

**City of Santa Barbara**  
**Urban Water Management Plan**  
**2015 Update – Adopted June 2016**



Prepared by the City of Santa Barbara, Water Resources Division,  
pursuant to California Water Code, Section 10631

Adopted by the Santa Barbara City Council on June 28, 2016  
as Agenda Item No. 19

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## 1 Introduction and Overview

An Urban Water Management Plan (UWMP or Plan) is a planning tool that generally summarizes the actions of water management agencies. It provides managers and the public with a broad perspective on a number of water supply issues. The California Urban Water Management Planning Act (Act) requires preparation of a plan that:

- Accomplishes water supply planning over a 20-year period in five-year increments.
- Identifies and quantifies adequate water supplies, including recycled water, for existing and future demands, in normal, single-dry, and multiple-dry years.
- Describes conservation program implementation and efficient use of urban water supplies.

The City of Santa Barbara's (City) primary water supply management tool is its Long Term Water Supply Plan (LTWSP). On June 14, 2011 the City adopted an update to its LTWSP in order to analyze water supply for the City's 2011 General Plan Update (City of Santa Barbara. 2011). The goal of the LTWSP was to evaluate the adequacy and reliability of the City's water supply and provide a long-term view of how the City's water supplies would be managed. For the most part, information in this UWMP reflects the analyses completed for the 2011 LTWSP and the City's 2010 UWMP update. An update of the LTWSP is anticipated upon the conclusion of the current severe drought and would be used in the preparation of the City's 2020 UWMP update. Future updates will include any new information regarding operational yield of existing supply, should there be long-term strategy changes resulting from the current drought or other factors.

A checklist to ensure compliance of this Plan with the Act requirements is provided in Appendix A. In addition, as required by the California Water Code (CWC), standardized tables for the reporting and submittal of UWMP data have been prepared and are included in Appendix B. A selection of these tables are also provided in the body of this Plan, as necessary to present supporting data.

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## 2 Plan Preparation

This UWMP has been prepared pursuant to the requirements of the CWC, Section 10631. Because the City is an urban water supplier serving more than 3,000 service connections it is required to prepare an UWMP every five years. This plan was prepared by staff of the Public Works Department, Water Resources Division, in consultation with the City's Board of Water Commissioners and staff of the Community Development Department. The UWMP updates the previous 2010 UWMP Update, adopted by City Council in June 2011. The Plan is meant to present a concise summary of the City's water supply, updated to reflect changes since 2010, and to conform to new reporting requirements of State law.

The draft 2015 UWMP was discussed with the Board of Water Commissioners on April 21, 2016 and May 19, 2016. The Commission supported staff's efforts to complete the plan in compliance with State UWMP requirements. A public hearing, with public notice pursuant to California Government Code Section 6066, was held before the City Council as Agenda Item No. 19 on June 28, 2016; at which time, the Council voted unanimously to adopt the plan and authorize the Public Works Director to transmit it to the California Department of Water Resources (DWR). Documentation of public noticing and City Council action is included in Appendix C.

### 2.1 Fiscal Year Data

Except where noted, data in this plan are based on fiscal years (FY), running from July through June. All calculations related to determination of baselines and urban water use targets pursuant to the Water Conservation Act of 2009 (SB7x-7) are also based on fiscal years.

### 2.2 Public Outreach

The City of Santa Barbara has encouraged community awareness of water issues and participation in water planning. Notices of public meetings were published in the local press. Copies of the Draft Plan were made available at City Hall, local public libraries and sent to the County of Santa Barbara, as well as other interested parties. The City's Public Works and Community Development Departments also coordinated regarding planned development and the probable implementation of approved development. Such informed data gathering on important issues is a means of checking the short-term "reality" of official projections.

The City of Santa Barbara notified the public within its service area of the opportunity to provide input regarding the Plan. A copy of the public outreach materials, including newspaper notices and invitation letters are attached in Appendix C.

Additionally, water supply management has been a key issue as the City responds to statewide drought conditions. Monthly water supply updates have been and continue to be provided to Water Commission and City Council since the Statewide drought declaration in January 2014. Water Supply Management Reports, which summarize the status and reliability of the City's water supplies, are also presented annually to the Water Commission and City Council. All meetings of the City Council and Water Commission are publicly noticed and agenda packets are posted online for easy public access.

### 2.3 Regional Coordination

Lake Cachuma is the City's primary source of water supply, and City staff coordinates regularly with the Cachuma Operation and Maintenance Board (COMB), a Joint Powers Agency that operates portions of the Cachuma Project and coordinates with the U.S. Bureau of Reclamation (USBR) on contract issues and

deliveries of project water. The COMB Board meets monthly. An Operating Committee consisting of the Member Unit managers and the COMB General Manager, as well as other committees focusing on a variety of topics including fisheries and public outreach, are scheduled on an as needed basis.

Additionally, the City coordinates regularly with the Central Coast Water Authority (CCWA) on information about forecasted deliveries of water from the State Water Project (SWP). CCWA is also a Joint Powers Agency, comprised of eight member agencies, that manages and operates Santa Barbara County's local facilities for distribution and treatment of State Water.

The City has also been an active participant in the development and adoption of the 2013 Santa Barbara Countywide Integrated Regional Water Management (IRWM) Plan, and is currently participating in IRWM-related activities including review of IRWM program guidelines, project implementation, project preparation, and prioritization for grants, and other regional projects. Current collaborative efforts among various parties on the Santa Ynez River to implement the 1989 Upper Santa Ynez River Operations Agreement are another example of regional cooperation to manage water resources.

Agencies directly or indirectly involved in matters related to the City of Santa Barbara's water supplies include:

- COMB and its member agencies, including Carpinteria Valley Water District, Goleta Water District, City of Santa Barbara, Montecito Water District, and Santa Ynez River Water Conservation District-ID#1
- CCWA and its member agencies, including City of Santa Maria, City of Guadalupe, City of Buellton, Goleta Water District, City of Santa Barbara, Montecito Water District, Carpinteria Valley Water District, Santa Ynez River Water Conservation District-ID#1; and the following non-member Project Participants: La Cumbre Mutual Water Company (LCMWC), Vandenberg Air Force Base, Raytheon Company, and Morehart Land Company
- Santa Barbara County Water Agency
- Cachuma Conservation Release Board and its member agencies, including Goleta Water District, City of Santa Barbara, and Montecito Water District

During preparation of the City's Plan, water supply data from CCWA and DWR was reviewed. The City receives wholesale water from the CCWA. The City provided water use projections to CCWA in accordance with CWC 10631. In addition, the following agencies were advised of the availability of the City's draft Plan for review (Appendix C):

- Central Coast Water Authority
- Cachuma Operation and Maintenance Board
- Santa Barbara County Water Agency
- Goleta Water District
- Montecito Water District
- Carpinteria Valley Water District
- Santa Ynez River Water Conservation District-ID#1
- Other interested parties

## 2.4 List of Abbreviations and Acronyms

Act	California Urban Water Management Planning Act
AF	Acre-feet
AFY	Acre-feet/year
AVEK	Antelope Valley-East Kern Water District
BMPs	Best Management Practices
CAL Green	California Green Building Standards Code
City	City of Santa Barbara
CCWA	Central Coast Water Authority
COMB	Cachuma Operation and Maintenance Board
CUWCC	California Urban Water Conservation Council
CWC	California Water Code
DOF	California Department of Finance
DSS	Demand Management Decision Support System (model)
DWR	California Department of Water Resources
EEWTP	El Estero Wastewater Treatment Plant
EIR	Environmental impact report
ETo	Evapotranspiration
FY	Fiscal year
GPCD	Gallons per capita per day
GWD	Goleta Water District
GWTP	Groundwater treatment plant
IPR	Indirect potable reuse
IRWM	Integrated regional water management
LCMWC	La Cumbre Mutual Water Company
Long Term Alternatives Study	Long Term Supplemental Water Supply Alternatives Study
LTWSP	Long Term Water Supply Plan
MGD	Million gallons per day
Mg/L	Milligrams/liter
MOU	Memorandum of Understanding Regarding Urban Water Conservation
MWM	Maddaus Water Management
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
Pass Through Agreement	1989 Upper Santa Ynez River Operations Agreement
SBCWA	Santa Barbara County Water Authority
SBX7-7	Water Conservation Act of 2009
SCADA	Supervisory Control and Data Acquisition
SWP	California State Water Project
SWRCB	State Water Resources Control Board
USBR	U.S. Bureau of Reclamation
USGS	U.S. Geological Survey
UWMP/Plan	Urban Water Management Plan

## 2.5 Contact Information

This plan was prepared by the Water Resources Division, Public Works Department, City of Santa Barbara, under the management of Joshua Haggmark, Water Resources Manager and Kelley Dyer, Water Supply Manager. Plan preparation was coordinated by Dakota Corey, Water Resources Analyst, who can be reached by email at [DCorey@SantaBarbaraCA.gov](mailto:DCorey@SantaBarbaraCA.gov) or by phone at (805) 564-5369.

### 3 System Description

The City of Santa Barbara provides retail water service to a population of approximately 93,532, through approximately 26,921 service connections. Elevation within the service area ranges between sea level and 1400 feet.

#### 3.1 General Description

The City of Santa Barbara operates a water supply system that serves most of the properties within the City limits, (except for the City' airport, which is served by the Goleta Water District, and the Lincolnwood neighborhood in the northwest portion of the City, which is served by a private well, and the Coast Village Road and Westmont Road areas, served by Montecito Water District). The City also serves selected areas located outside the City limits, most notably the unincorporated areas known as Mission Canyon and the Barker Pass area. Figure 1 shows the boundaries of the City of Santa Barbara's water service area.

The City's potable water system consists of 312 miles of distribution main, 13 balancing reservoirs, 12 pumping stations, and 9 production wells. The recycled water system is significantly smaller serving approximately 1 million gallons per day (MGD) of demand with 14 miles of distribution main, 2 balancing reservoirs, and 2 pumping stations. The City also operates a wastewater collection system consisting of 277 miles of sewer pipe and 9 lift stations. The City's wastewater treatment plant has a design capacity of 11 MGD and an average flow of 7.7 MGD.

Figure 2 uses 2015 water sales by sector to give an overview of the demographic makeup of the City's water service area. Residential use is predominant. The City is largely built-out, though it should be assumed that infill and redevelopment will continue at roughly the same rate as in the recent past, resulting in a small amount of new demand in the residential and commercial sectors. In September 2010, the City completed environmental analysis of its Plan Santa Barbara General Plan Update, which sets the range of projected demand growth from new development. The relative distribution of demand by sector is expected to remain very similar to current conditions moving forward.

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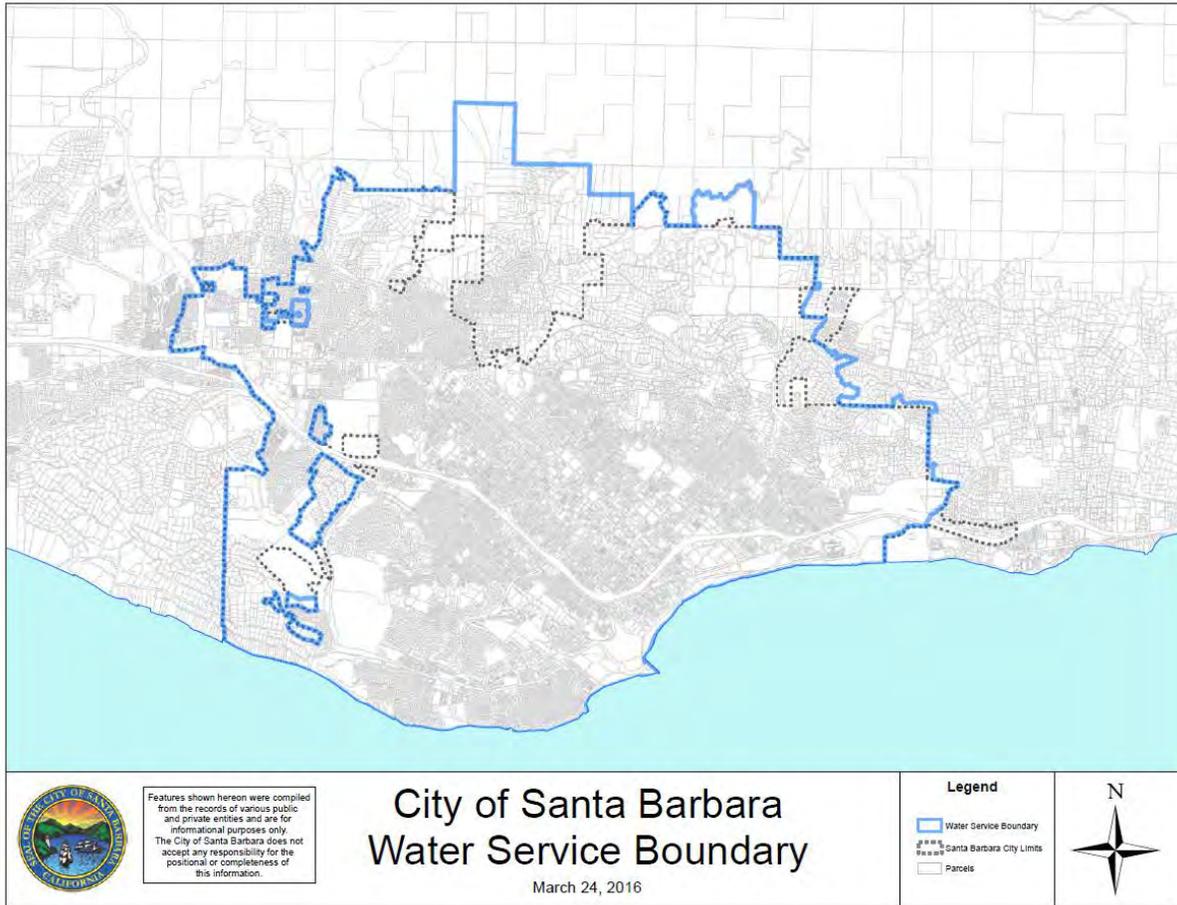


Figure 1: City of Santa Barbara Water Service Boundary

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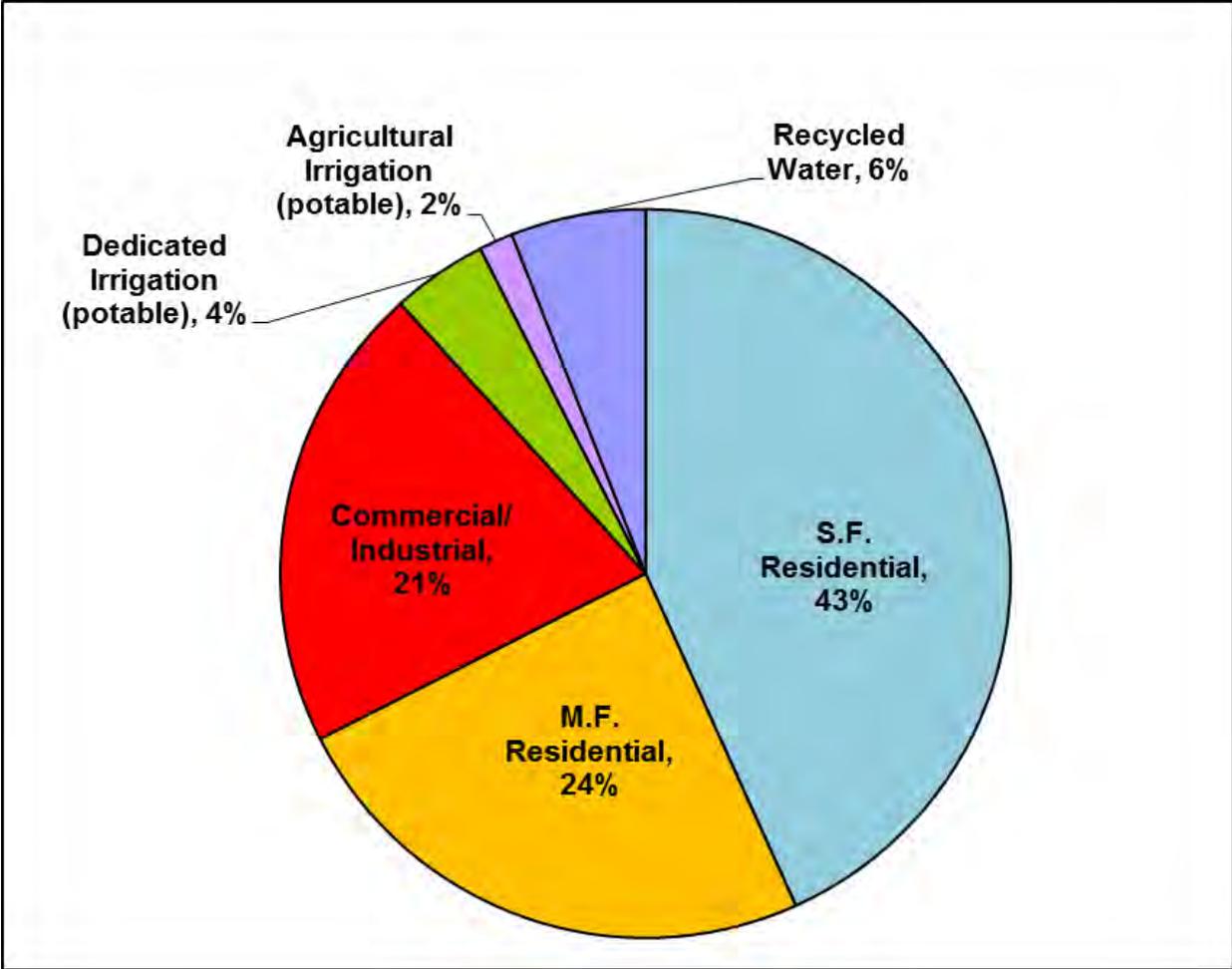


Figure 2: Metered Sales by Sector

3.2 Organizational Structure

The water and wastewater systems are administered by the Water Resources Division of the City's Public Works Department. The water system is supported by 75 employees and the wastewater/ recycled water system is supported by 57 employees.

3.3 Service Area Climate

The City is located on the central coast of California between the Santa Ynez Mountains and the Pacific Ocean. It has a temperate Mediterranean style climate, with cool wet winters and mild, dry summers. Temperatures only rarely fall below freezing in winter. During the late summer and early fall period, hot, dry Santa Ana winds can create high water demands. Average rainfall is approximately 17.2 inches per year, mostly during the winter period between December and March.

Table 1 shows the average temperatures, precipitation, and evapotranspiration (ETo) for the City of Santa Barbara measured at the Santa Barbara CIMIS Station No. 107. The City bills its budget-based irrigation customers based on ETo data from this CIMIS Station.

Table 1: Climate Data for City of Santa Barbara

	Jan	Feb	March	April	May	June	
<b>Standard Monthly Average ETo (inches)</b>	1.82	2.27	3.59	4.57	5.09	4.89	
<b>Average Rainfall (inches)</b>	3.32	4.02	2.36	1.35	0.70	0.28	
<b>Average Max Temperature (°F)</b>	54.37	54.59	56.52	57.97	60.52	62.34	
	July	Aug	Sept	Oct	Nov	Dec	Annual
<b>Standard Monthly Average ETo (inches)</b>	5.43	5.27	4.08	3.21	2.15	1.68	44.05
<b>Average Rainfall (inches)</b>	0.11	0.10	0.17	0.74	1.23	2.85	17.23
<b>Average Max Temperature (°F)</b>	65.00	65.69	65.11	62.24	57.73	53.53	59.63

Source: (California Department of Water Resources. California Irrigation Management Information System. 2016)

### 3.3.1 Climate Change

The City has long supported practical measures to improve energy efficiency and implement renewable energy technologies, including solar photovoltaic and cogeneration facilities. The City’s 2012 Climate Action Plan addresses:

- Climate science findings
- Policy context and regional efforts
- Benefits of climate protection measures
- Carbon emission targets, inventories, forecasts, and reduction strategies
- Adaptation strategies
- Plan implementation

The plan is available online at [www.santabarbaraca.gov/services/planning/erd/resource/cap.asp](http://www.santabarbaraca.gov/services/planning/erd/resource/cap.asp).

### 3.4 Service Area Population and Demographics

According to the California Department of Finance (DOF), there was a population of approximately 88,733 persons within City limits in 2010 (State of California. Department of Finance. 2012). However, as described in Section 3.1, the City’s water service area does not exactly align with City boundaries. The water service area does, however, substantially align with the combined U.S. Census areas for the City of Santa Barbara and the adjacent Census Designated Place, “Mission Canyon.” A GIS analysis comparing the City’s water service area and the combined City and Mission Canyon census areas indicates that the City’s water service area is only 3 percent larger than the combined census areas, as shown in Figure 3.

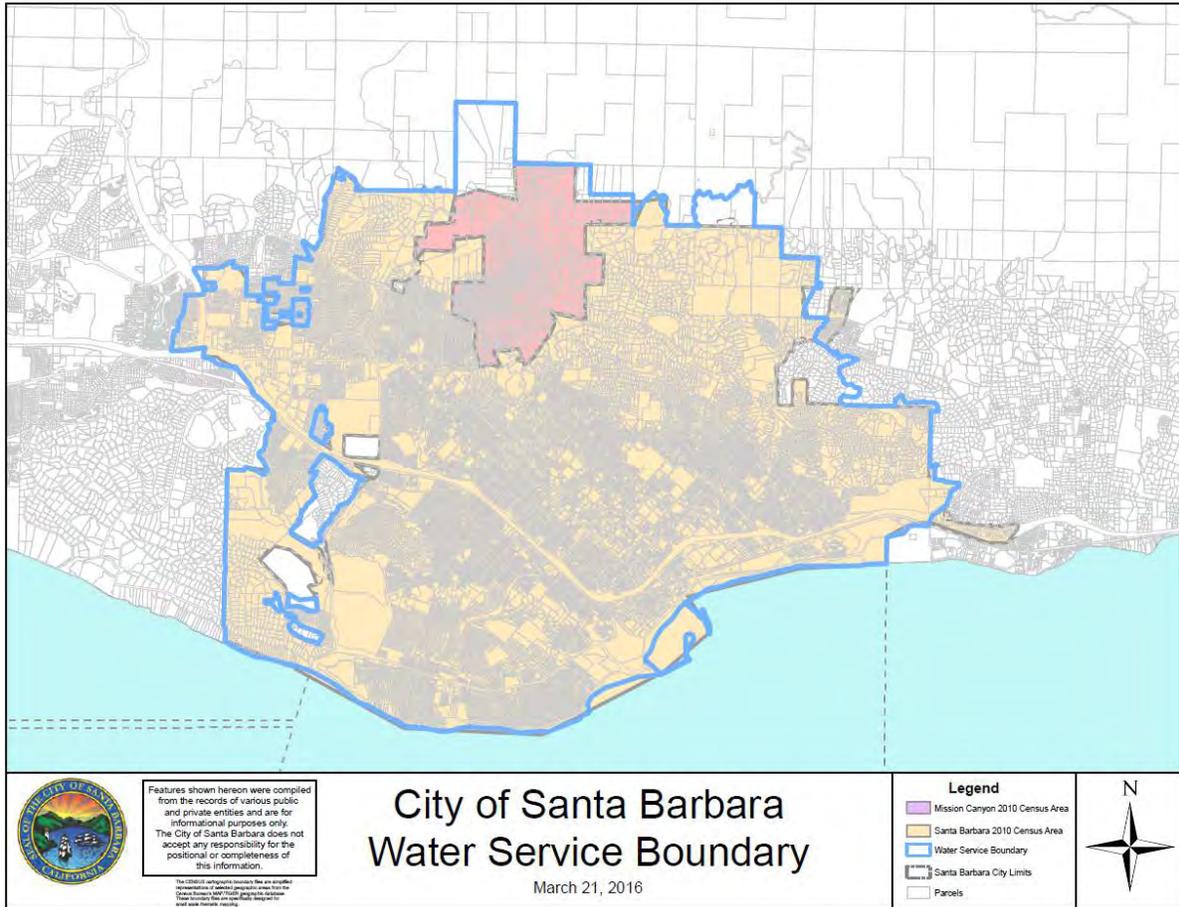


Figure 3: Comparison of City Water Service Area and Census Areas

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Using an alternative population estimate method that was reviewed and approved by DWR, U.S. Census population data for the Mission Canyon Census Designated Place was added to DOF population data for the City of Santa Barbara to determine the total population for the City’s water service area for the year 2010 and projected population for the year 2015. The 2010 population estimate in this UWMP differs from that in the City’s 2010 UWMP because final 2010 U.S. Census and 2010 DOF population data was not available at the time of writing the 2010 Plan, and a different methodology was used to determine population at that time. The population estimates in this plan shall be considered revisions to those presented in the 2010 plan.

Future population estimates were developed based upon housing projections included in the City’s 2011 General Plan. The City of Santa Barbara has a mix of housing types, including single-family residences and multi-family residences. The City is largely built-out, though it should be assumed that infill and redevelopment will continue at roughly the same rate as in the recent past, resulting in a small increase in population. Table 2 shows current and projected population for the City’s water service area.

*Table 2: Current and Projected Water Service Area Population*

<b>Year</b>	<b>City of Santa Barbara Population<sup>1</sup></b>	<b>Mission Canyon Census Designated Place Population<sup>2</sup></b>	<b>Total Water Service Area Population</b>
<b>2010</b>	88,733	2,381	91,114
<b>2015</b>	91,088	2,444	93,532
<b>2020</b>	92,763	2,516	95,279
<b>2025</b>	94,438	2,588	97,026
<b>2030</b>	96,113	2,660	98,773
<b>2035</b>	97,788	2,731	100,519

**Notes:**

1. Data sources: 2001-2010 (State of California. Department of Finance. 2012), 2015 (State of California. Department of Finance. 2015). Future City growth assumed to be 335 persons/year (AMEC Earth & Environmental, Inc. September 2010).
2. Data Sources: 2010 (U.S. Census Bureau 2011). Future growth in the Mission Canyon Census Designated Place assumed to be 14 persons/year. 2,731 persons are expected at buildout. Buildout assumed to occur in 2035. (County of Santa Barbara Planning and Development Department. Long Range Planning Division. April 2014.)

Santa Barbara is a popular vacation destination, and tourism is an important part of the local economy. In addition, many people commute from around the County to work in the City of Santa Barbara. It should be acknowledged that population from tourism and commuters is not factored into the population methodology and, as later discussed in Section 5, the additional population from tourism and commuters is not projected to have an effect on the City’s ability to meet State requirements under the Water conservation Act of 2009.

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## 4 System Water Use

This section describes historic and current water usage and the methodology used to project future demands within the City's service area. Water usage is divided into sectors such as residential, commercial, industrial, and landscape. For this evaluation, existing land use data and new construction information were compiled from the City's Community Development Department.

### 4.1 Historical Water Demand

The City's water demand history is shown in Figure 4. Produced water is used as the traditional indicator of demand since water is produced to meet the demand. With construction of the 1989 Water Reclamation Project, the City began tracking total water demand based on production to the potable water and recycled water distribution systems. The combined total is referred to as "system" demand. Figure 4 illustrates the demand response to severe drought in the late 1980s and early 1990s, and partial recovery of demand once drastic conservation measures were no longer needed. Variations from 1998 onward are primarily the result of year-to-year variations in weather. Beginning in September 2015, the dramatic drop in demand indicates response to the current ongoing drought.

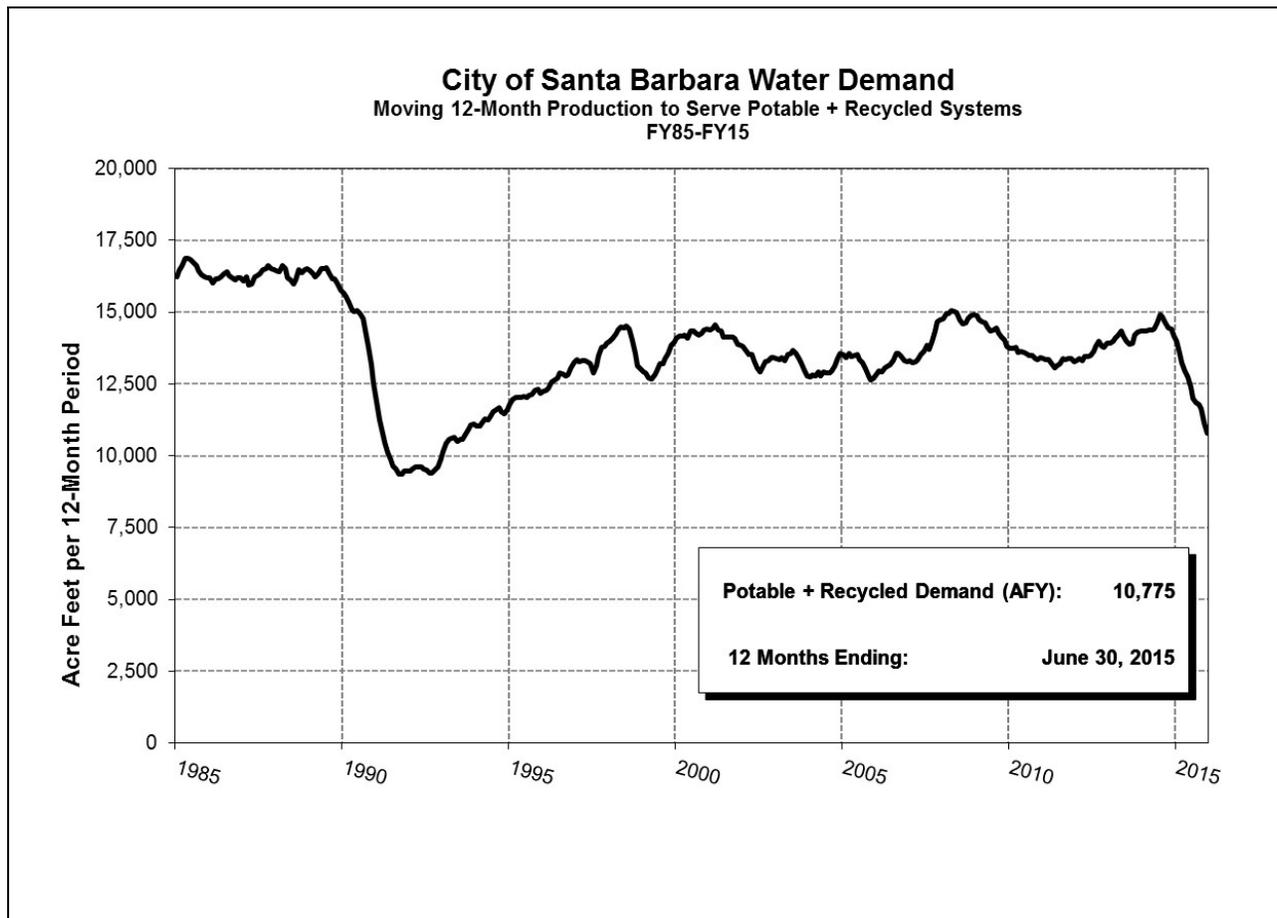


Figure 4: Historic Water Demand

## 4.2 Distribution System Water Losses

The City, like all water agencies, does have some water loss. In simple terms, water loss is the difference between the amount of water produced and the amount of water billed to customers. Over the last five years, the 12-month running average water loss has been approximately 11 percent. The percentage of water loss was estimated by comparing water production to water sales.

Sources of water loss include:

- Leaking water lines: Leakage from water pipes is a common occurrence in water systems. A significant number of leaks remain undetected over long periods of time as they are very small; however, these small leaks contribute to overall water loss.
- Main breaks.
- Flushing and cleaning of City distribution mains and reservoirs.
- Customer Meter Inaccuracies: Customer meters represent a source of water loss, as they tend to under-represent actual consumption in the water system as they age. The City is currently undertaking an aggressive meter replacement program in order to reduce losses associated with inaccurate meters.
- Fire Hydrant Operations by the Fire Department: This represents the use of water for emergencies.
- Unauthorized/unmetered use of water from the distribution system.

The City conducts detailed analyses of system wide water loss annually using the American Water Works Association's Free Water Audit Software. The FY 2015 reporting worksheet can be found in Appendix D. By comparing FY 2015 water production to water sales, annual water loss was calculated to be 5 percent. While the City has been witnessing a fairly significant decline in water loss since the spring of 2015, for planning purposes, the City is conservatively using an estimation of 8 percent water loss in its future demand projections.

## 4.3 Projected Water Use

The following sections describe the City's projected water demands from customer sales and other water uses, including water loss. A discussion of projected water demands from low-income households is also provided.

The City's water demand projections were developed based on data from the City's Community Development Department regarding development applications for known projects and build-out as projected in the 2011 General Plan, which is primarily expected to consist of infill and redevelopment since the City is largely built-out.

Table 3 shows the actual and projected demands on the City water system at five-year intervals. These include metered sales by customer class, net exports, groundwater recharge, and potable blend water used in the recycled water system for managing mineral content and system losses. Also included is a tabulation of target and projected values for urban water use, consistent with methodologies for implementing Water Conservation Act of 2009 (SBX7-7) water use reduction requirements (discussed in Section 5).

**Table 3  
Water Demands and Total Water Use (AF)**

	<i>Actual</i>				<i>Projected</i>							
	2010		2015		2020		2025		2030		2035	
Water use sectors	# of accts.	Volume (AF)	# of accts.	Volume (AF)	# of accts.	Volume (AF)	# of accts.	Volume (AF)	# of accts.	Volume (AF)	# of accts.	Volume (AF)
Single family	16,860	5,824	16,940	4,360	17,044	5,588	17,148	5,527	17,252	5,487	17,356	5,497
Multi-family	6,126	2,931	6,386	2,446	7,082	2,812	7,777	2,781	8,473	2,761	9,168	2,766
Commercial	2,530	2,066	2,626	1,890	2,696	1,982	2,766	1,960	2,836	1,946	2,906	1,950
Industrial	56	255	56	204	56	245	56	242	56	240	56	241
Institutional/ Government (included w/ Comm.)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Landscape	729	541	761	427	781	519	801	513	821	510	841	511
Agriculture	59	106	62	152	62	102	62	101	62	100	62	100
<b>Total Potable Accts. &amp; Deliveries (Metered Sales)</b>	<b>26,360</b>	<b>11,722</b>	<b>26,831</b>	<b>9,479</b>	<b>27,721</b>	<b>11,248</b>	<b>28,610</b>	<b>11,124</b>	<b>29,500</b>	<b>11,044</b>	<b>30,389</b>	<b>11,065</b>
Sales to Other Agencies		0		0		0		0		0		0
Net Exports to Other Districts		38		183		0		0		0		0
Groundwater Recharge		75		0		75		75		75		75
Blending to Recycled Water		651		768		275		275		275		275
System Losses		1,009		527		978		967		960		962
<b>Total Water Use</b>		<b>13,495</b>		<b>10,957</b>		<b>12,576</b>		<b>12,441</b>		<b>12,354</b>		<b>12,377</b>

Note: "Total Water Use" above and as illustrated in Table 11 is not intended to equal "Gross Water Use" that is the basis of the Urban Water Use Target calculation.

<b>Tabulation of Target &amp; Projected Urban Water Use:</b>							
	2020	2025	2030	2035			
Potable Metered Sales:	11,248	11,124	11,044	11,065			
Potable System Losses:	978	967	960	962			
Blending to Recycled Water System:	275	275	275	275			
Less Agriculture Deliveries:	-102	-101	-100	-100			
Gross Water Use:	12,399	12,265	12,179	12,202			
Projected Service Area Population:	95,279	97,026	98,772	100,519			
Target Urban Water Use (GPCD):	117	117	117	117			
Projected Urban Water Use (GPCD):	116	113	110	108			

Recycled Water Sales	2010		2015		2020		2025		2030		2035	
	# of accts.	Volume (AF)										
	86	697	90	601	105	950	120	1,025	135	1,100	150	1,100

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#### 4.3.1 Water Use Reduction Plan

The City's long-term commitment to water conservation is evident in reductions in water demand achieved over the past twenty years. Total system demand has dropped from approximately 16,300 acre-foot/year (AFY) in the late 1980s to approximately 13,000 AFY currently under normal (non-drought) conditions. To achieve the next level of long-term demand management reductions it was important to evaluate the effects of updated plumbing codes and appliance standards, ongoing implementation of the California Urban Water Conservation Council (CUWCC) Best Management Practices (BMP's), and added measures that can be cost effectively implemented to further offset water demand.

