTBE as a fuel additive, will decrease the likelihood of MTBE groundwater problems in the future.

Other Water Quality Programs

In addition to monitoring for and controlling specific identified chemicals in the water supply, Metropolitan has undertaken a number of programs to protect the quality of its water supplies. These programs are summarized below.

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 Metropolitan's water sources were completed in 2005 and 2006.[9] The next Sanitary Surveys for the watersheds of the

9 Metropolitan Water District of Southern California, *Colorado River Watershed Sanitary Survey, 2005 Update*. For the State Water Project, the sanitary survey report was prepared on behalf of the State Water Project Contractors Authority, in 2006, and was titled *California State Water Project Watershed Sanitary Survey, 2006 Update*.

Colorado River and the SWP will report on water quality issues and monitoring data through 2010. Metropolitan has an active source water protection program and continues to advocate on behalf of numerous SWP and Colorado River water quality protection issues.

Support SWP Water Quality Programs

Metropolitan supports DWR policies and programs aimed at maintaining or improving the quality of SWP water delivered to Metropolitan. In particular, Metropolitan supported the DWR policy to govern the quality of non-project water conveyed by the California Aqueduct. In addition, Metropolitan 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) and up to 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.

Water Quality Exchanges

Metropolitan 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 has 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 TOC levels (as well as lower bromide and TDS, in some programs).

Water Supply Security

The change in the national and international security situation has led to increased concerns about protecting the nation's water supply. In coordination with its member agencies, Metropolitan added new security measures in 2001 and continues to upgrade and refine procedures. Changes have included an increase in the number of water quality tests conducted each year (Metropolitan now conducts over 300,000 analytical tests on samples collected within our service area and source waters), as well as contingency plans that coordinate with the Homeland Security Office's multicolored tiered risk alert system.

Appendix J: Public Notification

City of Santa Monica 2010 Urban Water Management Plan

TERROR
FROM PAGE 13

pects why they are on the watch list and notify them if they have been cleared of wrongdoing, said Nusrat Choudhury, a lawyer for the American Civil Liberties Union who is representing people challenging the no-fly list.

"Instead, people are kind of left in the dark," Choudhury said.

In a statement, the FBI responded: "If the Terrorism Screening Center publicly revealed each person who was on the terrorist watch list, terrorist organizations would be able to circumvent the purpose of the terrorist watch list by determining in advance which of their members are likely to be questioned or detained."

This month, the U.S. Supreme Court heard arguments in the case of Abdullah Al-Kidd, a Kansas man arrested in 2003 as he tried to board a flight to Saudi Arabia to study Arabic and Islamic law. Al-Kidd was never charged with a crime, but prosecutors wanted him to testify against Sami Omar Al-Hussayen, a man charged with providing material support to terrorists. Like Al-Kidd, Al-Hussayen had attended the University of Idaho.

Al-Kidd was strip-searched repeatedly and held for 16 days in high-security cells, court documents show. For the next 15 months he was barred from traveling outside a four-state area and had to make weekly calls to a court officer and submit to a monthly search of his home. Al-Kidd said the stress destroyed his marriage and cost him his job delivering supplies to a store on Nellis Air Force Base in Nevada.

In the end, Al-Hussayen was acquitted of the terrorism charges but agreed to be deported for visa fraud. Al-Kidd was never called to testify in any trial. He has sued former Attorney General John Ashcroft, alleging he was deprived of his freedom.

The Justice Department says it uses its detention powers carefully and mainly in cases where it fears people will flee the country.

Sometimes the government simply gets the wrong suspect. Mistaken-arrest cases are becoming increasingly costly to taxpayers in the form of out-of-court settlements.

Since 2006, the government has paid $2 million to an Oregon man jailed after the 2004 train bombings in Madrid, $250,000 to a man detained after an aviation radio was found in his hotel room near New York's ground zero, and $1.8 million to seven men detained shortly after Sept. 11. Another lawsuit moving through a New York court represents 1,200 men rounded up after Sept. 11.

Law enforcement experts say such cases are a natural byproduct of aggressive detective work.

"Show me any kind of criminal or national security activity where you have no false positives or no false negatives," said James Carafano, a national security expert at the Heritage Foundation, a conservative Washington think tank. "If your metric of success is that no one's ever going to be inconvenienced, ever, then the system is never going to be good enough."

Other people have suffered from the publicity surrounding their arrests. Pakistani immigrant Pir Khan spent 76 days in solitary confinement last year after investigators detained him in the wake of the Times Square bombing attempt. Khan's nephew, who was living with him, had once sent money home to Pakistan using a money-transfer system common among Middle Eastern immigrants, in which payments are passed along until they reach an immigrant's family back home, according to investigators and Khan's own lawyer. Attempted bomber Faisal Shahzad was one link in the chain.

In jail, other inmates yelled, "Terrorist!" at him, Khan said. His American-born wife received death threats. Reporters interviewed his neighbors, scoured his wife's Facebook page for information and speculated on whether his marriage was a sham.

Khan said his credit rating was ruined after bills and other mail started disappearing, and he lost his taxi. No terrorism charges were ever brought against him. But now he is fighting deportation as an illegal immigrant. He is living in a Boston suburb and working as a mechanic.

"I lost a lot of things," Khan said. "I have to put it behind my back and just get on with my life."

CIRCUMCISION
FROM PAGE 1

that circumcision not only removes a piece of the body that serves a vital function, it deprives men of heightened sexual pleasure by removing nerve endings.

"The foreskin is there for a reason. It has functions," Hess said. "If you cut that off, you're losing that function and it's going to be a different experience."

The bill leaves room for a circumcision performed for valid health reasons, but not for religious purposes.

Hess' group likens circumcision — a procedure where the foreskin of the penis is removed — to female genital mutilation, where the genitals are purposely injured for no medical reason.

"It's currently illegal to circumcise or draw a single drop of blood from a girl's genitals," Hess said. "This is an example where religious freedom is not absolute."

According to the World Health Organization, no religion directly calls for FGM, although it is widely practiced in some cultures, ostensibly to keep young girls "pure" and ready for marriage.

Dr. David Baron, former chief of staff at the Santa Monica-UCLA Medical Center and physician at Primary Caring in Malibu, dismissed the comparison.

"It's obviously misleading and inaccurate," Baron said. "It's inappropriate and inaccurate to draw a connection between the two."

Baron is trained both as a physician and a mohel, a person who performs the Jewish circumcision ceremony called a "bris."

In the Jewish faith, circumcision represents a contract between the faithful and God. It's performed eight days after the baby is born, usually, at the home.

The only difference between a religious circumcision and one performed at the hospital is location and prayers, Baron said.

Circumcision's importance to both the Jewish and Islamic religions is evident, but its medical necessity has been the topic of much debate.

The medical community responds to questions about whether or not circumcision is a good idea with a firm "maybe."

"Circumcised men are known to have a lower incidence of urinary tract infections and a lower risk of sexually transmitted diseases, primarily HPV," Baron said, referencing the human papillomavirus. "They also have a lower risk, almost no risk, of penile cancer."

Penile cancer, virtually unheard of in the United States, is caused by HPV which manifests in warts that form under the foreskin.

On the other hand, Baron noted, all of those potential gains can be achieved by uncircumcised men that use proper hygiene.

Courtesy photo

AT WORK: A rabbi performs a circumcision.

Whether or not it is strictly necessary, circumcision is widely used amongst both secular and religious groups.

In 2010, 341 circumcisions were performed on newborns at the Santa Monica-UCLA Medical Center and Orthopaedic Hospital.

"It's shocking to me that there would be a movement to ban this," Baron said. "This is a procedure that's been done for 4,000 years. Name me another surgical procedure that's been around for 4,000 years."

Before the potential ban becomes a formal ballot measure, supporters have to gather enough signatures to qualify, or 10 percent of the voting population of Santa Monica.

As of June 2010, Santa Monica had 61,192 voters, said City Clerk Maria Stewart. That would put the signature threshold at just over 6,000 voters, although the exact number has not been confirmed by the Los Angeles County clerk.

A similar measure is already on the ballot in San Francisco's November 2011 election.

It's the first time that the issue of male circumcision will be voted on.

Hess' group began trying to ban circumcision in 2003 with a statewide bill, and succeeded in finding a sponsor for a similar measure in Massachusetts, although the bill ultimately failed.

The San Francisco and Santa Monica attempts are the first efforts to get around legislators and go straight to the voters.

"It's spread to various states as people requested that we write a proposal for them," Hess said.

The request for Santa Monica came from resident Jena Troutman, an intactivist who has been active in the movement for some time, Hess said.

It's unclear if the initiative will face legal challenges as no version has gotten this far before, Hess said.

ashley@smdp.com

NOTICE OF PUBLIC HEARING FOR DRAFT 2010 URBAN WATER MANAGEMENT PLAN AND AVAILABILITY OF DRAFT PLAN FOR REVIEW

The City of Santa Monica hereby releases its Draft 2010 Urban Water Management Plan (Plan) for public review. The plan will be available through June 28, 2011 at all City of Santa Monica public libraries, City Hall, the City of Santa Monica Water Resources Division Administration Office (1212-5th Street, 3rd Floor, Santa Monica) and at the following City Website:

http://www.smgov.net/departments/publicworks/water.aspx

A Public Hearing will be held to consider comments to the Draft Plan; to consider and adopt the City's method for determining the City's water use targets under SBX-7-7 ("20 by 2020" water conservation requirements); and implementation of the Plan including economic impacts, if any.

The Public Hearing will be held at the City Council Chambers located at 1685 Main Street on Tuesday June 28, 2011. The time of the hearing will be posted on the Agenda for the meeting on the Thursday prior to the meeting.

The City of Santa Monica encourages the active involvement of its citizens. If you have any questions about the Plan or SBX7-7 compliance, please contact: Susan Lowell, P.E., Water Resources Engineer, Water Resources Division, Public Works Department, 1212 5th Street, 3rd Floor, Santa Monica, CA 90401 at 310-458-8286 or at susan.lowell@smgov.net.

Brandon Wise *brandonw@smdp.com*

TAKING TIME: Residents cast their ballots during last year's general election at City Hall.

ELECTION
FROM PAGE 1

independent campaigns.

If that happens, raising the contribution limits would open the door to an influx of money from business interests, which can afford to meet the higher contribution limits where the average voter may not.

The two sides aired their views at the May 10 City Council meeting, personified by Councilmember Bobby Shriver for the increase, and Councilmember Kevin McKeown against it.

Shriver pointed out that people with real estate interests gave tens of thousands of dollars to independent expenditure campaigns to use against candidates through mailers and advertising.

"If money wants to get into politics, it will get in," Shriver said. "Why wouldn't you give an individual some capacity to be heard at the same volume as the IEs are heard?"

McKeown pointed out that money isn't everything — in his 2006 campaign, he was outspent by a factor of 20 and still managed to retain his seat.

"If I felt that my getting more money would help, I guess my self-interest would bring me there, but I don't think it serves the community to keep opening the floodgate wider and wider because the people who live here in Santa Monica aren't all doing that great," McKeown said. "On the other hand, special interests give what seems to be a good investment to them."

Santa Monicans for Renters' Rights (SMRR) — which controls one of the main independent expenditure campaigns alongside the education IE, police and fire unions, and the hospitality industry — "invested" $100,000 in the 2006 campaign, Shriver noted.

"Although you might have been outspent, you were endorsed by SMRR, therefore all that mail went to your benefit," Shriver said.

Shriver, who bills himself as a primarily self-funded candidate, and Bob Holbrook are the only two councilmembers that SMRR did not back in their council runs.

Jessica Levinson, director of political reform at the Los Angeles-based Center for Governmental Studies, said that the idea of calling groups like SMRR fully independent of the candidates they endorse "troubling."

"It strains reality," Levinson said. "By definition, those are people that are interested in the outcome of races who know candidates or advisors or may have strong ties to candidates or advisors. I think, in reality, expenditures by independent groups are made by people that know candidates and campaigns."

In the absence of council members Pam O'Connor and Holbrook, the City Council chose to put off a final decision on the matter until all council members were present.

To the eyes of the outside world, the Santa Monica conflagration is all smoke and little fire.

The question about raising the campaign contribution limits should focus on two things, said Paul S. Ryan, an attorney with the Washington D.C.-based Campaign Legal Center.

First, does the proposed $150 increase mean that a donor that gives the maximum gets extra pull with the candidate, like a greater tendency to answer the phone or discuss issues?

Second, without the increase, can a candidate mount a viable campaign, or is it too expensive to get the message out?

Neither situation seemed likely if the limit went to $400, Ryan said.

"In my view, as someone who's made a career of fighting for sensible dollars in political campaigns, [the council] may want to invest [its] energy in other battles," Ryan said.

ashley@smdp.com

NOTICE OF PUBLIC HEARING FOR DRAFT 2010 URBAN WATER MANAGEMENT PLAN AND AVAILABILITY OF DRAFT PLAN FOR REVIEW

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Appendix K: Groundwater Management Plan

City of Santa Monica 2010 Urban Water Management Plan

Groundwater Management Plan to be Included Herein

Appendix L:
Baseline & Compliance (2020) Per Capita Analysis

City of Santa Monica 2010 Urban Water Management Plan

City of Santa Monica

SBx7-7 Baseline & Target Calculations

Yr.	Total Pot. Consumption	Service Area Population	GPCD
2009	13,748	92,494	133
2008	14,383	90,926	141
2007	15,009	90,379	148
2006	14,967	90,474	148
2005	14,561	90,618	143
2004	15,201	90,296	150
2003	14,884	89,173	149
2002	14,936	87,883	152
2001	14,342	85,528	150
2000	15,028	84,084	160
1999	14,732	82,372	160
1998	14,081	82,116	153
1997	14,888	82,156	162
1996	14,970	82,613	162
		10-yr. Baseline (FY 1996-2005)	**154**
		5-yr. Baseline (FY 2003-2007)	**148**
		2020 Target (80% of 10-yr. Baseline)	**123.2**
		2020 Target (95% of 5-yr. Baseline)	**140.6**
		2015 Target	**139**

2020 Compliance Target for City of Santa Monica is 123.2 GPCD in accordance with Santa Monica City Council's Decision

State of California | DEPARTMENT OF WATER RESOURCES | California Natural Resources Agency

PUBLIC WATER SYSTEM STATISTICS

Calendar Year **2009**

Mailing Label

1. General Information

Please follow the provided instructions.

Contact : Gil Borboa
Title: Water Resources Manager
Phone: 310-458-8230
Fax: 310-393-9967
E-mail: gil.borboa@smgov.net
Website: water.smgov.net
County: **Los Angeles**
Population served: **84084**
Names of communities served: Santa Monica

2. Active Service Connections

Customer Class	Potable Water		Recycled Water	
	Metered	Unmetered	Metered	Unmetered
Single Family Residential	7545			
Multi-family Residential	6269			
Commercial/Institutional	2323		2	
Industrial				
Landscape Irrigation	549		9	
Other	1023			
Agricultural Irrigation				
TOTAL	17709		11	

3. Total Water Into the System - Units of production: AF

(Select: **AF**=acre-feet; **MG**=million gallons; **CCF**=hundred cubic feet)

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Potable	*Wells*	166.03	153.7	173.59	160.45	158.84	175.14	116.33	173.85	168.32	100.96	237.05	278.21	2062.47
	Surface	0	0	0	0	0	0	0	0	0	0	0	0	0
	Purchased 1/	905.44	742.8	921.32	1016.83	1100.63	1028.55	1165.68	1119.96	1060.42	1080.83	860.42	682.45	11685.33
	Total Potable	1071.47	896.5	1094.91	1177.28	1259.47	1203.69	1282.01	1293.81	1228.74	1181.79	1097.47	960.66	13747.8
Untreated Water														
Recycled 2/		1.4	10.22	2.16	16.96	3.89	23.27	4.5	19.2	3.6	12.04	1.37	8.99	107.6

1/ Potable wholesale supplier(s): MWD

2/ Recycled wholesale supplier(s):

Level of treatment:

4. Metered Water Deliveries - Units of delivery: AF

(Select: **AF**=acre-feet; **MG**=million gallons; **CCF**=hundred cubic feet)

If recycled is included, X box ↓		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
A.SingleFamilyResidential		214.83	231.72	246.77	256.58	316.91	278.8	323.16	283.02	326.52	240.48	270.5	205.73	3195.02
B.Multi-family Residential		333.23	590.33	326	530.36	336.68	611.6	289.59	663.3	288.16	528.97	364.97	545.11	5408.3
C.Commercial/Institutional		121.99	402.43	130.31	457.97	148.98	459.39	101.47	491.31	138.51	404.75	162.56	354.1	3373.77
D.Industrial														
E.Landscape Irrigation		14.22	51.71	15.29	89.79	26.78	126.89	24.68	120.85	30.89	80.44	21.71	48.73	651.98
F.Other														
Total Urban Retail *(A thru F)*		684.27	1276.19	718.37	1334.7	829.35	1476.68	738.9	1558.48	784.08	1254.64	819.74	1153.67	12629.07
Agricultural Irrigation														
Wholesale *(to other agencies)*														

Jean Higbee

From: Chen, Dong [dchen@water.ca.gov]
Sent: Thursday, February 11, 2010 10:55 AM
To: Jean Higbee
Subject: RE: City of Santa Monica 2009 Public Water System Statistics

Thank you for sending us the completed 2009 Public Water System Statistics (PWSS) form.

Dong Chen
California Land and Water Use
Department of Water Resources
PO Box 942836
Sacramento, CA 94236-0001
Phone(916)651-9659 Fax(916)651-9289
Email: dchen@water.ca.gov
www.landwateruse.water.ca.gov

-----Original Message-----
From: Jean Higbee [mailto:Jean.Higbee@SMGOV.NET]
Sent: Wednesday, February 10, 2010 9:36 AM
To: pwss
Cc: Gil Borboa; Kimberly O'Cain; Myriam Cardenas; GaryRichinick
Subject: City of Santa Monica 2009 Public Water System Statistics

Attached is our report. Please let me know if you have any questions.

Jean Higbee

Water Resources Analyst

310-458-8975

STATE OF CALIFORNIA -- THE RESOURCES AGENCY
ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791

January 04, 2010

This is a request for monthly urban water production, delivery by customer class, and other data about your water system for the **2009** calendar year. This data will be used by the Department of Water Resources to update the California Water Plan as mandated by the California Legislature.

We encourage you to complete the form electronically and email the completed Excel form to pwss@water.ca.gov. You can download the Excel form from DWR website, **http://www.water.ca.gov/publications/forms/**. The form number is **38**. If we have your email address, we will send you a copy of the Excel form by email attachment. It is much easier and less expensive for us to import your data into a statewide database from an electronic form than from a paper form. Alternatively, you can complete the enclosed survey form and return it in the envelope provided. Please complete and return the form by **April 02, 2010.** The instructions for completing the form are on the back of the form.

Please note that our district code has been changed from "**ND, CD, SJD,** and **SD**" to "**NRO, NCRO, SCRO,** and **SRO**". The meanings and boundaries of our district code are on the back of this letter. The boundaries of new district code are slightly different from the old district code. If your location does not match the district code we placed in the form, please correct the code. If you are not sure but suspect that the location and new district code does not match, please let us know.

Please also note that we have **updated the form** to make it more user friendly when the form is filled electronically. If only annual total is known, now you can enter it in the total column. You can also enter one line comment or explanation at the bottom of the form. The updated form requires you to enter the water volume unit (**AF, MG,** and **CCF**), and "**X**" when recycled water is included in the delivered water, instead of checking boxes

If you have any questions, please call Dong Chen at **(916) 651-9659**, or email to **pwss@water.ca.gov**. For more information on the survey, please visit our web site at http://www.landwateruse.water.ca.gov/

Sincerely,

M. Orang

Morteza Orang, Chief
Agricultural & Urban Water Use

Enclosures

CATEGORY CODE	DESCRIPTION	Number of Accounts
BR	BUSINESS IN RESIDENC	1
CF	CITY FIRE	31
CH	CHURCH	59
CL	CITY LANDSCAPE	197
CM	MIXED USE	8
CO	COMMERCIAL	2,085
DX	DUPLEX	622
FI	FIRE	992
FW	FRESH WATER	1
FX	FOURPLEX	758
FY	STATE FREEWAY	8
HM	HOUSE METER	14
LC	LANDSCAPE COMMERCIAL	91
LP	LS - PUBLIC SCHOOL	2
LR	LS - RESIDENTIAL	253
MU	MUNICIPAL	110
MX	MULTI UNIT FAMILY	3,092
NB	SMURRF WATER NO BILL	2
OC	Outside City	24
PS	PUBLIC SCHOOL	69
RW	RECLAIMED WATER	11
SF	SINGLE FAMILY	7,520
SX	SF MULTI UNIT FAMILY	1,261
TX	TRIPLEX	514
24		17,722

2009 Use														
RESIDENTIAL	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec		
Multifamily														
FX	10197	16469	9798	14355	11577	15228	12118	17952	11472	15308	11983	15601		
DX	5566	9310	5145	8353	6771	9590	6097	10184	6430	8246	6128	8222		
MX	118538	214385	116716	192506	117192	223456	97452	240927	96314	188404	128275	195998		
SX	4740	6326	4581	5804	4727	6516	4070	6897	4676	6332	5506	6364		
CM	24	480	12	846	36	982	6	1849	35	2797	396	2078		
TX	5801	100008	5401	8994	5924	10472	5733	10883	6135	9147	6340	9019		
HM	276	148	338	148	416	146	658	215	451	165	341	147		
Mo. Total - HCF	145142	347126	141991	231006	146643	266390	126134	288907	125513	230399	158969	237429		2445649
Mo. Total - MG	108.57	259.65	106.21	172.79	109.69	199.26	94.35	216.10	93.88	172.34	118.91	177.60		
Mo. AF	333.23	796.96	326.00	530.36	336.68	611.60	289.59	663.30	288.16	528.97	364.97	545.11	5614.93	5614.93
Annual - HCF		590.33												
Annual - MG														
Single Family														
SF	92870	100930	106680	111758	136982	121436	139833	123273	141222	104746	116912	89608		
BR	28	0	27	0	27	0	29	0	31	0	28	0		
OC	675	0	778	0	1026	0	893	0	967	0	879	0		
Mo. Total - HCF	93573	100930	107485	111758	138035	121436	140755	123273	142220	104746	117819	89608		1391638
Mo. Total - MG	69.99	75.50	80.40	83.59	103.25	90.83	105.28	92.21	106.38	78.35	88.13	67.03		
Mo. AF	214.83	231.72	246.77	256.58	316.91	278.80	323.16	283.02	326.52	240.48	270.50	205.73	3195.04	
Annual HCF														
Annual MG														
COMMERCIAL														
CH	1472	1186	1303	1310	1709	1214	1539	1160	1807	614	1925	657		
CO	49591	158103	51810	165359	59638	172273	39452	185473	55072	147362	65622	135215		
FI	0	218	0	10311	0	263	0	277	0	216	2	182		
Mo. Total -HCF	51063	159507	53113	176980	61347	173750	40991	186910	56879	148192	67549	136054		1312335
Mo. Total - MG	38.20	119.31	39.73	132.38	45.89	129.97	30.66	139.81	42.55	110.85	50.53	101.77		
Mo. AF	117.23	366.21	121.94	406.33	140.85	398.91	94.11	429.12	130.59	340.23	155.08	312.36	3012.97	
Annual HCF														
Annual MG														
COMM & INSTITUTION.	121.99	402.43	130.31	457.97	148.98	459.39	101.47	491.31	138.51	404.75	162.56	354.10	3,373.77	
Mo. AF														
PUBLIC AUTHORITY														
MU	1545	7769	2601	11071	2045	12669	1734	13014	2359	11187	2114	9735		
PS	527	8006	1043	11422	1496	13675	1472	14072	1093	16914	1142	8441		
CF	0	1	0	0	0	0	0	0	0	1	0	2		
Mo. Total - HCF	2072	15776	3644	22493	3541	26344	3206	27086	3452	28102	3256	18178		157150
Mo. Total - MG	1.55	11.80	2.73	16.82	2.65	19.71	2.40	20.26	2.58	21.02	2.44	13.60		
Mo. AF	4.76	36.22	8.37	51.64	8.13	60.48	7.36	62.19	7.93	64.52	7.48	41.73		
Annual HCF														
Annual MG														

IRRIGATION															
RW	608	4453	940	7387	1696	10136	1961	8363	1567	5245	597	3915			
FW	0	1486	0	1229	0	6278	0	2668	0	2442	0	549			
LP	0	212	0	705	0	892	0	1282	140	348	78	51			
LC	798	2712	969	4487	1318	5618	1537	6219	1521	5161	1459	3224			
CL	2405	8161	1775	18737	3774	25986	3364	29047	4915	17561	3138	9743			
LR	2381	2737	2974	3568	4876	3688	3887	3778	5311	2723	4185	2229			
FY	0	2762	0	2995	0	2670	0	1281	0	1556	0	1516			
Mo. Total - HCF	6192	22523	6658	39108	11664	55268	10749	52638	13454	35036	9457	21227			283974
Mo. Total MG	4.63	16.85	4.98	29.25	8.72	41.34	8.04	39.37	10.06	26.21	7.07	15.88			
Mo. AF	14.22	51.71	15.29	89.79	26.78	126.89	24.68	120.85	30.89	80.44	21.71	48.73	651.97		
Annual HCF															
Annual MG															
Recyled water in HCF	608	4453	940	7387	1696	10136	1961	8363	1567	5245	597	3915			
Recyled water in MG	0.45	3.33	0.70	5.53	1.27	7.58	1.47	6.26	1.17	3.92	0.45	2.93			
Recyled water in AF	1.40	10.22	2.16	16.96	3.89	23.27	4.50	19.20	3.60	12.04	1.37	8.99			
MONTHLY TOTALS - ALL ACCOUNT TYPES															
TOTAL HCF	**298,042**	**645,862**	**312,891**	**581,345**	**361,230**	**643,188**	**321,835**	**678,814**	**341,518**	**546,475**	**357,050**	**502,496**			
TOTAL MG	**223**	**483**	**234**	**435**	**270**	**481**	**241**	**508**	**255**	**409**	**267**	**376**			
ANNUAL TOTALS - ALL ACCOUNT TYPES															
GRAND TOTAL HCF	5,590,746														
GRAND TOTAL MG	4,182														
GRAND TOTAL AF	12,835.72														

State of California | DEPARTMENT OF WATER RESOURCES | California Natural Resources Agency

PUBLIC WATER SYSTEM STATISTICS

Calendar Year 2008

Mailing Label

1. General Information

Please follow the provided instructions.