In 2010 the City hired Maddaus Water Management (MWM), an engineering firm widely recognized for expertise in demand management, to analyze the existing conservation program and use its proprietary Demand Management Decision Support System (DSS) to model current and potential water conservation measures. The DSS quantified the demand reduction effects of these measures along with the effects of plumbing codes and appliance standards.

Results of the 2010 modeling effort are illustrated in Figure ES-1 of the Executive Summary of the Technical Memorandum prepared by MWM, which is included in this plan as Appendix E. The benefit-cost ratios shown in Table ES-3 of Appendix D of the Technical Memorandum (Appendix E) were calculated on the basis of an avoided cost of \$600 per acre-foot (AF), which at the time of modeling, was an average of the variable costs associated with SWP Table A deliveries, groundwater produced from the Ortega Groundwater Treatment Plant (GWTP), and deliveries of purchased water through the SWP during non-critical drought periods. Recognizing that the City's avoided cost of water will change over time, the City has retained a contract with MWM to update the DSS model as needed, so the City can remain on track to meet its water conservation targets in a cost-effective manner.

As a result of the modeling efforts, Program B was selected on the basis of its cost effectiveness. The model results have been incorporated into the demand and Urban Water Use projections itemized in Table 4. The results of these projections indicate that the City will meet its 2020 Urban Water Use Target by implementing the water conservation measures in Program B and adding 15 AFY of new recycled water user demand to offset potable usage. The required new recycled demand is about half of what has already been identified in planning studies. For this 2015 UWMP the starting point, or baseline, for the demand projections assumed "normal year" conditions, rather than drought conditions, despite 2015 being a drought year. Thus, projected 2015 water use from the 2010 UWMP was used as the starting point in projecting future demands in this UWMP. The City plans to meet its conservation requirements, under normal conditions as well as drought conditions. The conservation measures of Program B are identified in Table ES-1 of Appendix E.

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**Table 4**

**Demand & Urban Water Use Projections**

Volumes in AF, except as noted

**Input assumptions:**

- 300 = Planned Potable Demand Reduction from New Recycled Water Connections
- Row 27 = Projected "Program B" demand reductions, including plumbing codes & conservation program
- 0 = Additional 20-year demand reductions from conservation above "Program B"
- 275 = Target Blending Amount After Secondary Improvement (starting 2015)

**Summary Information:**

- 240 = Total Demand Reductions from New Recycled Water
- 1170 = Total Demand Reductions from New Water Conservation
- 90 = Demand reductions from incr. recycled water by 2020
- 449 = Conservation reductions projected by 2020

**Service Area Growth Projection - Per Plan SB Final EIR:**

	20-year Total	Annual Amount
20-Year Breakout by Sector:		
Single Family Residential	166	8.31
Multi-Family Residential	445	22.26
Non-Residential	283	14.16
<b>Total:</b>	<b>895</b>	<b>44.73</b>

0 = Calculated average annual required conservation demand reductions in excess of "Program B"

- 6,700 = 20-year Population Growth Projection (from Plan SB Final EIR)
- 335 = Annual average population increase - City of Santa Barbara
- 287 = 20-year Population Growth Projection (from Mission Canyon Communit Plan)
- 14 = Annual average population increase - Mission Canyon

<i>Fiscal Year:</i>	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Starting Potable Production	12,497	12,436	12,397	12,352	12,314	12,270	12,226	12,195	12,166	12,140	12,115	12,093	12,072	12,053	12,036	12,020	12,005	12,007	12,010	12,015	12,020
Demand from New Devel.																					
SFR	8.31	8.31	8.31	8.31	8.31	8.31	8.31	8.31	8.31	8.31	8.31	8.31	8.31	8.31	8.31	8.31	8.31	8.31	8.31	8.31	8.31
MFR	22.26	22.26	22.26	22.26	22.26	22.26	22.26	22.26	22.26	22.26	22.26	22.26	22.26	22.26	22.26	22.26	22.26	22.26	22.26	22.26	22.26
Non-Resid.	14.16	14.16	14.16	14.16	14.16	14.16	14.16	14.16	14.16	14.16	14.16	14.16	14.16	14.16	14.16	14.16	14.16	14.16	14.16	14.16	14.16
Demand Reductions																					
New Recycled Water Use	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	0	0	0	0	0
New Conserv. - Prog B	-91	-69	-74	-68	-73	-74	-61	-59	-56	-54	-52	-50	-49	-47	-46	-44	-43	-42	-40	-39	-38
New Conserv. > Prog B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ending Potable Production	12,436	12,397	12,352	12,314	12,270	12,226	12,195	12,166	12,140	12,115	12,093	12,072	12,053	12,036	12,020	12,005	12,007	12,010	12,015	12,020	12,027
Plus Blend Water to Recycled	275	275	275	275	275	275	275	275	275	275	275	275	275	275	275	275	275	275	275	275	275
Less Agriculture Deliveries	-103	-103	-102	-102	-102	-102	-101	-101	-101	-101	-101	-100	-100	-100	-100	-100	-100	-100	-99	-99	-100
<b>Gross Water Use:</b>	<b>12,608</b>	<b>12,569</b>	<b>12,525</b>	<b>12,486</b>	<b>12,443</b>	<b>12,399</b>	<b>12,369</b>	<b>12,340</b>	<b>12,314</b>	<b>12,289</b>	<b>12,267</b>	<b>12,246</b>	<b>12,228</b>	<b>12,210</b>	<b>12,195</b>	<b>12,180</b>	<b>12,183</b>	<b>12,186</b>	<b>12,190</b>	<b>12,196</b>	<b>12,202</b>
Service Area Population:																					
Starting Amount		93,532	93,881	94,231	94,580	94,929	95,279	95,628	95,977	96,327	96,676	97,026	97,375	97,724	98,074	98,423	98,772	99,122	99,471	99,820	100,170
Added Population		349	349	349	349	349	349	349	349	349	349	349	349	349	349	349	349	349	349	349	349
Ending Amount	93,532	93,881	94,231	94,580	94,929	95,279	95,628	95,977	96,327	96,676	97,026	97,375	97,724	98,074	98,423	98,772	99,122	99,471	99,820	100,170	100,519
<b>Per Capita Use (GPCD):</b>	<b>120</b>	<b>120</b>	<b>119</b>	<b>118</b>	<b>117</b>	<b>116</b>	<b>115</b>	<b>115</b>	<b>114</b>	<b>113</b>	<b>113</b>	<b>112</b>	<b>112</b>	<b>111</b>	<b>111</b>	<b>110</b>	<b>110</b>	<b>109</b>	<b>109</b>	<b>109</b>	<b>108</b>
Recycled Production:	875	890	905	920	935	950	965	980	995	1,010	1,025	1,040	1,055	1,070	1,085	1,100	1,100	1,100	1,100	1,100	1,100
Process water for EEWTP	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
Total RW System Production	1,175	1,190	1,205	1,220	1,235	1,250	1,265	1,280	1,295	1,310	1,325	1,340	1,355	1,370	1,385	1,400	1,400	1,400	1,400	1,400	1,400
<b>System Production:</b>	<b>13,611</b>	<b>13,587</b>	<b>13,557</b>	<b>13,534</b>	<b>13,505</b>	<b>13,476</b>	<b>13,460</b>	<b>13,446</b>	<b>13,435</b>	<b>13,425</b>	<b>13,418</b>	<b>13,412</b>	<b>13,408</b>	<b>13,406</b>	<b>13,405</b>	<b>13,405</b>	<b>13,407</b>	<b>13,410</b>	<b>13,415</b>	<b>13,420</b>	<b>13,427</b>

Notes: 2015 Demands represent "normal," non-drought demands. Actual demands were significantly lower as a result of the drought. Actual per capita water use for 2015 was 102 GPCD.

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#### 4.3.2 Estimating Water Savings from Codes, Ordinances, or Transportation and Land Use Plans

The City’s demand projections include the impact of plumbing code changes arising from the Federal Energy Policy Acts of 1992 and 2005 and State Legislation relating to plumbing fixtures (requirement for high efficiency toilets and urinals in 2014) and building codes (such as the California Green Building Standards Code (CAL Green), which took effect in 2011). These savings were included in the water conservation and demand modeling described in Section 4.3.1 and are shown in Table 4.

#### 4.3.3 Water Use for Lower Income Households

Table 5 projects water needed to serve single family and multi-family residential housing for lower income households. The information is derived from Appendix F, which was prepared by staff of the City’s Community Development Department using information from the Plan Santa Barbara General Plan Certified Final Environmental Impact Report (EIR) dated September 2010 and the City of Santa Barbara General Plan 2015 Housing Element. All future low-income housing is expected to be multi-family. These demands have been included in the overall water demand projections in Table 3 and Table 4.

*Table 5: Low-Income Projected Water Demand (AFY)*

	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>
<b>Single Family Residential</b>	22	22	22	22	22
<b>Multi-Family Residential</b>	275	315	355	395	435
<b>Total</b>	297	337	377	417	457

#### 4.4 Climate Change

Specific projections of changes in water supply in Santa Barbara due to climate change are not yet available. However, the City has incorporated into its long-term supply planning DWR’s recommendation that water suppliers plan for a 20 percent increase in the frequency and duration of future dry conditions (California Department of Water Resources 2008). Specific measures include retaining the City desalination facility as a permanent part of its water supply and extending the planned duration of the critical drought period from 5 years to 6 years.

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## 5 Baselines and Targets

As described in SBX7-7, also known as the Water Conservation Act of 2009, it is the intent of the California legislature to increase water use efficiency, and the legislature has set a goal of a 20 percent per capita reduction in urban water use statewide by 2020. As SBX7-7 applies to retail water suppliers, the City of Santa Barbara must comply with its requirements. Consistent with SBX7-7, the 2015 UWMP must provide an estimate of Base Daily Per Capita Water Use. This estimate utilizes information on population as well as base gross water use.

### 5.1 Updating Calculations from 2010 UWMP

SBX7-7 allows water agencies to update their 2020 target in their 2015 UWMP. The City was required to update its baselines and targets because it did not use 2010 Census data to determine population in its 2010 UWMP, since the data was not available at the time of Plan preparation. The following sections detail the calculations made to revise the City's baselines and targets. The City's required SBX7-7 Verification Form can be found in Appendix G.

### 5.2 Service Area Population

For the purposes of this UWMP, population was estimated as described in Section 3.4 of this Plan using the methods described in *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use Final Draft* (February 2016). The City is considered a Category 1 Supplier, as defined in the Methodologies Document, because its water service area overlaps with 97 percent of the combined U.S. Census areas for the City of Santa Barbara and the Mission Canyon Census Designated Place (See Map, Section 3.4). Therefore, California DOF population data for the City of Santa Barbara was combined with U.S. Census population data for the Mission Canyon Census Designated Place to determine the population for the City's water service area.

The population calculations included in this UWMP should be considered a revision to the population estimates provided in the City's 2010 UWMP, since 2010 Census/DOF population data was not available at the time the 2010 calculations were performed.

### 5.3 Gross Water Use

Base gross water use is defined as the total volume of water, treated or untreated, entering the City's distribution, excluding recycled water, net of the volume of water placed into long-term storage and net water conveyed to another urban water supplier. Therefore, gross water use was calculated as total water received, including local surface water and groundwater, imported State Water for City use via CCWA and State Water received for conveyance to LCMWC. Deducted from this are agricultural deliveries, net exports to Goleta Water District (GWD), State Water conveyance to LCMWC and export to long-term storage (groundwater injection and recharge). Consistent with State methodologies, calculation of gross water use includes potable water used for blending (as discussed below) and excludes the recycled water component of deliveries to recycled water customers. Historical gross water use calculations for 1996 to present are shown in Table 6.

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**Table 6**  
**Tabulation of Historical Gross Water Use**

Water into distribution system; less net exports, diversions to long-term storage (groundwater injection), and agricultural deliveries.

Fiscal Year	Cachuma	Gibraltar	Mission Tunnel	Devils Canyon	Ground Water	Desal	Total From Own Sources	From Imported Sources (CCWA/ SWP)	SWP Received for La Cumbre Mutual Conveyance	Total Water Received	Agricultural Deliveries	Net Exports to Goleta Water Dist.	Conveyance to La Cumbre Mutual	Export to Long Term Storage (GW Injection)	Gross Water Use
1996	5,561	5,452	1,692	71	-	-	12,776	-	-	12,776	103	44	-	75	12,554
1997	7,301	4,217	1,427	280	-	-	13,225	-	-	13,225	114	33	-	-	13,078
1998	7,269	3,962	1,803	79	73	-	13,186	-	1,012	14,198	81	648	1,012	-	12,457
1999	5,879	5,273	1,872	38	134	-	13,196	-	1,042	14,238	107	(294)	1,042	-	13,383
2000	11,300	1,394	1,149	-	357	-	14,200	-	646	14,846	120	179	646	109	13,792
2001	5,523	5,573	1,886	-	280	-	13,262	-	830	14,092	113	(276)	830	81	13,344
2002	7,373	3,827	1,267	3	8	-	12,478	539	945	13,962	114	(48)	945	72	12,879
2003	6,484	3,127	942	31	-	-	10,584	1,924	742	13,250	113	172	742	-	12,223
2004	7,777	3,414	1,256	20	-	-	12,467	890	776	14,133	134	62	776	88	13,073
2005	7,523	1,879	1,585	70	-	-	11,057	1,903	550	13,510	105	312	550	15	12,528
2006	5,305	4,546	1,786	-	906	-	12,543	659	511	13,713	134	208	511	-	12,860
2007	7,804	3,783	1,409	-	434	-	13,430	667	804	14,901	157	(227)	804	61	14,106
2008	10,734	1,576	1,093	160	751	-	14,314	609	879	15,802	155	212	879	124	14,432
2009	8,236	2,569	1,142	76	1,112	-	13,135	496	902	14,533	139	(225)	902	141	13,576
2010	7,637	2,933	1,220	-	1,164	-	12,954	541	947	14,442	106	38	947	75	13,276
2011	8,554	2,050	1,349	184	705	-	12,842	773	930	14,545	96	152	930	84	13,283
2012	7,786	3,079	1,129	-	1,062	-	13,056	703	248	14,007	121	(163)	248	-	13,801
2013	10,071	2,412	1,034	-	754	-	14,271	399	428	15,098	156	200	428	-	14,314
2014	11,047	204	760	-	792	-	12,803	1,681	602	15,086	187	280	602	-	14,017
2015	2,773	951	815	-	1,673	-	6,212	4,848	446	11,506	152	183	446	-	10,725

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## 5.4 Baseline Daily per Capita Water Use

SBX7-7 allows urban water retailers to evaluate their base daily per capita water use using a 10 or 15-year period. A 15-year base period within the range January 1, 1990 to December 31, 2010 is allowed if recycled water made up 10 percent or more of the 2008 retail water delivery. If recycled water did not make up 10 percent or more of the 2008 retail water delivery, then a retailer must use a 10-year base period within the range January 1, 1995 to December 31, 2010. Recycled water accounted for only 5.9 percent of the City’s 2008 deliveries to customers, so Base Daily Per Capita Water Use for the City has been based on a 10-year period. The period from 2000 through 2009 with an average daily per person water use of 129.8, measured in gallons per capita per day (GPCD), was chosen to represent the Base Daily Per Capita Water Use because it allows for the highest target, which is preferred to ensure compliance with SBX7-7 requirements.

In addition, urban retailers must report daily per capita water use for a five-year period within the range January 1, 2003 to December 31, 2010. This 5-year base period is compared to the Target Base Daily Per Capita Water Use to determine the minimum water use reduction requirement. The 5-year period from 2006 through 2010, with an average GPCD of 134.6, was chosen because it allows the highest target.

Using the methodology provided by the California Department of Water Resources (DWR) the City determined its targets for SBX7-7 (California Department of Water Resources. Division of Statewide Integrated Water Management. Water Use Efficiency Branch. February 2016.). Table 7 provides the data used to calculate the Base Daily Per Capita Water Use in GPCD, the 10-year base period for the City, and the 5-year base period.

Table 7: Base Daily Per Capita Water Use - 10- and 5-Year Range

Base Period Year		Water Service Area Population	Annual Gross Water Use		Annual Per Capita Water Use (GPCD)	10-year Average (GPCD)	5-year Average (GPCD)
Sequence Year	Fiscal Year		AFY	MGD			
1	1996	89,645	12,554	11.2	125.0		
2	1997	90,250	13,078	11.7	129.4		
3	1998	90,852	12,457	11.1	122.4		
4	1999	91,104	13,383	11.9	131.1		
5	2000	91,908	13,792	12.3	134.0		
6	2001	92,249	13,344	11.9	129.1		
7	2002	92,543	12,879	11.5	124.2		
8	2003	92,191	12,223	10.9	118.4		
9	2004	92,040	13,073	11.7	126.8		
10	2005	91,311	12,528	11.2	122.5	126.3	
11	2006	90,144	12,860	11.5	127.4	126.5	
12	2007	90,046	14,106	12.6	139.9	127.6	
13	2008	90,748	14,432	12.9	142.0	129.5	131.7
14	2009	90,661	13,576	12.1	133.7	129.8	133.1
15	2010	91,114	13,276	11.9	130.1	129.4	134.6

## 5.5 2015 and 2020 Targets

In addition to calculating base gross water use, SBX7-7 requires that the City identify its demand reduction targets for 2015 and 2020 by utilizing one of four target methodologies:

- **Methodology 1:** Eighty percent of baseline GPCD water use (i. e. , a 20 percent reduction)
- **Methodology 2:** Per capita daily water use estimated using the sum of performance standards applied to indoor residential use; landscaped area water use; and CII uses
- **Methodology 3:** Ninety-five percent of the applicable state hydrologic region target as stated in the State’s 20x2020 Water Conservation Plan (California Department of Water Resources. February 2010.)
- **Methodology 4:** Savings by Water Sector – this method developed by DWR identifies water savings obtained through identified practices and subtracts them from the base daily per capita water use value identified for the water supplier.

The City has selected Target Methodology 3 as the most feasible option to meet the Urban Water Use Target. It should be noted that the City is able to select Method 3 because of the already water efficient usage by its customers. The City is located in the Central Coast Hydrologic Region; therefore, the urban water use target is 95 percent of the hydrologic region target, or 117 GPCD. Table 7 shows the calculation of the 5-year base period, resulting in a Base Daily Per Capita Water Use of 134.6 GPCD, 95 percent of which is equal to 127.8 GPCD. Since the urban water use target of 117 GPCD is not greater than 127.8 GPCD (i. e. it results in a targeted reduction of at least 5 percent compared to the 5-year base period) the target of 117 GPCD is confirmed. The interim target for 2015 is calculated as:

$$(129.8 \text{ GPCD Base Daily Water Use} + 117 \text{ Urban Water Use Target}) / 2 = 123.4 \text{ GPCD.}$$

Thus, the Target Method as associated target selected in this 2015 Plan is the same as that selected in the 2010 Plan. Table 8 summarizes the City’s 2015 interim target and 2020 target. The SBX7-7 Verification Form, which confirms the Target Method and target, can be found in Appendix G.

Table 8: Baselines and Targets Summary (UWMP Table 5-1)

Baseline Period	Start Year	End Year	Average Baseline GPCD	2015 Interim Target (GPCD)	Confirmed 2020 Target (GPCD)
10-year	2000	2009	130	123.4	117
5-year	2006	2010	135		

## 5.6 2015 Compliance Daily per Capita Water Use

SBX7-7 requires water suppliers to calculate their actual 2015 gross water use to determine whether or not they have met their per capita 2015 interim target water use and to assess their progress toward meeting their 2020 water use target. Table 9 shows the City’s population, gross water use, and daily per capita water use for the year 2015.

Table 9: Actual 2015 Per Capita Water Use (GPCD)

Year	Population	Gross Water Use (AF)	Gross Water Use (MGD)	Daily Per Capita Water Use (GPCD)
2015	93,532	10,725	9.6	102

The City’s daily per capita water use in 2015 was 102 GPCD, significantly less than its interim target of 123.4 GPCD. Table 10 summarizes the City’s compliance with its 2015 interim water use target.

Table 10: 2015 SBX7-7 Compliance (UWMP Table 5-2)

Actual 2015 GPCD	2015 Interim Target GPCD	Optional Adjustments (GPCD)				Adjusted 2015 GPCD	2015 GPCD (Adjusted if Applicable)	Did Supplier Achieve Targeted Reduction for 2015?
		Extraordinary Events	Weather Normalization	Economic Adjustment	Total Adjustments			
102	123	0	0	0	0	102	102	Yes

Water Year 2015 (October 2014 – September 2015) was the 4<sup>th</sup> year of a prolonged, multi-year drought across California. Locally, rainfall in the Santa Ynez River watershed during 2015, as measured at Gibraltar Reservoir, was 53 percent below average, and the last four water years have received the lowest cumulative rainfall in recorded history for a consecutive four-year period. Over the last four years, there has been very little inflow to Lake Cachuma.

In response to local water supply conditions and State regulations, City Council declared a Stage One Drought condition on February 11, 2014, Stage Two Drought condition on May 20, 2014, and Stage Three Drought condition on May 5, 2015. The Stage One Drought condition included a voluntary 20 percent reduction in water use, while the Stage Two Drought condition and Stage Three Drought conditions included a mandatory 20 percent and 25 percent reduction in water use, respectively. Residents and businesses actively responded to the City’s need to reduce water use, and the City has experienced a 34 percent cumulative reduction in water use since the May 2015 Stage Three Drought declaration.

This extraordinary conservation effort has clearly contributed to the City’s ability to meet its interim 2015 water use target. Currently the drought continues, and the City expects to continue to see reduced demands. Should the drought end prior to 2020, past experience with extraordinary conservation in response to drought suggests the City’s demands should recover to some extent, albeit not instantaneously. The City will continue to enact cost-effective water conservation programs as developed by modeling work performed by MWM to ensure it meets its 2020 water use target during normal periods, as well as shortage conditions.

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## 6 System Supplies

The City has worked over several decades to develop a diverse water supply portfolio, which includes the following sources:

- 1) Surface Water from the Santa Ynez River watershed, which is either stored or diverted directly
- 2) Mission Tunnel
- 3) Groundwater
- 4) State Water Project
- 5) Supplemental Water Purchases
- 6) Desalination
- 7) Recycled Water

A summary of each water source is provided in this section.

### 6.1 Surface Water from the Santa Ynez River Watershed

Surface water from the Santa Ynez River watershed comes from three different points of diversion: 1) Cachuma Project, 2) Gibraltar Reservoir, and 3) Devil's Canyon Creek.

#### 6.1.1 Cachuma Project

The USBR constructed Lake Cachuma and Bradbury Dam as part of the Cachuma Project in the early 1950s. Interim seismic retrofits were completed in 1996 and permanent repairs were deemed substantially complete in 2001. The federally owned and operated dam is located on the Santa Ynez River 25 miles northwest of Santa Barbara. The drainage area for the reservoir is 417 square miles (including Gibraltar drainage area).



Figure 5: Bradbury Dam and Lake Cachuma

Lake Cachuma originally had a storage capacity of 205,000 AF at elevation 750.0' (NGVD 29 datum) in 1952. In a recent 2013 bathymetric survey (Wallace Group 2014), the current storage capacity at 750.0' elevation is 184,121 AF, indicating about 21,000 AF of storage loss due to sedimentation. However, gate extensions (flashboards) on the Bradbury Dam spillway gates were installed in April 2004, which raised the maximum elevation to 753.0' and increased the storage to 193,305 AF. However, the additional storage is dedicated for water used for fish habitat and does not increase storage for water supply purposes.

Project water is delivered to five member units in accordance with a Master Contract between USBR, the Santa Barbara County Water Agency and the Cachuma Project member units (which include City of Santa Barbara, Goleta Water District, Montecito Water District, Carpinteria Valley Water District, and Santa Ynez River Water Conservation Improvement District #1). The contract was renewed in 1996 for a twenty five-year term.

The project operates under a permit granted by the State Water Resources Control Board (SWRCB). The current Water Right Order 94-5 continued earlier requirements for releases to protect downstream

interests (e. g. the City of Lompoc, Improvement District No. 1 of the Santa Ynez River Water Conservation District and riparian groundwater pumpers along the Santa Ynez River) and required hearings in 2002 and 2003 to address outstanding issues related to potential project impacts on vegetation, fish, and downstream users. The hearings and EIR have been completed since 2011, although a draft water rights order has not yet been released by the SWRCB.

USBR and the Cachuma Project member units have developed revisions to the Project operations since 1993 to improve habitat conditions for steelhead trout while still maintaining water supplies. In 2000, the National Marine Fisheries Service (NMFS) issued a Biological Opinion for USBR's operation and maintenance of Bradbury Dam (the Cachuma Project). NMFS is the agency within the Department of Commerce that oversees protection of Southern California steelhead trout. The 2000 Biological Opinion addresses the effects of Cachuma Project operations on steelhead and its designated critical habitat in accordance with Section 7 of the Endangered Species Act of 1973. In 2014, the NMFS and USBR formally initiated reconsultation of the Biological Opinion. A draft revised Biological Opinion is anticipated in spring 2016.

The Cachuma Project is currently operated at a total annual supply yield of 25,714 AFY in non-drought periods, and this supply is provided to five member agencies. The City's current share of the annual yield is 32.19 percent or 8,277 AFY in normal years. Water is delivered from the reservoir through the Santa Ynez Mountains to the South Coast via the 6.4 mile Tecolote Tunnel, the 24.3 mile South Coast Conduit and four regulating reservoirs, completed in 1956.

The City treats water from Cachuma at the City's Cater Water Treatment Plant, which has a capacity of 37 MGD. This capacity is used for providing treated water to City customers, as well as serving as a treatment facility for Cachuma water allocated to Montecito Water District and Carpinteria Valley Water District. Water quality has historically been good from Cachuma, although impacts from a major fire in the watershed and tighter regulations on disinfectant byproducts have led to the use of advanced ozone treatment.

A key policy of the City's 2011 LTWSP (Appendix H) is that drought planning should be based on a six-year critical drought period rather than the historical five-year period. Since the current project yield of 25,714 AFY is based on the five-year historical drought, the City's operations will be based on deferring use of some current normal year entitlement in order to build carryover for use in the sixth year of a drought.

#### 6.1.2 Gibraltar Reservoir

The City has pre-1914 water rights to divert water from the Santa Ynez River and completed construction of Gibraltar Dam in 1920. Gibraltar Dam is located on the Santa Ynez River about eight miles north of Santa Barbara and upstream of where Lake Cachuma was subsequently constructed. The dam formed Gibraltar Lake with an initial storage capacity of 15,793 AF. From the beginning, siltation has been an issue, particularly following wildfires. In 1948, siltation had reduced the volume by about half, and the dam was raised 23 feet to its current height of 1,400 feet above sea level. Prior to the 2007 Zaca Fire, which burned 60 percent of the 216 square mile Gibraltar watershed, the volume was 6,786 AF. Erosion

since the fire, particularly during the heavy rainfall of January 2008, has reduced the reservoir volume to 5,246 AF as of the May 2013 lake survey (MNS Engineers 2013).

Current Gibraltar Reservoir operations are based on the 1989 Upper Santa Ynez River Operations Agreement (Pass Through Agreement) by which the City agreed to defer a second enlargement of the reservoir in exchange for the right to receive a portion of its Gibraltar water through Lake Cachuma. The intent of this arrangement was to allow the City and other parties to continue to obtain Santa Ynez River supplies that would reflect the Gibraltar storage volume as it was in 1988.

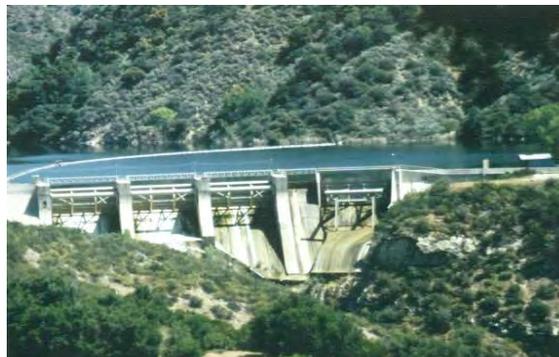


Figure 6: Gibraltar Dam

The City is working to obtain a Warren Act agreement as the preferred method for water accounting under the Pass Through mode of the agreement. Pass Through mode involves tracking the yield of a hypothetical “Base Reservoir” that is equal to the 1988 storage capacity of 8,567 AF and operated under the procedures defined in the Pass Through Agreement. The Pass Through mode allows Gibraltar Reservoir diversions (including the portion taken through Cachuma) up to the amount that could have been diverted under the “Base Reservoir” operations. Modeling analyses were completed in 1989 and also in 2013. The most recent modeling efforts indicated that long-term average yield of the Base Reservoir would be 5,174 AFY (Stetson July 2013). Yield under the actual Pass Through operations can be expected to be somewhat less on average, due to potential losses associated with conveyance of water between Gibraltar and Cachuma and spill and evaporation of Pass Through water at Cachuma. For planning purposes, conservative estimates of average Gibraltar yield are assumed to be 70 percent of the median deliveries estimated in the environmental analysis on the Cachuma Water rights hearings before the SWRCB. In normal years, this results in an estimated yield of 3,206 AFY.

Water from Gibraltar Reservoir is conveyed to the City through Mission Tunnel, which is described in Section 6.1.4. Water quality is affected by turbidity during high flow periods in the Santa Ynez River, which temporarily interrupts diversions. In addition, residual water quality impacts from the 2007 Zaca Fire continue to affect the level of dissolved organic material in Gibraltar water. Water from Gibraltar Reservoir is treated at the City’s Cater Water Treatment Plant, which uses advanced ozone treatment.

### 6.1.3 Devil’s Canyon Creek

The City has pre-1914 water rights to divert water from Devil’s Canyon Creek and maintains a small diversion works on Devil’s Canyon Creek below Gibraltar Dam, which diverts water from Devil’s Canyon Creek into Mission Tunnel. Annual yield ranges from 0 AFY to 557 AFY and is 118 AFY on average.

Water is diverted as available to help improve the quality of water going into Mission Tunnel. Diverted water is counted as a part of allowable diversions under the Pass Through Agreement.

### 6.1.4 Mission Tunnel

Mission Tunnel conveys water from Gibraltar Reservoir through the Santa Ynez Mountains to the City. The tunnel construction was originally completed in 1910, and rehabilitation work was completed in 1994. The tunnel is 3.7 miles long from the North Portal (located approximately 1,700 feet downstream of

Gibraltar Dam) to the South Portal (located along Mission Creek, approximately 3 miles north of downtown Santa Barbara). Infiltration into the tunnel from watersheds on both sides of the mountains contributes to the City’s water supply. Water supplies from infiltration to Mission Tunnel have varied from a low of 500 AFY in 1951 to a high of 2,375 AFY, with an average annual yield of 1,125 AFY based on analysis in the EIR for the Cachuma Project water rights hearings.

Tunnel infiltration augments water conveyed from Gibraltar Reservoir and flows to Cater Water Treatment Plant via the penstock hydroelectric facility and Lauro Reservoir. Water quality is relatively hard, as is typical of the region, but otherwise good.

### 6.1.5 State Water Project

In 1963 the Santa Barbara County Flood Control and Water Conservation District executed a water supply contract with the DWR for delivery of up to 57,700 AFY from the SWP. In 1979 a bond election for construction of in-County facilities to convey the water failed. As a result, the County sought financing through agreements with local water purveyors. The contracts with local water purveyors total 45,486 AFY.

In 1991, the Central Coast Water Authority (CCWA) was formed to construct, manage, and operate Santa Barbara County's local facilities for distribution and treatment of State water. Construction of conveyance facilities was completed in 1997, which include the 102 mile Coastal Branch of the State Aqueduct and the 42-mile Santa Ynez Extension ending at Lake Cachuma. Once State Water reaches Lake Cachuma it is conveyed through Tecolote Tunnel to the City’s Cater Water Treatment Plant (similar to the Cachuma Project water).

The SWP contract defines the maximum amount each project contractor is entitled to request each year, which is referred to as the “Table A” amount. The City’s SWP Table A amount is 3,300 AFY, including a 10 percent buffer, and the City has a share of rated pipeline capacity approximately equal to that amount.

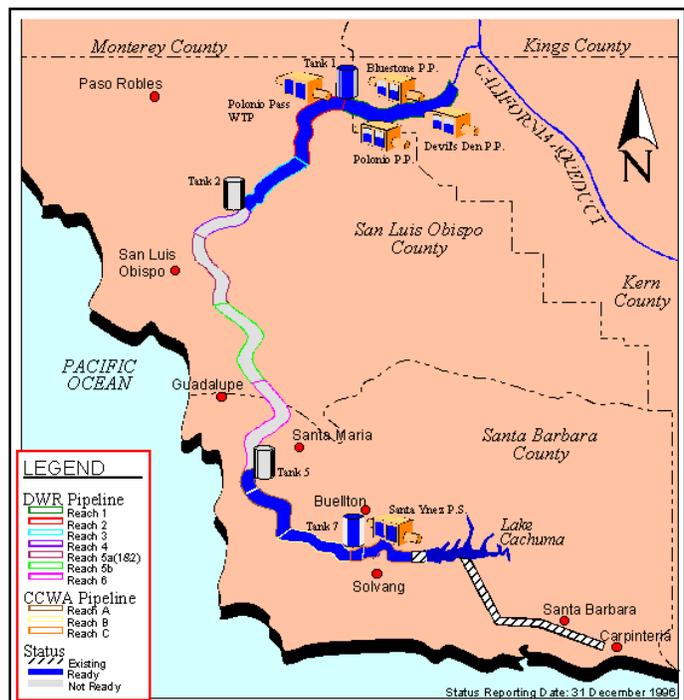


Figure 7: Map of Santa Barbara County's State Water Conveyance Facilities

While there is uncertainty about future SWP reliability, the 2015 State Water Project Delivery Capability Report is the best estimate of expected deliveries and has been used by CCWA to project future deliveries through the planning period for a range of hydrologic conditions, as shown in Table 11. The City has confirmed with CCWA its intent to use these estimates for future planning, except as such projections may be modified for sensitivity analysis of future water supply reliability.

Table 11: Table A Deliveries in Selected Drought Conditions (AF)

<b>Drought Condition</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>
Long Term Average	2,015	2,001	1,978	1,973	1,958
Single Dry Year 1977	352	330	308	286	264
2-year drought 1991-1992	644	648	652	656	660
2-year drought 1990-1991	644	600	555	511	466
4-year drought 1931-1934	958	990	1,023	1,055	1,087
4-year drought 1988-1991	1,023	973	923	873	823
6-year drought 1987-1992	932	899	866	833	800

The City’s State Water is typically stored in San Luis Reservoir prior to delivery to Lake Cachuma. If San Luis Reservoir is spilling, the City is subject to losing its water. To avoid this risk in the past, the City has worked through CCWA to move water into groundwater banking programs. The City currently has 1,285 AF in Dudley Ridge Groundwater Bank and 205 AF in Palmdale Groundwater Bank. These are the available amounts after accounting for returns/losses and require a 50 percent State Water allocation for the water to be delivered to the City. While this water has not been available for delivery during the recent drought, it can be used to meet return requirements in future years under supplemental water purchase agreements.

#### 6.1.6 Supplemental Water Purchases

The State Water Project pipeline provides the City with the ability to convey supplemental water purchases to augment drought year supplies. During the recent drought, the City has purchased supplemental water through CCWA. A summary of recent water purchase amounts is provided in Table 12 below.