Contact : Gilber M. Borboa, Jr., P.E.
Title: Water Resources Manager
Phone: 310-458-8230
Fax: 310-393-6697
E-mail: gil.borboa@smgov.net
Website: water.smgov.net
County: **Los Angeles**
Population served: **84084**
Names of communities served: City of Santa Monica

2. Active Service Connections

Customer Class	Potable Water		Recycled Water	
	Metered	Unmetered	Metered	Unmetered
Single Family Residential	7538			
Multi-family Residential	6223			
Commercial/Institutional	2319			
Industrial				
Landscape Irrigation	527		11	
Other	991			
Agricultural Irrigation				
TOTAL	17598		11	

Note: Beginning in 2008 we are reporting all connections in the system whether or not there is an current customer (vacant).

3. Total Water Into the System - Units of production:

☐ acre-feet ☑ million gallons ☐ hundred cubic feet

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Potable	*Wells*	54	50.7	54.9	53.7	53.2	54.1	55	51.3	55.7	71	63.3	54.3	671.2
	Surface													
	Purchased 1/	278.8	268.8	312.5	334.9	368.8	374.2	397.7	390.9	357.3	351.4	305.7	274.6	4015.6
	Total Potable	332.8	319.5	367.4	388.6	422	428.3	452.7	442.2	413	422.4	369	328.9	4686.8
Untreated Water														
Recycled 2/		2.02	0.00	2.06	0.86	5.83	1.08	7.54	1.06	7.24	0.96	5.77	0.57	35.00116

1/ Potable wholesale supplier(s): Metropolitan Water District

2/ Recycled wholesale supplier(s): City of Santa Monica
Level of treatment: Secondary

4. Metered Water Deliveries - Units of delivery:

☐ acre-feet ☑ million gallons ☐ hundred cubic feet

If recycled is included, ✓box ↓	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
A.SingleFamilyResidential ☐	94.57	60.93	67.65	84.89	101.16	109.22	117.31	107.83	112.5	110.72	84.09	99.09	1149.96
B.Multi-family Residential ☐	168.98	122.41	162.93	130.71	168.05	137.85	185.49	122.63	183.28	130.56	168	135.68	1816.57
C.Commercial/Institutional ☐	126.48	38.83	132.5	47.64	141.23	51.32	159.32	49.8	163.78	51.87	144.59	49.05	1156.41
D.Industrial ☐													
E.Landscape Irrigation ☑	14.5	3.35	15.76	7.56	33.3	11.29	36.69	11.95	41.22	11.65	31.82	8.16	227.25
F.Other ☐													
***Total Urban Retail** (A thru F)*	404.53	225.52	378.84	270.8	443.74	309.68	498.81	292.21	500.78	304.8	428.5	291.98	4350.19
Agricultural Irrigation ☐													
Wholesale*(to other agencies)* ☐													

Print Date/Time: 03/04/2009 1:03 pm

Number of Connections as of: 03/03/2009

TYPE/CATEGORY	COUNT
COMMERCIAL	2,319
IRRIGATION	527
OTHER	~~1,002~~ 991
RW	11
RESIDENTIAL-OTHER	6,223
SINGLE FAMILY	7,538
	17,609

IRRIGATION												
RW	2702	0	2748	1149	7792	1442	10085	1421	9685	1290	7720	759
FW	1174	0	784	0	3376	0	3119	0	2359	0	2337	0
LP	174	0	204	0	508	0	1765	0	1430	0	834	0
LC	4228	491	4247	885	6653	1338	7478	1485	6933	2208	5657	1386
CL	5261	1656	10612	4614	20648	7369	23274	7835	23516	7123	18674	4596
LR	3576	2336	2095	3453	3398	4940	4203	5233	4271	4960	3593	4167
FY	2270	0	374	0	2143	0	3142	0	6917	0	3728	0
Mo. Total - HCF	19385	4483	21064	10101	44518	15089	53066	15974	55111	15581	42543	10908
Mo. Total MG	14.50	3.35	15.76	7.56	33.30	11.29	39.69	11.95	41.22	11.65	31.82	8.16
Annual AF												
Annual HCF												
Annual MG												
Recyled water in HCF	2702	0	2748	1149	7792	1442	10085	1421	9685	1290	7720	759
Recyled water in MG	2.02	0.00	2.06	0.86	5.83	1.08	7.54	1.06	7.24	0.96	5.77	0.57
MONTHLY TOTALS - ALL ACCOUNT TYPES												
TOTAL HCF	**521,455**	**297,024**	**485,424**	**351,938**	**548,743**	**398,921**	**617,860**	**374,697**	**614,416**	**391,931**	**530,356**	**379,438**
TOTAL MG	**405**	**226**	**379**	**271**	**444**	**310**	**502**	**292**	**501**	**305**	**429**	**292**
ANNUAL TOTALS - ALL ACCOUNT TYPES												
GRAND TOTAL HCF	**5,512,203.25**											
GRAND TOTAL MG	**4,353.21**											
GRAND TOTAL AF	**13,320.81**											

State of California | Department of Water Resources | The Resources Agency

PUBLIC WATER SYSTEM STATISTICS

Calendar Year 2007

Gil Borboa, Water Resources Mgr.
1212 5th Street 3rd Fl.Santa Monica,
CA 90401 PWS #1910146 SD

1. General Information

Please follow the provided instructions.

Contact : Gil Borboa
Title: Water Resources Manager
Phone: (310) 458-8230
Fax: (310) 393-6697
E-mail: gil.borboa@smgov.net
Website: water.smgov.net
County: **Los Angeles**
Population served: **84084**
Names of communities served: Santa Monica

2. Active Service Connections

Customer Class	Potable Water		Recycled Water	
	Metered	Unmetered	Metered	Unmetered
Single Family Residential	7508			
Multi-family Residential	6088			
Commercial/Institutional	2222			
Industrial				
Landscape Irrigation	478		11	
Other	965			
Agricultural Irrigation				
TOTAL	17261		11	

3. Total Water Into the System - Units of production:

☐ acre-feet ☑ million gallons ☐ hundred cubic feet

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Potable	*Wells*	50.7	51.5	53.1	54.7	56.2	53.1	58	56.6	50.1	57.5	53	54.7	649.2
	Surface													
	Purchased 1/	338.6	280.5	352.6	342.8	376.5	389.7	405.1	419.1	382.9	353.5	320.6	279.7	4241.6
	Total Potable	389.3	332	405.7	397.5	432.7	442.8	463.1	475.7	433	411	373.6	334.4	4890.8
Untreated Water														
Recycled 2/		4.2	0.1	3.4	0.1	5.3	0.2	7.1	0.2	7.1	0.2	5.5	0.1	33.5

1/ Potable wholesale supplier(s): Metropolitan Water District

2/ Recycled wholesale supplier(s): City of Santa Monica
Level of treatment: Secondary

4. Metered Water Deliveries - Units of delivery:

☐ acre-feet ☑ million gallons ☐ hundred cubic feet

If recycled is included, ✓box ↓	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
A.SingleFamilyResidential ☐	116.44	60.97	101.83	65.33	127.54	79.63	146.45	128.83	114.26	118.01	101.67	61.73	1222.69
B.Multi-family Residential ☐	151.19	159.53	154.94	154.64	153.45	153.29	159.99	166.56	156.69	168.48	157.15	148.84	1884.75
C.Commercial/Institutional ☐	130.83	47.38	140.08	48.21	152.5	49.96	157.59	70.88	159.01	58.85	160.45	44.41	1220.15
D.Industrial ☐													
E.Landscape Irrigation ☑	25.53	5.27	20.46	5.87	33.28	7.44	43.51	10.72	36.88	15.79	27.76	4.8	237.31
F.Other ☐													
Total Urb San	423.99	273.15	417.31	274.05	466.77	290.32	507.54	376.99	466.84	361.13	447.03	259.78	4564.9
Agricultural Irrigation ☐													
Wholesale(*to other agencies*) ☐													

State of California | DEPARTMENT OF WATER RESOURCES | California Natural Resources Agency

PUBLIC WATER SYSTEM STATISTICS

Calendar Year 2008

Mailing Labe

1. General Information

Please follow the provided instructions.

Contact : Gilber M. Borboa, Jr., P.E.
Title: Water Resources Manager
Phone: 310-458-8230
Fax: 310-393-6697
E-mail: gil.borboa@smgov.net
Website: water.smgov.net
County: **Los Angeles**
Population served: **84084**
Names of communities served: City of Santa Monica

2. Active Service Connections

Customer Class	Potable Water		Recycled Water	
	Metered	Unmetered	Metered	Unmetered
Single Family Residential	7538			
Multi-family Residential	6223			
Commercial/Institutional	2319			
Industrial				
Landscape Irrigation	527		11	
Other	991			
Agricultural Irrigation				
TOTAL	17598		11	

Note: Beginning in 2008 we are reporting all connections in the system whether or not there is an current customer (vacant).

3. Total Water Into the System - Units of production:

☐ acre-feet ☑ million gallons ☐ hundred cubic feet

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Potable	*Wells*	54	50.7	54.9	53.7	53.2	54.1	55	51.3	55.7	71	63.3	54.3	671.2
	Surface													
	Purchased 1/	278.8	268.8	312.5	334.9	368.8	374.2	397.7	390.9	357.3	351.4	305.7	274.6	4015.6
	Total Potable	332.8	319.5	367.4	388.6	422	428.3	452.7	442.2	413	422.4	369	328.9	4686.8
Untreated Water														
Recycled 2/		2.02	0.00	2.06	0.86	5.83	1.08	7.54	1.06	7.24	0.96	5.77	0.57	35.00116

1/ Potable wholesale supplier(s): Metropolitan Water District

2/ Recycled wholesale supplier(s): City of Santa Monica
Level of treatment: Secondary

4. Metered Water Deliveries - Units of delivery:

☐ acre-feet ☑ million gallons ☐ hundred cubic feet

If recycled is included, ✓box ↓	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
A.SingleFamilyResidential ☐	94.57	60.93	67.65	84.89	101.16	109.22	117.31	107.83	112.5	110.72	84.09	99.09	1149.96
B.Multi-family Residential ☐	168.98	122.41	162.93	130.71	168.05	137.85	185.49	122.63	183.28	130.56	168	135.68	1816.57
C.Commercial/Institutional ☐	126.48	38.83	132.5	47.64	141.23	51.32	159.32	49.8	163.78	51.87	144.59	49.05	1156.41
D.Industrial ☐													
E.Landscape Irrigation ☑	14.5	3.35	15.76	7.56	33.3	11.29	36.69	11.95	41.22	11.65	31.82	8.16	227.25
F.Other ☐													
Total Urban Retail *(A thru F)*	404.53	225.52	378.84	270.8	443.74	309.68	498.81	292.21	500.78	304.8	428.5	291.98	4350.19
Agricultural Irrigation ☐													
Wholesale*(to other agencies)* ☐													

from Gary Rickenacker

State of California — Department of Water Resources — The Resources Agency

PUBLIC WATER SYSTEM STATISTICS — Calendar Year 2008

Santa Monica, City of
Gil Borboa, Water Resources Mgr.
1212 5TH ST THIRD FLOOR
SANTA MONICA, CA 90401
PWS# 1910146 SD

1. General Information

Please follow the provided instructions.

Contact:
Title:
Phone:
Fax:
E-mail:
Website:
County:
Population served:
Names of communities served:

2. Active Service Connections

Customer Class	Potable Water		Recycled Water	
	Metered	Unmetered	Metered	Unmetered
Single Family Residential				
Multi-family Residential				
Commercial/Institutional				
Industrial				
Landscape Irrigation				
Other				
Agricultural Irrigation				
TOTAL				

3. Total Water Into the System - Units of production:

☐ acre-feet ☒ million gallons ☐ hundred cubic feet

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Potable	*Wells*	54.0	50.7	54.9	53.7	53.2	54.1	55.0	51.3	55.7	71.0	63.3	54.3	671.2
	Surface													
	Purchased 1/	278.8	268.8	312.5	334.9	368.8	374.2	397.7	390.9	357.3	351.4	305.7	274.6	4015.6
	Total Potable	332.8	319.5	367.4	388.6	422.0	428.3	452.7	442.2	413.0	422.4	369.0	328.9	4686.8
Untreated Water														
Recycled 2/														

1/ Potable wholesale supplier(s): MWD

2/ Recycled wholesale supplier(s):
Level of treatment:

4. Metered Water Deliveries - Units of delivery:

☐ acre-feet ☐ million gallons ☐ hundred cubic feet

If recycled is included, ✓ box ↓	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
A.SingleFamilyResidential ☐													
B.Multi-family Residential ☐													
C.Commercial/Institutional ☐													
D.Industrial ☐													
E.Landscape Irrigation ☐													
F.Other ☐													
Total Urban Retail (A thru F)													
Agricultural Irrigation ☐													
Wholesale(*to other agencies*) ☐													

Print Date/Time: 03/04/2009 1:03 pm

Number of Connections as of: 03/03/2009

TYPE/CATEGORY	COUNT
COMMERCIAL	2,319
IRRIGATION	527
OTHER RW	~~1,002~~ 991 11
RESIDENTIAL-OTHER	6,223
SINGLE FAMILY	7,538
	17,609

2008 Use												
RESIDENTIAL	Jan	Feb	Mar	Apr	May	June	July	August	Sept	Oct	Nov	Dec
Multifamily												
FX	13423	11541	13034	13518	13876	14970	17064	11975	16965	13453	12716	15087
DX	8236	5552	7156	6530	9128	8025	10918	7607	10465	8486	7963	7517
MX	189836	135118	184257	141973	187090	147140	203687	131347	201058	138491	190021	144623
SX	6237	4514	5630	5509	5653	4862	5841	4727	5931	5230	5432	5391
CM	272	0	350	0	371	0	378	0	437	0	515	0
TX	7440	6686	7230	7214	8377	8619	9917	7681	10020	8375	7812	8380
HM	469	236	163	0	165	669	182	612	147	511	139	392
Mo. Total - HCF	225913	163647	217820	174744	224660	184285	247987	163949	245023	174546	224598	181390
Mo. Total - MG	168.98	122.41	162.93	130.71	168.05	137.85	185.49	122.63	183.28	130.56	168.00	135.68
Annual AF												
Annual - HCF												
Annual - MG												
Single Family												
SF	126345	80819	90443	112621	135220	144775	156789	142949	150337	146984	112257	131492
BR	0	26	0	25	0	25	0	28	0	16	0	25
OC	89	614	0	845	22	1217	48	1181	59	1025	165	953
Mo. Total - HCF	126434	81459	90443	113491	135242	146017	156837	144158	150396	148025	112422	132470
Mo. Total - MG	94.57	60.93	67.65	84.89	101.16	109.22	117.31	107.83	112.50	110.72	84.09	99.09
Annual AF												
Annual HCF												
Annual MG												
COMMERCIAL												
CH	1239	1154	1190	1099	1266	1636	1425	1569	1353	1885	1494	1961
CO	157297	49184	165833	59750	171250	62099	182735	59885	192925	61996	169329	60240
FI	140	0	171	0	126	0	44	0	88	0	88	0
Mo. Total -HCF	158676	50338	167194	60849	172642	63735	184204	61454	194366	63881	170911	62201
Mo. Total - MG	118.69	37.65	125.06	45.52	129.14	47.67	137.78	45.97	145.39	47.78	127.84	46.53
Annual AF												
Annual HCF												
Annual MG												
COMM & INSTITUTION.	126.48	38.83	132.50	47.64	141.23	51.32	159.32	49.80	163.78	51.87	144.59	49.05
ANNUAL												
PUBLIC AUTHORITY												
MU	6587	1156	6970	2091	9744	3083	14554	3562	12182	3608	9587	2220
PS	3828	421	2978	755	6419	1790	14235	1562	12407	1859	12806	1149
CF	3	0	3	0	3	0	3	0	1	0	0	0
Mo. Total - HCF	10418	1577	9951	2846	16166	4873	28792	5124	24590	5467	22393	3369
Mo. Total - MG	7.79	1.18	7.44	2.13	12.09	3.65	21.54	3.83	18.39	4.09	16.75	2.52
Annual AF												
Annual HCF												
Annual MG												

IRRIGATION												
RW	2702	0	2748	1149	7792	1442	10085	1421	9685	1290	7720	759
FW	1174	0	784	0	3376	0	3119	0	2359	0	2337	0
LP	174	0	204	0	508	0	1765	0	1430	0	834	0
LC	4228	491	4247	885	6653	1338	7478	1485	6933	2208	5657	1386
CL	5261	1656	10612	4614	20648	7369	23274	7835	23516	7123	18674	4596
LR	3576	2336	2095	3453	3398	4940	4203	5233	4271	4960	3593	4167
FY	2270	0	374	0	2143	0	3142	0	6917	0	3728	0
Mo. Total - HCF	19385	4483	21064	10101	44518	15089	53066	15974	55111	15581	42543	10908
Mo. Total MG	14.50	3.35	15.76	7.56	33.30	11.29	39.69	11.95	41.22	11.65	31.82	8.16
Annual AF												
Annual HCF												
Annual MG												
Recyled water in HCF	2702	0	2748	1149	7792	1442	10085	1421	9685	1290	7720	759
Recyled water in MG	2.02	0.00	2.06	0.86	5.83	1.08	7.54	1.06	7.24	0.96	5.77	0.57
MONTHLY TOTALS - ALL ACCOUNT TYPES												
TOTAL HCF	**521,455**	**297,024**	**485,424**	**351,938**	**548,743**	**398,921**	**617,860**	**374,697**	**614,416**	**391,931**	**530,356**	**379,438**
TOTAL MG	**405**	**226**	**379**	**271**	**444**	**310**	**502**	**292**	**501**	**305**	**429**	**292**
ANNUAL TOTALS - ALL ACCOUNT TYPES												
GRAND TOTAL HCF	**5,512,203.25**											
GRAND TOTAL MG	**4,353.21**											
GRAND TOTAL AF	**13,320.81**											

State of California | Department of Water Resources | The Resources Agency

PUBLIC WATER SYSTEM STATISTICS

Calendar Year 2006

Mailing Label

1. General Information

Please follow the provided instructions.

Contact : Gil Borboa
Title: Water Resources Manager
Phone: 310-458-8230
Fax: 310-393-6697
E-mail: gil.borboa@smgov.net
Website: santa-monica.org/epwm/water resources
County: **Los Angeles**
Population served: **84184**
Names of communities served: Santa Monica and Los Angele

2. Active Service Connections

Customer Class	Potable Water		Recycled Water	
	Metered	Unmetered	Metered	Unmetered
Single Family Residential	7473			
Multi-family Residential	6090			
Commercial/Institutional	2221			
Industrial				
Landscape Irrigation	467		10	
Other	924			
Agricultural Irrigation				
TOTAL	17175		10	

3. Total Water Into the System - Units of production:

☐ acre-feet ☑ million gallons ☐ hundred cubic feet

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Potable	*Wells*	57.2	41.9	46.1	41.5	49.3	44.6	45.5	55.5	51.2	56.1	39.2	42.4	570.5
	Surface													
	Purchased 1/	316.9	312.1	298.8	317	354.1	392.9	424.8	416.4	385.8	382.4	353.4	352	4306.6
	Total Potable	374.1	354	344.9	358.5	403.4	437.5	470.3	471.9	437	438.5	392.6	394.4	4877.1
Untreated Water														
Recycled 2/		3.2	0.1	3.4	0.1	4.1	0.1	7.2	0.2	6.4	0.2	5.6	0.2	30.6

1/ Potable wholesale supplier(s): Metropolitan Water District

2/ Recycled wholesale supplier(s): City of Santa Monica
Level of treatment: Title 22 Stormwater

4. Metered Water Deliveries - Units of delivery:

☐ acre-feet ☑ million gallons ☐ hundred cubic feet

If recycled is included, ✓box	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
A.SingleFamilyResidential ☐	91.94	71.81	133.57	62.92	78.73	83.10	113.00	118.64	124.43	110.36	111.16	88.17	1187.822
B.Multi-family Residential ☐	155.08	131.60	179.73	138.44	155.87	159.29	162.01	177.32	164.14	168.71	170.03	149.31	1911.534
C.Commercial/Institutional ☐	141.5268	40.62612	152.5688	44.47533	146.1076	51.10336	164.6266	59.4847	167.8467	52.8275	162.028	46.63481	1229.856
D.Industrial ☐	N/A												
E.Landscape Irrigation ☑	21.05844	4.54784	16.6243	3.431824	18.9244	6.75444	36.83002	10.78541	39.61408	8.165916	31.23573	5.960064	203.9325
F.Other ☐													
Total Urban Retail (A thru F)	409.6048	248.5843	482.4884	249.2658	399.6347	300.2442	476.4655	366.2358	496.031	340.0662	474.4504	290.0737	4533.145
Agricultural Irrigation ☐													
Wholesale(*to other agencies*) ☐													

State of California | Department of Water Resources | The Resources Agency

PUBLIC WATER SYSTEM STATISTICS

Calendar Year 2005

Gil Borboa
Water Resources Mgr.
City of Santa Monica
1212 5th St. Third Floor
Santa Monica, CA 90401

1. General Information

Please follow the guidelines on the back of this form.

Contact : Gil Borboa
Title: Water Resources Mgr
Phone: 310-458-8230
Fax: 310-393-6697
E-mail: gil.borboa@smgov.net
Website:
Communities served:
Cities of Santa Monica & Los Angeles
County: Los Angeles
Population served 84084

2. Active Service Connections

Customer Class	Recycled Water	Potable Water		Complete this portion if the system serves all or part of an incorporated city			
				Inside City Limits		Outside City Limits	
		Metered	Unmetered	Metered	Unmetered	Metered	Unmetered
Single Family Residential				7439		25	
Multi-family Residential				6072			
Commercial/Institutional				2214			
Industrial							
Landscape Irrigation	10			451			
Other				912			
Agricultural Irrigation							
TOTAL	10			17088		25	

3. Total Water Into the System - Units of production:

☐ acre-feet ☑ million gallons ☐ hundred cubic feet

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Potable	*Wells*	55.783	48.376	54.134	47.072	56.435	53.805	56.722	53.225	52.55	47.379	45.469	44.751	615.701
	Surface													
	Purchased [1/]	278.3	260.9	283.5	347.2	364.5	379.9	405.3	420	368.8	365.5	326.5	328.6	4129
	Total Potable	334.083	309.276	337.634	394.272	420.935	433.705	462.022	473.225	421.35	412.879	371.969	373.351	4744.701
Recycled [2/]		10.23	9.24	10.23	9.9	10.23	9.9	9.3	9.3	9	9.3	9	10.23	115.86

1/ Potable wholesale supplier(s): Metropolitan Water District

2/ Recycled wholesale supplier(s): City of Santa Monica
Level of treatment: Title 22 Stormwater

4. Metered Water Deliveries - Units of delivery:

☐ acre-feet ☑ million gallons ☐ hundred cubic feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
A. Single Family Residential	71.44	62.22	69.66	67.42	94.20	91.15	118.77	107.80	125.11	98.88	98.68	77.18	1082.501
B. Multi-family Residential	169.9306	129.7324	170.4842	137.9282	164.5039	155.68199	164.8255	191.6002	177	170.2321	154.2585	117.9446	1904.122
C. Commercial/Institutional	111.9636	45.51131	124.2645	49.463	129.43467	48.8631	139.0076	70.33668	143.6654	48.66264	138.0875	34.08412	1083.344
D. Industrial													
E. Landscape Irrigation	9.883324	3.846964	8.93112	4.505952	25.969064	9.861632	34.01904	13.70934	36.63255	8.320004	24.76104	5.238244	~~9.883324~~ 186.68
F. Other													
Total Urban Retail (A thru F)	363.2221	241.3093	373.3418	259.3136	414.10776	305.55202	456.6233	383.448	482.4032	326.0921	415.79	234.4426	~~4079.851~~ 4256.65
Agricultural Irrigation													
Wholesale(*to other agencies*)													

***** Selection Criteria *****
User: JEANH.ICSPLUS,WATER
User Operator: JH
Report Code: WATR ALL FIXED WATER BILL CODES
All Routes