Table 12: Recent Supplemental Water Purchases

<b>Agency</b>	<b>2014</b>	<b>2015</b>
Antelope Valley-East Kern Water District	-	4,219
Mojave Water District	535	-
State Water Contractors Dry Year Transfer Program	-	85
Biggs-West Gridley Water District	-	1,600
Vandenberg Air Force Base	1,001	147
<b>Total</b>	<b>1,536</b>	<b>6,051</b>

Some of these water purchase agreements have required a 1:1 or 1:2.25 exchange, which means the City must return the water within a certain period of time. The City’s current “water debt” that must be returned is 4,219 AF to Antelope Valley-East Kern Water District (AVEK) and 869 AF to Mojave Water District. Both agreements require the water be returned within a 10-year period. The City will be evaluating options to return the water in the future, which include: 1) delivering water stored at Dudley Ridge and Palmdale Groundwater Banks, 2) delivering future Table A allocations (and increase use of other available resources in the interim), or 3) purchasing additional water as available on the open market

during wet periods when the price of purchased water is expected to be lower and delivering the purchased water directly to agencies to whom the City owes water debt.

## 6.2 Groundwater

The City obtains pumped groundwater from three hydrogeologic units: Foothill Basin, Storage Unit No. 1 and Storage Unit 3. The location of each basin is shown in Figure 8. This section provides a description of each basin, along with the City’s groundwater management strategies.

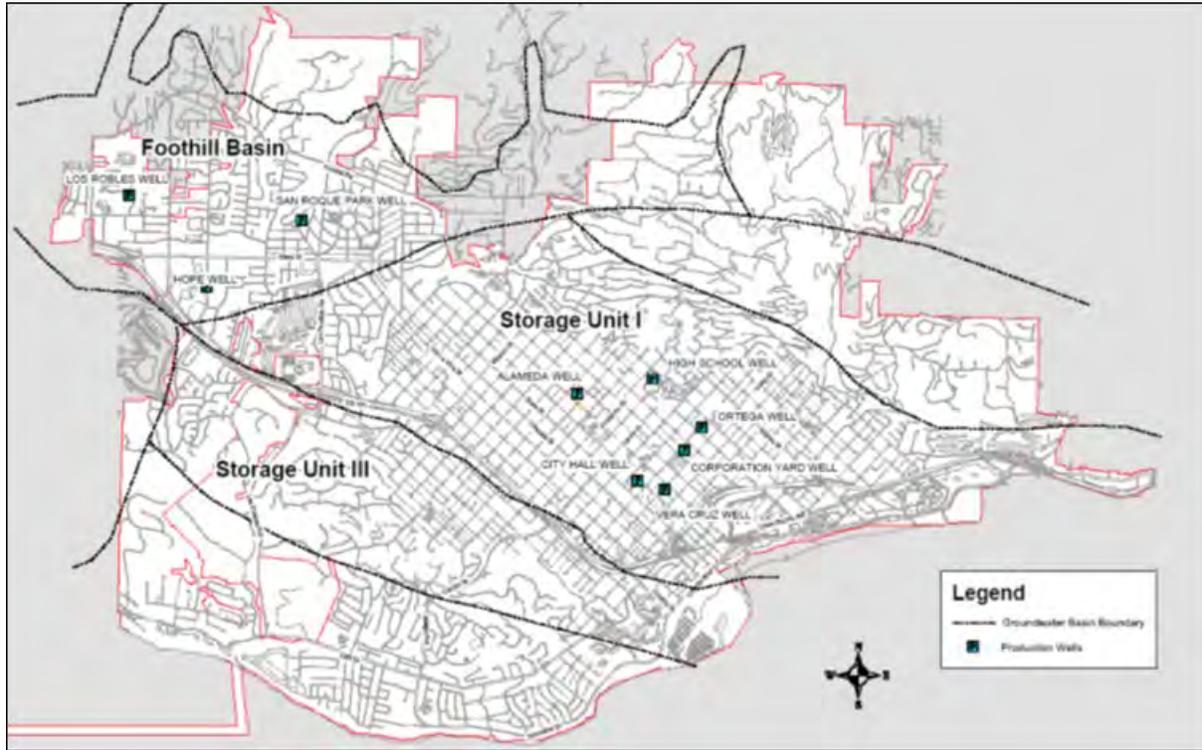


Figure 8: Groundwater Basins and Well Locations

### 6.2.1 Basin Description

#### 6.2.1.1 Foothill

The Foothill Basin<sup>1</sup> is an approximately 4.5 square mile groundwater basin bounded by Tertiary sedimentary rocks of the Santa Ynez Mountains to the north and northeast; the Goleta fault on the northwest; the Modoc, More Ranch, and Mesa faults to the southwest; and the Mission Ridge fault on the southeast. The lower boundary of the basin is formed by Tertiary-aged sedimentary rocks. The principal aquifer of the basin is the Santa Barbara Formation. This formation is primarily composed of marine sand, silt, and clay and has a maximum thickness of approximately 400 feet. The entirety of the formation is overlain by alluvium apart from where it crops out south of the Goleta fault (Freckleton 1989).

The primary pumpers of the basin include the City of Santa Barbara, which operates three municipal production wells in the basin, and LCMWC, which pumps an average of 300 AFY. There are some private pumpers in the basin as well—their pumpage is estimated to be about 150 AFY (Freckleton 1989).

<sup>1</sup> Foothill Basin is labeled No. 3-53 in DWR’s Bulletin 118.

The average annual perennial yield for the Foothill Basin is estimated to be approximately 905 AFY (Freckleton 1989). Assuming approximately 450 AFY for other pumpers, the average perennial yield planned for use by the City is approximately 450 AFY. Water quality in the Foothill Basin is relatively good and typically, only wellhead disinfection is required.

Under a conjunctive management program, the City increases pumping of groundwater during periods of drought or emergency to replace diminished surface water supplies. During normal to wet years when surface water is available, pumping from the groundwater basins is decreased and the basins are allowed to recharge. Natural recharge can be augmented by injecting treated surface water at the San Roque production well in the Foothill basin. A primary goal is to attempt to utilize the perennial yield of the groundwater basins, while maximizing available storage for back up during drought.

Groundwater modeling analyses performed by the United States Geological Survey (USGS) estimate the drought yield available to the City from Foothill groundwater storage is 5,563 AF over a 5-year period (Nishikawa 1998).

#### *6.2.1.2 Storage Unit 1*

Storage Unit I and Storage Unit III (discussed subsequently) are recognized collectively by DWR as the Santa Barbara Basin<sup>2</sup>. Storage Unit I underlies downtown Santa Barbara and covers approximately seven square miles. It is bounded to the northwest by the Mission Ridge Fault; to the northeast by the Santa Ynez foothills at the Sycamore and Lagoon Faults; to the southeast by the Mesa Fault; to the east by the Montecito Groundwater Basin; and to the southeast by the Pacific Ocean (Martin 1984).

The unconsolidated deposits range in thickness from less than 200 feet to more than 1,000 feet and have been divided into five zones including the shallow zone, the upper producing zone, the middle zone, the lower producing zone, and the deep zone. The upper producing and lower producing zones are the main water producing zones of the basin, with the lower producing zone being the major source of groundwater for wells located within the basin (Martin 1984).

The City is the only known major pumper in this basin, operating six municipal wells. The average annual perennial yield for Storage Unit I is estimated to be 800 AFY (Martin and Berenbrok 1986). Groundwater quality at most of the City's production wells in Storage Unit I require treatment at the Ortega GWTP prior to potable use. The Ortega GWTP was recently rehabilitated and treats naturally occurring constituents, primarily sulfides, iron, and manganese.

Similar to the Foothill Basin, the City increases pumping from Storage Unit I during periods of drought or emergency to replace diminished surface water supplies. During normal to wet years when surface water is available, pumping from the groundwater basins is decreased and the basins are allowed to recharge. Natural recharge can be augmented by injecting treated surface water at the Corporation Yard, Alameda, and High School wells in Storage Unit I. A primary goal is to attempt to utilize the perennial yield of the groundwater basins, while maximizing available storage for back up during drought.

Seawater intrusion into Storage Unit I is a key issue because the groundwater basin is in contact with seawater that can flow into the basin during periods of heavy pumping. Under normal periods of little or

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<sup>2</sup> Santa Barbara Basin is labeled No. 3-17 in DWR's Bulletin 118.

no pumping, the groundwater flow is toward the ocean, which stops intrusion and pushes the seawater interface seaward.

The City works with USGS regularly to monitor the groundwater quality of Storage Unit I. Four of six groundwater monitoring wells located between the ocean and the municipal supply wells have shown chloride levels greater than 1,000 milligrams/liter (mg/L). This is indicative that seawater contamination is linked to heavy pumping in the basin, although no significant degradation of municipal production wells has occurred.

The City's Multiple Objective Optimization Model (developed by USGS) was used to estimate pumping levels during a critical drought period that represent a compromise between maximizing production and minimizing seawater intrusion. The model results in a drought yield available to the City from Storage Unit I groundwater storage ranging from 7,249-13,170 AF over a 5-year period, depending on level of seawater intrusion that is allowed into the basin (Nishikawa 1998). In Storage Unit I, USGS modeling assumes that new wells would be placed further inland to minimize intrusion. In accordance, the City has worked to add newer wells further inland at Alameda Park and Santa Barbara High School.

#### 6.2.1.3 Storage Unit III

As noted above, Storage Unit I and Storage Unit III are recognized collectively by DWR as the Santa Barbara Basin<sup>3</sup>. Storage Unit III lies to the southwest of Storage Unit I and covers an area of about 2.5 square miles. Its geology is quite similar to Storage Unit I although it is much smaller in size. The basin is bounded to the north by the Mesa Fault, to the west by an unnamed fault, to the south by the Lavigia Fault, and to the east by an offshore fault. Like Storage Unit I, Storage Unit III consists of five zones. The major source of water to wells in this unit is the lower producing zone, which ranges from 100 to 140 feet thick. (Freckleton, Martin and Nishikawa 1998).

Groundwater quality in the basin is quite poor. The City operates one municipal well in the basin, the Valle Verde well, that is not treated to potable standards and is used to supplement the City's recycled water distribution system, which serves non-potable demands such as irrigation and toilet flushing.

The average annual perennial yield estimated to be approximately 200 AFY (Freckleton, Martin and Nishikawa 1998). Assuming approximately 100 AFY of pumping by other private wells, the yield available to the City is 100 AFY.

#### 6.2.2 Groundwater Management

The City, in partnership with USGS, has been the lead water agency studying the basin through data collection and groundwater modeling for decades. The City's Municipal Code Chapter 14.32 also has requirements for new groundwater wells.

The City's 2011 LTWSP policies included development of a formalized Assembly Bill 3030 groundwater management plan. Given the recently passed Sustainable Groundwater Management Act of 2014, the City is now reviewing new legislation and evaluating formation of a Groundwater Sustainability Agency and preparation of a Sustainable Groundwater Management Plan.

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<sup>3</sup> Santa Barbara Basin is labeled No. 3-17 in DWR's Bulletin 118.

The City has implemented several groundwater management actions. In addition to water conservation and use of alternative supplies (described in other sections), the City has implemented the following groundwater management actions:

- Groundwater level and water quality monitoring
- Metering and measuring of groundwater pumping
- Groundwater well permitting
- Groundwater modeling to estimate sustainable yield
- Recharge and Conjunctive Use Programs

#### *6.2.2.1 Groundwater Level and Water Quality Monitoring*

In partnership with the USGS, the City has been collecting groundwater monitoring data for several decades. Water level and water quality data is collected at over 60 monitoring wells that are owned and maintained by the City. All data collected is available on USGS's website, along with maps of monitoring well locations: [maps.waterdata.usgs.gov](https://maps.waterdata.usgs.gov).

In addition, the City has volunteered to monitor and report groundwater levels under the California Statewide Elevation Monitoring (CASGEM) program.

#### *6.2.2.2 Metering and Measuring of Groundwater Pumping*

Pumping from all of the City's groundwater production wells is metered and measured, and the City obtains pumping information from LCMWC, the other major pumper in the Foothill groundwater basin. In addition, the City's Municipal Code Chapters 14.32.050 and 14.32.055 require that all new private wells be constructed with metering capabilities and measured pumping be reported.

#### *6.2.2.3 Groundwater Well Permitting*

The City administers permitting of all new groundwater wells within the City boundaries, and groundwater wells are subject to requirements in the City's Municipal Code Chapter 14.32. Groundwater well permits within the Foothill Basin but outside of City boundaries are administered by the County of Santa Barbara. The City is working to update a comprehensive database of groundwater wells within the basins and periodically requests information from the County.

#### *6.2.2.4 Groundwater Modeling*

The City has longstanding partnership with the USGS to study and evaluate the basin. A detailed numerical groundwater model was created in MODFLOW-2000 to evaluate optimal pumping during drought periods, and previous modeling analyses form the basis for the City's current water supply planning. Work efforts are underway to update the existing groundwater model to SEAWAT-2000, which models seawater intrusion. The result is a more sophisticated model of the quantity of groundwater flow, as well as the quality, in terms of salt content and extent of intrusion. This will allow the City to estimate the location of the saltwater/freshwater interface and the rate at which it can be expected to move inland toward City wells if increased pumping were to continue in response to drought. The groundwater modeling will evaluate the sustainable yield of the City's groundwater resources and develop decision rules for managing supplies from groundwater.

#### *6.2.2.5 Recharge and Conjunctive Use Programs*

The City uses groundwater basins conjunctively with surface water supplies. Increased pumping occurs during droughts and emergencies when surface water is diminished, and decreased pumping occurs in

normal to wet years to allow groundwater storage to be replenished. To augment natural recharge, the City has four wells with injection capability for artificial replenishment using treated surface water. Figure 9 from the City's 2011 LTWSP illustrates the City's long-term groundwater pumping strategies. The City's average planned pumping is 1,083 AFY, compared to an average perennial yield of 1,300 AFY available to the City.

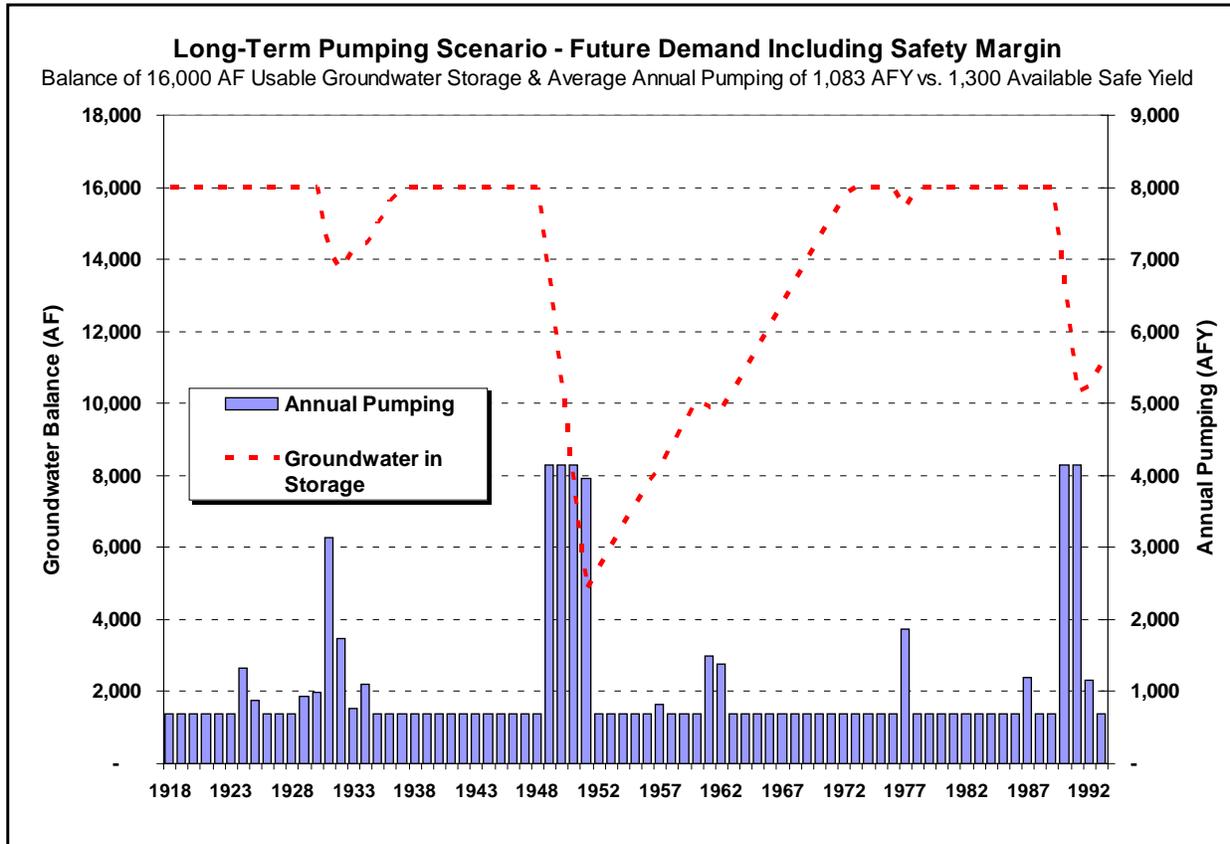


Figure 9: Long-Term Groundwater Pumping Strategy (2011 LTWSP)

### 6.2.3 Historical Pumping and Overdraft Conditions

Recent pumping by the City is shown in Table 13, and is based on volumetric meter data.

Table 13: Groundwater Pumped by Fiscal Year (UWMP Table 6-1)

	2011	2012	2013	2014	2015
<b>Foothill Basin</b>	553	808	394	681	724
<b>Storage Unit I</b>	152	254	359	111	948
<b>Storage Unit III</b>	0	0	0	0	83
<b>Total</b>	705	1,062	753	792	1,755

For the Foothill Basin and Storage Unit I the estimated groundwater yield over a five-year drought period is based on previous numerical groundwater modeling performed by the USGS. As summarized in Table

14 below, the estimated yield to the City exceeds actual pumping by the City over the last 5 years, and the groundwater basins are in long-term balance.

Table 14: Comparison of Groundwater Basin Yield and Production

<b>Storage Unit I Basin</b>	
Estimated 5-Year Drought Storage Yield for City Use <sup>1</sup> :	7,418 AF
City Groundwater Production last 5 years (July 2010 – June 2015):	1,825 AF
Remaining 5-Year Drought Storage Yield for City Use:	5,593 AF
<b>Foothill Basin</b>	
Estimated 5-Year Drought Storage Yield for City Use <sup>1</sup> :	5,563 AF
City Groundwater Production last 5 years (July 2010 – June 2015):	3,161 AF
Remaining 5-Year Drought Storage Yield for City Use:	2,402 AF

<sup>1</sup> Nishikawa, 1998. USGS Report 97-4246A *Simulation/Optimization Model for Water Resources Management, Santa Barbara, CA*, Tables A-14 and A-15.

For Storage Unit III the City used non-potable groundwater from Valle Verde well to augment supply to the recycled system while the recycled water treatment plant was being upgraded. The City pumped a total of 123 AF from Valle Verde well from January 2015 to October 2015, which is less than the historical maximum annual pumping by the City of 216 AF in 1990. The estimated average annual Storage Unit III yield available for use by the City is approximately 100 AFY. Valle Verde well is currently offline to rest Storage Unit III now that the recycled water supply is available again.

Based on the City’s water level and water quality monitoring, groundwater modeling estimates of available yield and historical pumping records, the groundwater basins are in long-term balance. State Bulletin 118 does not list the City’s basins in overdraft, which is consistent with City experience.

### 6.3 Wastewater and Recycled Water

This section presents both recycled water supplies and uses, combining aspects of both Section 4 (System Water Uses) and Section 6 (System Supplies). Refer to Tables 6-2 through 6-6 in Appendix B in reference to this section.

#### 6.3.1 Recycled Water Coordination

The following agencies are responsible for collecting, treating, or discharging municipal wastewater within the City of Santa Barbara’s water service area:

- City of Santa Barbara: Responsible for collection, treatment and discharge of municipal wastewater for the vast majority of wastewater created within City limits and portions of the County. The City owns and operates the El Estero Wastewater Treatment Plant (EEWTP) and produces recycled water to supply the City’s existing recycled water distribution system.
- Mission Canyon Sewer District: Responsible for collection of wastewater in a portion of the Mission Canyon area of the County, located outside City limits but within the City’s water service area. Wastewater collected by the Mission Canyon Sewer District is treated at the City’s EEWTP.
- Goleta Sanitary District: Responsible for collection, treatment, and discharge of wastewater for a limited number of parcels on the western edge of the City. Goleta Sanitary District owns and operates its own wastewater treatment plant, which also produces recycled water.

### 6.3.2 Wastewater Collection, Treatment and Disposal

The City operates a wastewater collection system consisting of 251 miles of sewer pipe and 7 lift stations. The City also owns and operates a treatment plant, EEWTP, which has a design capacity of 11 MGD and a long-term average flow of 7.7 MGD. During the current drought, the average daily flow has been reduced to approximately 6.3 MGD. Treatment level at the City’s EEWTP plant includes secondary treatment for all wastewater collected, as well as tertiary treatment for a portion of flows that supply recycled water to the City’s existing recycled water distribution system. Secondary effluent that does not go through the tertiary treatment process is discharged to the Pacific Ocean.

### 6.3.3 Recycled Water Beneficial Uses

The City initiated planning for a recycled water project in the early 1980s. Phase I was completed in 1989, which included a tertiary treatment plant with carbon filtration and disinfection at EEWTP, a 600,000-gallon distribution reservoir and pumping station and 5.1 miles of distribution main. Phase II was completed in 1992, adding an additional pumping station, a 1.5 million gallon reservoir, and 8.3 miles of distribution main. Recently, the City completed upgrades to its tertiary treatment plant to include a microfiltration/ultrafiltration treatment process.

A map of the existing system is presented in Figure 10. Under normal conditions, the existing recycled water customer demand is approximately 800 AFY, plus approximately 300 AFY of process water for use at EEWTP. The system provides recycled water to 90 accounts that serve parks, schools, golf courses, and other large landscaped areas. Some public restrooms have been retrofitted to use recycled water for toilet flushing. Water is provided at 80 percent of the potable water irrigation rate as an incentive for using recycled water and to compensate for additional irrigation requirements associated with salt leaching. Monitoring of salt levels in the soil was conducted twice per year from 1993 through 2003. No long-term build-up of soil salt was indicated.

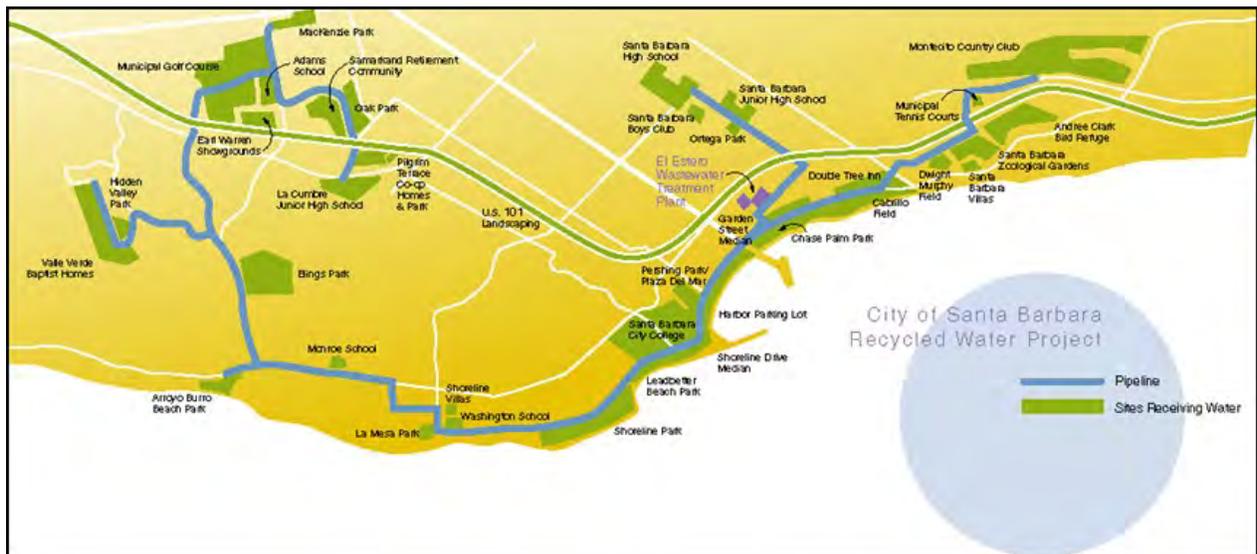


Figure 10: Recycled Water System

### 6.3.4 Actions to Encourage and Optimize Future Recycled Water Use

The City’s has taken action to expand and optimize recycled water through non-potable use. In addition, the City is currently evaluating the feasibility of potable reuse alternatives.

#### 6.3.4.1 Non-Potable Reuse

The City completed a 2009 Water Supply Planning Study (Carollo Engineers 2009), which included a recycled water market assessment and analysis of potential pipeline extensions of the City's recycled water distribution system. Based on the 2009 Study, optimization of the use of recycled water for non-potable demands has been mostly accomplished with the completion of Phase II. Distribution pipelines have been constructed to all cost effective areas, and most of the potential user sites are now connected. Currently, based on the 2011 LTWSP, the City plans to increase recycled water use within its service area by an additional 300 AFY. The 2011 LTWSP anticipates increased use through the conversion of additional potable use at existing recycled user sites, addition of new recycled water users along the existing distribution and some limited expansion of the distribution system. New development in proximity to the recycled water main is required to utilize recycled water for landscape irrigation. An update to the 2011 LTWSP plan is anticipated prior to the completion of the City's 2020 UWMP. Expansion of recycled water use, along with other related uses such as indirect potable reuse and direct potable reuse (discussed in the section below), will be revisited at the time of the LTWSP update.

#### 6.3.4.2 Potable Reuse

The City is currently evaluating the feasibility of potable reuse. Potable reuse refers to advanced treatment (purification) of recycled water for drinking water purposes. There are two concepts for potable reuse: indirect potable reuse (IPR) and direct potable reuse (DPR). Current State regulations allow for IPR, in which purified recycled water is held within an environmental storage buffer, such as a groundwater basin, for a certain period of time prior to use for drinking water supply. The purpose of the environmental storage buffer is to provide sufficient response time should there be a failure in the recycled water treatment system. While current regulations do not currently allow DPR, the concept proposes to use an engineered buffer in lieu of an environmental buffer. The State is currently working to develop guidelines for DPR, which will provide a framework for future regulations. The State guidelines for DPR are scheduled to be released by December 2016, and the most recent information will be incorporated in to the City's feasibility analysis of potable reuse alternatives. Initial results of the City's potable reuse feasibility study are expected to be complete by summer 2016, and final completion of the feasibility study is expected by spring 2017. The results of the potable reuse feasibility study will be incorporated into a future update of the City's LTWSP and UWMP.

### 6.4 Desalinated Water Opportunities

The City constructed the Charles E. Meyer desalination facility, a reverse osmosis seawater desalination facility, as an emergency water supply during the drought of 1987-1992. After the drought ended and surface water was available to meet demands, the facility was put in long-term storage mode to reduce maintenance costs. The facility has since been incorporated into the City's LTWSP as a way of reducing shortages due to depleted surface supplies during drought, and the City has maintained permits to provide for desalination supply of up to 10,000 AFY.

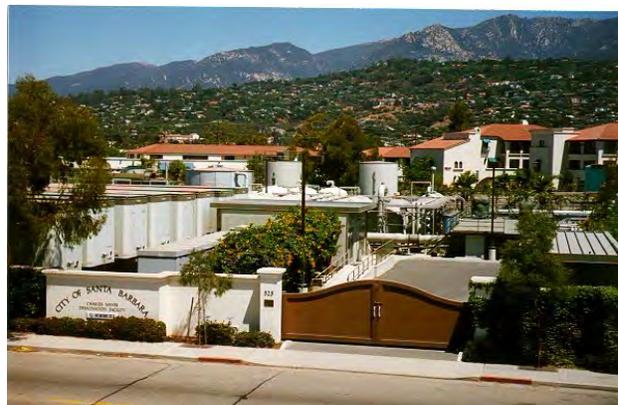


Figure 11: Charles E. Meyer Desalination Facility

Due to the severity of the present statewide drought, the City is currently reactivating the Charles E. Meyer desalination facility, which required design and construction efforts to make the plant operational with the best available technology. The reactivated facility will use 40 percent less energy than the original design, greatly reducing its electricity demand and carbon footprint. In addition, the plant will use existing ocean intake pipes, equipped with wedge wire screens recognized by the SWRCB as a best available technology for screened open ocean intakes. The screens will be made of durable copper-nickel alloy and will have one-millimeter openings to minimize marine life entrainment and impingement.

The initial construction phase will provide up to 3,125 AFY of supply, and water supply is anticipated to be available by October 2016. The role of desalination under current City policy continues to be as a drought and emergency supply, although it is permitted under various operating scenarios. Future updates to the City's LTWSP will re-evaluate the role of desalination, should there be long-term changes to the Cachuma operational yield that result from the current drought or other factors (e.g. new environmental requirements).

## 6.5 Urban Stormwater Management and Graywater Programs

The following discuss urban stormwater management and graywater programs administered or facilitated by the City.

### 6.5.1 Urban Stormwater Management

The City is active in stormwater management through programs run by the Creeks Division of the City's Parks and Recreation Department. The Creeks Division administers the City's Stormwater Management Program pursuant to the federal Clean Water Act's National Pollutant Discharge Elimination System (NPDES) Phase II regulations, which govern stormwater discharges. The program identifies, promotes, and/or enforces, as applicable, BMP's for minimizing urban runoff to the ocean and local creeks. These include:

- Required design elements for promoting storm drain infiltration in lieu of runoff to the stormwater system on any significant new development projects;
- A series of BMP's for use during all construction activities for capturing runoff and sediment; and
- Various educational efforts to encourage voluntary actions to minimize stormwater runoff.

In the City of Santa Barbara, the beneficial effects of stormwater management relate mostly to improved quality of stormwater runoff and some augmentation of groundwater in the shallow groundwater zones, which in turn may augment creek flows, thereby supporting habitat. Groundwater that is part of the City's urban water supply comes from deeper water producing zones, which in most areas are separated from the shallow zone by a low permeability layer. Because of the hydrogeology of the City's groundwater basins, there are few areas where stormwater augmentation has potential for reaching the deeper producing zones. Some exceptions occur in areas adjacent to creeks that are geologically connected to the lower zones that support the City's water supply, though these areas are limited.

To the extent captured rainwater is diverted for landscape irrigation use, such as through use of rain barrels and rain gardens on private property, it can offset the use of the City water supplies and help preserve potable resources. However, the amount of stormwater captured and used on private property is difficult to quantify and is not a water supply managed by the City. Because of its potential to reduce demands and preserve the City's potable water supply, the City's Water Resources Division does promote such measures as determined feasible by its customers (refer to Section 6.5.3).

### 6.5.2 Graywater

Graywater is wastewater that originates from household fixtures such as showers, bathtubs, clothes washing machines, and bathroom sinks; it excludes wastewater from toilets, dishwashers, and kitchen sinks. Graywater is generated onsite and reused for other purposes such as landscape irrigation or disposal fields. It is important not to mistake graywater with recycled water, which is subject to monitored treatment and purification to make it suitable for a range of beneficial uses.

The California Plumbing Code has requirements for graywater, which are enforced by the City's Building and Safety Division of the Community Development Department. The current regulations allow for the following types of graywater systems:

- Laundry to Landscape System: uses only a single domestic clothes washing machine in a one- or two-family dwelling
- Simple system: discharge of 250 gallons per day or less and serves a one- or two- family dwelling
- Complex system: discharges over 250 gallons per day

A Laundry to Landscape graywater system does not require a building permit approved through the City's Building and Safety Division; however, simple systems and complex systems do require building permits.

To the extent graywater is diverted and reused for landscape irrigation, it can offset the use of the City water supplies and help preserve potable resources. However, the amount of graywater captured and used on private property is difficult to quantify and is not a water supply managed by the City. Because of its potential to reduce demands and preserve the City's potable water supply, the City's Water Resources Division does promote such measures as determined feasible by its customers (refer to Section 6.5.3).

### 6.5.3 Rainwater and Graywater Activities within Water Conservation Program

The City's Water Conservation Program supports and incentivizes onsite water capture and reuse through various rainwater and graywater programs available to water customers and landscape professionals:

- Offers rebates on Laundry to Landscape graywater materials through the Smart Landscape Rebate Program.
- Offers rebates on rain garden materials such as mulch, cobbles, and water wise plants.
- Sponsors free hands-on workshops for homeowners and professionals to install graywater systems, passive rainwater catchment, and rain cisterns.
- Sponsors bilingual Graywater 101 and Rainwater 101 classes for community members to get an overview of design options, materials needed, and helpful resources.
- Sponsors Water Wise Walking Tours in partnership with Sweetwater Collaborative to tour homes and gardens with onsite water reuse systems to learn how they were installed and maintained.
- Develops the Water Wise Home Demonstration Garden in partnership with the Santa Barbara Botanic Garden to showcase graywater, passive rainwater collection, and active rainwater collection.
- Sponsors the Watershed Wise Landscape Professional Certification Training (an EPA WaterSense certified program) to certify landscape professionals in site evaluation, rain garden installation, efficient irrigation, and maintenance.

More information on all of these programs can be found at [www.SantaBarbaraCA.gov/Rainwater](http://www.SantaBarbaraCA.gov/Rainwater).

## 6.6 Future Water Projects

Other future projects, in accordance with the City's LTWSP, are listed in Table 6-7 (Appendix B) and summarized below:

- Demand Reduction/Water Conservation Program: As described herein, the City will continue to implement a cost effective water conservation program in compliance with the CUWCC BMP's and equivalent to Program B as identified in the Water Conservation Technical Evaluation prepared by MWM.
- Sedimentation Management: An updated assessment of the City's Gibraltar Reservoir is planned to determine if there are cost effective options for halting loss of storage capacity. Additionally, the City will promote the development of a long-term strategy to minimize loss of storage at Lake Cachuma, in conjunction with Cachuma Project Member Units and other appropriate parties, including State and Federal agencies.
- Pass Through Operations for Gibraltar Reservoir: As noted above, the existing Upper Santa Ynez River Operations agreement provides for storing Gibraltar water in Lake Cachuma to replace storage capacity lost to sedimentation. The City is working with the USBR to enact a Warren Act contract for accounting of the City's water passed through Gibraltar and stored in Cachuma.
- Optimized Groundwater Management: Updated groundwater modeling by USGS will be used to assess strategies for groundwater management, including optimal use of natural recharge, and options for artificial recharge. The City will develop a Groundwater Management Plan, consistent with State law, to provide for the orderly and responsible use of the City's groundwater resources. To maintain well capacity over time, the City will need to rehabilitate or replace some of its existing wells. Sites for new or replacement production wells will be evaluated with the goal of minimizing seawater intrusion.
- Expanded Recycled Water Use: Remaining system capacity of 300 AFY is planned through connection new users, which would require distribution system expansion where cost effective. Improvements to the tertiary recycled water treatment plant have been completed and reduced the potable blend water requirements for recycled water. A study is underway to evaluate the feasibility of potable reuse alternatives. An update to the LTWSP is anticipated prior to the completion of the City's 2020 UWMP. During the update, the expansion of recycled water use, as well as the results of the feasibility study on potable reuse alternatives will be revisited.
- Groundwater Banking or Long-term Transfer Programs: The City will investigate opportunities to bank unused State Water, with the goal of using this water as a cost-effective and reliable way to reduce the amount of drought water purchases that may be needed during a critical drought period.
- Desalination Facility: The City's existing desalination facility is being reactivated to produce a supply of up to 3,125 AFY, and the City's permits allow for a desalination supply of up to 10,000 AFY. The desalination facility is an important part of the City's water supply during drought and emergency periods, and operation or expansion will be evaluated as needed to meet critical water supply needs.