BILL CD	DESCRIPTION	COUNT	DWELLINGS	UNITS	MULT FACTOR	BILLING UNITS	RATE	AMOUNT
WAFI4	WATER - 2" FIRE METER	39	39			39.0000	31.41	1,224.99
WAFI5	WATER - 3" FIRE METER	52	52			52.0000	54.04	2,810.08
WAFI6	WATER - 4" FIRE METER	555	589			555.0000	86.36	47,929.80
WAFI7	WAFI7 - 6" FIRE METER	198	263			198.0000	167.15	33,095.70
WAFI8	WATER - 8" FIRE METER	57	57			57.0000	264.11	15,054.27
WAFI9	WATER - 10" FIRE METER	4	4			4.0000	377.22	1,508.88
WAMF01	WATER MF - LOW-INCOME 3/4"	15	26			15.0000	0.00	0.00
WAMF02	WATER MF - LOW-INCOME 1"	2	5			2.0000	0.00	0.00
WAMF03	WATER MF - LOW-INCOME 1 1/2"	1	5			1.0000	0.00	0.00
WAMF1	WATER MF - 3/4" METER	1,177	2,473			1,177.0000	11.36	13,370.72
WAMF2	WATER MF - 1" METER	1,298	5,132			1,298.0000	20.07	26,050.86
WAMF3	WATER MF - 1 1/2" METER	2,325	18,069			2,325.0000	34.58	80,398.50
WAMF4	WATER MF - 2" METER	467	8,915			467.0000	52.00	24,284.00
WAMF5	WATER MF - 3" METER	50	2,278			50.0000	92.63	4,631.50
WAMF6	WATER MF - 4" METER	18	1,431			18.0000	150.69	2,712.42
WAMF6A	WATER MF - 4" VILLAGE PARK	1	1			1.0000	150.69	150.69
WAMF7	WATER MF - 6" METER	9	2,041			9.0000	295.80	2,662.20
WAMF8	WATER MF - 8" METER	1	314			1.0000	469.96	469.96
WANR1	WATER NR - 3/4" METER	780	826			780.0000	11.36	8,860.80
WANR1A	WATER NR-3/4"MTR-1ST TIER ADJ	1	1			1.0000	11.36	11.36
WANR2	WATER NR - 1" METER	590	699			590.0000	20.07	11,841.30
WANR3	WATER NR - 1 1/2" METER	633	792			633.0000	34.58	21,889.14
WANR3A	WATER NR - 1-1/2" FIRST TIER	1	1			1.0000	34.58	34.58
WANR4	WATER NR - 2" METER	403	623			403.0000	52.00	20,956.00
WANR4A	WATER NR - 2" MTR/NO 3RD TIER	2	2			2.0000	52.00	104.00
WANR4B	WATER NR-2" MTR./TIER 1 @ 220	2	2			2.0000	52.00	104.00
WANR5	WATER NR - 3" METER	123	521			123.0000	92.63	11,393.49
WANR5A	3" GILLETE METER-ADJ 3RD TIER	1	1			1.0000	92.63	92.63
WANR6	WATER NR - 4" METER	54	175			54.0000	150.69	8,137.26
WANR7	WATER NR - 6" METER	21	21			21.0000	295.80	6,211.80
WANR8	WATER NR - 8" METER	2	2			2.0000	469.96	939.92
WARW3	RECYCLED WATER - 1/12" METER	1	1			1.0000	34.58	34.58
WARW4	RECYCLED WATER - 2" METER	5	5			5.0000	52.00	260.00
WARW6	RECYCLED WATER - 4" METER	4	4			4.0000	150.69	602.76
WASF01	WATER SF - LOW-INCOME 3/4"	129	137			129.0000	0.00	0.00
WASF02	WATER SF - LOW-INCOME 1"	29	32			29.0000	0.00	0.00
WASF03	WATER SF - LOW-INCOME 1 1/2"	5	7			5.0000	0.00	0.00
WASF1	WATER SF - 3/4" METER	4,287	4,669			4,287.0000	11.36	48,700.32
WASF2	WATER SF - 1" METER	2,803	2,995			2,803.0000	20.07	56,256.21
WASF3	WATER SF - 1 1/2" METER	928	982			928.0000	34.58	32,090.24
WASF3A	WATER SF - 1 1/2" METER	1	1			1.0000	34.58	34.58
WASF3B	1 1/2" METER - 1ST TIER 34HCF	1	1			1.0000	34.58	34.58
WASF4	WATER SF - 2" METER	68	77			68.0000	52.00	3,536.00
	FINAL TOTALS ****	17,143	54,271	0.0000	0	17,143.0000		488,480.12

SANTA MONICA UTILITY BILLING
ALL FIXED WATER BILL CODES
ROUTE - ACCOUNT TYPE COUNT REPORT
REPORT DATE: 06/21/06
ALL ROUTES

ROUTE NO	ROUTE DESCRIPTION	AC TY	ACCOUNT TYPE DESCRIPTION	ACTIVE COUNT	ACTIVE DWELLINGS	NON-ACTIVE COUNT	NON-ACTIVE DWELLINGS	TOTAL COUNT	TOTAL DWELLINGS
***** Selection Criteria *****									
User: UBR085,JEANH.ICSPLUS,WATER									
User Operator: JH									
Report Date: 06/21/2006									
All Account Types									
Report Code: WATR ALL FIXED WATER BILL CODES									
All Routes									
TOTAL OF REPORTED ROUTES				2	2	35	35	37	37
		BR	BUSINESS IN RESIDENCE	1	6	2	9	3	15
		CF	CITY - FIRE	30	30	1	1	31	31
		CH	CHURCH	58	64	2	2	60	66
		CL	CITY - LANDSCAPE	160	160	11	11	171	171
		CM	MIXED USE	1	4	0		1	4
		CO	COMMERCIAL	1,995	10,394	156	160	2,151	10,554
		DX	DUPLEX	613	1,236	22	43	635	1,279
		FI	FIRE	881	971	31	31	912	1,002
		FW	FRESH WATER (SMURFF)	1	1	0		1	1
		FX	FOURPLEX	709	2,865	11	41	720	2,906
		FY	STATE FREEWAY	5	5	2	2	7	7
		HM	HOUSE METER	14	51	0		14	51
		IN	INDUSTRY	1	1	16	17	17	18
		LC	LANDSCAPE-COMMERCIAL	82	82	8	8	90	90
		LP	LANDSCAPE-PUBLIC SCHOOLS	2	2	1	1	3	3
		LR	LANDSCAPE-RESIDENTIAL	212	308	1	4	213	312
		LS	LANDSCAPE	0		1	1	1	1
		MU	MUNICIPAL	110	127	17	17	127	144
		MX	MULTIPLE UNIT DWELLINGS	3,157	35,325	42	347	3,199	35,672
		NB	SMURRF NO BILL	1	1	0		1	1
		OC	OUTSIDE CITY	25	32	0		25	32
		PS	PUBLIC SCHOOL	50	50	0		50	50
		RW	RECLAIM WATER	10	10	0		10	10
		SF	SINGLE FAMILY	7,440	7,450	85	86	7,525	7,536
		SP	SPECIAL	0		3	3	3	3
		SX	SINGLE FAMILY-MULTI DWELLING	1,085	1,087	21	21	1,106	1,108
		TX	TRIPLEX	502	1,499	12	36	514	1,535
			FINAL TOTALS ****	17,147	61,763	480	876	17,627	62,639

State of California | Department of Water Resources | The Resources Agency

PUBLIC WATER SYSTEM STATISTICS

Calendar Year 2004

Santa Monica, City of, Gil Borboa, Jr., Water Res. Manager, 1212-5th Street, 3rd Floor, Santa Monica, CA 90401, PWS# 1910146 SD

1. General Information

Please follow the guidelines on the back of this form.

Contact : Gilbert M. Borboa, Jr., P.E.
Title: Water Resources Mgr.
Phone: 310-458-8230
Fax: 310-393-6697
E-mail: gil.borboa@smgov.net
Website: santa-monica.org
Communities served:
Santa Monica & a portion of Los Ang
County: Los Angeles
Population served 84084

2. Active Service Connections

Customer Class	Recycled Water	Potable Water		Complete this portion if the system serves all or part of an incorporated city			
				Inside City Limits		Outside City Limits	
		Metered	Unmetered	Metered	Unmetered	Metered	Unmetered
Single Family Residential				7427		24	
Multi-family Residential				6076			
Commercial/Institutional				2216			
Industrial							
Landscape Irrigation	11			439			
Other				898			
Agricultural Irrigation							
TOTAL	11			17056		24	

3. Total Water Into the System - Units of production:

☐ acre-feet ☑ million gallons ☐ hundred cubic feet

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Potable	*Wells*	18.68	17.65	20.86	18.3	20.15	17.88	18.22	19.73	20.54	19.86	20.6	43.15	255.62
	Surface													
	Purchased 1/	355.1	321.2	360.8	381.9	451.2	436.9	458.38	447.8	444.4	379	346.1	315.1	4697.88
	Total Potable	373.78	338.85	381.66	400.2	471.35	454.78	476.6	467.53	464.94	398.86	366.7	358.25	4953.5
Recycled 2/		9.61	8.68	9.61	9.3	9.61	9.3	9.61	9.61	9.3	9.61	9.3	9.61	113.15

1/ Potable wholesale supplier(s): MWD

2/ Recycled wholesale supplier(s): City of Santa Monica
Level of treatment: Title 22

4. Metered Water Deliveries - Units of delivery:

☐ acre-feet ☑ million gallons ☐ hundred cubic feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
A. Single Family Residential	82.59	62.87	74.3	81.97	110.71	117.29	123.68	119.77	115.26	103.11	100.97	81.8	1174.32
B. Multi-family Residential	138.72	156.41	144.98	178.55	133.37	190.45	145.09	198.96	144.51	193.17	113.5	176.58	1914.29
C. Commercial/Institutional	48.07	110.71	51.58	139.71	51.73	153.38	55.34	336.45	58.45	156.12	46.86	126.82	1335.22
D. Industrial													
E. Landscape Irrigation	5.52	13.19	4.62	14.23	14.04	25.18	13.08	33.91	13.87	32.28	7.69	16.6	194.21
F. Other													
Total Urban Retail (A thru F)	274.9	343.18	275.48	414.46	309.85	486.3	337.19	689.09	332.09	484.68	269.02	401.8	4618.04
Agricultural Irrigation													
Wholesale*(to other agencies)*													

State of California

Department of Water Resources

The Resources Agency

PUBLIC WATER SYSTEM STATISTICS

Calendar Year 2004

Santa Monica, City of
Gil Borboa Water Resources Mgr.
1212 5TH ST THIRD FLOOR
SANTA MONICA, CA 90401
PWS# 1910146 SD

1. General Information

Please follow the guidelines on the back of this form.

Contact :
Title:
Phone:
Fax:
E-mail:
Website:
Communities served:

County:
Population served

2. Active Service Connections

Customer Class	Recycled Water	Potable Water		Complete this portion if the system serves all or part of an incorporated city			
		Metered	Unmetered	Inside City Limits		Outside City Limits	
				Metered	Unmetered	Metered	Unmetered
Single Family Residential				7477		24	
Multi-family Residential				6016			
Commercial/Institutional				2216			
Industrial				-			
Landscape Irrigation	11			439			
Other Fire				898			
Agricultural Irrigation							
TOTAL	11			17,056		24	

3. Total Water Into the System - Units of production:

☐ acre-feet ☐ million gallons ☐ hundred cubic feet

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Potable	*Wells*													
	Surface													
	Purchased 1/													
	Total Potable													
Recycled 2/														

1/ Potable wholesale supplier(s):

2/ Recycled wholesale supplier(s):

Level of treatment:

4. Metered Water Deliveries - Units of delivery:

☐ acre-feet ☑ million gallons ☐ hundred cubic feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
A. Single Family Residential	82.59	62.87	74.30	81.97	110.71	113.29	123.68	119.77	115.26	103.11	100.97	81.80	
B. Multi-family Residential	138.72	136.41	144.98	178.55	133.37	190.45	145.09	198.96	144.51	193.17	113.50	176.58	
C. Commercial/Institutional	418.07	110.71	51.58	139.71	51.73	153.38	55.34	336.45	58.45	156.12	46.86	126.82	
D. Industrial	-												
E. Landscape Irrigation	5.52	13.19	4.62	14.23	14.04	25.18	13.08	33.91	13.87	32.28	7.69	16.60	
F. Other	-												
Total Urban Retail (A thru F)													
Agricultural Irrigation	0												
Wholesale(*to other agencies*)	0												

DWR 38 (Rev. 4/05)

State of California | Department of Water Resources | The Resources Agency

Mailing Label

PUBLIC WATER SYSTEM STATISTICS

Calendar Year 2004

1. General Information

Please follow the guidelines on the back of this form.

Contact :
Title:
Phone:
Fax:
E-mail:
Website:
Communities served:

County:
Population served

2. Active Service Connections

Customer Class	Recycled Water	Potable Water		Complete this portion if the system serves all or part of an incorporated city			
				Inside City Limits		Outside City Limits	
		Metered	Unmetered	Metered	Unmetered	Metered	Unmetered
Single Family Residential							
Multi-family Residential							
Commercial/Institutional							
Industrial							
Landscape Irrigation							
Other							
Agricultural Irrigation							
TOTAL	0	0	0	0	0	0	0

3. Total Water Into the System - Units of production: million gallons

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Potable	*Wells*	18.68	17.65	20.86	18.3	20.15	17.88	18.22	19.73	20.54	19.86	20.6	43.15	255.62
	Surface													0
	Purchased [1/]	355.1	321.2	360.8	381.9	451.2	436.9	458.38	447.8	444.4	379	346.1	315.1	4697.88
	Total Potable	373.8	338.9	381.7	400.2	471.4	454.8	476.6	467.5	464.9	398.9	366.7	358.3	4953.5
Recycled [2/]														0

1/ Potable wholesale supplier(s): MWD

2/ Recycled wholesale supplier(s):
Level of treatment:

4. Metered Water Deliveries - Units of delivery:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
A. Single Family Residential													0
B. Multi-family Residential													0
C. Commercial/Institutional													0
D. Industrial													0
E. Landscape Irrigation													0
F. Other													0
Total Urban Retail (A thru F)	0	0	0	0	0	0	0	0	0	0	0	0	0
Agricultural Irrigation													0
Wholesale*(to other agencies)*													0

State of California

Department of Water Resources

The Resources Agency

PUBLIC WATER SYSTEM STATISTICS

Calendar Year 2004

Santa Monica, City of
Gil Borboa Water Resources Mgr.
1212 5TH ST THIRD FLOOR
SANTA MONICA, CA 90401
PWS# 1910146 SD

1. General Information

Please follow the guidelines on the back of this form.