## 6.7 Summary of Existing and Planned Sources of Water

The actual water supply produced for FY 2015 is provided in Table 6-8 (Appendix B). An important aspect of the actual FY 2015 supply mix is that the City of Santa Barbara declared a Stage Three Drought Condition in May 2015 (after several years of critically dry conditions that began in April 2011, after Cachuma stopped spilling). Therefore, the FY 2015 supply mix reflects one year within a multi-year drought strategy. The City's drought supply planning is described further in Section 7.

Table 15 (Table 6-9 in Appendix B) shows projected water supplies under normal or long-term average conditions, at five-year increments from 2020 to 2035. For reference, the existing 2015 water supplies under normal hydrology conditions are also included. Some supply in normal years is planned to be reserved to build banked storage and carryover in preparation for a critical drought period. A safety margin of 10 percent is maintained, consistent with City water supply policies, in case of unanticipated added demand, such as annexations, or supply shortages.

While desalination supply is available in normal hydrology years, its role is a drought/emergency supply under current City planning policies (based on the 2011 LTWSP). Therefore, it is not shown in Table 15 below, which illustrates supply in normal hydrology conditions. The role of desalination may be re-evaluated in future updates to the City’s LTWSP.

Table 15: Water Supplies - Projected (AF) (Based on UWMP Table 6-9)

Potable Water Supplies	Normal	Projected			
	2015	2020	2025	2030	2035
Wholesaler: CCWA/State Water	2,015	2,001	1,987	1,973	1,958
Less State Water Deliveries to Carryover/Banked Storage	-300	-300	-300	-300	-300
Cachuma Project	8,277	8,172	8,070	7,967	7,863
Less Project Water to Local Carryover/Storage	-1,000	-1,300	-1,300	-1,300	-1,300
Montecito Water District Transfer per Juncal Agreement	300	300	300	300	300
Gibraltar Reservoir/Devil’s Canyon	3,206	3,206	3,206	3,206	3,206
Mission Tunnel	1,125	1,125	1,125	1,125	1,125
Groundwater	1,083	1,083	1,083	1,083	1,083
Desalination	0	0	0	0	0
<b>Total Potable Supplies</b>	<b>14,706</b>	<b>14,287</b>	<b>14,171</b>	<b>14,054</b>	<b>13,935</b>
Less Blend Water	-758	-275	-275	-275	-275
Less Net Exports to GWD	-183	0	0	0	0
Less Export to Groundwater Storage	0	-150	-150	-150	-150
<b>Potable Supplies Available for Retail Demand</b>	<b>13,765</b>	<b>13,862</b>	<b>13,746</b>	<b>13,629</b>	<b>13,510</b>
Less Projected Retail Demand	--	-12,226	-12,093	-12,005	-12,027
<b>Available Safety Margin</b>	<b>--</b>	<b>1,636</b>	<b>1,653</b>	<b>1,624</b>	<b>1,483</b>
<b>% Available for Safety Margin (per City policy)</b>	<b>--</b>	<b>12%</b>	<b>12%</b>	<b>12%</b>	<b>11%</b>
<b>Notes:</b>					
1) Above projections assume years of normal/average hydrologic conditions (not actual drought conditions experienced in 2015).					
2) Adequate water supply during critical drought depends on carryover/banking of SWP and/or Cachuma water during normal years					
3) Projections reflect minor projected increases in demand, which are offset by demand reduction from new conservation and recycled water					
4) State Water Table A allocations based on long-term average per CCWA					
5) Cachuma Project yield reflects 5% reduction over 20-year planning period due to sedimentation					
6) Gibraltar yield based on 70% of estimated median yield under Mitigation Mode, per Draft EIR for Cachuma water rights hearing					

- 7) Mission Tunnel yield based on Draft EIR for Cachuma water rights hearing
- 8) Groundwater: average pumping amounts for 2030 conditions under LTWSP performance analysis at 14,000 + 10% safety margin
- 9) Desalination is available in normal hydrology years; although its current role is a drought/emergency supply and therefore not shown above.

Recycled Water Supplies	Normal	Projected			
	2015	2020	2025	2030	2035
Recycled Water from Tertiary Filters (net of process water)	0	675	750	825	825
Blend Water	792	175	175	175	175
Valle Verde Well	83	100	100	100	100
<b>Total Production for Recycled Retail Demand</b>	<b>875</b>	<b>950</b>	<b>1,025</b>	<b>1,100</b>	<b>1,100</b>

**Notes:**

- 1) 2015 reflects the tertiary treatment plant under construction for upgrades; construction completed in October 2015
- 2) Actual recycled retail demand in 2015 was 674 AF, significantly lower than normal as a result of drought water use restrictions while the tertiary plant was under construction.
- 3) Reflects connection of 300 AFY of new recycled water demand by 2030

## 7 Water Supply Reliability

This section describes the reliability of the City's water supply, and projects the reliability out twenty years for normal, single dry years and multiple dry years.

### 7.1 Constraints on Water Sources

The City's water sources and their constraints are described in detail in Section 6. The primary constraint on availability of water supplies has been extreme drought conditions, with which the region has a long history of experience, as discussed in this section. Water quality also has potential impacts on water supply reliability of groundwater and recycled water, although the impacts to overall reliability are not as severe as extended drought conditions.

- Groundwater Quality: Much of the City's groundwater quality exceeds secondary standards for taste and odor, as well as iron and manganese. In the Foothill Basin, the levels are low enough that they can be successfully treated at the wellhead. In Storage Unit I, water from most wells is pumped to the Ortega GWTP prior to distribution for potable use. The operational capacity of Ortega GWTP can be limited at times depending on the blend of groundwater wells and their respective quality.
- Recycled Water Quality: Due to hardness of local potable water supplies, many customers use the ion exchange process to soften water at their homes and businesses. The result is added salt, particularly sodium chloride, in the City's recycled water. This has been addressed by monitoring salt levels in the soil over a 10-year period and by blending potable water with recycled supplies when necessary to meet water quality requirements defined by the City's permit for recycled water use.

### 7.2 Reliability by Type of Year

The Act requires that UWMP's include a description of the reliability and of the water supply and vulnerability to shortages during:

- An average (or normal) water year
- A single dry year, and
- Multiple dry years.

The diversity of the City's water supply is an important factor in assessing the reliability of the water supply during various types of water year. Equally important is the multi-year aspect of the supply provided by the Cachuma Project, which is the City's primary water supply.

Years of average rainfall can represent widely varying water supply conditions, since Lake Cachuma typically receives little inflow during a year of average rainfall, but may have sufficient water in storage from previous years. In normal conditions, the City's water supply is primarily surface water from Lake Cachuma and Gibraltar Reservoir, augmented with limited groundwater production (which is preserved for droughts and emergencies), deliveries of State Water sufficient to meet the City's exchange obligation and build carryover storage as needed for drought preparedness, and recycled water. The flexibility in these supplies is sufficient to offset any reduced inflows to surface water reservoirs that would occur in a single year of average rainfall conditions.

Similarly, a single dry year (such as 1977 or 2007) has little effect on availability of Cachuma supplies since the multi-year reservoir would have storage available from previous years. However, because Gibraltar is a much smaller reservoir than Cachuma, available supply from Gibraltar Reservoir is likely to be reduced, possibly significantly depending on how dry the year is. In this situation, the City's annual water supply assessment will determine whether to offset the deficiency with added State Water deliveries, increased groundwater pumping, or additional use of Cachuma supplies.

As noted above, an extended multiple year drought period is the condition that provides the biggest challenge to reliability. It is discussed in detail below under "Supply and Demand Assessment."

### 7.3 Supply and Demand Assessment

The critical drought period for the City's water supply occurs when there are multiple consecutive years of below average rainfall. This is due to the particular hydrology of the Santa Ynez River, where little or no inflow to Cachuma Reservoir occurs until at least average rainfall occurs. When the condition of average or less rainfall continues for multiple years in succession, the storage level of Cachuma Reservoir drops and shortages in deliveries occur.

The 2011 LTWSP is the City's current official long-term supply plan and serves as the basis of the City's 2015 UWMP. The 2011 LTWSP update was timed, in part, to support the preparation of the City's 2010 UWMP update and focused on developing a water supply strategy consistent with the critical drought of record at that time. A summary of that analysis is presented below. However, during the development of this 2015 UWMP, the City along with the rest of California was experiencing extreme drought conditions. Without sufficient rainfall in the current water year, the current drought could become the driest 5-year period in history. Accordingly, additional information related to current drought conditions is included herein.

#### 7.3.1 2011 Analysis of the City's Water Supply

For the 2011 analysis, a spreadsheet model was developed to simulate the City's water supplies over long-term historical hydrologic conditions during the 76-year period from 1918-1993. This hydrologic period captures several extreme dry conditions that occurred in the 1930s, 1950s, 1970s, and 1990s. The historical critical drought period had a duration of five years, occurring during 1947-1952.

The modeled supply mix is presented in Appendix I for three scenarios:

- Current Conditions: Cachuma entitlement of 8,277 AFY and no safety margin
- Near-term Conditions: Cachuma entitlement of 8,277 AFY and a 10 percent safety margin
- Future Conditions: Projected future Cachuma entitlement at 7,863 AFY and 10 percent safety margin

The analysis is based on a water supply target of 14,000 AFY of potable and recycled water production, plus a 10 percent safety margin in near-term and future conditions. The target is based on the combined effects of:

- New development during the planning period
- Reductions in water use due to updated plumbing code requirements and appliance standards
- Reductions in water use as a result of the City's water conservation program
- Statutory requirement to meet a reduction in per capita daily water use by 2020.

The 14,000 AFY target also represents the rounded 5-year average demand for 2006 through 2010. Note that this is conservative compared to actual projected urban water use under the Water Conservation Act of 2009. Given uncertainties in water supply in California, it is appropriate to be conservative when viewing water management from the supply perspective.

Local supplies are estimated using results from the Santa Ynez River Hydrology Model developed by the Santa Barbara County Water Agency. At the time of developing the 2011 LTWSP, the City used State Water delivery estimates based on the “Future Conditions” assumptions in DWR’s 2009 SWP Delivery Reliability Report<sup>4</sup> (as used for CCWA delivery projections for 2030), but modified the estimates to assume a delivery limit of 50 percent of Table A amount in any year. This modification is to provide a sensitivity analysis to illustrate the potential effect of delivery restrictions similar to those experienced during the period of 2008-2010.

An additional hypothetical year was added at the end of the historical 1947-1951 drought period to simulate a 6-year critical drought period. For this sixth year, deliveries from Gibraltar, Mission Tunnel, and SWP are assumed to be the average of the preceding five years of drought. Cachuma is assumed to have negligible inflow during year six and the 5-year modeled yield is stretched out over the 6-year period. The charts in Appendix I illustrate how the City’s water supplies would be used to meet the projected demand during varying water supply conditions, ranging from very wet to very dry.

The model was set to assume the water supplies are used as needed to meet the water supply target according to the following sequence of priorities:

1. All available water from Gibraltar, Mission Tunnel and the Montecito Water District transfer, plus the 1,100 AFY of recycled water;
2. Minimum groundwater usage of 700 AFY;
3. The City’s “exchange water” obligation of SWP Table A water (600 AFY);
4. Available Cachuma entitlement (except that available SWP Table A water in excess of the exchange obligation is taken in year 2 and later to preserve available Cachuma water);
5. Added groundwater pumping up to the maximum amount of 4,150 AFY, subject to a cumulative pumping limit to minimize seawater intrusion;
6. Deliveries of “Drought Supplies” (banked water or purchased water as available) through SWP facilities;
7. Desalination (if necessary).

The model is set up to invoke planned demand reductions in years 4, 5, and 6 prior to taking delivery of Drought Supplies, with no more than a 15 percent planned demand reduction during droughts per the 2011 LTWSP policies. The cumulative drawdown of available groundwater is also tracked to show the effects of increased groundwater pumping.

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<sup>4</sup> DWR releases an updated SWP Delivery Capability Report (formerly referred to as the SWP Delivery Reliability Report) every two years, the updates since the 2009 report are relatively minor and do not significantly change the results of the City’s water supply modeling analyses. When the City updates its LTWSP analyses, the SWP reliability will be based on the most recent report released by DWR.

The water supply charts in Appendix I illustrate that the City’s water supply can be met in most years with limited groundwater pumping, an average of only about 75 percent of State Water available (after assuming availability is limited to 50% of Table A amount), no drought supplies (banked water, purchased water, or desalination) and no need for extraordinary demand reductions. The real test of the water supply is the six-year critical drought period, beginning with model year 1947. Note that the sixth year is a hypothetical year that extends the historical five-year drought to a six-year drought. The 6-year critical drought period is highlighted in Figure 12.

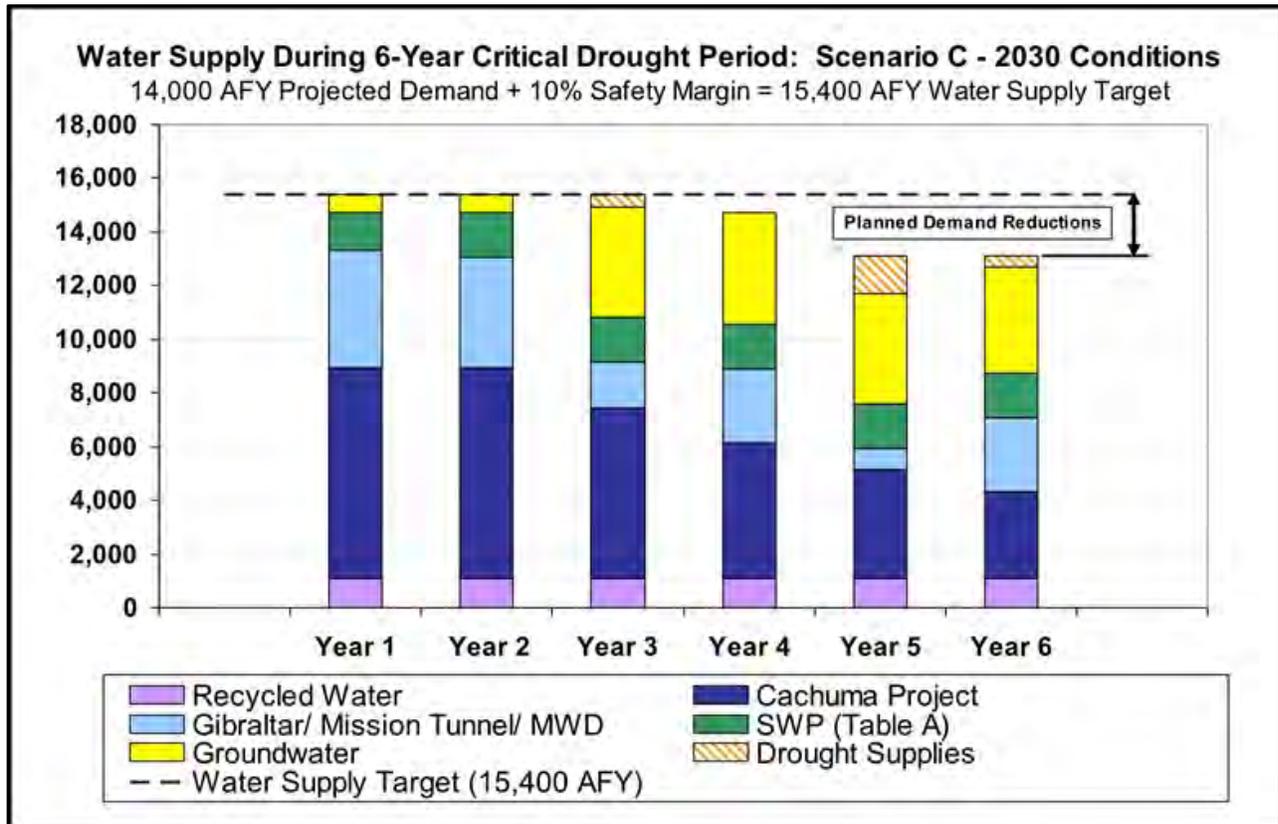


Figure 12: City's Water Supply Mix During a 6-Year Drought Period

Key points illustrated include:

- Years 1 and 2: Much like any non-drought year (mostly surface water, plus limited groundwater pumping)
- Year 3: Cachuma deliveries reduced to stretch remaining supplies; maximum groundwater pumping begins; a small amount of Drought Supplies required
- Year 4: First year of Planned Demand Reductions (4 percent of allowed 10-15 percent); further reduction at Cachuma is offset by some increased inflow at Gibraltar; no Drought Supplies required
- Year 5: Planned Demand Reductions of 15 percent; 1,364 AF of Drought Supplies taken; zero water delivered from Gibraltar

- Year 6: Planned Demand Reductions of 15 percent; maximum pumping constrained slightly by the cumulative limit; some Drought Supplies required as a result; rainfall provides water from Gibraltar, but not enough to increase Cachuma deliveries.

With the City's diverse water supply and multi-year storage capacity at Lake Cachuma, the impacts of a single dry year are minimized. An example is 1977 where rainfall in the local (Santa Ynez River) and SWP watersheds were below average. The water supply charts illustrate that State Water deliveries are significantly reduced, but local water deliveries remain about average, and the small difference is made up with added groundwater with no need to implement any extraordinary measures.

### 7.3.2 Severe Drought Period Beginning Water Year 2011-12

UWMP updates for 2015 were prepared during a severe statewide drought, which may turn out to establish a new critical drought period for planning purposes. City staff resources were at that time consumed with responding to the current drought emergency. As of April 2016, the period of October 2011 through September 2016 was being projected as the driest 5-year period on record for the City and much of Southern California. The City's water supply strategy for the current drought is based on the policies in the 2011 LTWSP adapted to current conditions. Refer to Section 8.9 for a snapshot of the water supply outlook assuming continued extreme drought conditions.

Should the current extreme drought continue and become the new drought of record, the City expects to update its LTWSP to re-evaluate the City's long-term water supply policies. It is anticipated that the LTWSP update will occur prior to the next round of UWMP updates, and that the updated water supply analysis will be incorporated into the City's 2020 UWMP update.

For the next LTWSP update, the City's experience during the current drought will guide the analysis. Relevant issues for the next LTWSP update include, but are not limited to:

- The occurrence of a coincident severe drought in both the northern and southern portions of the state was a significant factor in availability of water supplies.
- Constraints on deliveries of State Water through the Delta continue to be an issue.
- The 2014 SWP Table A allocation was a historic low of five percent. These hydrology conditions have not yet been incorporated into DWR's 2015 Delivery Capability Report, which simulates future reliability of the system under a range of hydrologic conditions. It is anticipated that the hydrologic record used in DWR's model of the SWP will be extended during the next update of the model, and will be available for use in the City's next LTWSP and UWMP update.
- Significant purchases of supplemental water by the City have eased the supply shortage and should be analyzed for cost effective ways to improve the certainty of such transfers.
- Record high temperatures during the most recent drought contributed to extraordinarily high demand in early years of the drought (prior to mandatory demand restrictions), at a time when reductions were needed to help stretch water supplies.
- Expectations for the extent of planned demand reductions under extraordinary conditions should be reviewed.
- Modeling of the City's groundwater resources should continue, with the goal of confirming assumptions on perennial yields and developing a reliable and practical indicator of the extent of seawater intrusion into the City's Storage Unit I. The need for continued upgrades to groundwater pumping and treatment capacity should be examined.

- An update of the role of the City’s newly reactivated desalination facility, based on current operating cost data, should be included.
- Other potential alternatives, such as potable reuse, should be included in the evaluation of the City’s long-term supply strategy. The City is currently evaluating the feasibility of potable reuse and subsurface intakes, which will inform future LTWSP updates.
- There current drought may result in a different long-term strategy for the Cachuma operational yield. Updated information or assumptions regarding the future operational yield of Cachuma should be included, including any new environmental requirements or reduced storage capacity due to sedimentation.

The Act requires that water agencies project expected future reliability through the 2035 long-term horizon based information that is reasonably available at the time the 2015 UWMP is prepared. DWR UWMP Tables 7-1 through 7-4 are provided in Appendix B to illustrate the City’s supply mix under normal, multi-year, and single-year dry conditions numerically, given information currently available and the analysis described above.

#### 7.4 Regional Supply Reliability

While imported water has proven to be a critical water source during the current drought, the City’s local water supplies help to reduce dependence on imported water resources. The City has a very diverse water supply mix that includes local resources such as groundwater, desalination, recycled water, and a long-term conservation program.

The current drought has shown that shared regional resources such as State Water and Cachuma supplies are stretched when supply is limited, and there is a need to improve regional water supply reliability. The Santa Barbara County Water Agency (SBCWA) has been the lead agency in facilitating evaluation of long-term options to improve regional reliability. In 2015, the SBCWA completed a Long Term Supplemental Water Supply Alternatives Study (Long Term Alternatives Study) (RMC Water and Environment 2015), which identifies potential future water supply options. It is anticipated that these options will continue to be evaluated and potentially incorporated into IRWMP. The City has been an active participant in both the IRWMP process and Long Term Alternatives Study led by the SBCWA.

The CCWA is also working to improve regional reliability by evaluating groundwater banking options, as well as operational strategies to improve reliability of the existing system. Some of these options were included in the 2015 Long Term Alternatives Study completed by the SBCWA.

While the decision-making for implementing many of the water supply options identified occurs at the local level, there is an active process led by regional agencies such as SBCWA and CCWA to identify and evaluate options that may provide regional benefit and to provide a forum for regional collaboration and communication.

## 8 Water Shortage Contingency Planning

Water supplies may be interrupted or reduced significantly in a number of ways, such as during a drought that limits supplies, an earthquake that damages water delivery or storage facilities, a regional power outage, or a toxic spill that affects water quality.

This chapter of the Plan describes how the City plans to respond to such emergencies so that emergency needs are met promptly and equitably. Water shortages can be triggered by a hydrologic limitation in supply (i.e., a prolonged period of below normal precipitation and runoff), limitations or failure of supply and treatment infrastructure or both. Hydrologic or drought limitations tend to develop and abate more slowly, whereas infrastructure failure tends to happen quickly and relatively unpredictably.

### 8.1 Stages of Action

The City's water shortage planning addresses supply shortages ranging from a slowly developing drought to sudden and potentially catastrophic interruptions, such as earthquakes and/or failure of major system components. Consistent with past plans and experience with severe droughts of the late 1990s and the currently ongoing record drought, the 2016 Water Shortage Contingency Plan (Appendix J) uses four stages to accommodate the different timeframes for response to water shortages. It reflects the City's experience that each shortage situation is different and that flexibility is needed in response to water conditions as they develop. This is especially important with the increasing diversity of the City's water supply portfolio and the need to comply with State mandates on reduction targets and water use regulations.

The plan is intended to provide guidance, rather than absolute direction, for City action in response to water shortages. The stages are defined in the context of Water Supply Policy #2 in the 2011 LTWSP, which identifies planned short-term reductions of up to 15 percent from extraordinary water conservation as an anticipated part of drought response. A moving 12-month total production is used to monitor water usage during periods of normal supply and during water shortages, with actual consumption compared to the target on a monthly basis.

Table 16 describes the stages of the Water Shortage Contingency Plan. Decision points for changes to the water shortage condition typically occur in the spring, following assessment of projected runoff to surface water reservoirs. However, unusually dry conditions during the early part of the rainy season can warrant changes prior to spring. Since the Cachuma Project is the City's primary water supply, its status is a key factor in the decision-making.

Table 16: Stages of Water Shortage Contingency Plan (UWMP Table 8-1)

<b>Stage</b>	<b>Percent Supply Reduction</b>	<b>Water Supply Condition</b>
Normal Supply	0%	Full Cachuma entitlement is projected for the coming water year and there are no extraordinary shortages in other City supplies.
Stage 1 Shortage	0% -15%	A Cachuma entitlement reduction is projected for the coming water year, assuming continued dry weather; or an extraordinary reduction in other City supplies has been identified.
Stage 2 Shortage	15% - 25%	Continuing conditions of average or less rainfall have resulted in continued decline in Cachuma storage following a reduction in entitlement; or an extraordinary reduction in other City supplies has been identified. (The amount of reduction exceeds the 2011 LTWSP policy, but has been found to be necessary during the current drought.)
Stage 3 Shortage	25% or more	Cachuma supplies are projected to be exhausted during the coming water year; or a catastrophic interruption to City water supplies has occurred.

## 8.2 Prohibitions on End Users

The City’s 2016 Water Shortage Contingency Plan (Appendix J) identifies various actions to be considered by the City Council during the water shortage conditions, including public information, water conservation assistance, water rate adjustments, supply augmentation, water use regulations, development approvals, and demand tracking.

Table 17 summarizes the end use prohibitions included in the plan. The table reflects that many prohibitions may apply to either Stage 2 or Stage 3, depending on current water supply conditions and the status of State water use restrictions. Santa Barbara Municipal Code Chapter 14.20 provides standing authorization for water use restrictions and prohibitions to become effective upon adoption of a Water Shortage Resolution at any weekly meeting of the City Council.

Table 17: Restrictions and Prohibitions on End Uses (UWMP Table 8-2)

Stage	Restrictions and Prohibitions on End Users	Penalty, Charge, or Other Enforcement
All	General - Waste of water	Yes
All	General - Failure to repair leaks	Yes
All	Landscape - Restrict or prohibit runoff from landscape irrigation	Yes
2 and 3	General - Shut-off nozzle required on all hoses	Yes
2 and 3	Other - Prohibit use of potable water for washing hard surfaces	Yes
2 and 3	General - Prohibit vehicle washing except by use of hose with shut-off nozzle or at facilities using recycled or recirculated water	Yes
2 and 3	Landscape - Limit landscape irrigation to specific times	Yes
2 and 3	Landscape - Prohibit certain types of landscape irrigation	Yes
2 and 3	Landscape - Prohibit irrigation with potable water during and within 48 hours after measurable rainfall	Yes
2 and 3	Landscape - Prohibit irrigation with potable water of turf on public street medians	Yes
2 and 3	Landscape - Irrigation of landscaping at new homes and buildings must comply with the requirements of the California Building Standards Commission and the Department of Community Development	Yes
2 and 3	CII - Lodging establishment must offer opt out of linen service	Yes
2 and 3	CII - Restaurants may only serve water upon request	Yes
2 and 3	CII - Require posting of water shortage notice at restaurants, hotel/motels, and commercial showering and car washing facilities	Yes
2 and 3	Water Features - Restrict water use for decorative water features, such as fountains	Yes
2 and 3	Pools and Spas - Require covers for pools and spas	Yes
2 and 3	Pools and Spas - Restrict draining and refilling of pools	Yes
3	Landscape - Prohibit all landscape irrigation	Yes

### 8.3 Penalties, Charges, Other Enforcement of Prohibitions

With the exception of irrigation system standards for new homes and buildings, which are administered and enforced through the Building Permit process, all of the prohibitions in Table 17 are subject to the “Penalties and Charges” provisions of Santa Barbara Municipal Code Section 14.20. 226-227, as summarized below:

#### Violations of SBMC Chapter 14.20

1. First violation within the past year: Written “Notice of Violation” is sent the account holder and serves as a warning.
2. Second violation within the past year: Penalty of up to \$250 applied to the account holder’s bill.
3. Third violation within the past year: Penalty of \$250, plus possible installation of a flow restrictor.
4. Fourth and subsequent violations within the past year: Penalty of \$250, plus possible installation flow restrictor or service shut off.

Account holders are provided an opportunity for a hearing before the Public Works Director. See Appendix K for the complete text of SBMC Chapter 14.20.

#### 8.4 Consumption Reduction Methods by Agencies

Whether during normal supply or water shortage conditions, the City implements a comprehensive water conservation program pursuant to the 2011 LTWSP, as described in Section 9. Public information, rate incentives, Building Code standards, training, and rebates are ongoing during normal supply conditions and adjusted to target needed reductions during water shortage conditions. Table 18 identifies consumption reduction methods that are considered during water shortage conditions. These methods have been shown to be effective in providing required substantial reductions in demand during the drought of the late 1990s, as well as the subsequent major drought that commenced in 2012.

*Table 18: Stages of WSCP - Available Consumption Reduction Methods (UWMP Table 8-3)*

<b>Stage</b>	<b>Consumption Reduction Methods by Water Supplier</b>
All	Expand Public Information Campaign
All	Offer Water Use Surveys
All	Provide Rebates on Plumbing Fixtures and Devices
All	Provide Rebates for Landscape Irrigation Efficiency
All	Provide Rebates for Turf Replacement
All	Reduce System Water Loss
Stage 2 and 3	Increase Water Waste Patrols
Stage 2 and 3	Implement or Modify Drought Rate Structure or Surcharge
Stage 2 and 3	Activate and Enforce Water Use Restrictions and Prohibitions
Stage 3	Moratorium or Net Zero New Demand
Stage 3	Decrease Line Flushing, or Pursue Zero Discharge Flushing Methods

#### 8.5 Determining Reductions

Measuring reductions in water use is part of regular procedures, whether during normal or water shortage conditions. Water is produced and introduced in to the distribution system in response to customer demand and is tracked monthly as an indicator of overall demand (see Figure 4, Section 4.1). For demand analysis by customer class, geographic area, and usage level, the City’s billing system provides standardized reports on monthly-metered sales by bill code, as well as customized reports for specific areas of analysis.

During water shortage conditions, savings are measured in comparison to what is considered to be normal year demand (i. e. current customer base with approximately average rainfall), or in reference to a specific base year as may be dictated by Statewide requirements.

## 8.6 Revenue and Expenditure Impacts

The City has used tiered rates to encourage water conservation since 1989. Fiscal Year 2016 rates and allotments are shown in Appendix L. The tiered system provides standardized allotments for residential customers based on the type of building (single family vs. multi-family) and number of dwelling units. Historical usage has not been used as the basis for allotments since it tends to penalize customers who have practiced efficient water use. Commercial and industrial allotments are based on historical off-peak usage, since appropriate usage rates vary widely for customers in these classes. Irrigation billing provides a first tier allotment that is a weather-based water budget sufficient for landscapes that are compliant with the City's landscape design standards. Usage in excess of budget is billed at a higher rate.

The tiered rate system worked well during the 1987-1992 drought when tier allotments and prices were modified as necessary to ensure adequate revenue. The system proved to be workable even for the 50 percent shortages experienced. The City's experience has been that tiered prices and allotments are best determined based on actual circumstances rather than trying to determine appropriate values in advance of the drought based on hypothetical situations. The City now has a comprehensive water rate model used to balance water system revenues and costs under normal and water shortage conditions. A tiered rate system presents challenges with revenue stability under normal conditions and even more so during water shortages. The rate model enables the City to identify costs of service for the various water supply sources and system components and apply them in accordance with Proposition 218 to identify suitable water rates to meet revenue requirements.

The City's policies on reserves provide an additional tool for addressing revenue requirements during water shortage conditions. For the City Water Fund, the policies include the following targets for reserve balances:

- Disaster Reserve: 15 percent of Operating Budget;
- Contingency Reserve: 10 percent of Operating Budget;
- Capital Reserve: 5 percent of Water Fund asset value, or the 3-year average annual Capital Program budget

In addition, the City considers deferral of capital projects during water shortage conditions.

## 8.7 Resolution or Ordinance

SBMC Section 14.20 establishes authority for the City Council to adopt resolutions declaring water shortage conditions and adopt appropriate restrictions and prohibitions on water use. Such resolutions can be adopted at any meeting of the City Council, which occur weekly. Appendix K contains the full text of SBMC Section 14.20. Appendix M contains the most recently adopted water shortage resolution.

## 8.8 Catastrophic Supply Interruption

Besides drought, the City may experience a catastrophic interruption of the water supply as a result of natural disasters such as an earthquake or tsunami, regional power outage, terrorism, wildfire or sabotage. Emergency administrative procedures are detailed and kept updated in the City's Emergency Operations Center Manual. In addition, the City has developed the following emergency response documents to guide responses to water system emergencies:

1. CDPH Water Quality Emergency Notification Plan
2. Emergency Management – Standard Operating Procedures, Water Resources Division (Carollo Engineers 2008)
3. Emergency Chlorination Plan – Treatment Section
4. Emergency Chemical Addition Log for Individual Reservoirs
5. Emergency Procedures for Distribution Workers

Noted below are planning and response measures particularly associated with interruptions to the City's water supply.

### *Preparations for Responding to Catastrophic Events*

- A diverse portfolio of supplies provides redundancy that increases the likelihood of being able to meet emergency needs even under catastrophic conditions.
- Primary water supply sources and the main treatment plant have been planned to flow to the City by gravity to reduce normal operating costs and minimize disruption during disasters.
- A groundwater production system has been developed and maintained to augment supplies to the distribution system or provide direct emergency drinking water supplies should the distribution system be put out of service. In the event of prolonged power outage, power would be provided by portable generators.
- Back-up power supplies with automatic transfer switching and SCADA control capability have been installed at the primary water treatment plant and critical distribution pump stations.
- The potentially unstable and uncovered Sheffield Reservoir has been demolished and replaced with underground tanks designed and built to current seismic standards.
- Computerized telemetry system (SCADA) is being provided throughout the distribution system to monitor system problems, whether minor day-to-day problems or major disruptions.
- An ongoing program of water main replacement targets sections of the distribution system with the highest history of breaks.
- Upgraded security, including more secure fencing, video monitoring, and alarms is being provided at all water supply facilities.
- Public access to water supply facilities has been limited for security reasons.
- City distribution system crews are trained in pipe repair and replacement as a part of their normal duties and are continually ready to perform such work on an emergency basis as needed.
- All City employees are designated as emergency service workers and would be activated to do damage assessment and repairs and to fill gaps left by staff that live out of town and may be unable to get to Santa Barbara due to disaster.
- The City's emergency response program includes emergency communications procedures that would be used for notifying the public about emergency water use restrictions, potential need to

boil tap water prior to drinking and locations where drinking water is available in the event of widespread distribution system failure.

*Actions to Be Implemented During Catastrophic Events*

- Mobilization:
  - Supervisors assemble at Public Works Yard, 630 Garden Street
  - Determine which staff are present and which need to be contacted
  - Contact absent staff and direct them to report once families are safe
  - Check status of all equipment, refuel and restock supplies on vehicles
  - Water Resources Laboratory staff mobilize at City lab and prepare for anticipated water quality test requests
- Dispatch crews to inspect, patrol and report on condition of facilities and distribution piping in designated areas of the system:

Group A:

- Vic Trace Reservoir and La Coronilla Pump Station
- La Mesa Reservoir
- Escondido Reservoir and Pump Station
- Hope (Calle Las Caleras) Pump Station
- Hope Reservoir
- Campanil Hills Pump Station

Group B:

- Reservoir No. 1
- East Reservoir and Bothin Pump Station
- El Cielito Reservoir and Skofield Pump Station
- Skofield Reservoir
- La Vista Reservoir
- Northridge Pump Station

Group C:

- Reservoir No. 2
- Sheffield Reservoirs No. 1 and No. 2 and El Cielito Pump Station
- South Portal of Mission Tunnel
- Rocky Nook Pump Station
- Sheffield Pump Station
- Tunnel Road Reservoir and Pump Station
- Cater Cross-Tie Pump Station

Group D - Wastewater Lift Stations at:

- Campanil
- Braemar
- Cliff Drive
- Linda Lane

- El Camino De la Luz

Group E – Wastewater Lift Stations at:

- Skofield
- La Colina
- Via Lucero
- Tallant Road
- Miradero Lane
- Andante
- Vista Elevada
- Assign qualified staff to use SCADA telemetry system, to the extent it is still functional, to determine the extent of system damage and the most critical isolation points on the distribution system.
- Conduct a complete inspection of the Cater Water Treatment Plant and Ortega Groundwater Treatment Plant to determine status and extent of damage.
- Contact Cachuma Project operators (USBR and COMB) to determine condition of Bradbury Dam and related facilities.
- Contact the City's dam caretaker at Gibraltar Reservoir to determine condition of Gibraltar Dam and related facilities.
- Assess condition of City groundwater wells by measuring water levels and well depth and taking water samples for analysis of water quality.
- Assess the condition of two tunnels (Tecolote Tunnel from Lake Cachuma and Mission Tunnel from Gibraltar Reservoir) by measuring flow from the tunnels. While an earthquake may result in tunnel collapse, it is likely that some residual flow from tunnel infiltration will be available and will flow to the City's treatment plant by gravity.
- Assign qualified staff to utilize the City's hydraulic computer model to simulate identified field deficiencies and run scenarios to identify the most efficient repair, isolation, or reconstruction recommendations.
- Prioritize distribution system repairs to best meet critical needs, including firefighting, drinking water, and sanitation; identify a portion of available potable supply to be reserved for drinking water purposes in the event of prolonged interruption.
- Develop materials list for treatment plant and distribution system repairs and communicate with potential suppliers.
- Allocate available portable generators and pumps according to highest need for groundwater wells, flood remediation, sanitation, firefighting or powering emergency facilities.
- Develop a clear message for dissemination to the public regarding:
  - Nature of the catastrophic event
  - Status of distribution system
  - Water use prohibitions
  - Allowable water uses
  - Potential need to boil drinking water prior to consumption
  - Location and availability of emergency drinking water in the event of distribution system failure.

*Potential Catastrophic Interruption Scenarios*

Given the diversity of the City’s water supply, there is a range of catastrophic supply interruption scenarios that may occur. At the extreme end of the range, a catastrophic seismic event could include failure of both Gibraltar Dam and Bradbury Dam (Lake Cachuma), also impacting State Water deliveries. Damage to groundwater wells would be expected as well. Table 19 summarizes some foreseeable interruptions of lesser, but more probable, magnitude as well as a potential regional power outage.

*Table 19: Catastrophic Interruption Scenarios*

Description	Projected Water Supply Reduction	Anticipated Duration	Response
<p><u>Damage limited to distribution system:</u></p> <p>Main breaks in various parts of the City</p>	<p>No reduction in supply; delivery capability interrupted to portions of the City</p>	<p>Ranging from days to months depending on extent of damage</p>	<ul style="list-style-type: none"> <li>• Valve off damaged sections</li> <li>• Inventory customers without service and provide for access to emergency drinking water as necessary</li> <li>• Prioritize repair efforts based on health, safety and sanitation</li> </ul>
<p><u>Collapse of Mission Tunnel:</u></p> <p>Supplies from Gibraltar Reservoir and Mission Tunnel infiltration interrupted</p>	<p>Initial loss of 35% to 50% of potable supplies; reduced to 12% to 27% by increasing Cachuma deliveries and groundwater pumping</p>	<p>Ranging from months to a year or more</p>	<ul style="list-style-type: none"> <li>• Assess extent of remaining tunnel flow</li> <li>• Assess availability of supplies via interconnection with adjacent water purveyors</li> <li>• Restrict irrigation uses</li> <li>• Water usage restrictions, pricing and public notification to reduce water use to targeted level based on actual circumstances</li> <li>• Consider increases in State Water Project delivery requests</li> <li>• Initiate emergency design and construction process for repair of tunnel</li> </ul>
<p><u>Collapse of Tecolote Tunnel:</u></p> <p>Supplies from Lake Cachuma, tunnel infiltration, and State Water Project interrupted</p>	<p>Initial loss of 50% to 65% of potable supplies; reduced to 15% to 30% by increasing Gibraltar deliveries and groundwater pumping</p>	<p>Ranging from months to a year or more</p>	<ul style="list-style-type: none"> <li>• Assess extent of remaining tunnel flow</li> <li>• Assess availability of supplies via interconnections with adjacent water purveyors</li> <li>• Curtail most or all irrigation uses</li> <li>• Water usage restrictions, pricing and public notification to reduce water use to targeted level based on actual circumstances</li> <li>• Consider extent to which supplies are available to assist neighboring agencies affected by loss of Cachuma deliveries</li> <li>• Participate with COMB and USBR in emergency design and construction process for repair of tunnel</li> </ul>
<p><u>Collapse of both Tecolote and Mission Tunnels:</u></p>	<p>Initial loss of up to 100% of normal potable supplies; reduced to 66% by initiating</p>	<p>Ranging from months to a year or more</p>	<ul style="list-style-type: none"> <li>• Assess extent of remaining tunnel flow</li> <li>• Activate all available groundwater wells at maximum production levels</li> <li>• Consider public notification to accumulate emergency personal drinking water supplies</li> </ul>

Supplies from Cachuma, Tecolote Tunnel infiltration, State Water Project, Gibraltar Reservoir and Mission Tunnel infiltration interrupted	groundwater pumping		<p>while distribution system remains functional</p> <ul style="list-style-type: none"> <li>• Curtail all customer use other than water used for drinking – priority will be to maintain all available supplies and distribution capability for drinking water, sanitation and firefighting</li> <li>• Initiate selected shut-down of portions of the distribution system to maintain functional pressure and flow in the remaining system; priority areas will be identified based on firefighting needs and feeding emergency drinking water distribution stations</li> <li>• Consider shutting off customer service connections to assist in maintaining distribution system functionality</li> <li>• Initiate emergency design and construction process for repair of tunnels</li> <li>• Initiate emergency design and construction process for reactivation of desalination facility for mid-range contribution to water supplies</li> </ul>
<u>Regional Power Outage</u>			<ul style="list-style-type: none"> <li>• Initiate contact with City Emergency Operations Center</li> <li>• Activate and monitor back-up generators at Cater Treatment Plant and key distribution pumping stations</li> <li>• Assess supplies of generator fuel and develop a schedule of prioritized fuel needs</li> <li>• Identify optimal sites for deployment of portable generators (wells, pump stations, treatment system)</li> <li>• Prepare to issue a consumer alert about potential for: 1) low system pressure, 2) need to curtail water use and 3) need to boil water prior to drinking</li> <li>• Evaluate the need for water quality sampling</li> <li>• Consider increasing disinfectant residual as a precaution against potential system contamination</li> <li>• Isolate any segments of known contamination; issue notice not to drink water in the affected areas</li> </ul>

### 8.9 Minimum Supply Next Three Years

Water supply for water years 2016-2018 has been tabulated for the 2015 UWMP update in the context of continued drought conditions that are more severe than any on record. The projections in Figure 13 assume drought conditions through 2018 with little to no inflow to surface water reservoirs (Gibraltar and

Cachuma), as well as no additional State Water allocations. Accordingly, the tabulation reflects the minimum water supply.

The City’s water supply strategy during drought is based on policies of the 2011 LTWSP. Should the drought persist, City’s potable water supply would be made up primarily of groundwater, desalination, as well as supplemental water purchases conveyed through the State Water Project. The chart reflects supplemental water purchases that have already been secured, and the City continues to pursue additional water purchases to minimize water shortages should the drought continue.

Since 2014, when drought conditions were declared, the City’s water supply outlook has been presented on a monthly basis to Water Commission and City Council to provide information on major water supply issues and updates. Figure 13 shows a snapshot of the projected minimum supply for 2016-2018 based on circumstances and information available at the time of the 2015 UWMP update.

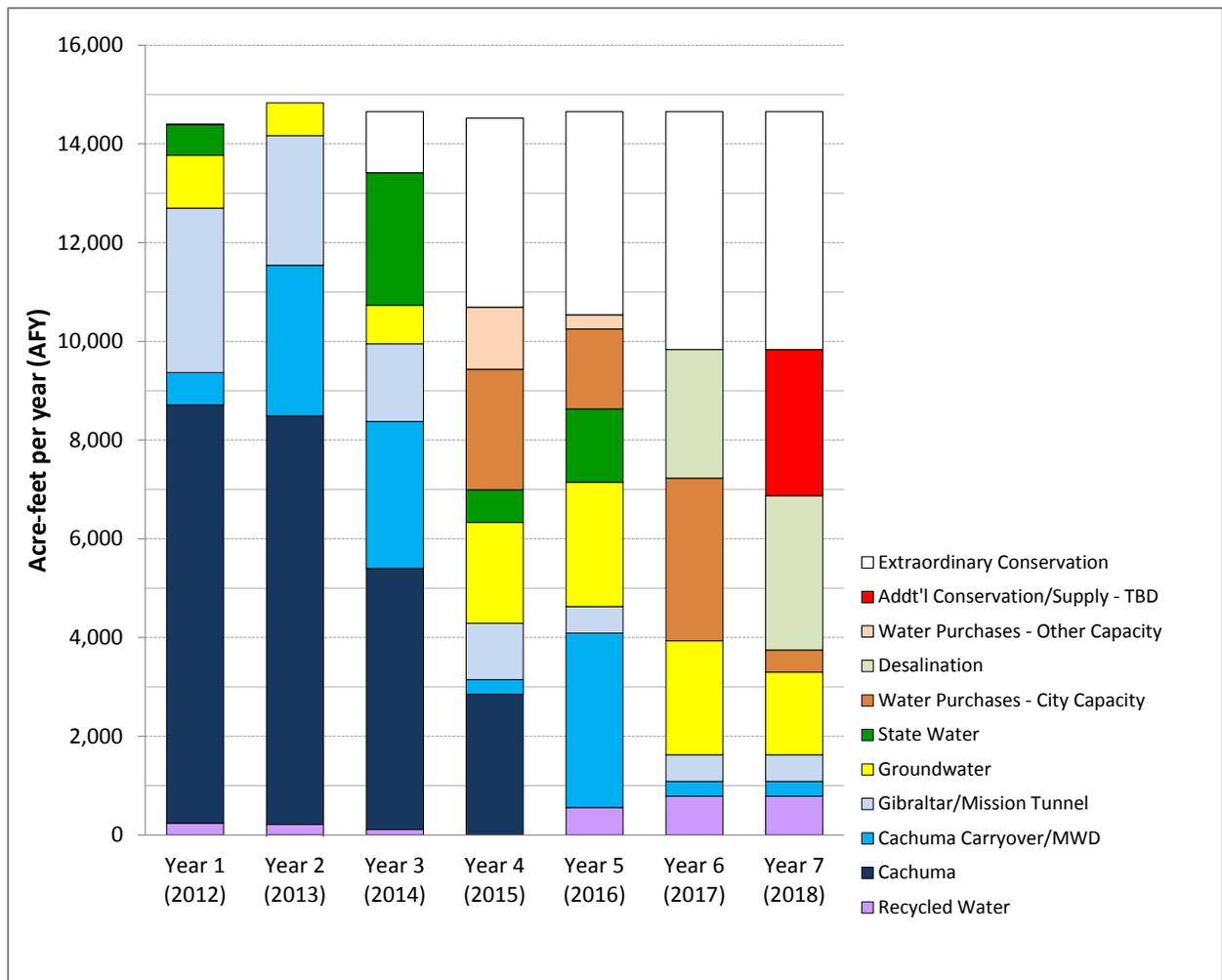


Figure 13: Water Supply Projection to Water Year 2018

Projected water supply totals for 2016-2018 are shown in Table 20, which assumes that the category labeled “Additional Conservation/Supply-TBD” in 2018 will consist of equal parts additional conservation and supply (e.g. supplemental water purchases).

Table 20: Minimum Supply Next Three Years (AF) (UWMP Table 8-4)

	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>Available Water Supply</b>	11,200	10,100	9,100

## 9 Demand Management Measures

The City is a long-term leader in water conservation. The City's Water Conservation Program began as a response to drought in the late 1970s. The program experienced increased participation due to the 1987-1991 drought and the subsequent 1994 Long Term Water Supply Program identified a goal of 1,500 AFY of additional water conservation, a target that was met and exceeded.

The City joined the CUWCC in January 1992 by signing the Memorandum of Understanding Regarding Urban Water Conservation (MOU). Since that time, the City has been actively implementing the BMP's as well as additional water conservation measures.

In accordance with the City's LTWSP, the City's current Water Conservation Program is operated to minimize the use of potable water supplies, meet the requirements of the CUWCC's BMP's and achieve compliance with SBX7-7 per capita water use reduction requirements. Water conservation measures are evaluated for cost effectiveness based on the avoided cost of additional water supplies.

Section 4.3.1 of this plan details the analysis that went into determining the appropriate conservation measures for cost effectively managing the City's water demand and complying with urban water use targets. Appendix E summarizes the Water Conservation Technical Evaluation completed by MWM in October 2010, a detailed, quantitative and technical evaluation of future options for the Water Conservation Program. Appendix N includes the City's 2013-2014 BMP annual compliance reports that document full compliance with the MOU.

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## 10 Plan Adoption, Submittal, and Implementation

This section describes steps taken to adopt and submit the UWMP and to make it publicly available.

### 10.1 Notice of Public Hearing

The City of Santa Barbara notified the public within its service area of the opportunity to provide input regarding the Plan. A copy of the public outreach materials, including newspaper notices and invitation letters, are included in Appendix C. In addition, the following agencies were advised of the availability of the City's draft Plan for review:

- Central Coast Water Authority
- Cachuma Operation and Maintenance Board
- Santa Barbara County Water Agency
- Goleta Water District
- Montecito Water District
- Carpinteria Valley Water District
- Santa Ynez River Water Conservation District-ID#1
- Other interested parties

A public hearing, with public notice pursuant to California Government Code Section 6066, was held before the City Council as Agenda Item No. 19 on June 28, 2016; at which time, the Council voted unanimously to adopt the Plan. Documentation of public noticing and City Council action is included in Appendix C.

### 10.2 Plan Submittal

Copies of the plan were sent to the office of the Clerk of the Board, County of Santa Barbara and the California State Library at the time of submittal of this plan to the DWR. There are no other cities in which the City of Santa Barbara provides water.

### 10.3 Public Availability

A copy of the plan will be posted on the City's Internet site within 30 days of the filing date and will be available for review at the City Water Resources Division offices during normal business hours.

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**APPENDIX A:**  
UWMP CHECKLIST

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# Appendix F

## UWMP Checklist

This checklist is developed directly from the Urban Water Management Planning Act and SB X7-7. It is provided to support water suppliers during preparation of their UWMPs. Two versions of the UWMP Checklist are provided – the first one is organized according to the California Water Code and the second checklist according to subject matter. The two checklists contain duplicate information and the water supplier should use whichever checklist is more convenient. In the event that information or recommendations in these tables are inconsistent with, conflict with, or omit the requirements of the Act or applicable laws, the Act or other laws shall prevail.

Each water supplier submitting an UWMP can also provide DWR with the UWMP location of the required element by completing the last column of either checklist. This will support DWR in its review of these UWMPs. The completed form can be included with the UWMP.

If an item does not pertain to a water supplier, then state the UWMP requirement and note that it does not apply to the agency. For example, if a water supplier does not use groundwater as a water supply source, then there should be a statement in the UWMP that groundwater is not a water supply source.

## Checklist Arranged by Water Code Section

<b>CWC Section</b>	<b>UWMP Requirement</b>	<b>Subject</b>	<b>Guidebook Location</b>	<b>UWMP Location (Optional Column for Agency Use)</b>
<b>10608.20(b)</b>	Retail suppliers shall adopt a 2020 water use target using one of four methods.	Baselines and Targets	Section 5.7 and App E	<b>Section 5.5, pg. 32; Appendix G</b>
<b>10608.20(e)</b>	Retail suppliers shall 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.	Baselines and Targets	Chapter 5 and App E	<b>Sections 5.4 &amp; 5.5, pgs. 31-32; Appendix G</b>
<b>10608.22</b>	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	Section 5.7.2	<b>Section 5.5, pg. 32; Appendix G</b>
<b>10608.24(a)</b>	Retail suppliers shall meet their interim target by December 31, 2015.	Baselines and Targets	Section 5.8 and App E	<b>Section 5.6, pgs. 32-33; Appendix G</b>
<b>10608.24(d)(2)</b>	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	Section 5.8.2	<b>N/A</b>
<b>10608.26(a)</b>	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets.	Plan Adoption, Submittal, and Implementation	Section 10.3	<b>Section 2, pg. 3; Section 10.1, pg. 73; Appendix C</b>
<b>10608.36</b>	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	Section 5.1	<b>N/A</b>
<b>10608.40</b>	Retail suppliers shall report on their progress in meeting their water use targets. The data shall be reported using a standardized form.	Baselines and Targets	Section 5.8 and App E	<b>Section 5.6, pgs. 32-33; Appendix G</b>
<b>10620(b)</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.	Plan Preparation	Section 2.1	<b>Section 1, pg. 1; Section 2, pg. 3</b>

<b>10620(d)(2)</b>	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.	Plan Preparation	Section 2.5.2	<b>Sections 2.2 &amp; 2.3, pgs. 3-4; Appendix C</b>
<b>10620(f)</b>	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Section 7.4	<b>Sections 6.1.5 &amp; 6.1.6, pgs. 38-40; Section 7.4, pg. 58</b>
<b>10621(b)</b>	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.	Plan Adoption, Submittal, and Implementation	Section 10.2.1	<b>Sections 2, 2.2 &amp; 2.3, pgs. 3-4; Section 10.1, pg. 73; Appendix C</b>
<b>10621(d)</b>	Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.	Plan Adoption, Submittal, and Implementation	Sections 10.3.1 and 10.4	<b>Section 10.2, pg. 73</b>
<b>10631(a)</b>	Describe the water supplier service area.	System Description	Section 3.1	<b>Section 3.1, pgs. 7-9</b>
<b>10631(a)</b>	Describe the climate of the service area of the supplier.	System Description	Section 3.3	<b>Section 3.3, pgs. 11-12</b>
<b>10631(a)</b>	Indicate the current population of the service area.	System Description and Baselines and Targets	Sections 3.4 and 5.4	<b>Section 3.4, pgs. 12-15; Section 5.2, pg. 27</b>
<b>10631(a)</b>	Provide population projections for 2020, 2025, 2030, and 2035.	System Description	Section 3.4	<b>Section 3.4, pg. 15</b>
<b>10631(a)</b>	Describe other demographic factors affecting the supplier's water management planning.	System Description	Section 3.4	<b>Section 3.4, pg. 15</b>
<b>10631(b)</b>	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, 2030, and 2035.	System Supplies	Chapter 6	<b>Section 6.7, pgs. 50-52</b>
<b>10631(b)</b>	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2	<b>Section 6.2, pgs. 40-45</b>
<b>10631(b)(1)</b>	Indicate whether a groundwater management plan has 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.	System Supplies	Section 6.2.2	<b>Section 6.2.2, pgs. 42-45</b>
<b>10631(b)(2)</b>	Describe the groundwater basin.	System Supplies	Section 6.2.1	<b>Section 6.2.1, pgs. 40-42</b>
<b>10631(b)(2)</b>	Indicate if the basin has been adjudicated and include a copy of the court order or	System Supplies	Section 6.2.2	<b>N/A</b>

	decree and a description of the amount of water the supplier has the legal right to pump.			
<b>10631(b)(2)</b>	For unadjudicated basins, indicate whether or not the department has identified the basin as overdrafted, or projected to become overdrafted. Describe efforts by the supplier to eliminate the long-term overdraft condition.	System Supplies	Section 6.2.3	<b>Section 6.2.3, pgs. 44-45</b>
<b>10631(b)(3)</b>	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	System Supplies	Section 6.2.4	<b>Section 6.2.3, pgs. 44-45</b>
<b>10631(b)(4)</b>	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Sections 6.2 and 6.9	<b>Section 6.2.3, pgs. 44-45; Section 6.7, pgs. 50-52</b>
<b>10631(c)(1)</b>	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage.	Water Supply Reliability Assessment	Section 7.1	<b>Sections 7.1 - 7.4, pgs. 53-58</b>
<b>10631(c)(1)</b>	Provide data for an average water year, a single dry water year, and multiple dry water years	Water Supply Reliability Assessment	Section 7.2	<b>Section 7.3.1, pgs. 54-57</b>
<b>10631(c)(2)</b>	For any water source that may not be available at a consistent level of use, describe plans to supplement or replace that source.	Water Supply Reliability Assessment	Section 7.1	<b>Section 7.3.1, &amp; 7.3.2, pgs. 54-58</b>
<b>10631(d)</b>	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System Supplies	Section 6.7	<b>Section 6.1.6, pgs. 39-40</b>
<b>10631(e)(1)</b>	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Section 4.2	<b>Section 3.1, pgs. 7-11; Sections 4.1-4.3, pgs. 17-25</b>
<b>10631(e)(3)(A)</b>	Report the distribution system water loss for the most recent 12-month period available.	System Water Use	Section 4.3	<b>Section 4.2, pg. 18; Appendix D</b>
<b>10631(f)(1)</b>	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	Sections 9.2 and 9.3	<b>N/A. See CWC Section 1063(i) below.</b>
<b>10631(f)(2)</b>	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	Sections 9.1 and 9.3	<b>N/A</b>

<b>10631(g)</b>	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years.	System Supplies	Section 6.8	<b>Section 6.6, pg. 50</b>
<b>10631(h)</b>	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6	<b>Section 6.4, pgs.47-48</b>
<b>10631(i)</b>	CUWCC members may submit their 2013-2014 CUWCC BMP annual reports in lieu of, or in addition to, describing the DMM implementation in their UWMPs. This option is only allowable if the supplier has been found to be in full compliance with the CUWCC MOU.	Demand Management Measures	Section 9.5	<b>Section 9, pg. 71; Appendix N</b>
<b>10631(j)</b>	Retail suppliers will include documentation that they have provided their wholesale supplier(s) – if any - with water use projections from that source.	System Supplies	Section 2.5.1	<b>Section 2.3, pg. 4; Appendix C</b>
<b>10631(j)</b>	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	Section 2.5.1	<b>N/A</b>
<b>10631.1(a)</b>	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Section 4.5	<b>Section 4.3.3, pg. 25; Appendix F</b>
<b>10632(a) and 10632(a)(1)</b>	Provide an urban water shortage contingency analysis that specifies stages of action and an outline of specific water supply conditions at each stage.	Water Shortage Contingency Planning	Section 8.1	<b>Section 8, pgs. 59-68; Appendix J</b>
<b>10632(a)(2)</b>	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.	Water Shortage Contingency Planning	Section 8.9	<b>Section 8.9, pgs. 68-70</b>
<b>10632(a)(3)</b>	Identify actions to be undertaken by the urban water supplier in case of a catastrophic interruption of water supplies.	Water Shortage Contingency Planning	Section 8.8	<b>Section 8.8, pgs. 64-68</b>
<b>10632(a)(4)</b>	Identify mandatory prohibitions against specific water use practices during water shortages.	Water Shortage Contingency Planning	Section 8.2	<b>Section 8.2, pgs. 60-61; Appendices J, K &amp; M</b>
<b>10632(a)(5)</b>	Specify consumption reduction methods in the most restrictive stages.	Water Shortage Contingency Planning	Section 8.4	<b>Section 8.4, pg. 62</b>
<b>10632(a)(6)</b>	Indicated penalties or charges for excessive use, where applicable.	Water Shortage Contingency Planning	Section 8.3	<b>Section 8.3, pgs. 61-62;</b>

				<b>Appendices J &amp; K</b>
<b>10632(a)(7)</b>	Provide an analysis of the impacts of each of the actions and conditions in the water shortage contingency analysis on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts.	Water Shortage Contingency Planning	Section 8.6	<b>Section 8.6, pg. 63</b>
<b>10632(a)(8)</b>	Provide a draft water shortage contingency resolution or ordinance.	Water Shortage Contingency Planning	Section 8.7	<b>Section 8.7, pg. 63; Appendices K &amp; M</b>
<b>10632(a)(9)</b>	Indicate a mechanism for determining actual reductions in water use pursuant to the water shortage contingency analysis.	Water Shortage Contingency Planning	Section 8.5	<b>Section 8.1, pgs. 59-60; Appendix J</b>
<b>10633</b>	For wastewater and recycled water, coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.1	<b>Section 6.3.1, pg. 45</b>
<b>10633(a)</b>	Describe the wastewater collection and treatment systems in the supplier's service area. Include quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	System Supplies (Recycled Water)	Section 6.5.2	<b>Sections 6.3.2-6.3.3, pg. 46</b>
<b>10633(b)</b>	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System Supplies (Recycled Water)	Section 6.5.2.2	<b>Section 6.3, pgs. 45-47; Appendix B: Tables 6-2R - 6-6R</b>
<b>10633(c)</b>	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.3 and 6.5.4	<b>Section 6.3.3, pg. 46</b>
<b>10633(d)</b>	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	Section 6.5.4	<b>Sections 6.3.3-6.3.4, pgs. 46-47</b>
<b>10633(e)</b>	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.	System Supplies (Recycled Water)	Section 6.5.4	<b>Section 6.7, pgs. 50-52; Appendix B: Tables 6-4R &amp; 6-5R</b>
<b>10633(f)</b>	Describe the actions 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.	System Supplies (Recycled Water)	Section 6.5.5	<b>Section 6.3.4, pgs. 46-47</b>
<b>10633(g)</b>	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.5	<b>Section 6.3.4, pgs 46-47</b>

<b>10634</b>	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	Section 7.1	<b>Section 7.1, pg. 53</b>
<b>10635(a)</b>	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.3	<b>Sections 7.2 - 7.3, pgs. 53-58; Appendix B: Tables 7-2R - 7-4R</b>
<b>10635(b)</b>	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 60 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	<b>Section 10.2, pg. 73; Appendix J</b>
<b>10642</b>	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	Plan Preparation	Section 2.5.2	<b>Sections 2.2-2.3, pgs. 3-4; Appendix C</b>
<b>10642</b>	Provide supporting documentation that the urban water supplier made the plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan.	Plan Adoption, Submittal, and Implementation	Sections 10.2.2, 10.3, and 10.5	<b>Section 2.2, pg. 3; Section 10.1, pg. 73; Appendix C</b>
<b>10642</b>	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Sections 10.2.1	<b>Section 2.2, pg. 3; Section 10.1, pg. 73; Appendix C</b>
<b>10642</b>	Provide supporting documentation that the plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.3.1	<b>Section 2, pg. 3; Section 10.1, pg. 73; Appendix C</b>
<b>10644(a)</b>	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	Section 10.4.3	<b>Section 10.2, pg. 73; Appendix C</b>
<b>10644(a)(1)</b>	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	<b>Section 10.2, pg. 73; Appendix C</b>

<b>10644(a)(2)</b>	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Sections 10.4.1 and 10.4.2	<b>Section 10.2, pg. 73; Appendix C</b>
<b>10645</b>	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.5	<b>Section 10.3, pg. 73; Appendix C</b>

## Checklist Arranged by Subject

<b>CWC Section</b>	<b>UWMP Requirement</b>	<b>Subject</b>	<b>Guidebook Location</b>	<b>UWMP Location (Optional Column for Agency Use)</b>
<b>10620(b)</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.	Plan Preparation	Section 2.1	<b>Section 1, pg. 1; Section 2, pg. 3</b>
<b>10620(d)(2)</b>	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.	Plan Preparation	Section 2.5.2	<b>Sections 2.2 &amp; 2.3, pgs. 3-4; Appendix C</b>
<b>10642</b>	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	Plan Preparation	Section 2.5.2	<b>Sections 2.2-2.3, pgs. 3-4; Appendix C</b>
<b>10631(a)</b>	Describe the water supplier service area.	System Description	Section 3.1	<b>Section 3.1, pgs. 7-9</b>
<b>10631(a)</b>	Describe the climate of the service area of the supplier.	System Description	Section 3.3	<b>Section 3.3, pgs. 11-12</b>
<b>10631(a)</b>	Provide population projections for 2020, 2025, 2030, and 2035.	System Description	Section 3.4	<b>Section 3.4, pg. 15</b>
<b>10631(a)</b>	Describe other demographic factors affecting the supplier's water management planning.	System Description	Section 3.4	<b>Section 3.4, pg. 15</b>
<b>10631(a)</b>	Indicate the current population of the service area.	System Description and Baselines and Targets	Sections 3.4 and 5.4	<b>Section 3.4, pgs. 12-15; Section 5.2, pg. 27</b>

<b>10631(e)(1)</b>	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Section 4.2	<b>Section 3.1, pgs. 7-11; Sections 4.1-4.3, pgs. 17-25</b>
<b>10631(e)(3)(A)</b>	Report the distribution system water loss for the most recent 12-month period available.	System Water Use	Section 4.3	<b>Section 4.2, pg. 18; Appendix D</b>
<b>10631.1(a)</b>	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Section 4.5	<b>Section 4.3.3, pg. 25; Appendix F</b>
<b>10608.20(b)</b>	Retail suppliers shall adopt a 2020 water use target using one of four methods.	Baselines and Targets	Section 5.7 and App E	<b>Section 5.5; pg. 32; Appendix G</b>
<b>10608.20(e)</b>	Retail suppliers shall 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.	Baselines and Targets	Chapter 5 and App E	<b>Sections 5.4 &amp; 5.5, pgs. 31-32; Appendix G</b>
<b>10608.22</b>	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	Section 5.7.2	<b>Section 5.5, pg. 32; Appendix G</b>
<b>10608.24(a)</b>	Retail suppliers shall meet their interim target by December 31, 2015.	Baselines and Targets	Section 5.8 and App E	<b>Section 5.6, pgs. 32-33; Appendix G</b>
<b>10608.24(d)(2)</b>	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	Section 5.8.2	<b>N/A</b>
<b>10608.36</b>	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	Section 5.1	<b>N/A</b>
<b>10608.40</b>	Retail suppliers shall report on their progress in meeting their water use targets. The data shall be reported using a standardized form.	Baselines and Targets	Section 5.8 and App E	<b>Section 5.6, pgs. 32-33; Appendix G</b>
<b>10631(b)</b>	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, 2030, and 2035.	System Supplies	Chapter 6	<b>Section 6.7, pgs. 50-52</b>
<b>10631(b)</b>	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2	<b>Section 6.2, pgs. 40-45</b>

<b>10631(b)(1)</b>	Indicate whether a groundwater management plan has 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.	System Supplies	Section 6.2.2	<b>Section 6.2.2, pgs. 42-45</b>
<b>10631(b)(2)</b>	Describe the groundwater basin.	System Supplies	Section 6.2.1	<b>Section 6.2.1, pgs 40-42</b>
<b>10631(b)(2)</b>	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	Section 6.2.2	<b>N/A</b>
<b>10631(b)(2)</b>	For unadjudicated basins, indicate whether or not the department has identified the basin as overdrafted, or projected to become overdrafted. Describe efforts by the supplier to eliminate the long-term overdraft condition.	System Supplies	Section 6.2.3	<b>Section 6.2.3. pgs. 44-45</b>
<b>10631(b)(3)</b>	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	System Supplies	Section 6.2.4	<b>Section 6.2.3, pgs. 44-45</b>
<b>10631(b)(4)</b>	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Sections 6.2 and 6.9	<b>Section 6.2.3, pgs. 44-45; Section 6.7. pgs. 50-52</b>
<b>10631(d)</b>	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System Supplies	Section 6.7	<b>Section 6.1.6, pgs. 39-40</b>
<b>10631(g)</b>	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years.	System Supplies	Section 6.8	<b>Section 6.6, pg. 50</b>
<b>10631(h)</b>	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6	<b>Section 6.4, pgs. 47-48</b>
<b>10631(j)</b>	Retail suppliers will include documentation that they have provided their wholesale supplier(s) – if any - with water use projections from that source.	System Supplies	Section 2.5.1	<b>Section 2.3, pg. 4; Appendix C</b>
<b>10631(j)</b>	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	Section 2.5.1	<b>N/A</b>

<b>10633</b>	For wastewater and recycled water, coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.1	<b>Section 6.3.1, pg. 45</b>
<b>10633(a)</b>	Describe the wastewater collection and treatment systems in the supplier's service area. Include quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	System Supplies (Recycled Water)	Section 6.5.2	<b>Sections 6.3.2-6.3.3, pg. 46</b>
<b>10633(b)</b>	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System Supplies (Recycled Water)	Section 6.5.2.2	<b>Section 6.3, pgs. 45-47; Appendix B: Tables 6-2R – 6-6R</b>
<b>10633(c)</b>	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.3 and 6.5.4	<b>Section 6.3.3, pg. 46</b>
<b>10633(d)</b>	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	Section 6.5.4	<b>Sections 6.3.3-6.3.4, pgs. 46-47</b>
<b>10633(e)</b>	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.	System Supplies (Recycled Water)	Section 6.5.4	<b>Section 6.7, pgs. 50-52; Appendix B: Tables 6-4R &amp; 6-5R</b>
<b>10633(f)</b>	Describe the actions 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.	System Supplies (Recycled Water)	Section 6.5.5	<b>Section 6.3.4, pgs 46-47</b>
<b>10633(g)</b>	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.5	<b>Section 6.3.4, pgs. 46-47</b>
<b>10620(f)</b>	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Section 7.4	<b>Sections 6.1.5 &amp; 6.1.6, pgs. 38-40; Section 7.4, pg. 58</b>
<b>10631(c)(1)</b>	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage.	Water Supply Reliability Assessment	Section 7.1	<b>Sections 7.1-7.4, pgs. 53-58</b>
<b>10631(c)(1)</b>	Provide data for an average water year, a single dry water year, and multiple dry water years	Water Supply Reliability Assessment	Section 7.2	<b>Section 7.3.1, pgs. 54-57</b>
<b>10631(c)(2)</b>	For any water source that may not be available at a consistent level of use, describe plans to supplement or replace that source.	Water Supply Reliability Assessment	Section 7.1	<b>Section 7.3.1 &amp; 7.3.2, pgs. 54-58</b>

<b>10634</b>	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	Section 7.1	<b>Section 7.1, pg. 53</b>
<b>10635(a)</b>	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.3	<b>Sections 7.2 – 7.3, pgs. 53-58; Appendix B: Tables 7-2R – 7-4R</b>
<b>10632(a) and 10632(a)(1)</b>	Provide an urban water shortage contingency analysis that specifies stages of action and an outline of specific water supply conditions at each stage.	Water Shortage Contingency Planning	Section 8.1	<b>Section 8; pgs. 59-68; Appendix J</b>
<b>10632(a)(2)</b>	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.	Water Shortage Contingency Planning	Section 8.9	<b>Section 8.9, pgs. 68-70</b>
<b>10632(a)(3)</b>	Identify actions to be undertaken by the urban water supplier in case of a catastrophic interruption of water supplies.	Water Shortage Contingency Planning	Section 8.8	<b>Section 8.8, pgs. 64-68</b>
<b>10632(a)(4)</b>	Identify mandatory prohibitions against specific water use practices during water shortages.	Water Shortage Contingency Planning	Section 8.2	<b>Section 8.2, pgs. 60-61; Appendices J, K &amp; M</b>
<b>10632(a)(5)</b>	Specify consumption reduction methods in the most restrictive stages.	Water Shortage Contingency Planning	Section 8.4	<b>Section 8.4, pg. 62</b>
<b>10632(a)(6)</b>	Indicated penalties or charges for excessive use, where applicable.	Water Shortage Contingency Planning	Section 8.3	<b>Section 8.3, pgs. 61-62; Appendices J &amp; K</b>
<b>10632(a)(7)</b>	Provide an analysis of the impacts of each of the actions and conditions in the water shortage contingency analysis on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts.	Water Shortage Contingency Planning	Section 8.6	<b>Section 8.6, pg. 63</b>
<b>10632(a)(8)</b>	Provide a draft water shortage contingency resolution or ordinance.	Water Shortage Contingency Planning	Section 8.7	<b>Section 8.7, pg. 63; Appendices K &amp; M</b>
<b>10632(a)(9)</b>	Indicate a mechanism for determining actual reductions in water use pursuant to the water shortage contingency analysis.	Water Shortage Contingency Planning	Section 8.5	<b>Section 8.1; pgs. 59-60; Appendix J</b>
<b>10631(f)(1)</b>	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the	Demand Management Measures	Sections 9.2 and 9.3	<b>N/A. See CWC Section</b>

	past five years. The description will address specific measures listed in code.			<b>1063(i) below.</b>
<b>10631(f)(2)</b>	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	Sections 9.1 and 9.3	<b>N/A</b>
<b>10631(i)</b>	CUWCC members may submit their 2013-2014 CUWCC BMP annual reports in lieu of, or in addition to, describing the DMM implementation in their UWMPs. This option is only allowable if the supplier has been found to be in full compliance with the CUWCC MOU.	Demand Management Measures	Section 9.5	<b>Section 9, pg. 71; Appendix N</b>
<b>10608.26(a)</b>	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets.	Plan Adoption, Submittal, and Implementation	Section 10.3	<b>Section 2, pg. 3; Section 10.1, pg. 73; Appendix C</b>
<b>10621(b)</b>	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.	Plan Adoption, Submittal, and Implementation	Section 10.2.1	<b>Sections 2, 2.2 &amp; 2.3. pgs. 3-4; Section 10.1, pg. 73; Appendix C</b>
<b>10621(d)</b>	Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.	Plan Adoption, Submittal, and Implementation	Sections 10.3.1 and 10.4	<b>Section 10.2, pg. 73</b>
<b>10635(b)</b>	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 60 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	<b>Section 10.2, pg. 73; Appendix J</b>
<b>10642</b>	Provide supporting documentation that the urban water supplier made the plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan.	Plan Adoption, Submittal, and Implementation	Sections 10.2.2, 10.3, and 10.5	<b>Section 2.2, pg. 3; Section 10.1, pg. 73; Appendix C</b>
<b>10642</b>	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Sections 10.2.1	<b>Section 2.2, pg. 3; Section 10.1, pg. 73; Appendix C</b>
<b>10642</b>	Provide supporting documentation that the plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.3.1	<b>Section 2.2, pg. 3; Section 10.1, pg.</b>

Appendix F **Checklist** Final

				<b>73; Appendix C</b>
<b>10644(a)</b>	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	Section 10.4.3	<b>Section 10.2, pg. 73; Appendix C</b>
<b>10644(a)(1)</b>	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	<b>Section 10.2, pg. 73; Appendix C</b>
<b>10644(a)(2)</b>	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Sections 10.4.1 and 10.4.2	<b>Section 10.2, pg. 73; Appendix C</b>
<b>10645</b>	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.5	<b>Section 10.3, pg. 73; Appendix C</b>

**APPENDIX B:**  
UWMP STANDARDIZED TABLES

\*Note: Water suppliers are required to report their 2015 UWMP data using standardized tables provided by the DWR. The City's completed tables are included in this appendix.