Contact :
Title:
Phone:
Fax:
E-mail:
Website:
Communities served:
County:
Population served

2. Active Service Connections

Customer Class	Recycled Water	Potable Water		Complete this portion if the system serves all or part of an incorporated city			
				Inside City Limits		Outside City Limits	
		Metered	Unmetered	Metered	Unmetered	Metered	Unmetered
Single Family Residential							
Multi-family Residential							
Commercial/Institutional							
Industrial							
Landscape Irrigation							
Other							
Agricultural Irrigation							
TOTAL							

3. Total Water Into the System - Units of production:

☐ acre-feet ☒ million gallons ☐ hundred cubic feet

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Potable	*Wells*													
	Surface													
	Purchased 1/													
	Total Potable													
Recycled 2/		9.61	8.68	9.61	9.3	9.61	9.3	9.61	9.61	9.3	9.61	9.3	9.61	113.15

1/ Potable wholesale supplier(s):

2/ Recycled wholesale supplier(s): CITY OF SANTA MONICA

Level of treatment: TITLE 22

4. Metered Water Deliveries - Units of delivery:

☐ acre-feet ☐ million gallons ☐ hundred cubic feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
A. Single Family Residential													
B. Multi-family Residential													
C. Commercial/Institutional													
D. Industrial													
E. Landscape Irrigation													
F. Other													
Total Urban Retail (A thru F)													
Agricultural Irrigation													
Wholesale(*to other agencies*)													

DWR 38 (Rev. 4/05)

State of California | Department of Water Resources | The Resources Agency

PUBLIC WATER SYSTEM STATISTICS

Calendar Year 2003

Mailing Label

1. General Information

Please follow the guidelines on the back of this form.

Contact : Gil Borboa, P. E.
Title: Water Resources Mgr.
Phone: 310-458-8230
Fax: 310-393-6697
E-mail: gil-borboa@santa-monica.org
Website: santa-monica.org
Communities served:
Santa Monica and a portion of Los Ange
County: Los Angeles
Population served 84084

2. Active Service Connections

Customer Class	Recycled Water	Potable Water		Complete this portion if the system serves all or part of an incorporated city			
				Inside City Limits		Outside City Limits	
		Metered	Unmetered	Metered	Unmetered	Metered	Unmetered
Single Family Residential				7433		24	
Multi-family Residential				6059			
Commercial/Institutional				2202			
Industrial							
Landscape Irrigation	9			420			
Other				865			
Agricultural Irrigation							
TOTAL	9			16979		24	

3. Total Water Into the System - Units of production:

☐ acre-feet ☑ million gallons ☐ hundred cubic feet

		Jan.	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Potable	*Wells*	88.38	51.21	11.86	11.56	22.4	24.56	24.15	22.43	23.85	21.17	20.1	19.49	341.16
	Surface													
	Purchased 1/	296.52	269.5	362.8	379.4	393.7	405.6	435.2	460.5	409.2	393.2	349.1	354.2	4508.92
	Total Potable	384.9	320.71	374.66	390.96	416.1	430.16	459.35	482.93	433.05	414.37	369.2	373.69	4850.08
Recycled 2/			0.53	0.02	2.28	0.12	2.08	0.25	2.46		3.22		2.27	13.23

1/ Potable wholesale supplier(s): Metropolitan Water District

2/ Recycled wholesale supplier(s): City of Santa Monica

Level of treatment: Treated stormwater

4. Metered Water Deliveries - Units of delivery:

☐ acre-feet ☑ million gallons ☐ hundred cubic feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
A. Single Family Residential	92.17	73.13	64.79	99.07	86.66	102.69	107.6	110	116.94	114.9	70.06	104.03	1142.04
B. Multi-family Residential	162.3	150.34	155.36	143.5	155.56	151.29	176.09	169.92	164.89	186.24	122.07	190.52	1928.08
C. Commercial/Institutional	48.24	125.05	46.51	132.23	47.37	141.67	52.95	171.02	52.81	160.35	43.94	147.77	1169.91
D. Industrial	-	-	-	-	-	-	-	-	-	-	-	-	
E. Landscape Irrigation	3.84	12.75	4.63	16.16	7.78	21.81	9.44	30.53	10.92	28.5	5.9	21.22	173.48
F. Other													
Total Urban Retail (A thru F)	306.55	361.27	271.29	390.96	297.37	417.46	346.08	481.47	345.56	489.99	241.97	463.54	4413.51
Agricultural Irrigation													
Wholesale*(to other agencies)*													

State of California | Department of Water Resources | The Resources Agency

PUBLIC WATER SYSTEM STATISTICS

Calendar Year 2002

Santa Monica, City of
Gilbert Borboa, Jr.
1212 - 5th Street, 3rd Floor
Santa Monica, CA 90401
PWS#1910146 SD

1. General Information

Please follow the guidelines on the back of this form.

Contact : Gilbert M. Borboa, Jr.
Title: Utilities Manager
Phone: 310-458-8230
Fax: 310-393-6697
E-mail: gil-borboa@santa-monica.org
Website: santa-monica.org
Communities served:

County: Los Angeles
Population served 86,659

2. Active Service Connections

Customer Class	Recycled Water	Potable Water		Complete this portion if the system serves all or part of an incorporated city			
				Inside City Limits		Outside City Limits	
		Metered	Unmetered	Metered	Unmetered	Metered	Unmetered
Single Family Residential		7,481				25	
Multi-family Residential		5,994					
Commercial/Institutional		2,209					
Industrial							
Landscape Irrigation	4	391					
Other		809					
Agricultural Irrigation							
TOTAL	4	16884				25	

3. Total Water Into the System - Units of production:

☐ acre-feet ☑ million gallons ☐ hundred cubic feet

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Potable	*Wells*	76.6	66.1	36.8	37	71.7	23.7	14.4	45.3	85.8	55.4	71.1	102.9	686.8
	Surface													
	Purchased 1/	279.1	284.5	344.7	359	358.5	415.6	456.3	407.7	356.5	373.2	295	250	4180.1
	Total Potable	355.7	350.6	381.5	396	430.2	439.3	470.7	453	442.3	428.6	366.1	352.9	4866.9
Recycled 2/														

1/ Potable wholesale supplier(s):

2/ Recycled wholesale supplier(s):
Level of treatment:

4. Metered Water Deliveries - Units of delivery:

☐ acre-feet ☑ million gallons ☐ hundred cubic feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
A. Single Family Residential	63.82	79.23	74.45	96.18	84.68	114.97	109.76	132.6	102.33	134.3	77.47	94.67	1164.46
B. Multi-family Residential	195.66	78.99	241.26	118.2	211.61	107.63	216.62	171.47	155.96	166.79	148.13	157.91	1970.23
C. Commercial/Institutional	139.23	43.17	125.65	53.59	141.43	56.06	154.7	175.11	48.95	161.04	44.79	139.59	1283.31
D. Industrial													
E. Landscape Irrigation	9.5	3.84	12.14	6.57	20.15	8.89	26.09	27.02	8.55	26.28	4.64	14.33	168
F. Other													
Total Urban Retail (A thru F)	408.21	205.23	453.5	274.54	457.87	287.55	507.17	506.2	315.79	488.41	275.03	406.5	4586
Agricultural Irrigation													
Wholesale(*to other agencies*)													

State of California

Department of Water Resources

The Resources Agency

PUBLIC WATER SYSTEM STATISTICS

Calendar Year 2001

1910146

Santa Monica, City of
Gilbert Borboa,Jr.
1212 5TH ST THIRD FLOOR
SANTA MONICA CA 90401

SD

1. General Information

Please follow the guidelines on the back of this form.

Contact: Gilbert Borboa, Jr.
Title: Utilities Manager
Phone: 310-458-8230
Fax: 310-393-6697
E-mail: gil-borboa@santa-monica.org
Website: santa-monica.org
Communities served:
Santa Monica
County: Los Angeles
Population served 84,084

2. Active Service Connections

Customer Class	Recycled Water	Potable Water		Complete this portion if the system serves all or part of an incorporated city			
				Inside City Limits		Outside City Limits	
		Metered	Unmetered	Metered	Unmetered	Metered	Unmetered
Single Family Residential		7417				25	
Multi-family Residential		5947					
Commercial/Institutional		2174					
Industrial		Ø					
Landscape Irrigation	4						
Other Fire		752					
Agricultural Irrigation		371					
TOTAL	4	16,661				25	

3. Total Water Into the System - Units of production:

☐ acre-feet ☐ million gallons ☐ hundred cubic feet

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Potable	*Wells*													
	Surface													
	Purchased 1/		SEE		ATTACHED									
	Total Potable													
Recycled 2/		Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø

1/ Potable wholesale supplier(s):

2/ Recycled wholesale supplier(s):

Level of treatment:

4. Metered Water Deliveries - Units of delivery:

☐ acre-feet ☐ million gallons ☐ hundred cubic feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
A. Single Family Residential	94.78	65.24	68.78	71.92	80.95	103.78	84.73	123.91	89.99	115.96	77.19	87.17	1064.39
B. Multi-family Residential	174.31	172.80	119.23	119.98	187.90	121.50	198.66	149.94	175.69	145.70	186.53	131.08	1883.32
C. Commercial/Institutional	153.94	134.21	46.86	49.21	149.75	63.13	167.71	66.21	147.69	63.65	135.43	56.96	1234.75
D. Industrial													
E. Landscape Irrigation	17.92	5.41	6.24	3.87	14.87	7.53	22.81	9.81	23.35	8.94	17.43	6.15	144.30
F. Other Fire													
Total Urban Retail (A thru F)	440.95	377.66	241.10	244.98	433.46	295.95	473.91	349.86	436.73	334.24	416.58	281.35	4326.77
Agricultural Irrigation													
Wholesale *(to other agencies)*													

DWR 38 (Rev. 03/02)

Local	MWD	Total	
49.9	316.8438	366.7	
75.2	225.1278	300.3	
80.6	269.6647	350.3	
82.1	293.1223	375.2	
81.1	325.5068	406.6	
76.2	347.7589	424.0	
82.84	372.9107	455.8	
77.605	377.7651	455.4	
71.955	350.955	422.9	
84.489	333.7007	418.2	
75.734	271.4272	347.2	
77.25	273.3788	350.6	
915.0	**3758.2**	**4673.2**	Total

Department of Water Resources

The Resources Agency

Public Water System Statistics

Calendar Year 2000

Public Water System Number: 1910146 SD

Santa Monica, City of
Gilbert Borboa,Jr.
PE
1212 5TH ST THIRD FLOOR
SANTA MONICA CA 90401

1. General Information

Please follow the guidelines on the back of this form.

Contact: Gilbert Borboa, Jr.
Title: Utilities Manager
Phone: 310/458-8230
Fax: 310/393-6697
Communities served: Santa Monica
County: Los Angeles
Population served 84,084 (est.)

2. Active Service Connections

Customer Class	Recycled Water	Potable Water		Complete this portion if the system serves all or part of an incorporated city.			
				Inside City Limits		Outside City Limits	
		Metered	Unmetered	Metered	Unmetered	Metered	Unmetered
Single Family Residential		7388		7363		25	
Multi-family Residential		5845		5845			
Commercial/Institutional		2164		2164			
Industrial		Ø		Ø			
Landscape Irrigation	4	355		359			
Other Fire		717		717			
Agricultural Irrigation		Ø		Ø			
TOTAL	4	16469		16448		25	

3. Total Water Into the System - Units of production:

[X] acre-feet [ ] million gallons [ ] hundred cubic feet

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Potable	Wells	287.82	243.58	227.63	232.54	252.17	249.41	289.88	255.55	265.24	242.94	236.31	123.36	2906.44
	Surface													
	Purchased [1/]	885.10	675.10	845.40	929.90	1053.40	1100.40	1264.90	1267.60	1090.40	1028.50	910.40	1071.30	12122.40
	Total Potable	1172.92	918.68	1073.03	1162.44	1305.67	1349.81	1554.78	1523.15	1355.64	1271.44	1146.71	1194.66	15028.84
Recycled [2/]		Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø

1/ Potable wholesale supplier(s): MWD

2/ Recycled wholesale supplier(s):

Level of treatment:

4. Metered Water Deliveries - Units of delivery:

[ ] acre-feet [X] million gallons [ ] hundred cubic feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
A. Single Family Residential	94.78	68.08	72.02	68.42	96.40	112.83	114.50	128.22	102.36	126.47	91.04	89.06	1164.35
B. Multi-family Residential	174.51	126.27	172.96	127.38	166.35	145.02	186.17	149.22	185.27	146.55	174.43	137.81	1893.92
C. Commercial/Institutional	153.83	46.69	134.69	49.64	158.78	55.52	163.97	58.16	180.41	58.32	155.01	52.67	1267.90
D. Industrial	Included in "C"												
E. Landscape Irrigation	17.99	4.29	6.13	3.33	11.77	6.81	22.53	10.39	27.74	10.18	17.30	6.13	144.58
F. Other	N/A												
Total Urban Retail *(A thru F)*	441.11	247.32	386.17	248.77	433.30	320.19	487.17	345.99	495.77	341.51	437.78	285.66	4470.76
Agricultural Irrigation	N/A												
Wholesale*(to other agencies)*	N/A												

DWR 38 (Rev. 4/01) Side One

Department of Water Resources

The Resources Agency

Public Water System Statistics

Calendar Year 1999

Public Water System Number: 1910146 SD

Santa Monica, City of
~~Xxxxx~~ Gilbert Borboa, Jr, PE
Utilities Manager
1212 5TH ST THIRD FLOOR
SANTA MONICA CA 90401

1. General Information

Please follow the guidelines on the back of this form.

Contact: Gil Borboa, Jr.

Title: Utilities Manager

Phone: 310/458-8230

Fax: 310/393-6697

Communities served: Santa Monica

County: Los Angeles

Population served: 90,000±

2. Active Service Connections

Customer Class	Recycled Water	Potable Water		Complete this portion if the system serves all or part of an incorporated city			
				Inside City Limits		Outside City Limits	
		Metered	Unmetered	Metered	Unmetered	Metered	Unmetered
Single Family Residential		8109				25	
Multi-family Residential		5128					
Commercial/Institutionai		2147					
Industrial (incl. in Comm.)							
Landscape Irrigation		324					
Other Fire		674					
Agricultural Irrigation							
TOTAL		16,382				25	

3. Total Water Into the System - Units of production: __ acre-feet X million gallons __ hundred cubic feet

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Potable	*Wells*	74.5	81.1	81.3	82.7	86.5	77.0	64.9	83.4	90.9	78.1	76.2	80.0	956.6
	Surface													
	Purchased [1/]	314.1	248.6	264.0	269.1	340.7	339.9	389.7	369.5	326.7	355.4	312.1	314.1	3843.9
	Total Potable	388.6	329.7	345.3	351.8	427.2	416.9	454.6	416.9	452.9	433.5	388.3	394.1	4800.5
Recycled [2/]														

1/ Potable wholesale supplier(s): Ø

2/ Recycled wholesale supplier(s): Ø

Level of treatment: Ø

4. Metered Water Deliveries - Units of delivery: __ acre-feet X million gallons __ hundred cubic feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
A. Single Family Residential	79.19	74.36	75.98	75.65	77.93	97.75	105.94	112.33	121.68	103.35	105.35	95.35	1125.06
B. Multi-family Residential	160.93	133.22	166.3	136.64	161.28	141.80	177.36	150.45	185.27	144.09	176.43	146.80	1880.57
C. Commercial/Institutional	140.15	43.56	152.25	50.27	141.49	52.62	167.22	57.58	173.24	54.02	164.94	53.37	1250.71
D. Industrial	Included in Commercial												
E. Landscape Irrigation	9.51	3.68	7.12	3.54	8.31	7.18	21.28	9.56	23.82	8.51	20.34	6.06	128.91
F. Other	Included in Commercial												
Total Urban Retail (A thru F)	389.78	254.83	401.65	266.10	389.01	299.36	471.81	329.91	504.02	309.96	467.05	301.58	4385.25
Agricultural Irrigation													
Wholesale *(to other agencies)*													

Department of Water Resources — The Resources Agency

Public Water System Statistics

Calendar Year 1998

Public Water System Number: 1910146 SD

Santa Monica, City of
~~XXXXX~~ Gil Borboa, Jr., P.E.
Utilities Manager
1212 5TH ST THIRD FLOOR
SANTA MONICA CA 90401

1. General Information

Please follow the guidelines on the back of this form.

Contact : Gil Borboa, Jr.
Title: Utilities Manager
Phone: 310-458-8230
Fax: 310-393-6697
Communities served: Santa Monica
County: Los Angeles
Population served: 86,000

2. Active Service Connections

Customer Class	Recycled Water	Potable Water		Complete this portion if the system serves all or part of an incorporated city			
				Inside City Limits		Outside City Limits	
		Metered	Unmetered	Metered	Unmetered	Metered	Unmetered
Single Family Residential		8120			25 →		
Multi-family Residential		4945					
Commercial/Institutional		2975					
Industrial -incl. in commercial							
Landscape Irrigation		254					
Other							
Agricultural Irrigation							
TOTAL		16294			25 →		

3. Total Water Into the System - Units of production: __ acre-feet __ million gallons __ hundred cubic feet

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Potable	*Wells*	76.6	70.6	83.0	51.2	44.0	52.1	77.4	81.7	77.6	80.7	83.5	82.3	860.7
	Surface													
	Purchased [1/]	249.5	205.0	251.1	285.3	330.3	356.6	400.3	390.6	336.6	353.9	296.1	272.3	3727.6
	Total Potable	326.1	275.6	334.1	336.5	374.3	408.7	477.7	472.3	414.2	434.6	379.6	354.6	4588.3
Recycled [2/]														

1/ Potable wholesale supplier(s): Metropolitan Water District

2/ Recycled wholesale supplier(s): _____
Level of treatment: _____

4. Metered Water Deliveries - Units of delivery: __ acre-feet X million gallons __ hundred cubic feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
A. Single Family Residential	94.29	27.87	78.29	52.57	78.03	74.88	127.68	113.43	110.85	112.41	92.32	74.06	1036.68
B. Multi-family Residential	143.43	145.63	140.65	148.46	139.53	156.42	167.86	159.43	163.50	164.62	151.44	140.42	1821.39
C. Commercial/Institutional	142.17	45.64	149.58	50.07	144.21	54.31	188.97	59.17	196.95	62.61	170.11	47.39	1311.18
D. Industrial (incl. in "c")													
E. Landscape Irrigation	4.68	.91	2.35	1.19	3.18	1.93	5.80	3.93	6.67	3.67	4.72	2.35	41.38
F. Other													
Total Urban Retail *(A thru F)*	384.57	220.05	370.87	252.29	364.95	287.54	490.31	333.96	477.97	343.31	418.59	264.22	4210.63
Agricultural Irrigation	Ø												
Wholesale *(to other agencies)*	Ø												

DWR 38 (New 2/99) Side One

State of California | Department of Water Resources | The Resources Agency

Public Water System Statistics

Calendar Year 1997

Public Water System Number: 1910146 SD

Santa Monica, City of
~~Mark~~ Gilbert Borboa, Jr.
Utilities Manager
1212 5TH ST THIRD FLOOR
SANTA MONICA CA 90401

1. General Information

Please follow the guidelines on the back of this form.

Contact: Gilbert Borboa, Jr
Title: Utilities Manager
Phone: 310-458-8230
Fax: 310-393-6697
Communities served: Santa Monica
County: Los Angeles
Population served:

2. Active Service Connections

Customer Class	Recycled Water	Potable Water		Complete this portion if the system serves all or part of an incorporated city			
				Inside City Limits		Outside City Limits	
		Metered	Unmetered	Metered	Unmetered	Metered	Unmetered
Single Family Residential				7456		25	
Multi-family Residential				5655			
Commercial/Institutional				2268			
Industrial	incl.	in commercial					
Landscape Irrigation				279			
Other				636			
Agricultural Irrigation							
TOTAL				16,294		25	

3. Total Water Into the System - Units of production: __ acre-feet X million gallons __ hundred cubic feet

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Potable	*Wells*	81.9	70.8	78	54.9	78.9	79.3	72.2	84.4	80.4	82.4	80.9	74.4	918.5
	Surface	0	0	0	0	0	0	0	0	0	0	0	0	0
	Purchased 1/	215.5	350.9	316.8	350.7	351.5	361.5	381.6	392.6	338.1	348.2	286.6	238.6	3932.6
	TOTAL	297.4	421.7	394.8	405.6	430.4	440.8	453.8	477	418.5	430.6	367.5	313	4851.1
Recycled 2/														

1/ Potable wholesale supplier(s):

2/ Recycled wholesale supplier(s):
Level of treatment:

4. Metered Water Deliveries - Units of delivery: __ acre-feet X million gallons __ hundred cubic feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
A. Single Family Residential	68.61	49.85	75.44	80.36	102.66	102.34	155.05	89.27	126.33	132.43	93.26	75.97	1,151.57
B. Multi-family Residential	130.96	147.34	143.34	159.40	125.07	163.81	181.90	162.89	172.39	168.96	171.23	141.58	1,868.87
C. Commercial/Institutional	131.00	44.36	155.28	55.85	159.08	57.42	211.01	59.02	207.58	63.23	79.17	151.10	1,374.10
D. Industrial	included in commercial												
E. Landscape Irrigation	2.57	.83	5.61	2.08	7.25	2.25	8.40	2.36	11.33	2.94	8.68	1.92	56.22
F. Other													
TOTAL (A through F)	333.14	242.38	379.67	297.69	395.06	325.82	556.36	313.54	517.63	367.56	352.34	370.57	4,450.76
Agricultural Irrigation													
Wholesale *(to other agencies)*													

State of California

Department of Water Resources

The Resources Agency

Public Water System Statistics

Calendar Year 1996

Public Water System Number: 1910146 SD

Santa Monica, City of
~~ADDRESS~~ VACANT
UTILITIES MGR
1212 5TH ST THIRD FLOOR
SANTA MONICA CA 90401

1. General Information

Please follow the guidelines on the back of this form.

Contact : Jean Higbee

Title: Sr. Admin. Analyst

Phone: 310-458-8975

Fax: 310-393-6697

Communities served: Santa Monica

County: Los Angeles

Population served: 86,905

2. Active Service Connections

Customer Class	Recycled Water	Potable Water		Complete this portion if the system serves all or part of an incorporated city			
				Inside City Limits		Outside City Limits	
		Metered	Unmetered	Metered	Unmetered	Metered	Unmetered
Single Family Residential				7456		25	
Multi-family Residential				5655			
Commercial/Institutional				2268			
Industrial	inclu.	in commercia					
Landscape Irrigation				279			
Other (Fire)				636			
Agricultural Irrigation							
TOTAL				16,294		25	

3. Total Water Into the System - Units of production: __ acre-feet __ million gallons __ hundred cubic feet

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Potable	*Wells*	282	258.3	272.3	180.9	190.4	149	95.6	91.5	91.6	87.5	84.6	72.4	1856.1
	Surface													
	Purchased 1/	58.8	77.7	111.5	206.3	269.6	311.5	366.4	375.9	356.4	343.5	292.4	251.9	3021.9
	TOTAL	340.8	336	383.8	387.2	460	460.5	462	467.4	448	431	377	324.3	4878
Recycled 2/														

1/ Potable wholesale supplier(s): _____

2/ Recycled wholesale supplier(s): _____
Level of treatment: _____

4. Metered Water Deliveries - Units of delivery: __ acre-feet X million gallons __ hundred cubic feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
A. Single Family Residential	81.35	60.03	63.52	57.95	86.32	57.95	119.05	105.57	130.23	104.97	102.38	82.20	1051.52
B. Multi-family Residential	138.88	186.39	112.11	194.84	157.72	194.84	172.89	180.47	149.68	183.70	157.67	163.97	1993.16
C. Commercial/Institutional	65.44	139.88	47.84	150.40	180.97	149.96	189.67	64.08	188.32	66.03	175.43	67.03	1484.85
D. Industrial	included in commercial												
E. Landscape Irrigation	2.57	2.29	1.37	1.83	9.46	1.61	10.68	3.18	9.34	8.94	9.14	1.77	62.18
F. Other													
TOTAL (A through F)	288.24	388.39	224.84	405.02	434.47	404.36	492.29	353.30	477.57	363.64	444.62	314.97	4591.78
Agricultural Irrigation													
Wholesale *(to other agencies)*													

State of California

Department of Water Resources

Public Water System Statistics

The Resources Agency

Calendar Year 1995

Public Water System Number: 1910146 SD

Santa Monica, City of
JOHN MUNDY
UTILITIES MGR
1212 5TH ST THIRD FLOOR
SANTA MONICA CA 90401

1. General Information

Please follow the guidelines on the back of this form.