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**Table 2-1 Retail Only: Public Water Systems**

Public Water System Number	Public Water System Name	Number of Municipal Connections 2015	Volume of Water Supplied 2015
CA4210010	City of Santa Barbara Water Dept.	26,831	9,408
<b>TOTAL</b>		<b>26,831</b>	<b>9,408</b>

NOTES: Includes potable water connections and water supplied only. Does not include sales/transfers/exchanges, blend water or water loss. Does not include 90 recycled water customers, which were served 601 AF of water in 2015. Data source: FY15 Metered Sales Report.

**Table 2-2: Plan Identification**

Select Only One	Type of Plan	Name of RUWMP or Regional Alliance <i>if applicable drop down list</i>
<input checked="" type="checkbox"/>	<b>Individual UWMP</b>	
	<input type="checkbox"/> Water Supplier is also a member of a RUWMP	
	<input type="checkbox"/> Water Supplier is also a member of a Regional Alliance	
<input type="checkbox"/>	<b>Regional Urban Water Management Plan (RUWMP)</b>	
NOTES:		

Table 2-3: Agency Identification	
Type of Agency (select one or both)	
<input type="checkbox"/>	Agency is a wholesaler
<input checked="" type="checkbox"/>	Agency is a retailer
Fiscal or Calendar Year (select one)	
<input type="checkbox"/>	UWMP Tables Are in Calendar Years
<input checked="" type="checkbox"/>	UWMP Tables Are in Fiscal Years
If Using Fiscal Years Provide Month and Date that the Fiscal Year Begins (mm/dd)	
7/1	
Units of Measure Used in UWMP (select from Drop down)	
Unit	AF
NOTES:	

**Table 2-4 Retail: Water Supplier Information Exchange**

The retail supplier has informed the following wholesale supplier(s) of projected water use in accordance with CWC 10631.

Wholesale Water Supplier Name *(Add additional rows as needed)*

Central Coast Water Authority

NOTES:

**Table 3-1 Retail: Population - Current and Projected**

Population Served	2015	2020	2025	2030	2035	2040( <i>opt</i> )
	93,532	95,279	97,026	98,773	100,519	

NOTES:

**Table 4-1 Retail: Demands for Potable and Raw Water - Actual**

Use Type <i>(Add additional rows as needed)</i>	2015 Actual		
<i>Drop down list</i> <i>May select each use multiple times</i> <i>These are the only Use Types that will be recognized by the WUEdata online submittal tool</i>	Additional Description <i>(as needed)</i>	Level of Treatment When Delivered <i>Drop down list</i>	Volume
Single Family		Drinking Water	4,360
Multi-Family		Drinking Water	2,446
Commercial	Includes institutional.	Drinking Water	1,890
Industrial		Drinking Water	204
Landscape		Drinking Water	427
Agricultural irrigation		Drinking Water	152
Sales/Transfers/Exchanges to other agencies	Net Overlap deliveries to GWD and MWD.	Drinking Water	183
Groundwater recharge		Drinking Water	0
Other	Blend water to recycled water system.	Drinking Water	768
Losses		Drinking Water	527
<b>TOTAL</b>			<b>10,957</b>
<p>NOTES: Data source: FY15 Metered sales report, except for sales/transfers/exchanges and blend water, which came from Planned &amp; Actual Water Production by Source spreadsheet. Includes agricultural water, which is removed from gross water use calculations in SBX7-7 tables.</p>			

**Table 4-2 Retail: Demands for Potable and Raw Water - Projected**

Use Type <i>(Add additional rows as needed)</i>	Additional Description <i>(as needed)</i>	Projected Water Use <i>Report To the Extent that Records are Available</i>				
<u>Drop down list</u> <i>May select each use multiple times</i> <i>These are the only Use Types that will be recognized by the WUEdata online submittal tool</i>		2020	2025	2030	2035	2040-opt
Single Family		5,588	5,527	5,487	5,497	
Multi-Family		2,812	2,781	2,761	2,766	
Commercial	Includes institutional.	1,982	1,960	1,946	1,950	
Industrial		245	242	240	241	
Landscape		519	513	510	511	
Agricultural irrigation		102	101	100	100	
Sales/Transfers/Exchanges to other agencies	Overlap deliveries to GWD & M	0	0	0	0	
Groundwater recharge		75	75	75	75	
Other	nd water to recycled water syst	275	275	275	275	
Losses		978	967	960	962	
<b>TOTAL</b>		12,576	12,441	12,354	12,377	0
NOTES:						

**Table 4-3 Retail: Total Water Demands**

	2015	2020	2025	2030	2035	2040 <i>(opt)</i>
Potable and Raw Water <i>From</i> <i>Tables 4-1 and 4-2</i>	10,957	12,576	12,441	12,354	12,377	0
Recycled Water Demand* <i>From</i> <i>Table 6-4</i>	0	675	750	825	825	0
<b>TOTAL WATER DEMAND</b>	10,957	13,251	13,191	13,179	13,202	0

*\*Recycled water demand fields will be blank until Table 6-4 is complete.*

NOTES: Potable and Raw Water Demands include water that is used for groundwater injection and recycled system blending (shown in Table 4-2).

**Table 4-4 Retail: 12 Month Water Loss Audit Reporting**

Reporting Period Start Date (mm/yyyy)	Volume of Water Loss*
07/2014	527

*\* Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.*

NOTES:

**Table 4-5 Retail Only: Inclusion in Water Use Projections**

Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook) <i>Drop down list (y/n)</i>	Yes
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, etc... utilized in demand projections are found.	25
Are Lower Income Residential Demands Included In Projections? <i>Drop down list (y/n)</i>	Yes

NOTES:

**Table 5-1 Baselines and Targets Summary***Retail Agency or Regional Alliance Only*

Baseline Period	Start Year	End Year	Average Baseline GPCD*	2015 Interim Target *	Confirmed 2020 Target*
10-15 year	2000	2009	130	123	117
5 Year	2006	2010	135		

\*All values are in Gallons per Capita per Day (GPCD)

NOTES:

**Table 5-2: 2015 Compliance***Retail Agency or Regional Alliance Only*

Actual 2015 GPCD*	2015 Interim Target GPCD*	Optional Adjustments to 2015 GPCD <i>From Methodology 8</i>					2015 GPCD* <i>(Adjusted if applicable)</i>	Did Supplier Achieve Targeted Reduction for 2015? Y/N
		Extraordinary Events*	Economic Adjustment*	Weather Normalization*	TOTAL Adjustments*	Adjusted 2015 GPCD*		
102	123	0	0	0	0	102	102	Yes

*\*All values are in Gallons per Capita per Day (GPCD)*

NOTES:

**Table 6-1 Retail: Groundwater Volume Pumped**

<input type="checkbox"/>	Supplier does not pump groundwater. The supplier will not complete the table below.					
Groundwater Type <i>Drop Down List</i> <i>May use each category multiple times</i>	Location or Basin Name	2011	2012	2013	2014	2015
<i>Add additional rows as needed</i>						
Alluvial Basin	Foothill Basin	553	808	394	681	724
Alluvial Basin	Storage Unit I	152	254	359	111	948
Alluvial Basin	Storage Unit III	0	0	0	0	83
<b>TOTAL</b>		705	1,062	753	792	1,755
NOTES:						

**Table 6-2 Retail: Wastewater Collected Within Service Area in 2015**

<input type="checkbox"/>	There is no wastewater collection system. The supplier will not complete the table below.					
	Percentage of 2015 service area covered by wastewater collection system <i>(optional)</i>					
	Percentage of 2015 service area population covered by wastewater collection system <i>(optional)</i>					
Wastewater Collection			Recipient of Collected Wastewater			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? <i>Drop Down List</i>	Volume of Wastewater Collected from UWMP Service Area 2015	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area? <i>Drop Down List</i>	Is WWTP Operation Contracted to a Third Party? <i>(optional)</i> <i>Drop Down List</i>
<i>Add additional rows as needed</i>						
City of Santa Barbara	Estimated	7,101	City of Santa Barbara	El Estero	Yes	No
County Service Area	Estimated	142	City of Santa Barbara	El Estero	Yes	No
Goleta Sanitary District	Estimated	21	Goleta Sanitary District	Goleta Sanitary District treatment plant	No	No
<b>Total Wastewater Collected from Service Area in 2015:</b>		7,264				
NOTES: 1. A small amount of parcels on the western edge of the City's water service area receives sewer service from the adjacent Goleta Sanitary District. These parcels account for 93 accounts out of approximately 25,400 City sewer accounts.						

**Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2015**

<input type="checkbox"/> No wastewater is treated or disposed of within the UWMP service area. The supplier will not complete the table below.										
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number (optional)	Method of Disposal <i>Drop down list</i>	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level <i>Drop down list</i>	2015 volumes			
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area
<i>Add additional rows as needed</i>										
El Estero	El Estero Outfall	Pacific Ocean		Ocean outfall	Yes	Secondary, Disinfected - 23	7,243	7,243	0	0
<b>Total</b>							<b>7,243</b>	<b>7,243</b>	<b>0</b>	<b>0</b>
NOTES: 1. The City's tertiary treatment plant that produces recycled water was being rehabilitated and therefore under construction and offline in FY 2015. 2. Wastewater generated outside of the City's water service area generally originates from either neighborhoods on their own groundwater wells or small areas of County land that themselves lie completely within City limits. These "islands" are served water by Goleta Water District.										

**Table 6-4 Retail: Current and Projected Recycled Water Direct Beneficial Uses Within Service Area**

<input type="checkbox"/> Recycled water is not used and is not planned for use within the service area of the supplier. The supplier will not complete the table below.									
Name of Agency Producing (Treating) the Recycled Water:			City of Santa Barbara						
Name of Agency Operating the Recycled Water Distribution System:			City of Santa Barbara						
Supplemental Water Added in 2015			851						
Source of 2015 Supplemental Water			Non-potable groundwater (83 AFY) and potable water (760 AFY)						
Beneficial Use Type	General Description of 2015 Uses	Level of Treatment <i>Drop down list</i>	2015	2020	2025	2030	2035	2040 (opt)	
Agricultural irrigation									
Landscape irrigation (excludes golf courses)									
Golf course irrigation									
Commercial use									
Industrial use									
Geothermal and other energy production									
Seawater intrusion barrier									
Recreational impoundment									
Wetlands or wildlife habitat									
Groundwater recharge (IPR)*									
Surface water augmentation (IPR)*									
Direct potable reuse									
Other (Provide General Description)	Irrigation and some toilet flushing	Tertiary	0	675	750	825	825		
<b>Total:</b>			<b>0</b>	<b>675</b>	<b>750</b>	<b>825</b>	<b>825</b>	<b>0</b>	

*\*IPR - Indirect Potable Reuse*

NOTES: 1.) Tertiary treatment plant being rehabilitated and was under construction for FY15. Supplemental water supplies were used to supply recycled water customers. Plant has since re-opened.

2.) Recycled water projections assume final phases of recycled water project are completed.

**Table 6-5 Retail: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual**

□	Recycled water was not used in 2010 nor projected for use in 2015. The supplier will not complete the table below.	
Use Type	2010 Projection for 2015	2015 Actual Use
Agricultural irrigation		
Landscape irrigation (excludes golf courses)		
Golf course irrigation		
Commercial use		
Industrial use		
Geothermal and other energy production		
Seawater intrusion barrier		
Recreational impoundment		
Wetlands or wildlife habitat		
Groundwater recharge (IPR)		
Surface water augmentation (IPR)		
Direct potable reuse		
Other	<i>cluding golf courses, some</i>	0
<b>Total</b>	<b>575</b>	<b>0</b>

NOTES: Tertiary treatment plant was under construction for FY15. 2010 projection for 2015 is based on 875 AFY retail demand less 300 AFY potable blend (supplemental) water.

**Table 6-6 Retail: Methods to Expand Future Recycled Water Use**

<input type="checkbox"/>	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
N/A	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use
<i>Add additional rows as needed</i>			
Expand non-potable reuse	Construct distribution pipelines to expand non-potable reuse	2030	300
Potable reuse	Complete feasibility study	2017	To be determined after completion of feasibility study and water supply plan update.
<b>Total</b>			<b>300</b>
<p>NOTES: The expected increase in recycled water use related to potable reuse will be determined upon completion of a feasibility study, which is currently underway, and an update of the City's Long Term Water Supply Plan.</p>			

**Table 6-7 Retail: Expected Future Water Supply Projects or Programs**

<input type="checkbox"/>	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
<input checked="" type="checkbox"/>	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
50	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other agencies?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type <i>Drop Down List</i>	Expected Increase in Water Supply to Agency <i>This may be a range</i>
	<i>Drop Down List (y/n)</i>	<i>If Yes, Agency Name</i>				
<i>Add additional rows as needed</i>						
Water Conservation Program	No		See Note 1: See Chapter 6 text	1	All Year Types	0-1500
Sediment Management at Reservoirs	Yes	May include US Forest Service; US Bureau of Reclamation; Other local and/or regional agencies	See Note 2: See Chapter 6 text	2	All Year Types	0-2000
Pass Through Operations for Gibraltar Reservoir	Yes	Parties to the existing Upper Santa Ynez River Operations Agreement; Bureau of Reclamation	See Note 3: See Chapter 6 text	3	All Year Types	0-3000
Optimized Groundwater Management	Yes	GW Modeling-USGS; GW MGMT Plan-entireties within basins; Rehab/replace wells-City only	See Note 4: See Chapter 6 text	4	All Year Types	0-1000
Expand Recycled Water U	No		See Note 5: See Chapter 6 text	5	All Year Types	0-300
Groundwater Banking or Long-term Water Transfers	Yes	May include participation with Central Coast Water Authority	See Note 6: See Chapter 6 text	6	Multi-Dry Year	~1000-3000 AFY in drought years
Desalination Facility	No		See Note 7: See Chapter 6 text	7	Single-Dry and Multi-Dry Year	Up to 10,000 AFY
<p>(1) Conservation program is ongoing and has been underway for several years. Savings expected to grow annually, with cumulative annual savings of 1,500 AFY by 2030.</p> <p>(2) Conduct assessment of sediment management alternatives for Gibraltar Reservoir (anticipated by 2020). Ongoing support for a joint effort to develop a long term strategy for sedimentation management at Lake Cachuma.</p> <p>(3) The City has commenced pass through operations; Warren Act contract under negotiation with Bureau of Reclamation.</p> <p>(4) Complete groundwater modeling study (anticipated 2017); Develop work plan to establish Groundwater Sustainability Agency (anticipated 2017); Rehab/replacement of existing wells (ongoing).</p> <p>(5) Expansion of recycled water distribution where cost-effective by 2030; Evaluate feasibility of potable reuse alternatives by 2017. Additional 300 AFY from additional non-potable reuse; yield from potable reuse TBD pending completion of feasibility study.</p> <p>(6) Anticipate investigation of long-term transfer/banking options by 2020.</p> <p>(7) Evaluate desalination operation or expansion needs (ongoing).</p>						

Table 6-8 Retail: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2015		
		Actual Volume	Water Quality <i>Drop Down List</i>	Total Right or Safe Yield <i>(optional)</i>
<i>Drop down list</i> <i>May use each category multiple times.</i> <i>These are the only water supply categories that will be recognized by the WUEdata online submittal tool</i>				
<i>Add additional rows as needed</i>				
Purchased or Imported Water	Table A Allocation. See Note 1.	0	Drinking Water	
Supply from Storage	Carryover at San Luis. See Note 2.	0	Drinking Water	
Purchased or Imported Water	Supplemental Water Purchases. See Note 3.	4,848	Drinking Water	
Supply from Storage	Table A water stored in Dudley Ridge/Palmdale groundwater banking programs. See Note 4.	0	Drinking Water	
Surface water	Cachuma Allocation. See Note 5.	0	Drinking Water	
Supply from Storage	Cachuma Carryover. See Note 6.	2,473	Drinking Water	
Transfers	Annual transfer from Montecito Water District per Juncal Agreement. See Note 7.	300	Drinking Water	
Surface water	Gibraltar Reservoir/Devil's Canyon. See Note 8.	951	Drinking Water	
Other	Infiltration to Mission Tunnel. See Note 9.	815	Drinking Water	
Groundwater	Storage Unit #1 and Foothill Basins. See Note 10.	1,673	Drinking Water	
Groundwater	Storage Unit #3 (augments supply to recycled system). See Note 11.	73	Raw Water	
Recycled Water	Tertiary treatment plant. See Note 12.	0	Recycled Water	
Desalinated Water	Charles E. Meyer Ocean Desalination Facility. See Note 13.	0	Drinking Water	
<b>Total</b>		<b>11,133</b>		<b>0</b>
<p>* Due to several dry years, a Statewide Drought Condition was declared during Fiscal Year 2015. Values in "Actual Volume" column represent that amount of supply actually used. Additional water was available and carried over for use in later years of drought as noted.</p> <p>(1) The City's maximum Table A is 3,300 AFY. As of June 30 2015, the City had 660 AF of allocated Table A water remaining.</p> <p>(2) As of June 30 2015, the City had 2,356 AF of carryover stored in San Luis remaining.</p> <p>(3) As of June 30 2015, the City had 1,692 AF of purchased water stored in San Luis remaining.</p> <p>(4) As of June 30 2015, the City had 1,490 AF of water stored in groundwater banking programs.</p> <p>(5) The Cachuma operational yield to the City in normal years is 8,277 AFY. This was reduced by 55% in October 2014 due to drought. As of June 30, 2015 the City had 3,725 AF of Water Year 2015 Cachuma entitlement remaining.</p> <p>(6) As of June 30,2015, the City had 1,443 AF of Cachuma carryover remaining.</p> <p>(7) Transfer occurred at Cachuma.</p> <p>(8) Based on 2011 Long Term Water Supply Plan, the yield of Gibraltar reservoir ranges between 0-3,206, with a long-term average yield of 1,125 AFY (reduced from modeled values for conservative planning purposes). Recent modeling shows a long-term average yield of 4330 AFY (Stetson, 2013). As of June 30 2015, the City had 638 AF stored water in Gibraltar remaining.</p> <p>(9) Based on 2011 Long Term Water Supply Plan, the yield of Mission Tunnel ranges between 500-2,375 AFY, with a long-term average yield of 1,125 AFY.</p> <p>(10) Based on 2011 Long Term Water Supply Plan, potable groundwater is estimated to range between 700-4150 AFY, with a long-term average yield of 1,083 AFY.</p> <p>(11) Estimated average annual yield available to the City from Storage Unit #3 is 100 AFY.</p> <p>(12) The City's tertiary plant was under construction for upgrades and will produce up to 1,400 AFY.</p> <p>(13) Permitted for up to 10,000 AFY; Construction underway to produce 3,125 AFY, expected to be operational Fall 2016.</p>				

**Table 6-9 Retail: Water Supplies — Projected**

Water Supply	Additional Detail on Water Supply	Projected Water Supply <i>Report To the Extent Practicable</i>									
		2020		2025		2030		2035		2040 (opt)	
		Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)
<i>Drop down list May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool</i>											
<i>Add additional rows as needed</i>											
Purchased or Imported Water	Table A Allocation.	2,001		1,987		1,973		1,958			
Surface water	Cachuma Allocation	8,172		8,070		7,967		7,863			
Transfers	Annual transfer from Montecito Water District per Juncal Agreement	300		300		300		300			
Surface water	Gibraltar Reservoir/Devil's Canyon	3,206		3,206		3,206		3,206			
Other	Infiltration to Mission Tunnel	1,125		1,125		1,125		1,125			
Groundwater	Storage Unit #1 and Foothill Basins	1,083		1,083		1,083		1,083			
Groundwater	Storage Unit #3 (augments supply to recycled system)	100		100		100		100			
Recycled Water	Tertiary treatment plant	1,400		1,400		1,400		1,400			
Desalinated Water	Charles E. Meyer Ocean Desalination Facility	0		0		0		0			
<b>Total</b>		<b>17,387</b>	<b>0</b>	<b>17,271</b>	<b>0</b>	<b>17,154</b>	<b>0</b>	<b>17,035</b>	<b>0</b>	<b>0</b>	<b>0</b>

NOTES: 1) Above projections assume years of normal hydrologic conditions. 2) Adequate water supply during critical drought depends on carryover/banking of SWP and/or Cachuma water during normal years. 3) Projections reflect minor projected increases in demand, which are offset by demand reduction from new conservation & recycled water. 4) State Water Table A allocations based on long-term average per CCWA. 5) Cachuma Project yield reflects 5% reduction over 20-year planning period due to sedimentation. 6) Gibraltar yield based on 70% of estimates used in EIR for Cachuma water rights hearing (Mitigation Mode - normal years). 7) Mission Tunnel yield based on EIR for Cachuma water rights hearing. 8) Groundwater: average pumping amounts for 2030 conditions under LTWSP performance analysis at 14,000 + 10% safety margin. 9) Desalination supply is available in normal hydrology years; although its role is currently a drought/emergency supply (per policies in 2011 LTWSP). Therefore, it is not shown in tables above. The City's permitted capacity for desalinated water is 10,000 AFY. Construction is underway to produce 3,125 AFY, expected to be operational Fall 2016.

**Table 7-1 Retail: Basis of Water Year Data**

Year Type	Base Year <i>If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 1999-2000, use 2000</i>	Available Supplies if Year Type Repeats	
		<input type="checkbox"/>	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____
		<input checked="" type="checkbox"/>	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available	% of Average Supply
Average Year	93 (modeled)	15635	100%
Single-Dry Year	1977	12032	77%
Multiple-Dry Years 1st Year	1947	13705	88%
Multiple-Dry Years 2nd Year	1948	14039	90%
Multiple-Dry Years 3rd Year	1949	14389	92%
Multiple-Dry Years 4th Year <i>Optional</i>			
Multiple-Dry Years 5th Year <i>Optional</i>			
Multiple-Dry Years 6th Year <i>Optional</i>			

Agency may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If an agency uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.

NOTES: Volume available reflects 2035 conditions for potable supply.

**Table 7-2 Retail: Normal Year Supply and Demand Comparison**

	2020	2025	2030	2035	2040 <i>(Opt)</i>
Supply totals <i>(autofill from Table 6-9)</i>	17,387	17,271	17,154	17,035	0
Demand totals <i>(autofill from Table 4-3)</i>	13,251	13,191	13,179	13,202	0
Difference	4,136	4,080	3,975	3,833	0

NOTES: Compares total potable and recycled demands with supplies. Demands include groundwater replenishment.

**Table 7-3 Retail: Single Dry Year Supply and Demand Comparison**

	2020	2025	2030	2035	2040 (Opt)
Supply totals	14,047	13,833	13,688	13,582	
Demand totals	12,501	12,368	12,280	12,302	
Difference	1,546	1,465	1,408	1,280	0

NOTES: Compares potable demands with potable supplies. In dry years, demands do not include groundwater replenishment (see Table 4-2).

**Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison**

		2020	2025	2030	2035	2040 (Opt)
First year	Supply totals	14,020	13,950	13,776	13,705	
	Demand totals	12,501	12,368	12,280	12,302	
	Difference	1,519	1,582	1,496	1,403	0
Second year	Supply totals	13,940	13,973	14,006	14,039	
	Demand totals	12,501	12,368	12,280	12,302	
	Difference	1,439	1,605	1,726	1,737	0
Third year	Supply totals	14,039	13,989	13,839	13,789	
	Demand totals	12,501	12,368	12,280	12,302	
	Difference	1,538	1,621	1,559	1,487	0
Fourth year <i>(optional)</i>	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Fifth year <i>(optional)</i>	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Sixth year <i>(optional)</i>	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0

NOTES: Compares potable demands with potable supplies. In dry years, demands do not include groundwater replenishment (see Table 4-2).

**Table 8-1 Retail  
Stages of Water Shortage Contingency Plan**

Stage	Complete Both	
	Percent Supply Reduction <sup>1</sup> <i>Numerical value as a percent</i>	Water Supply Condition <i>(Narrative description)</i>
<i>Add additional rows as needed</i>		
Normal	0%	Full Cachuma entitlement is projected for the coming water year and there are no extraordinary shortages in other City supplies.
Stage 1	0%-15%	A Cachuma entitlement reduction is projected for the coming water year, assuming continued dry weather; or an extraordinary reduction in other City supplies has been identified.
Stage 2	15%-25%	Continuing conditions of average or less rainfall have resulted in continued decline in Cachuma storage following a reduction in entitlement; or an extraordinary reduction in other City supplies has been identified.
Stage 3	25% or more	Cachuma supplies are projected to be exhausted during the coming water year; or a catastrophic interruption to City water supplies has occurred.
<sup>1</sup> One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.		
NOTES:		

**Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses**

Stage	Restrictions and Prohibitions on End Users <i>Drop down list</i> <i>These are the only categories that will be accepted by the WUEdata online submittal tool</i>	Additional Explanation or Reference <i>(optional)</i>	Penalty, Charge, or Other Enforcement? <i>Drop Down List</i>
<i>Add additional rows as needed</i>			
All	Other	General - Waste of Water	Yes
All	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner		Yes
All	Landscape - Restrict or prohibit runoff from landscape irrigation		Yes
2 & 3	Other - Require automatic shut of hoses		Yes
2 & 3	Other - Prohibit use of potable water for washing hard surfaces		Yes
2 & 3	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	Or by use of a hose with shut-off nozzle	Yes
2 & 3	Landscape - Limit landscape irrigation to specific times		Yes
2 & 3	Landscape - Prohibit certain types of landscape irrigation		Yes
2 & 3	Landscape - Other landscape restriction or prohibition	Landscape - Prohibit irrigation with potable water during and within 48 hours after measurable rainfall	Yes
2 & 3	Landscape - Other landscape restriction or prohibition	Landscape - Prohibit irrigation with potable water of turf on public street medians	Yes
2 & 3	Landscape - Other landscape restriction or prohibition	Landscape - Irrigation of landscaping at new homes and buildings must comply with the requirements of the California Building Standards Commission and the Department of Community Development	Yes
2 & 3	CII - Lodging establishment must offer opt out of linen service		Yes

2 & 3	CII - Restaurants may only serve water upon request		Yes
2 & 3	CII - Other CII restriction or prohibition	CII – Require posting of water shortage notice at restaurants, hotel/motels, and commercial showering & car washing facilities	Yes
2 & 3	Water Features - Restrict water use for decorative water features, such as fountains		Yes
2 & 3	Pools and Spas - Require covers for pools and spas		Yes
2 & 3	Other water feature or swimming pool restriction	Pools and Spas – Restrict draining and refilling of pools	Yes
3	Landscape - Prohibit all landscape irrigation		Yes
NOTES:			

**Table 8-3 Retail Only:  
Stages of Water Shortage Contingency Plan - Consumption Reduction Methods**

Stage	Consumption Reduction Methods by Water Supplier <i>Drop down list</i> <i>These are the only categories that will be accepted by the WUEdata online submittal tool</i>	Additional Explanation or Reference <i>(optional)</i>
<i>Add additional rows as needed</i>		
All	Expand Public Information Campaign	
All	Offer Water Use Surveys	
All	Provide Rebates on Plumbing Fixtures and Devices	
All	Provide Rebates for Landscape Irrigation Efficiency	
All	Provide Rebates for Turf Replacement	
All	Reduce System Water Loss	
Stage 2 & 3	Increase Water Waste Patrols	
Stage 2 & 3	Implement or Modify Drought Rate Structure or Surcharge	
Stage 2 & 3	Other	Activate and enforce water use restrictions and prohibitions
Stage 3	Moratorium or Net Zero Demand Increase on New Connections	
Stage 3	Decrease Line Flushing	
NOTES:		

**Table 8-4 Retail: Minimum Supply Next Three Years**

	2016	2017	2018
Available Water Supply	11,200	10,100	9,100

NOTES: Units are Acre-Feet

**Table 10-1 Retail: Notification to Cities and Counties**

City Name	60 Day Notice	Notice of Public Hearing
<i>Add additional rows as needed</i>		
City of Santa Barbara	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
County Name <i>Drop Down List</i>	60 Day Notice	Notice of Public Hearing
<i>Add additional rows as needed</i>		
Santa Barbara County	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>

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**APPENDIX C:**

DOCUMENTATION OF PUBLIC NOTICING, COMMUNITY  
NOTIFICATIONS, INTERAGENCY COORDINATION, AND  
CITY COUNCIL ACTION

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**CITY OF SANTA BARBARA  
CITY COUNCIL**

**MINUTE ORDER**

**DATE**

June 28, 2016

**ROLL CALL**

Mayor Helene Schneider, Councilmembers Jason Dominguez, Gregg Hart, Frank Hotchkiss, Cathy Murillo, Randy Rowse, Bendy White

**ITEM**

No. 19

Subject: Public Hearing And Adoption Of 2015 Urban Water Management Plan

**RECOMMENDATION**

That Council:

A. Hold a public hearing regarding the adoption of the update of the City's 2015 Urban Water Management Plan;

B. Adopt a 2020 water use target of 117 gallons per capita per day in accordance with the legislative requirements of the Water Conservation Act of 2009 and as set forth in Section 5 of the Urban Water Management Plan; and

C. Adopt and authorize the Public Works Director to transmit the City's 2015 Urban Water Management Plan to the California Department of Water Resources with such minor revisions as may be approved by the Public Works Director to ensure compliance with State Urban Water Management Plan requirements and that are consistent with the City's Long Term Water Supply Plan.

**ACTION**

Motion White/Hotchkiss to approve the recommendations.

Vote:

Unanimous voice vote.

STATE OF CALIFORNIA )  
 )  
COUNTY OF SANTA BARBARA ) ss.  
 )  
CITY OF SANTA BARBARA )

I, Sarah Gorman, City Clerk Services Manager in and for the City of Santa Barbara, California, DO HEREBY CERTIFY that attached is a full, true and correct copy of a City of Santa Barbara City Council Minute Order pertaining to the Council's action to adopt the 2015 Urban Water Management Plan (Item No. 19 of its June 28, 2016 meeting agenda).

IN WITNESS WHEREOF, I have hereunto set my hand and caused the official seal of said City to be affixed this 29<sup>th</sup> day of June, 2016.

(SEAL)



*Sarah Gorman*  
\_\_\_\_\_  
Sarah Gorman, CMC  
City Clerk Services Manager

# CITY OF SANTA BARBARA CITY COUNCIL

**Helene Schneider**  
*Mayor*  
**Bendy White**  
*Mayor Pro Tempore*  
**Randy Rowse**  
*Ordinance Committee Chair*  
**Gregg Hart**  
*Finance Committee Chair*  
**Jason Dominguez**  
**Frank Hotchkiss**  
**Cathy Murillo**



**Paul Casey**  
*City Administrator*

**Ariel Pierre Calonne**  
*City Attorney*

**City Hall**  
735 Anacapa Street  
<http://www.SantaBarbaraCA.gov>

## JUNE 28, 2016 AGENDA

**ORDER OF BUSINESS:** Regular meetings of the Finance Committee and the Ordinance Committee begin at 12:30 p.m. The regular City Council meeting begins at 2:00 p.m. in the Council Chamber at City Hall.

**REPORTS:** Copies of the reports relating to agenda items are available for review in the City Clerk's Office, at the Central Library, and <http://www.SantaBarbaraCA.gov>. In accordance with state law requirements, this agenda generally contains only a brief general description of each item of business to be transacted or discussed at the meeting. Should you wish more detailed information regarding any particular agenda item, you are encouraged to obtain a copy of the Council Agenda Report (a "CAR") for that item from either the Clerk's Office, the Reference Desk at the City's Main Library, or online at the City's website (<http://www.SantaBarbaraCA.gov>). Materials related to an item on this agenda submitted to the City Council after distribution of the agenda packet are available for public inspection in the City Clerk's Office located at City Hall, 735 Anacapa Street, Santa Barbara, CA 93101, during normal business hours.

**PUBLIC COMMENT:** At the beginning of the 2:00 p.m. session of each regular City Council meeting, and at the beginning of each special City Council meeting, any member of the public may address the City Council concerning any item not on the Council's agenda. Any person wishing to make such address should first complete and deliver a "Request to Speak" form prior to the time that public comment is taken up by the City Council. Should City Council business continue into the evening session of a regular City Council meeting at 6:00 p.m., the City Council will allow any member of the public who did not address them during the 2:00 p.m. session to do so. The total amount of time for public comments will be 15 minutes, and no individual speaker may speak for more than 1 minute. The City Council, upon majority vote, may decline to hear a speaker on the grounds that the subject matter is beyond their jurisdiction.

**REQUEST TO SPEAK:** A member of the public may address the Finance or Ordinance Committee or City Council regarding any scheduled agenda item. Any person wishing to make such address should first complete and deliver a "Request to Speak" form prior to the time that the item is taken up by the Finance or Ordinance Committee or City Council.

**CONSENT CALENDAR:** The Consent Calendar is comprised of items that will not usually require discussion by the City Council. A Consent Calendar item is open for discussion by the City Council upon request of a Councilmember, City staff, or member of the public. Items on the Consent Calendar may be approved by a single motion. Should you wish to comment on an item listed on the Consent Agenda, after turning in your "Request to Speak" form, you should come forward to speak at the time the Council considers the Consent Calendar.

**AMERICANS WITH DISABILITIES ACT:** If you need auxiliary aids or services or staff assistance to attend or participate in this meeting, please contact the City Administrator's Office at 564-5305. If possible, notification at least 48 hours prior to the meeting will usually enable the City to make reasonable arrangements. Specialized services, such as sign language interpretation or documents in Braille, may require additional lead time to arrange.

**TELEVISION COVERAGE:** Each regular City Council meeting is broadcast live in English and Spanish on City TV Channel 18 and rebroadcast in English on Wednesdays and Thursdays at 7:00 p.m. and Saturdays at 9:00 a.m., and in Spanish on Sundays at 4:00 p.m. Each televised Council meeting is closed captioned for the hearing impaired. Check the City TV program guide at [www.santabarbaraca.gov/citytv](http://www.santabarbaraca.gov/citytv) for rebroadcasts of Finance and Ordinance Committee meetings, and for any changes to the replay schedule.

## **ORDER OF BUSINESS**

- 12:30 p.m. - Finance Committee Meeting, David Gebhard Public Meeting Room,  
630 Garden Street
- 2:00 p.m. - City Council Meeting

### **FINANCE COMMITTEE MEETING - 12:30 P.M. IN THE DAVID GEBHARD PUBLIC MEETING ROOM, 630 GARDEN STREET (120.03)**

#### **Subject: Citywide Infrastructure Needs (120.03)**

That the Finance Committee hear a presentation on alternatives to increase the amount of funding available to support investment in the Capital infrastructure related to City streets, including pavements, sidewalks, and storm drains.

## REGULAR CITY COUNCIL MEETING – 2:00 P.M.

### CALL TO ORDER

### PLEDGE OF ALLEGIANCE

### ROLL CALL

### CHANGES TO THE AGENDA

### PUBLIC COMMENT

### CONSENT CALENDAR

**1. Subject: Minutes**

Recommendation: That Council waive further reading and approve the minutes of the special meeting of May 16, 2016.

**2. Subject: Professional Services Agreement With Bartel Associates, LLC For Actuarial Services (430.08)**

Recommendation: That Council authorize the Finance Director to approve and execute a professional services agreement with Bartel Associates, LLC, to perform actuarial services in connection with the City's Post-Retirement Health Benefits, Sick Leave Benefits, and Article XV and XVA Safety Retirement Plans covering Fiscal Years 2016 and 2017, in an amount not to exceed \$47,900, which includes \$5,000 for additional services that may be required.

**3. Subject: Fiscal Year 2016 Interim Financial Statements For The Ten Months Ended April 30, 2016 (250.02)**

Recommendation: That Council accept the Fiscal Year 2016 Interim Financial Statements for the Ten Months Ended April 30, 2016.

## CONSENT CALENDAR (CONT'D)

**4. Subject: May 2016 Investment Report (260.02)**

Recommendation: That Council accept the May 2016 Investment Report.

**5. Subject: Grant Agreement With South Coast Community Media Access Center (510.04)**

Recommendation: That Council authorize the Finance Director to execute a grant agreement with the South Coast Community Media Access Center for management of the public and educational access television channels in an amount of \$313,100 plus an amount for public, educational and government access (PEG) capital expenditures equal to 50% of the actual PEG fees received by the City in Fiscal Year 2017.

**6. Subject: Second Contract Amendment For On-Call Engineering Services For Groundwater Well Development (540.10)**

Recommendation: That Council authorize the Public Works Director to amend Contract No. 24,803 with Pueblo Water Resources, for on-call hydrogeological engineering design services for groundwater well development projects, increasing the contract amount by \$150,000, for a total amount of \$550,000.

**7. Subject: Contract For Development Of Wastewater Collection System Strategic Management Program - Phase VI (540.13)**

Recommendation: That Council authorize the Public Works Director to execute a City Professional Services contract with Brown and Caldwell in the amount of \$209,163 for Wastewater Collection System Strategic Management Program support, and authorize the Public Works Director to approve expenditures of up to \$20,916 for extra services of Brown and Caldwell that may result from necessary changes in the scope of work.

## CONSENT CALENDAR (CONT'D)

### 8. **Subject: Increase In Design Services And Acceptance Of Grant Revenues For The De La Guerra Street Bridge Replacement Project (530.04)**

Recommendation: That Council:

- A. Authorize an increase in the extra services amount with Drake Haglan and Associates, for bridge design services for the De La Guerra Street Bridge Replacement Project, Contract No. 24,337, in the amount of \$50,331, for a total project expenditure authority of \$665,614;
- B. Approve a transfer of \$77,278 from existing Streets Capital Fund appropriations to the Streets Grant Fund to cover the remaining portion of City funds required for design costs for the De La Guerra Street Bridge Replacement Project;
- C. Accept Federal Highway Administration Highway Bridge Program grant funding in the total amount of \$885,300 for right of way phase costs for the De La Guerra Street Bridge Replacement Project;
- D. Authorize the increase of estimated revenues and appropriations in the Fiscal Year 2016 Streets Grant Fund by \$221,325 of the total \$885,300 approved grant for the required right of way costs related to the De La Guerra Street Bridge Replacement Project; and
- E. Approve a transfer of \$28,675 from existing Streets Capital Fund appropriations to the Streets Grant Fund to cover the anticipated City funds required for right of way costs for the De La Guerra Street Bridge Replacement Project, and appropriate these funds in the Streets Grants Fund.

### 9. **Subject: Agreement For Measure A Sustainable Transportation Project Grants (670.05)**

Recommendation: That Council:

- A. Authorize the Public Works Director to execute the Measure A Cycle 3 Project Cooperative Agreement between the City of Santa Barbara and the Santa Barbara County Association of Governments;
- B. Increase estimated revenues and appropriations in the Streets Grant Fund by \$352,640 in the Fiscal Year 2017 budget for the North La Cumbre Sidewalk and Pedestrian Enhancement Project and the Old Coast Highway Sidewalk Project; and
- C. Approve the transfer of \$3,217.20 in available appropriations from the Streets Capital Fund to the Streets Grant Fund and appropriate for the use of the North La Cumbre Sidewalk and Pedestrian Enhancement Project in the Streets Grant Fund.

## CONSENT CALENDAR (CONT'D)

**10. Subject: Acquisition Of Easement For Public Purposes For The Quarantina Street Permeable Pavers Project (530.04)**

Recommendation: That Council adopt, by reading of title only, A Resolution of the Council of the City of Santa Barbara to Acquire and Accept an Easement For Public Purposes at 721 East Cota Street (APN: 031-110-004), for the Low Impact Development Demonstration Streets, Sidewalk, and Alleys Project - Phase II, and Authorizing the Public Works Director to Execute the the Agreement for Acquisition of Public Right of Way for Public Purposes (No Cost Acquisition), and Related Easement Acquisition Documents, Subject to Approval as to Form by the City Attorney, and Consenting to the Recordation of the Easement Deed in the Official Records of the County of Santa Barbara.

**11. Subject: Memorandum of Understanding with the Community Action Commission for the South Coast Task Force (520.04)**

Recommendation: That Council authorize the City Administrator to execute the Memorandum of Understanding with the Community Action Commission related to the City's participation in the South Coast Task Force.

**12. Subject: Records Destruction For Community Development Department (160.06)**

Recommendation: That Council adopt, by reading of title only, A Resolution of the Council of the City of Santa Barbara Relating to the Destruction of Records Held by the Community Development Department in the Administration, Housing and Human Services and Building and Safety Divisions.

**13. Subject: Purchase Of A New Permit Tracking System (170.04)**

Recommendation: That Council:

- A. Approve a professional services agreement with Accela, Inc., for the implementation of the Accela Civic Platform System in an amount not to exceed \$899,850 and approve an additional \$121,660 for contingency costs that may be necessary during the implementation;
- B. Approve a License Agreement with Accela, Inc., for the purchase of 150 user licenses for Accela Civic Platform, 50 Mobile user licenses, and unlimited Citizen Access in an amount not to exceed \$213,569;

**(Cont'd)**

## CONSENT CALENDAR (CONT'D)

### 13. (Cont'd)

- C. Approve a Maintenance Agreement with Accela, Inc., for the first year maintenance and support of the Accela Civic Platform system, in an amount not to exceed \$65,858;
- D. Approve a Subscription Agreement for implementation and hosting services with Accela, Inc., for the Right of Way Management application, for a term of five years, in an amount not to exceed \$16,500 for implementation and \$20,813 for hosting in year one, with annual increases of 3.5%;
- E. Transfer \$1,200,000 of Fiscal Year 2017 Capital Outlay Fund appropriations established for this project (\$600,000 in Fiscal Year 2016 and \$600,000 in Fiscal Year 2017) from Community Development Technology Reserves and the Public Works Technology Reserves to the Information Systems Capital Fund for purposes of consolidating all funds for the project in a single location; and
- F. Appropriate \$1,200,000 in the Fiscal Year 2017 Information Systems Capital Fund for this project.

### 14. **Subject: Upgrade Of Cartegraph Asset Management Software For Maintenance Work Order Tracking (170.04)**

Recommendation: That Council:

- A. Authorize the Administrative Services Director to execute a professional services agreement with Cartegraph Systems, Inc., for the acquisition and implementation of the Operations Management System (OMS), in an amount not to exceed \$191,503, and approve an additional \$34,150 for contingency costs that may be necessary during the implementation;
- B. Approve the Cartegraph OMS licensing subscription for two additional years in an annual amount not to exceed \$71,003, beginning in year two; and
- C. Approve the transfer of funds from the Airport Fund (\$32,501), Downtown Parking Fund (\$24,567), Streets Fund (\$63,500), General Fund - Public Works Department (\$53,613) and Waterfront Department (\$51,472) to the Information Systems Capital Fund to cover the costs of the project.

## **CONSENT CALENDAR (CONT'D)**

**15. Subject: Cachuma Conservation Release Board Fiscal Year 2017 Budget Ratification (540.03)**

Recommendation: That Council ratify the Cachuma Conservation Release Board Fiscal Year 2017 budget, with the City's proportional share not to exceed \$448,535.

**16. Subject: Contract For Construction Of Wastewater Main Rehabilitation Fiscal Year 2016 Project (540.13)**

Recommendation: That Council find it to be in the City's best interest to waive the formal bid procedure as authorized by Municipal Code Section 4.52.070 (L), award a contract with Southwest Pipeline & Trenchless Corporation in their proposed amount of \$270,778 for construction of the Wastewater Main Rehabilitation Fiscal Year 2016 Project, and authorize the Public Works Director to execute the contract and approve expenditures up to \$27,078 to cover any cost increases that may result from contract change orders for extra work and differences between estimated quantities and actual quantities measured for payment.

## **NOTICES**

17. The City Clerk has on Thursday, June 23, 2016, posted this agenda in the Office of the City Clerk, on the City Hall Public Notice Board on the outside balcony of City Hall, and on the Internet.

**This concludes the Consent Calendar.**

## **REPORT FROM THE FINANCE COMMITTEE**

## CITY COUNCIL ADMINISTRATIVE AND ATTORNEY REPORTS

### CITY ATTORNEY

**18. Subject: Marijuana Business Tax Ballot Measure: The Santa Barbara Marijuana Control Act (110.03)**

Recommendation: That Council adopt, by reading of title only and unanimous vote, A Resolution Of The Council of the City of Santa Barbara Calling and Giving Notice of a Consolidated Special Municipal Election to be Held in the City Of Santa Barbara On Tuesday, November 8, 2016 for the Submission Of A Ballot Measure to the Voters Of The City Pertaining To Enactment Of A General Tax on the Gross Receipts Of Marijuana Businesses.

### **PUBLIC HEARINGS**

**19. Subject: Public Hearing And Adoption Of 2015 Urban Water Management Plan (540.08)**

Recommendation: That Council:

- A. Hold a public hearing regarding the adoption of the update of the City's 2015 Urban Water Management Plan;
- B. Adopt a 2020 water use target of 117 gallons per capita per day in accordance with the legislative requirements of the Water Conservation Act of 2009 and as set forth in Section 5 of the Urban Water Management Plan; and
- C. Adopt and authorize the Public Works Director to transmit the City's 2015 Urban Water Management Plan to the California Department of Water Resources with such minor revisions as may be approved by the Public Works Director to ensure compliance with State Urban Water Management Plan requirements and that are consistent with the City's Long Term Water Supply Plan.

## **CITY COUNCIL ADMINISTRATIVE AND ATTORNEY REPORTS (CONT'D)**

### **FINANCE**

**20. Subject: Status Of The Resource Recovery Project At Tajiguas Landfill (640.01)**

Recommendation: That Council:

- A. Receive a report on the status of the proposed Resource Recovery Project at Tajiguas Landfill; and
- B. Direct staff to work with the Solid Waste Ad Hoc Committee to evaluate the project in greater detail.

### **MAYOR AND COUNCIL REPORTS**

**21. Subject: Appointments To City Advisory Groups (140.05)**

Recommendation: That Council make appointments to the City's advisory groups.

### **COUNCIL AND STAFF COMMUNICATIONS**

### **COUNCILMEMBER COMMITTEE ASSIGNMENT REPORTS**

### **PUBLIC COMMENT (IF NECESSARY)**

### **CLOSED SESSIONS**

**22. Subject: Public Employee Performance Evaluation - Government Code Section 54957(b)(1) (160.01)**

Recommendation: That Council hold a closed session for a Public Employee Performance Evaluation under Government Code Section 54957(b)(1).

Title: City Attorney  
Scheduling: Duration, 40 minutes; anytime  
Report: None anticipated

## **CLOSED SESSIONS (CONT'D)**

**23. Subject: Subject: Conference with Labor Negotiators - Government Code Section 54947.6 (170.01)**

Recommendation: That Council hold a closed session for a Conference with Labor Negotiators pursuant to Government Code section 54957.6.

City Designated Representatives:

Mayor Helene Schneider

Council Member Randy Rowse

Council Member Bendy White

Kristy Schmidt, Administrative Services Director

Unrepresented Employee: City Administrator

Scheduling: Duration, 40 minutes; anytime

Report: None anticipated

## **ADJOURNMENT**

## Corey, Dakota

---

**To:** Alex Orozco  
**Subject:** RE: Legal Notice to be Published

**From:** Alex Orozco [<mailto:aorozco@newspress.com>]

**Sent:** Thursday, April 28, 2016 10:43 AM

**To:** Tschech, Susan

**Subject:** Re: Legal Notice to be Published

Good morning Susan,

I've scheduled the attached public notice ad to publish on Saturday, April 30th. Please advise if edits are needed prior to noon today.

[Ad # 3814894/ Jacket #50692 / Cost \$63.96]

Thank you.

Alex Orozco

Classified Advertising Rep.

Santa Barbara News-Press

(805) 564-5247 Office

(805) 966-1421 Fax

[www.newspress.com](http://www.newspress.com)

<Notice for Urban Water Mgmt Plan.docx>

**PUBLIC NOTICE**  
**City of Santa Barbara**

NOTICE IS HEREBY GIVEN that the City Council of the City of Santa Barbara will conduct a Public Hearing on Tuesday, June 28, 2016, during the afternoon session of the meeting which begins at 2:00 p.m. in the Council Chamber, City Hall, 735 Anacapa Street, Santa Barbara. The hearing is to consider a recommendation to adopt the 2015 update of the City's Urban Water Management Plan (UWMP) as required by State law.

A draft of the UWMP will be available on the City's website at [www.SantaBarbaraCA.gov/water](http://www.SantaBarbaraCA.gov/water) beginning Friday, April 29, 2016. Any comments are requested by 12:00 noon on Tuesday, June 7, 2016, so they can be considered in preparation of the final draft of the UWMP to be included in the City Council packet for the hearing on June 28, 2016; comments should be submitted at the Public Works Department counter located at 630 Garden Street. Questions can be directed to the City's Water Resources Division at (805) 564 5460.

You are invited to attend this hearing and address your verbal comments to the City Council. Written comments are also welcome up to the time of the hearing, and should be addressed to the City Council via the City Clerk's Office, P.O. Box 1990, Santa Barbara, CA 93102 1990.

On Thursday, June 23, 2016, an Agenda with all items to be heard on Tuesday, June 28, 2016, will be available at 735 Anacapa Street and at the Central Library. Agendas and Staff Reports are also accessible online at [www.santabarbaraca.gov](http://www.santabarbaraca.gov); under Most Popular, click on Council Agenda Packet. Regular meetings of the Council are broadcast live and rebroadcast on Wednesdays and Thursdays at 7:00 p.m. and on Saturday at 9:00 a.m. on City TV Channel 18. Each televised Council meeting is closed captioned for the hearing impaired. These meetings can also be viewed over the Internet at [www.SantaBarbaraCA.gov/CouncilVideos](http://www.SantaBarbaraCA.gov/CouncilVideos).

In compliance with the Americans with Disabilities Act, if you need auxiliary aids or services or staff assistance to attend or participate in this meeting, please contact the City Administrator's Office at 564-5305. If possible, notification at least 48 hours prior to the meeting will usually enable the City to make reasonable arrangements. Specialized services, such as sign language interpretation or documents in Braille, may require additional lead time to arrange.

*/s/*  
Susan Tschech, CMC  
Deputy City Clerk  
APR 30 / 2016 -- 50692

**PUBLIC NOTICE**  
**City of Santa Barbara**

NOTICE IS HEREBY GIVEN that the City Council of the City of Santa Barbara will conduct a Public Hearing on Tuesday, June 28, 2016, during the afternoon session of the meeting which begins at 2:00 p.m. in the Council Chamber, City Hall, 735 Anacapa Street, Santa Barbara. The hearing is to consider a recommendation to adopt the 2015 update of the City's Urban Water Management Plan (UWMP) as required by State law.

A draft of the UWMP and associated appendices will be available on the City's website at [www.SantaBarbaraCA.gov/Water](http://www.SantaBarbaraCA.gov/Water) beginning Friday, April 29, 2016. **Any comments are requested by 12:00 noon on Tuesday, June 7, 2016, so they can be considered in preparation of the final draft of the UWMP to be included in the City Council packet for the hearing on June 28, 2016; comments should be submitted at the Public Works Department counter located at 630 Garden Street.** Questions can be directed to the City's Water Resources Division at (805) 564-5460.

You are invited to attend this hearing and address your verbal comments to the City Council. Written comments are also welcome up to the time of the hearing, and should be addressed to the City Council via the City Clerk's Office, P.O. Box 1990, Santa Barbara, CA 93102-1990.

On Thursday, June 23, 2016, an Agenda with all items to be heard on Tuesday, June 28, 2016, will be available at 735 Anacapa Street and at the Central Library. Agendas and Staff Reports are also accessible online at [www.santabarbaraca.gov](http://www.santabarbaraca.gov); under Most Popular, click on Council Agenda Packet. Regular meetings of the Council are broadcast live and rebroadcast on Wednesdays and Thursdays at 7:00 p.m. and on Saturday at 9:00 a.m. on City TV Channel 18. Each televised Council meeting is closed captioned for the hearing impaired. These meetings can also be viewed over the Internet at [www.SantaBarbaraCA.gov/CouncilVideos](http://www.SantaBarbaraCA.gov/CouncilVideos).

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# City of Santa Barbara

## Public Works Department

[www.SantaBarbaraCA.gov](http://www.SantaBarbaraCA.gov)

April 28, 2016

### Main Office

630 Garden Street  
P.O. Box 1990  
Santa Barbara, CA  
93102-1990

Michael Allen, Chief Deputy Clerk of the Board  
County of Santa Barbara  
105 East Anapamu Street, Room 407  
Santa Barbara, CA 93101

### Administration

Tel: 805.564.5377  
Fax: 805.897.2613

**SUBJECT:** Notification of Public Hearing Regarding Urban Water Management Plan Update

### Engineering

Tel: 805.564.5363  
Fax: 805.564.5467

Dear Mr. Allen:

Pursuant to State law, we are hereby providing notice that the City of Santa Barbara is in the process of updating its Urban Water Management Plan. The City Council is scheduled to hold a Public Hearing at 2:00 p.m. on June 28, 2016, in the Council Chamber, City Hall, 735 Anacapa Street in Santa Barbara for the purpose of receiving public input on and considering adoption of the proposed update.

### Facilities

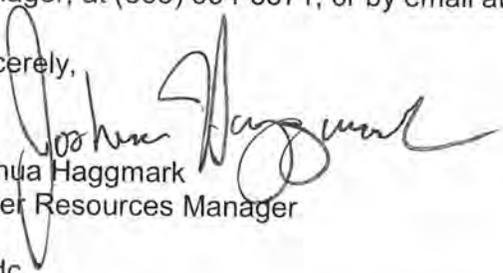
Tel: 805.564.5415  
Fax: 805.897.2577

Questions regarding this matter can be directed to Kelley Dyer, Water Supply Manager, at (805) 564-5571, or by email at [KDyer@SantaBarbaraCA.gov](mailto:KDyer@SantaBarbaraCA.gov).

### Street Maintenance

Tel: 805.564.5413  
Fax: 805.897.1991

Sincerely,

  
Joshua Haggmark  
Water Resources Manager

### Transportation

Tel: 805.564.5385  
Fax: 805.564.5467

JH/dc

### Water Resources

Tel: 805.564.5413  
Fax: 805.897.1991

cc: Kelley Dyer, City of Santa Barbara Water Supply Manager  
Fray Crease, Santa Barbara County Water Agency Manager

**From:** [Corey, Dakota](#)  
**To:** ["Tfayram@cosbpw.net"](mailto:Tfayram@cosbpw.net); ["fcrease@cosbpw.net"](mailto:fcrease@cosbpw.net)  
**Cc:** [Dyer, Kelley A.](#); [Haggmark, Joshua N.](#)  
**Subject:** Urban Water Management Plan - City of Santa Barbara  
**Date:** Friday, April 29, 2016 10:31:51 AM

---

### **Notice of Public Hearing (Pursuant to California Water Code, Section 10642)**

The City has posted a draft of its 2015 Urban Water Management Plan (UWMP) for public review and comment. This is a State mandated document that demonstrates compliance with water management requirements, including mandatory targets for Statewide water conservation.

The UWMP and associated appendices can be accessed at: [www.SantaBarbaraCA.gov/water](http://www.SantaBarbaraCA.gov/water).

A public hearing is scheduled for June 28, 2016 at 2:00 p.m. in the City Council Chamber, 735 Anacapa Street. Written comments are requested by June 7, 2016 for consideration before preparation of the final draft and should be addressed to City Council via the City Clerk's Office, P.O. Box 1990, Santa Barbara, CA 93102-1990. You are also invited to attend the hearing and address your comments to City Council.

Questions can be directed to 564-5460.

**Dakota Corey** | Water Resources Specialist  
City of Santa Barbara, Public Works Department, Water Resources Division  
Office Phone: (805)564-5369

**From:** [Corey, Dakota](#)  
**To:** "[bob@cvwd.net](#)"; "[Charles@cvwd.net](#)"; "[rdrake@goletawater.com](#)"; "[JMcInnes@goletawater.com](#)"; "[cdahlstrom@syrwd.org](#)"; "[bwales@syrwd.com](#)"; "[RAS@ccwa.com](#)"; "[jlb@ccwa.com](#)"; "[jgingras@cachuma-board.org](#)"; "[dfrancisco@ccrb-board.org](#)"; "[lzaninovich@usbr.gov](#)"; "[mjackson@usbr.gov](#)"  
**Cc:** [Dyer, Kelley A.](#); [Haggmark, Joshua N.](#)  
**Subject:** Urban Water Management Plan - City of Santa Barbara  
**Date:** Friday, April 29, 2016 10:30:25 AM

---

The City has posted a draft of its 2015 Urban Water Management Plan (UWMP) for public review and comment. This is a State mandated document that demonstrates compliance with water management requirements, including mandatory targets for Statewide water conservation.

The UWMP and associated appendices can be accessed at: [www.SantaBarbaraCA.gov/water](http://www.SantaBarbaraCA.gov/water).

A public hearing is scheduled for June 28, 2016 at 2:00 p.m. in the City Council Chamber, 735 Anacapa Street. Written comments are requested by June 7, 2016 for consideration before preparation of the final draft and should be addressed to City Council via the City Clerk's Office, P.O. Box 1990, Santa Barbara, CA 93102-1990. You are also invited to attend the hearing and address your comments to City Council.

Please feel free to contact me if you have any questions.

**Dakota Corey** | Water Supply Analyst  
City of Santa Barbara, Public Works Department, Water Resources Division  
Office Phone: (805)564-5369

**From:** [Corey, Dakota](#)  
**To:** "[mjackson@usbr.gov](mailto:mjackson@usbr.gov)"; "[izaninovich@usbr.gov](mailto:izaninovich@usbr.gov)"  
**Subject:** Urban Water Management Plan - City of Santa Barbara  
**Date:** Friday, April 29, 2016 11:11:24 AM

---

The City has posted a draft of its 2015 Urban Water Management Plan (UWMP) for public review and comment. This is a State mandated document that demonstrates compliance with water management requirements, including mandatory targets for Statewide water conservation.

The UWMP and associated appendices can be accessed at: [www.SantaBarbaraCA.gov/water](http://www.SantaBarbaraCA.gov/water).

A public hearing is scheduled for June 28, 2016 at 2:00 p.m. in the City Council Chamber, 735 Anacapa Street. Written comments are requested by June 7, 2016 for consideration before preparation of the final draft and should be addressed to City Council via the City Clerk's Office, P.O. Box 1990, Santa Barbara, CA 93102-1990. You are also invited to attend the hearing and address your comments to City Council.

Please feel free to contact me if you have any questions.

**Dakota Corey** | Water Supply Analyst  
City of Santa Barbara, Public Works Department, Water Resources Division  
Office Phone: (805)564-5369

**APPENDIX D:**

FY 2015 AWWA WATER AUDIT REPORTING WORKSHEET

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# AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0  
American Water Works Association.  
Copyright © 2014, All Rights Reserved.

?	Click to access definition
+	Click to add a comment

Water Audit Report for: **City of Santa Barbara**  
 Reporting Year: **FY 2015**    **7/2014 - 6/2015**

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

**All volumes to be entered as: ACRE-FEET PER YEAR**

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

### WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	+ ? 8	10,108.000	acre-ft/yr
Water imported:	+ ? n/a	0.000	acre-ft/yr
Water exported:	+ ? n/a	0.000	acre-ft/yr

### Master Meter and Supply Error Adjustments

Pcnt:	Value:	
+ ? 4	0.00%	acre-ft/yr
+ ?		acre-ft/yr
+ ?		acre-ft/yr

Enter negative % or value for under-registration  
 Enter positive % or value for over-registration

**WATER SUPPLIED: 10,108.000** acre-ft/yr

### AUTHORIZED CONSUMPTION

Billed metered:	+ ? 8	9,480.000	acre-ft/yr
Billed unmetered:	+ ? n/a	0.000	acre-ft/yr
Unbilled metered:	+ ? 9	1.860	acre-ft/yr
Unbilled unmetered:	+ ? 4	99.000	acre-ft/yr

**AUTHORIZED CONSUMPTION: 9,580.860** acre-ft/yr

Click here: ?  
for help using option buttons below

Pcnt:	Value:	
	99.000	acre-ft/yr

Use buttons to select percentage of water supplied  
OR value

### WATER LOSSES (Water Supplied - Authorized Consumption)

**527.140** acre-ft/yr

### Apparent Losses

Unauthorized consumption:	+ ?	25.270	acre-ft/yr
---------------------------	-----	--------	------------

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	+ ? 6	488.550	acre-ft/yr
Systematic data handling errors:	+ ? 5	10.110	acre-ft/yr

**Apparent Losses: 523.930** acre-ft/yr

Pcnt:	Value:	
0.25%		acre-ft/yr

4.90%		acre-ft/yr
	10.110	acre-ft/yr

### Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: **3.210** acre-ft/yr

**WATER LOSSES: 527.140** acre-ft/yr

### NON-REVENUE WATER

**NON-REVENUE WATER: 628.000** acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

### SYSTEM DATA

Length of mains:	+ ? 7	324.0	miles
Number of active AND inactive service connections:	+ ? 7	27,355	
Service connection density:	? 84	84	conn./mile main

Are customer meters typically located at the curbstop or property line?  (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: + ?

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure:	+ ? 8	118.0	psi
-----------------------------	-------	-------	-----

### COST DATA

Total annual cost of operating water system:	+ ? 8	\$46,819,502	\$/Year
Customer retail unit cost (applied to Apparent Losses):	+ ? 9	\$7.63	\$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	+ ? 5	\$895.81	\$/acre-ft

Use Customer Retail Unit Cost to value real losses

### WATER AUDIT DATA VALIDITY SCORE:

\*\*\* YOUR SCORE IS: 74 out of 100 \*\*\*

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

### PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources

2: Variable production cost (applied to Real Losses)

3: Customer metering inaccuracies

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**APPENDIX E:**

TECHNICAL MEMORANDUM ON WATER CONSERVATION  
- MADDAUS WATER MANAGEMENT, 2010

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## **Technical Memorandum - Final**

---

Prepared for: The City of Santa Barbara  
Project Title: City of Santa Barbara Water Conservation Technical Analysis  
Subject: Conservation Technical Analysis  
Date: October 20, 2010  
To: Bill Ferguson, City of Santa Barbara  
Alison Jordan, City of Santa Barbara  
From: Bill Maddaus, Maddaus Water Management  
Michelle Maddaus, Maddaus Water Management

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# EXECUTIVE SUMMARY

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## Introduction

This conservation technical analysis was conducted by Maddaus Water Management (MWM) for the City of Santa Barbara (City). The purpose of the analysis is to:

1. Evaluate current conservation measures and identify new conservation measures that will reduce future water demand.
2. Estimate the costs and water savings of these measures.
3. Combine the measures into increasingly more aggressive programs and evaluate the costs and water savings of these programs.

## Long-Term Conservation Program Analysis

A list of 92 potential conservation measures was developed from known water saving technologies and services. Twenty-three conservation measures, selected by the City and local stakeholders during an evaluation workshop, were further analyzed by the Least Cost Planning Decision Support System Model (DSS Model). The DSS Model is a planning tool that assists water planners with evaluating alternative water conservation programs. The model itself is an end use model that calculates water savings, costs and benefits from individual measures, and programs of a number of measures. Projections of future water demand with and without water conservation programs are made for the City water service area. Calculations are made for every year in the 30-year analysis period. In addition, twenty one measures, both current and potential future measures, were put into a “Tool Kit” for further qualitative evaluation.

Based on analysis by the model, conservation measures were grouped into alternative programs of increasingly higher water savings and implementation costs (Table ES-1). Conservation Program A consists of 10 measures that are part of the existing City water conservation program. Conservation Program B includes all of Program A, plus those additional measures that have an individual benefit-cost ratio of 0.9 or greater, for a total of 17 measures. Conservation Program C includes all measures evaluated, except for Measure 5 which is replaced with the enhanced Measure 6. The measures included in Conservation Programs A, B, and C are identified in Table ES-1 in the columns at the right. Figure ES-1 shows the projected demand without the effects of the plumbing code, with the plumbing code effects, and with the plumbing code and three conservation program alternates. Water savings were evaluated and benefit-cost ratios computed for 20-year period of 2011 to 2030, coinciding with the City’s water supply planning period. Savings were then calculated to the year 2030 for each of these programs (see Table ES-2).

Table ES-3 shows the relative demand reductions in the year 2030, conservation program costs for the utility, present value economic information, and the utility cost of water saved for each of the alternate programs. Demand reduction by 2030 is measured from the 14,825 AFY projected 2030 demand without the effects of the plumbing code. Additional resources and customer contacts as embodied in the conservation programs identified in this memorandum, are required to reach higher levels of potential water savings. Utility costs include the cost to the City to run the program, including staff time, rebates, any contracted services, expense, etc. While utility cost is the primary consideration, this memorandum also considers customer costs and community costs to some extent, as described in the body of the memorandum. The plumbing code is included as passive baseline savings in addition to the long-term conservation program in Programs A-C. Most of the future program water savings consist of outdoor landscape improvements.

A Benefit-Cost ratio, which is the ratio of the present value of benefits to the present value of costs, is the most accurate indicator of cost-effectiveness. When the ratio of the Present Value of the benefits to the Present Value of the costs is greater than 1.0 for a particular program of measures, that program can be said to be cost-effective. Benefits for the utility can also be expressed as the value to the utility of the saved water. For the City, the value of the saved water is the cost savings from not producing the water that is saved. This could range from not treating pumped groundwater to not buying water from the State Water Project. An

assessment was made by the City and the value of the saved water was determined to be \$600 per acre-foot. This value is hereafter referred to as the City's "Avoided Costs".

Program A reflects estimated water savings derived from the plumbing code and continuing the current program. The additional measures that create programs B and C produce increasing incremental water savings and costs. Figure ES-2 illustrates there are apparent diminishing returns when measures are added beyond Program B. Demand reductions for year 2030 range from 920 to 1,919 AF/Yr. As the plumbing code water savings do not cost the City any money, the graph starts at the plumbing code water savings in 2030.