Contact Person John R. Mundy
Title Utilities Manager
Phone (310) 458-8230
Fax (310) 393-6697
Communities served Santa Monica

County Los Angeles
Estimated population served 86,705

2. Active Service Connections

Customer Class	Connections		Complete this portion if the system serves all or part of an incorporated city			
			Inside City Limits		Outside City Limits	
	Metered	Unmetered	Metered	Unmetered	Metered	Unmetered
Single Family Residential	7481		7456		25	
Multi-family Residential	5655					
Commercial/Institutional						
Industrial	2268		2268			
Landscape Irrigation	279		279			
Other *	636					
Agricultural Irrigation	0					
TOTAL						

*Fire Service

3. Total Water Into the System - Units of production: X acre-feet __ million gallons __ hundred cubic feet

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Potable	*Wells*	816.5	696.61	453.52	775.68	891.83	780.41	867.92	757.70	738.04	898.65	972.19	943.21	9592.92
	Surface													
	Purchased 1/	154.4	257.22	564.89	334.11	341.70	482.04	506.07	564.93	660.47	360.38	198.54	128.65	4553.40
	TOTAL	970.9	953.83	1018.41	1109.79	1233.53	1262.45	1373.99	1322.63	1399.17	1259.03	1170.73	1071.86	14146.32
Reclaimed (*for retail delivery*)														

1/ Please identify the wholesale water agencies Metropolitan Water District

4. Metered Water Deliveries - Units of delivery: __ acre-feet __ million gallons X hundred cubic feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
A. Single Family Residential	173385	213190	179072	217657	165514	155007	171367	255062	158427	280826	153110	227117	2349734
B. Multi-family Residential	106229	71077	82432	75437	114212	18202	138968	123711	155870	122968	132580	102154	1243840
C. Commercial/Institutional	57784	137532	56563	152803	51230	160154	63633	177156	50804	209307	47665	164749	1329380
D. Industrial	15676	12683	15475	12612	12057	13366	16835	13211	14782	16213	13311	10949	167170
E. Landscape Irrigation	3366	10881	3656	11179	3816	19361	5358	25231	3638	30877	3114	21228	141705
F. Other	4467	8463	3427	8041	6083	13851	8164	19814	10214	29787	7351	18879	138541
TOTAL (A through F)	360907	453826	340625	477729	352912	379941	404325	614185	393735	689978	357131	545076	5370370
Agricultural Irrigation													
Wholesale (*to other agencies*)													12329 ACFT

DWR 38 (New 2/96) Side One

Appendix M: Minutes of the May 16, 2011 meeting of the Task Force on the Environment

City of Santa Monica 2010 Urban Water Management Plan

Minutes of May 16, 2011 Task Force on the Environment Meeting Agenda Item III: Discussion and Recommendations Regarding The Urban Water Management Plan (UWMP)

Staffmember Gil Borboa, P.E. (Gil) presented a Power Point slide show of the contents of the City of Santa Monica's 2010 Draft Urban Water Management Plan and requested comments from the Task Force Members (TFM) and public speakers (PS).

Public Speaker Conner Everts (Everts) representing a multitude of local environmental organizations voiced his concerns over the use of State DWR Methodology Number 3 and requested that the City recalculate the gallons per capita day (gpcd) using Method 1 and also requested that the city immediately set its goal of 100 gpcd.

TFM: Remarked that the City's daytime population is more than double its resident population.

TFM: Do we make recommendations on this item?

TFM: What is the difference in gpcd between Method 1 and Method 3?

Kim (Staff): Method 3 results in 127 gpcd and Method 1 results in 123 gpcd. If we don't meet our goals we will be ineligible for state funding. The state has required that all agencies meet a 20% reduction by the year 2020. We picked a 2003-2007 baseline (5-year) because we are already at a lower use than the state requires at 2020. The funding we receive from the state for conservation is between $600 and $700 per acre-foot, which pays for our conservation programs.

Gil: All of this outside funding goes directly into the Water Fund.

TFM: How does 123 gpcd compare to the City of Los Angeles?

Kim: We are less than the City of Los Angeles

Everts: City of Long Beach is less than 100 gpcd.

Kim: Long Beach is at 134 gpcd. I just spoke with them today.

Dean (Staff): The state employs four methodologies as to what goes into calculating gpcd. Method 3 allows Santa Monica to use all of our past conservation measures and use our daytime population.

Everts: The state passed its legislation very quickly. Now there is an opportunity to reach 100 gpcd. Also, the biggest energy use in California is in the moving (pumping) of water to consumers.

TFM: Can't we limit the use by billing?

Gil: Yes we already have a tiered rate system.

TFM: Do we have a breakdown by usage groups?

Gil: Yes and it is in the UWMP.

TFM: So we are already doing it?

Gil: Yes.

TFM: Who pays for toxic waste polluters? Are the funds earmarked for water?

Gil: Yes. We have been successful in obtaining settlements.

TFM: What gpcd are we talking about using in the UWMP?

Kim: 133 (Method 3) and 127 (Method 1). We will be going after cooling towers and other large institutional users and continuing with our landscaping efforts for single family homes, working to increase conservation from 133 gpcd to 127 gpcd.

Dean: We are talking about two separate plans here. The one before you tonight is the Urban Water Management Plan which is regulatory and separate from our proposed Master Water Plan.

TFM: What is the source of our groundwater? Do we recharge?

Gil: The Chart 2-5 in the UWMP shows our basins.

TFM: Will there be greater capacity?

Gil: The basins have recharged and use can be increased in the short term but would not be sustainable in the long term. We need an expansion of wells and treatment.

TFM: Because we are urban and can't have detention basins or spreading basins but we could inject?

Gil: We will be looking into that in the Water Master Plan.

TFM: I think that stormwater collection and re-use should be allowed.

TFM: What do you want from us tonight?

Gil: Your consideration of a motion to adopt/approve the plan.

Tree Person: In Australia they use 30 gpcd. They are more stringent. This City should set the highest goals in the world, if Santa Monica does not set that goal…..

TFM: So it is either 1 or 3?

Kim: Method 1 would give us 123 gpcd; Our water sustainability goal is 127 gpcd and we currently use 133 gpcd. Method 3 calcs out at 140 gpcd.

Everts: We are offering help to meet these goals.

TFM: We still have to go after landscaping, existing multiple family dwellings and that may take out 4 or 3 gpcd. We have to attack landscaping, multiple family units and our daytime population needs to be targeted. I support Connor. How are our aquifers recharged?

Gil: From the mountains. We advocate Method 3 but can work towards a low goal.

Judy: What will it cost us with MWD for going 100%? Our Purchase order expires in 2012 and we should be looking towards renegotiation.

Gil: Right now it costs us $744/acre-foot and when we are in full production it will be about $580/a-ft. Once Charnock is offline in ten years it should be down to $500/a-ft.

TFM: Why not achieve 100 gpcd costs?

Kim: A typical front yard retrofit will cost us $14,000 and up. Rain barrel systems need many barrels and graywater systems are running about $2500 to $30,000 per sfd.

TFM: Wouldn't we save by going 100 gpcd.

TFM: Is there a price to pay MWD?

Gil: Yes. We would pay for the Readiness to Serve charge.

TFM: Is 4-3 the only mention of Method 3?

Kim: 4-9 also covers it.

TFM: I am not prepared to adopt the plan without examining Method 1.

Judy: We have a tight time frame.

TFM: We support the plan but reserve the right to recommend to get to Method 1 and even further.

TFM: This is going to the State?

Susan (Staff): It can be changed in 2015 but it will be our last opportunity.

Mark: I know I am just coming in and missed the discussion.

Judy: I read the plan and really urge all of you to read it. It is very readable and it answers all of the questions you have had tonight. I endorse the plan and adopt the plan and support Method 3, but urge the City to move towards Method 1 in the Water Master Plan.

Susan (Staff): Thank you.

TFM: Do we direct staff to perform a financial analysis?

Gil: It will be added in the Master Water Plan.

TFM: Endorses Method 1 unless it is infeasible to go with Method 1.

Dean: The Water Master Plan will be based upon actual usage.

TFM: The Water Master Plan will address it.

TFM: Let's start with 100% self-sufficiency.

TFM: Support the report and re-visit all issues in the Master Water Plan. We should endorse all of staff's recommendations and recommend that we support the staff's report.

Mark: What would be the value of making this endorsement? Conner, what was your endorsed calculation.

Everts: We should go with Method 1 and 100 gpcd.

TFM: Would we address financial impacts?

Gil & Kim: Yes. In the Water Master Plan and we will be including you in the development of the scope of work for the Water Master Plan.

TFM Susan: Is there a lot of work to go and set a different goal?

All Staff: Yes.

Kim: We could recommend to change the methodology in the report from 3 to 1 and assure our financial support from the state.

Gil: Our position is the approved way to go and doesn't risk our funding. In the Water Master Plan we will be looking at changing the methodology.

TFM: Send the report with our changes.

TFM: In the staff report, staff should recommend Method 3 and the Environmental Task Force Method 1.

Appendix N: Comments from the June 28, 2011 Public Hearing on the 2010 UWMP

City of Santa Monica 2010 Urban Water Management Plan

Conner Everts: Supports the Environmental Task force decision to use Method 1 rather than Method 3 that staff originally planned to use.

Council voted and adopted the Urban Water Management Plan using Method 1 as the preferred method of calculation.

Appendix O: Written & Phoned Comments on the 2010 UWMP

City of Santa Monica 2010 Urban Water Management Plan

Date: 6/9/11

Caller: Mr. Jon Sweeten (213)452-3532

Question 1: Is this the actual draft that will be presented to Council?

Answer 1: Yes it is.

Question 2: You should really integrate the USGS into the review process.

Answer 2: We will be preparing an RFP for a Sustainable Master Water Plan where we will address many more items than those in our 2010 UWMP which is more regulatory in nature.

Question 3: Why is the safe yield lower than the anticipated demand?

Answer 3: We know that there will be a higher demand than we can produce from our wells, but we are issuing an RFP for a Groundwater Assessment Study before our Sustainable Master Water Plan so that we can find additional sources of water.

Question 4: On Table 2.2 the basin well cap is set at 12.3 acre-feet/year and on Page 2.7 the number 12.3 shows up again as 12.3 gpm. The two can't match.

Answer 4: It will be corrected.

Question 5: Picture 2.13 shows a home with a cistern labeled as "rainwater irrigates home". All rainwater irrigates all homes.

Answer 5: It will be changed to "captured rainwater helps irrigate home".

Question 6: How do you know if all TCE contaminants have been caught.

Answer 6: There is no such representation in the 2010 UWMP.

Question 7: In Section 4 you claim that Santa Monica uses less water than other cities. How do you know? What makes you think that Santa Monica is the best in conservation?

Answer 7: Based upon comparisons with other cities. There is no statement in the UWMP asserting Santa Monica is the best in conservation.

Question 8: In BMP 3 Section 4.2 how do you know your unaccounted water loss if you haven't done a water audit?

Answer 8: Unaccounted for water is estimated as the difference between water produced and water sold.

The rest of the conversation had to do with our public notification. The caller felt that it was inadequate. All regulatory standards have been met.

Susan Lowell

From: Jon Sweelen <jon.sweelen@gmail.com>
Sent: Monday, June 27, 2011 11:58 PM
To: Susan Lowell
Subject: UWMP comments

Categories: Red Category

Hello Susan -

I'm the fellow who spoke to you on the phone the other day. Might be too late but I'll let fly anyway. Here are a few of my comments on the UWMP.

Overall a superficial cut-and-paste effort by the contractor.

Table 3-1: The City Manager's Office i.e. Office of Sustainability didn't provide comments?
Section 2: No pie chart w/ supply distribution? Any effort to quantify Rainwater/Greywater?
Table 2.2: Safe Yield is shown as 7,500 AFY and Well Capacity as 12,360 AFY.
Table 2.3: shows Well Capacity of 12,300 gpm which is NOT = 12,300 AFY [12,300 gpm = 19,840 AFY]
Table 2.7: No Total Column?

Figure 2.13: All homes are irrigated with rainwater. To be meaningful, what's the estimated offset from the potable supply the cistern system yields?
Figure 2.14: What's the point of this? Proof that RW makes things green the same as potable water?
Section 3: What's the source of the TCE plume? Has it been mapped? Is it being drawn into the wellfield now that they're back on-line?
Pg 4-1: "Through urbanization, the City has become one of the key coastal cities in LA County." What purpose does including this drivel serve?
Pg 4-2: "The City's water consumption trends do not necessarily compare to other high-end communities as a result of the City's proactive conservation efforts." Unless there's some evidence to support this claim it is wholly unsubstantiated. Show a comparison-make the case. Otherwise, leave out such baseless claims.
Table 4.2: How could you know what the Unaccounted for Water is since you've never done BMP #3?
Section 4.5: The City has determined the max sustainable GW production capacity is 12,400 AFY. Wrong math from Section 2. The phrasing implies 'sustainable yield' which is not true.
Tables 4.8&4.9: Show historic trends to give a reference point for projected amounts.
Section 6: Contains no analysis. Any quantification of demand reduction thus far? What is the $/AF value of demand reduction? Totally lame write-up. Latest BMP reports in App. E are 07-08?
No discussion of the City's currently antiquated metering methodologies. AMR may represent the greatest potential demand reduction technology available and SM treats it like the plague.
[redacted]

Santa Monica wants to pat itself on the back for being 'green' but in the area of water end-use it's marginal efforts to engage the public and sell the means of achieving actual efficiency are moribund at best.

Sorry Susan, no varnish applied.

Jon Sweeten
2315 29th Street