**Table ES-1  
Conservation Measures Selected for Programs**

No.	Measure Name (ND = Requirements for New Development)	Program		
		A	B	C
1	Promote Water Efficiency in Green Buildings		✓	✓
2	ND Require High Efficiency Toilets		✓	✓
3	ND Require High Efficiency Faucets and Showerheads		✓	✓
4	Fixture Replacement SB 407		✓	✓
5	Financial Incentives for Irrigation and Landscape Upgrades (Current)	✓	✓	
6	Financial Incentives for Irrigation and Landscape Upgrades			✓
7	Washer Rebates	✓	✓	✓
8	Washer Rebates for High Efficiency Machines			✓
9	High Efficiency Toilet (HET) Rebates	✓	✓	✓
10	Single Family Water Check Up	✓	✓	✓
11	Multifamily Water Check Up	✓	✓	✓
12	Existing Commercial Washer Rebate	✓	✓	✓
13	Cisterns/Rain Catchments			✓
14	Gray water Retrofit SF			✓
15	Current High Efficiency Urinal Rebate (<0.25 gallon)	✓	✓	✓
16	ND Require 0.5 gal/flush or less urinals in new buildings		✓	✓
17	School Building Retrofit		✓	✓
18	Irrigation (Landscape) Water Budgets	✓	✓	✓
19	Irrigation Water Surveys	✓	✓	✓
20	Mulch Program			✓
21	CII Water Check Up Level 1	✓	✓	✓
22	CII Water Check Up Level 2		✓	✓
23	Customized CII Incentive Program			✓
	Total Measures in each Program	10	17	22

Figure ES-1

Long Term Demands with Conservation Programs

(Demand is measured by total water system production, including potable and recycled water)

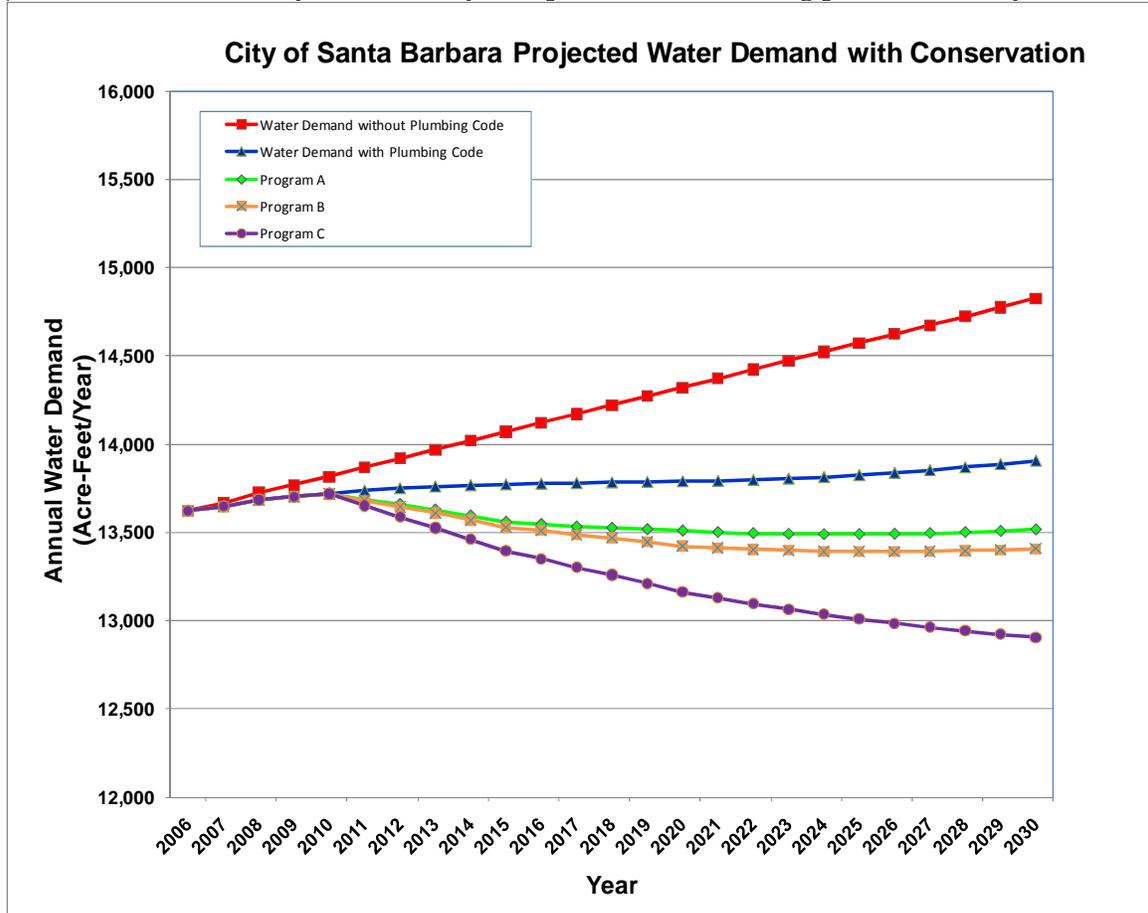


Table ES-2

Conservation Program Description and Future Water Savings

Conservation Program	Description	2030 Demand Reduction (AF/Yr)
-	No Conservation Programs, Plumbing Code Only	919
A	Continue Current Conservation Program (10 measures) and Plumbing Code	1,308
B	Add 7 Cost-Effective Measures to Current Program A and Plumbing Code	1,417
C	Add 5 More Measures to Program B and Plumbing Code	1,919

**Table ES-3  
Economic Summary of Long-Term Conservation Programs  
(Excluding Tool Kit Measures)**

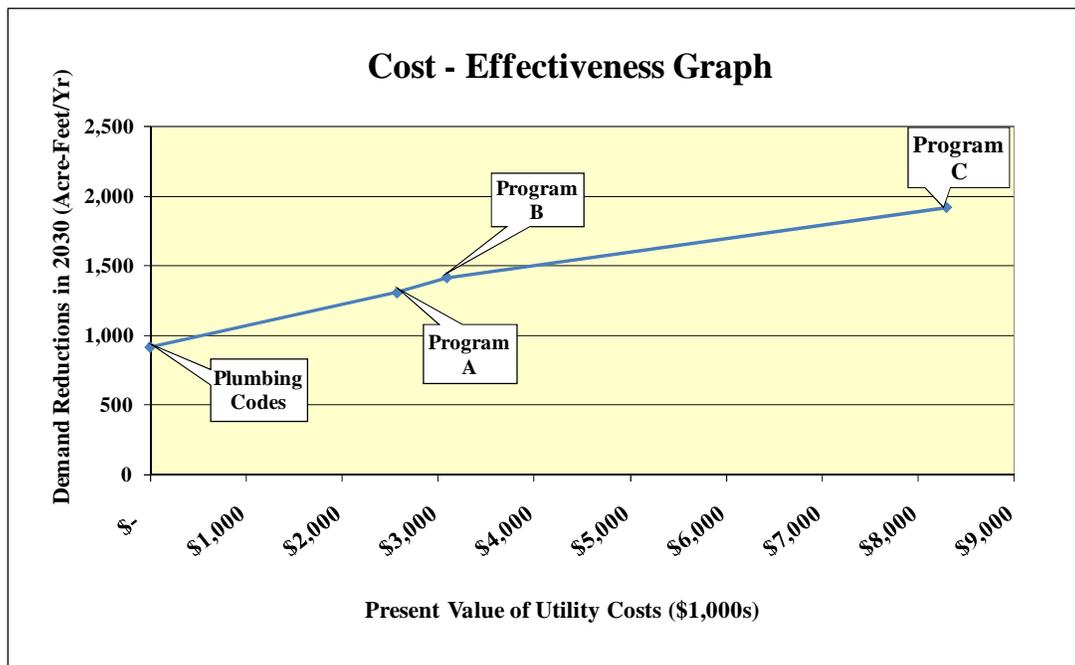
Conservation Program	Demand Reduction by 2030 (AFY)	Total 20-Year Conservation Program Water Savings (AF)	Average Annual Program Cost to Utility (\$)	Present Value of Utility Benefits (\$)	Present Value of Utility Costs (\$)	Utility Benefit - Cost Ratio	Utility Cost of Water Saved (\$/AF)
Plumbing Code Only	919	11,085	NA	NA	NA	NA	NA
Program A + Plumbing Code	1,308	16,419	\$194,000	\$2,455,000	\$2,570,000	0.96	\$482
Program B + Plumbing Code	1,417	17,801	\$233,200	\$3,131,000	\$3,089,000	1.01	\$460
Program C + Plumbing Code	1,919	23,193	\$629,400	\$5,867,000	\$8,287,000	0.71	\$684

**Notes:**

1. The DSS model is a 30-year model. It was run for 2006 to 2036 to include the base year of 2006 and the 20-year conservation program period of 2011 to 2030.
2. Demand Reduction by 2030 is measured from the 14,825 AFY projected 2030 demand without the effects of the Plumbing Code.
3. Average Annual Program Cost excludes any potential costs for the 21 measures in the Tool Kit
4. Utility Cost of Water Saved somewhat undervalues the cost of savings because program costs are discounted to present value and the water benefit is not. Utility Benefit-Cost ratio is the most accurate measure of cost effectiveness, because it accounts for the time value of money.

**Figure ES- 2**

**Present Value of Utility Costs versus Cumulative (Total) Water Saved**



# 1. INTRODUCTION AND PURPOSE

---

The purpose of this Technical Memorandum is to present an overview of the conservation evaluation process which has been completed for the City of Santa Barbara (City). The goal is to develop a plan that will optimize program cost and water savings. The City has a current water conservation program, which includes the measures that comprise Conservation Program A, described below, in addition to additional qualitative measures. This Technical Memorandum evaluates whether expanding existing efforts is a feasible and cost-effective way to meet future water needs in comparison to using and/or developing other sources of water supply. Based on the analysis of current water use patterns, and taking into account characteristics of the service area, a list of 92 potential conservation measures was compiled and reviewed with the City and key local stakeholders in a measure screening workshop. Participants included:

Goleta Water District

Santa Barbara County Water Agency

Arcadia Studio, Landscape Architecture

All Around Landscape Supply

Oasis Design

Forester Publications Inc., publisher of “Water Efficiency” journal

City Water Commission

During the workshop 23 measures were selected for further detailed economic analysis.

A water savings and benefit-cost evaluation was performed on all of the selected measures using the Least Cost Planning Water Demand Management Decision Support System (DSS Model) developed by MWM. The DSS Model is a planning tool that assists water planners with evaluating alternative water conservation programs. The model itself is an end use model that calculates water savings, costs and benefits from individual measures and programs of a number of measures. Projections of future water demand with and without water conservation programs are made for the City water service area. Calculations are made for every year in the 30-year analysis period.

In this report, demand management and water conservation are used interchangeably. The evaluation includes measures directed at existing accounts as well as new development measures to make new residential and business customers more water efficient. Assumptions and results for each of the 23 individual measures and three programs will be described in detail in this memorandum. Based on a preliminary analysis of the individual measures, three programs (Program A, B and C) were developed by MWM. Each of the three programs are evaluated to determine the net effect of running multiple measures together over the 20-year period of analysis from 2011 to 2030.

Separate from the measures evaluated by the DSS, 21 additional measures were placed in a “tool kit” for qualitative consideration by the City.

## **Long Term Conservation Evaluation Process**

During the evaluation process, water savings were estimated and cost assumptions for the measures were developed by MWM and City staff. Benefits and costs were compared in a formal present value analysis and conclusions were drawn about which measures produce cost-effective water savings. This process can be thought of as a screening process shown in Figure 1. Packaging the best measures into alternative programs allows City to consider what level of conservation is appropriate.

**Figure 1**

**Evaluation Process**



Benefit-cost analysis has been used by many water agencies to evaluate and help select a water conservation measure best suited to local conditions. This analysis requires a locale-specific set of data, such as historical water consumption patterns by customer class, population projections, age of housing stock, and prior conservation efforts.

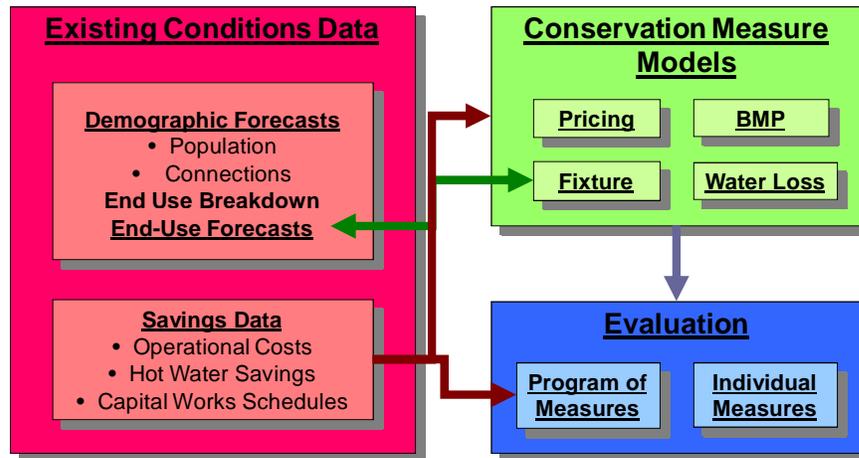
The following eight steps were used to implement the methodology by expanding upon the same DSS Model used to prepare the demand projections.

1. **Generate water use projections with and without the state and national plumbing code.** Projections cover each key customer category and are broken down into indoor and outdoor end uses. They include the impact of the plumbing code changes arising from the Federal Energy Policy Acts of 1992 and 2005 and State Legislation relating to plumbing fixtures (requirement for high efficiency toilets and urinals in 2014) and building codes (such as Cal Green that takes effect in 2011).
2. **Identify possible water conservation measures and screen the measures qualitatively** to identify those that are applicable to the service area. Develop appropriate unit water savings and costs for each measure.
3. **Estimate the market penetration rate (or installation rate) for each measure** by dividing the number of customers (or accounts) that would implement the measure each year by the total number of customers (or accounts) in the service area for which the measure applies. This is typically expressed as the percent of customers participating for a specific class of customers.
4. **Estimate total annual average day water savings.** The water savings are computed by multiplying unit water savings, per measure, by the market saturation or installation rate [not clear-suggest delete this], and then multiplying by the number of units in the service area (such as dwelling units) targeted by a particular measure. For example, if the measure saved 20 gallons per account per day, there is a saturation rate of 4% per year, and there are 12,300 accounts targeted by this measure, then the total annual water savings would be 9,840 gallons per day after one year. The indoor and outdoor water savings were also calculated.
5. **Determine initial and annual costs to implement the measures** based upon current conservation program data, local experience, and the costs of goods, services, and labor in the community. Unit costs, \$/measure, (separately for the utility and customer) are multiplied by the number of units participating each year to derive the total annual costs (utility and customer). For the annual utility costs, an amount is added to cover overall administration and promotion costs.
6. **Compare costs of measures** by computing the present value of program costs and water saved over the planning period.
7. **Compile three programmatic packages** or programs containing various new and existing measures.

8. **Evaluate the three programs for water savings and cost-effectiveness** and identify the point of diminishing returns from further investments in conservation.

For the conservation measure evaluation, the DSS Model performs economic analysis by using net present value and benefit-to-cost ratio as economic indicators. The benefit-to-cost analysis is performed from various perspectives including the utility, customer, and community perspectives, as discussed in Section 3. Figure 2 shows the structure of the model. Results are presented in subsequent sections.

**Figure 2**  
**Structure of the DSS Model**



## 2. BASELINE WATER DEMANDS WITH AND WITHOUT PLUMBING CODE

Water demand projections were developed for the 20-year planning period of 2011-2030 using the DSS Model. This model incorporates information from the:

- City of Santa Barbara, Water Supply Planning Study, August 2009.
- City of Santa Barbara Water Resources Division population forecasts February 2010.
- Data provided by City of Santa Barbara staff including estimates for value of water saved, historical water use, past conservation efforts, and water system facilities.

### National Plumbing Code

The Federal Energy Policy Act of 1992, as amended in 2005, requires that only fixtures meeting the following standards be installed in new buildings:

- Toilet – 1.6 gal/flush maximum
- Urinals – 1.0 gal/flush maximum
- Showerhead - 2.5 gal/min at 80 psi
- Residential Faucets – 2.2 gal/min at 60 psi
- Public Restroom Faucets - 0.5 gal/min at 60 psi
- Dishwashing pre-rinse spray valves – 1.6 gal/min at 60 psi

Replacement of fixtures in existing buildings is also governed by the Federal Energy Policy Act that requires only devices with the specified level of efficiency (shown above) can be sold today (2010). The net result of the plumbing code is that new buildings will be more efficient and old inefficient fixtures will slowly be replaced with new more efficient models. The national plumbing code is an important piece of legislation and must be carefully taken into consideration when analyzing the overall water efficiency of a service area.

In addition to the plumbing code the U.S. Department of Energy regulates appliances such as residential clothes washers. Regulations to make these appliances more energy efficient have driven manufactures to dramatically reduce the amount of water these efficient machines use. Generally horizontal axis washing machines use 30-50 percent less water than conventional models (which are still available). In the analysis for City, the DSS Model forecasts a gradual transition to high efficiency clothes washers (using 19 gallons or less) so that by the year 2020 this will be the only type of machines purchased. Given that machines last about 15 years eventually all machines in the City area will be of this type.

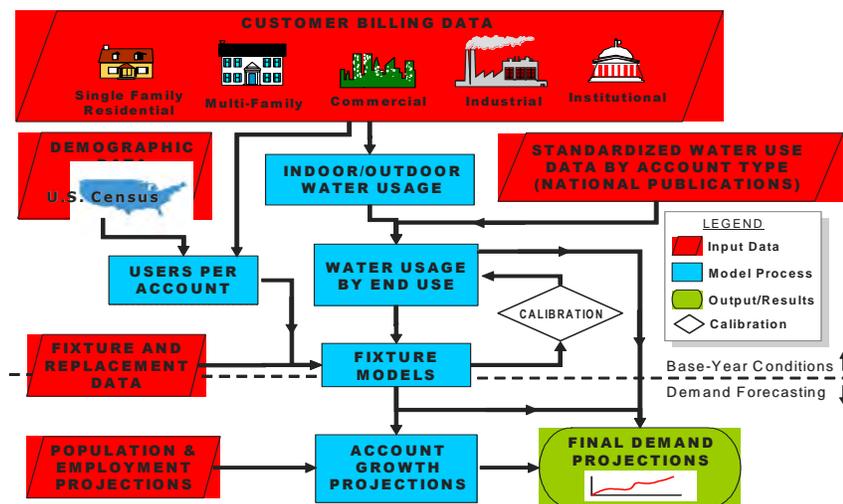
### State Plumbing Code

The Plumbing Code includes the recent California State law requiring High Efficiency Toilets and High Efficiency Urinals by 2014. The 2010 Cal Green Building Standards (Cal Green), scheduled to take effect in 2011 is treated as a conservation measure as it was not finalized until recently. It is accounted for in Measures 1-3. Cal Green requirements effects all new development in the State of California after January 1, 2011. As this is a new development law, it was assumed actual water savings seen by the City would begin to occur in the year 2012.

Potential new ordinances and laws are modeled as conservation measures. For example the City’s Landscape Design Standards for Water Conservation was not selected as a specific measure to be modeled and is in the Tool Kit as well as embodied in Measure 1 - Promote Green Buildings.

Figure 3 below describes conceptually how the above listed items are incorporated into the flow of information in the DSS Model.

**Figure 3**  
**DSS Model Overview Used to Make Potable Water Demand Projection**  
**“With the Plumbing Code”**



## 2.1 Key Inputs to the DSS Model

Table 1 shows the key inputs used in the model. The assumptions having the most dramatic effect on future demands are the natural replacement rate of fixtures, how residential or commercial future use is projected, and finally the percent of estimated real water losses. Following are definitions of terms used in Table 1:

- Base Year - This is the starting year for the analysis. For this project, the City selected a base year of 2006 as the appropriate starting point. It was the most recent year for which water billing data was available that appeared to have normal rainfall and not impacted by external factors such as a recession.
- Average gal/day/acct - This is the amount of water in gallons that is used per day, per account.
- Average gal/day/capita - This is the amount of water in gallons that is used per day, per capita.
- Indoor/outdoor water use - This is the amount of water per account split into the percent that is used indoors and outdoors.
- Consumption by customer class - This tabulates the annual amount of water used for an entire calendar year, broken down by customer class including Single Family, Multifamily, and Non-Residential (includes Commercial, Institutional, Industrial).
- Non Revenue Water (also known as Unaccounted for Water or Non-Revenue Water) - Is the sum of all water input to system that is not billed (metered and unmetered) water consumption, including apparent losses (metering inaccuracy) and real losses (leakage). An average value of 7.3 percent was used for future planning purposes.
- Water Produced - This is the total amount of water produced by the City and put into the distribution systems to serve potable and recycled water demand.

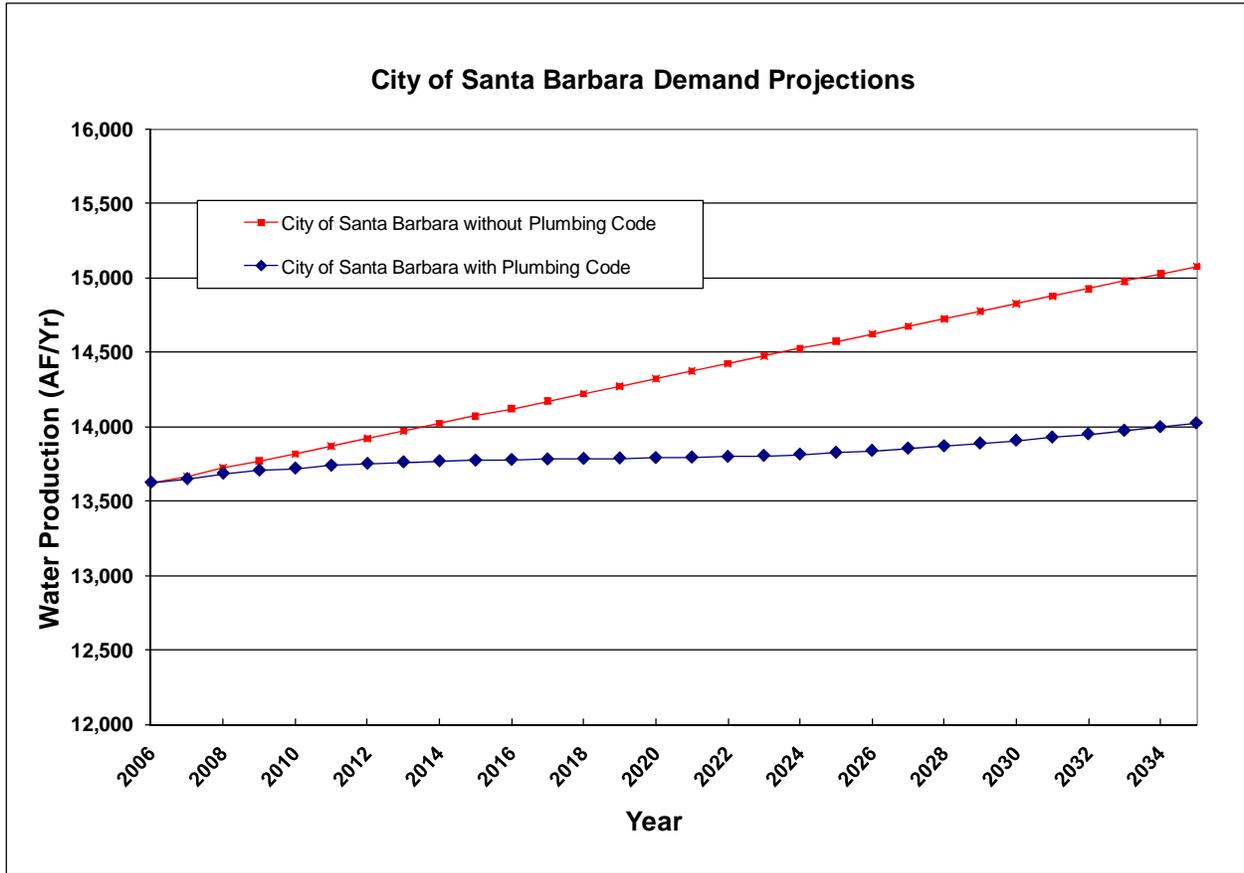
Figure 4 shows the water demand projection, as measured by potable and recycled water production.. The graph shows projections for demand *with and without* the plumbing code through 2035. Demand projections are based on the population and employment projections provided by the City (February 2010) Table 2 presents the same water demand projections in table format, at 5-year increments.

The plumbing codes and appliance standards will reduce 2030 demand approximately 920 AF/Yr or 6.2 percent of demand without the plumbing code. Further reductions in demand due to voluntary and regulatory conservation measures are calculated from an end user version of the demands “with plumbing code.” That is, the demand “with plumbing code” is used as the baseline from which to calculate water savings from City sponsored conservation measures.

**Table 1****List of Baseline Demand Projection Assumptions for DSS Model**

<b>Parameter</b>	<b>Model Input Value, Assumptions, and Key References</b>
Base Year	2006
Non Revenue Water, % of Water Production	Non Revenue Water 7.3% assumed from billing and production data
Population and Employment Projection, 2006 to 2036	City of Santa Barbara Water Resources Division, February 2010
Number of Water Accounts for Base Year	2006 Billing Data
Distribution of Water Use Among Categories	2006 Billing Data
Indoor/Outdoor Water Use Split by Category, % of Total	Estimated from Billing Data and Rainfall Records
Residential End Uses, %	AWWARF Report "Residential End Uses of Water" 1999
Non-Residential End Uses, %	Professional judgment and AWWARF Report "Commercial and Institutional End Uses of Water" 1999
Efficient Residential Fixture Current Installation Rates	Census 2005-2007, Housing age by type of dwelling plus natural replacement plus rebate program (if any). Reference "High Efficiency Plumbing Fixtures - Toilets and Urinals" Koeller & Company July 23, 2005. Reference Consortium for Efficient Energy ( <a href="http://www.cee1.org">www.cee1.org</a> )
Water Savings for Fixtures, gal/capita/day	AWWARF Report "Residential End Uses of Water" 1999
Non-Residential Fixture Efficiency Current Installation Rates	Census 2005-2007, assume commercial establishments built at same rate as housing, plus natural replacement
Residential Frequency of Use Data, Toilets, Showers, Washers, Uses/user/day	Estimated based on AWWARF Report "Residential End Uses of Water" 1999
Non-Residential Frequency of Use Data, Toilets and Urinals, Uses/user/day	Estimated based on AWWARF Report "Commercial and Institutional End Uses of Water" 1999
Natural Replacement Rate of Fixtures per year	Residential Toilets 3% (post-1992 toilets), 4% (pre-1992) Commercial Toilets 3% (post-1992 toilets), 4% (pre-1992) Commercial Urinals 3% (less than 1gpf), 4% (greater than 1 gpf) Residential Showers 4% Residential Clothes washers 6.67% Basis of assumptions: A 3% replacement rate corresponds to 33 year life of a new fixture. A 4% replacement rate corresponds to a 25 year life of a new fixture. 4% replacement rate is a CUWCC number from the 2002 MOU. A 6.67% replacement rate corresponds to 15 year washer life based on "Bern Clothes Washer Study, Final Report, Energy Division, Oak Ridge National Laboratory, for U.S. Department of Energy, March 1998, Internet address: <a href="http://www.energystar.gov">www.energystar.gov</a>
Future Residential Water Use	Increases Based on Population Projection
Future Non-Residential Water Use	Increases Based on Employment Projection
Future Recycled Water Use	Increases Based on Total Population

**Figure 4**  
**Baseline Annual Demand Projections for City of Santa Barbara**  
**(Potable and Recycled Production)**



**Table 2**  
**Baseline Annual Demand Projections for City of Santa Barbara**

Data Source for Population Projection	Plumbing Code	Annual Water Demand, (AF/Yr)*						
		2006	2010	2015	2020	2025	2030	2035
City of Santa Barbara, Water Resources Division, 2010	Not Included	13,623	13,816	14,071	14,322	14,574	14,825	15,077
City of Santa Barbara, Water Resources Division, 2010	Included	13,623	13,719	13,772	13,789	13,824	13,906	14,023

\*Baseline demand projection assumes no conservation of any type is implemented. Plumbing code only assumes that the national and State of California plumbing code is implemented over time. Water Demand is total system input including potable plus recycled water.

## 3. COMPARISON OF INDIVIDUAL CONSERVATION MEASURES

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### 3.1 Selecting Conservation Measures to be Evaluated (Conservation Measure Screening)

An important step in updating the water conservation program is the review and screening of new water conservation measures. A list of 92 potential conservation measures considered potentially appropriate for the City service area was developed by MWM. The list was comprised of known technology and services that included water saving devices or programs (e.g., such as a new high-efficiency toilet). Descriptions of the potential conservation measures were developed to address the methods through which a device or program would be implemented, including the distribution method that would be used to activate the device or program. The full list of conservation measures was provided in the “Results of Demand Management Measure Screening Workshop” Technical Memorandum dated March 26, 2010.

A screening process was undertaken to reduce the number of measures and eliminate those measures that overlap each other to avoid double counting, or are not as well suited to the Santa Barbara service area. Potential new measures were screened based on the workshop participants’ evaluation of each individual measure. The screening was completed by the City and selected local stakeholders at a workshop that was facilitated by Maddaus Water Management. The following criteria were used:

- *Technology/Market Maturity* – Is the necessary technology available commercially and supported by the local service industry? For example, a device may be screened out if it is not yet commercially available in the region.
- *Service Area Match* - Is the technology appropriate for the area’s climate, building stock, or lifestyle? For example, promoting Water Wise gardens for high density multifamily or commercial sites may not be appropriate where water use analysis indicates little outdoor irrigation.
- *Customer Acceptance/Equity* - Are customers willing to implement measures? If not, the market penetration rates (and thus the water savings) would be too low to be of value. Measures should also be equitable (i.e. one category of customers should not benefit while another pays the costs without receiving benefits). Customer acceptance may be based on:
  - Convenience
  - Economics
  - Perceived fairness
  - Aesthetics
- *Systemic Benefit* - A qualitative ranking taking account of (non quantifiable) benefits external to those considered in the economic evaluation.

The Screening Workshop attendees were provided a copy of the table of all 92 measures. The rating was completed as a group. Maddaus Water Management (MWM) described each measure prior to the rating and answered questions about its applicability, potential savings and costs. MWM did not recommend that any measure be included or excluded.

The results of the screening process and the measures selected for the cost-benefit analysis were provided to the City for a final review. The list of measures was further reviewed by City staff, where additional measures were added and others adjusted to reflect the City service area demographics. As a result of the screening process, 23 measures were selected for quantitative cost benefit evaluation with the DSS Model, and an additional 21 measures will be evaluated qualitatively. The 21 qualitative measures are both ongoing and potential future measures and have been placed into a “Tool Kit” for considerations by the City. Table 3 describes the 23 conservation measures evaluated in the DSS Model by MWM. Table 3A describes the 21 measures in the Tool Kit. Assumptions for the individual quantifiable measures are described in the next section and Appendix A.

SB 407: MWM has included the new California Law SB 407 as Measure 4 in the measure description table. It is not part of the State Plumbing Code, so it is modeled as a measure. It requires that, beginning in 2017 new building owners be notified if the building does not have high efficiency fixtures. In the model we have worked carefully such that SB 407 takes into account the overlap with the plumbing code (natural replacement), Cal Green and rebate programs. SB 407 begins from the year 2017 in residential and 2019 in commercial properties. SB 407 program length continues until the model determines that all the older high flush toilets and urinals have been replaced in the service area. The model shows that combined with the plumbing code only 4 years of implementation is needed to ensure that all older toilets and urinals will have been replaced by the end of the analysis period.

**Table 3**  
**Conservation Measures Evaluated in the DSS Model**  
**(ND: “New Development”)**

Measures to be quantitatively evaluated			
No.	Measures, Device or Program	Applicable Category	Measure Description
1	Promote Water Efficiency in Green Buildings	New SF, MF, CII	All staff time to work with local Green Building associations, City Building Division, developers, designers, vendors to promote incorporating water efficiency into building design. Co-sponsor award program.
2	ND Require High Efficiency Toilets	New SF, MF, CII	Revise City’s Building Code to require high efficiency toilets (HET) in advance of 2014 state plumbing code requirement. HETs are defined as any toilet to flush 1.28 gpf or less. HETs would be required if a customer needs to get a permit for a remodel or new development.
3	ND Require High Efficiency Faucets and Showerheads	New SF, MF, CII	Revise City’s Building Code to require lavatory faucets that flow at no more than 1.5 gpm and showerheads at no more than 2.0 gpm. Plan to require this measure in the year July 2013 before the State Law requiring HETs and HEUs goes into effect in the year 2014. Would be required if a customer needs to get a permit for a remodel or new development.
4	Toilet and Urinal Retrofit prior to Name Change on Water Account (SB 407)	Pre-1994 Existing Accounts	Measure will start in the year 2017 (SF) and 2019 (CII) to coincide with the California State Law SB 407. Work with the real estate industry to require a certificate of compliance be submitted to the City that the property and efficient fixtures where either already there or were installed at the time of sale, before close of escrow. Consider allowing this certification to be made as a part of the conventional private building inspection report process.
5	Financial Incentives for Irrigation and Landscape Upgrades (current program)	SF, MF, CII, IRR	For SF, MF, CII, and IRR customers with landscape, provide a Smart Landscape Rebate Program with rebates towards the purchase and installation of eligible irrigation equipment upgrades including smart controllers, Water Wise plants and mulch, rain sensors, turf removal, hardscape surfaces (material only) etc. Rebate is up to \$1,000.

Measures to be quantitatively evaluated			
No.	Measures, Device or Program	Applicable Category	Measure Description
6	Financial incentives for Irrigation and Landscape Upgrades	SF, MF, CII, IRR	Same program as Measure 5, but increased penetration due to increased rebate amounts for CII categories only. CII increased up to \$5,000 maximum. Values of \$2,500 shown in Appendix A for CII is the average value are based on current program data assuming that each participant does not use the maximum rebate value.
7	Washer Rebates	SF, MF (in unit washers)	Homeowners would be eligible to receive a \$150 rebate on a new high efficiency clothes washer. It is assumed that the rebates would remain consistent with relevant state and federal regulations (Department of Energy, Energy Star) and only offer the best available technology. Program would continue to run until CUWCC programs are no longer available. City plans to possibly run high efficiency program after the CUWCC Program ends. Concern over too many free riders for this program. Administration percentage is based on \$33 per rebate issued paid to the CUWCC to administer the program.
8	Washer Rebates for High Efficiency Machines	SF, MF (in-unit washers)	Same as above, except that a higher rebate is offered for higher efficiency machines. Assume 2% of accounts take rebates per year. Less of a free rider concern with the higher efficiency machines.
9	High Efficiency Toilet (HET) Rebates	Existing Customers SF, MF	Provide a \$100 rebate or voucher for the installation of a high efficiency toilet (HET). HET's are defined as any toilet flushing at 1.28 gpf or less and include dual flush technology. Program will be shorter lived as it is intended to be a market transformation measure and eventually would be stopped as 1.28 gpf units reach saturation. City would continue program for 4 years even after CUWCC programs is no longer available. Low annual market penetration of 0.07% is due to possible high level of saturation of 1.6 gpf toilets. The new California Law will require HET's starting in the year 2014. The program is assumed to run until the year 2015 such that it gives the customers 1 year to adapt to the new law and HET requirement. Note: HET toilets for CII customers are included under measure 23.
10	Single Family Water Check Up	SF	Conventional indoor and outdoor water surveys for existing single-family residential customers. Normally those with high water use are targeted and provided a customized report to the homeowner on how to save water in their home.
11	Multifamily Water Check Up	MF	Indoor and outdoor water surveys for existing multifamily residential customers. Those with high water use are targeted and provided a customized report to owner. Average cost is \$150 per MF account. There is an average of 4 dwelling units per MF account, so cost for an average MF account is \$150 for all 4 dwelling units.

Measures to be quantitatively evaluated			
No.	Measures, Device or Program	Applicable Category	Measure Description
12	Existing Commercial Washer Rebate	CII	Provide a \$400 rebate to commercial laundries and apartment complexes with 5 or more units for efficient washing machines with a common laundry room. It is assumed that the rebates would remain consistent with relevant state and federal regulations (Department of Energy, Energy Star) and only offer the best available technology. Plan to phase out this program as it has been running for 4 years and there is concern over high saturation levels. CUWCC grant program funds 50% of rebate.
13	Cisterns/Rain Catchments	SF, MF	Provide a rebate (\$100) to assist a assumed percentage of single family homeowners per year with installation of rain barrels or cisterns.
14	Gray water Retrofit SF	SF	Provide a rebate (up to \$200) to assist a certain percentage of single family homeowners per year to install gray water systems. Parts cost approx \$200, installation would not be included.
15	Current High Efficiency Urinal Rebate (<0.25 gallon)	Existing CII	Provide a rebate of \$300 for high efficiency and waterless urinals to existing high use CII customers (such as restaurants). Discontinue program in 1 year or after CUWCC programs are no longer available. City plans to possibly run high efficiency program after the CUWCC Program ends.
16	ND Require 0.5 gal/flush or less urinals in new buildings	New CII	Revise City's Building Code to require that new buildings are fitted with 0.5 gpf or less (or one liter) urinals rather than the current standard of 1.0-gal/flush models. This measure also includes waterless urinals, or 1 pint (0.125 gpf) urinals. This code revision would be in advance of 2014 State of California plumbing code requirements.
17	School Building Retrofit	CII	Run a program patterned after MWD of Southern California's school retrofit program wherein school receives a grant to replace fixtures and upgrade irrigation systems. City would like to formalize the process. The schools lack funding, so possibly set this up as a Pay for Performance Program. The \$3,000 cost assumes an average of 6 HETs installed at \$300 each (parts and labor) and one \$1,200 irrigation controller installed per school.
18	Irrigation (Landscape) Water Budgets	IRR	Irrigators of landscapes with separate irrigation account (meter) can utilize the California Landscape Budgets Program (CLBP): provides monthly water use reports via <a href="http://www.landscapebudget.com">www.landscapebudget.com</a> for the properties served by dedicated irrigation meters and compares the usage to a weather-based water allocation calculation. Assume 10% of large accounts receive utilize website tool per year. The current cost is approximately \$16,000 per year.
19	Irrigation Water Surveys	CII	All public and private irrigators of landscapes would be eligible for free landscape water surveys and customized report upon request. Normally those with high water use would be targeted. Assume 10 percent of large turf areas are surveyed per year.

Measures to be quantitatively evaluated			
No.	Measures, Device or Program	Applicable Category	Measure Description
20	Mulch Program	SF, MF, CII	Free mulch program. City will subsidize delivery charges (currently \$25 or \$40 dollars) for mulch currently offered for free by the County and other sources, so as to make it completely free to customers. Goal would be to keep irrigation and storm water on site and reduce runoff and keep water from evaporating. The water savings benefit would be to keep the soil moist for 2 to 3 weeks per year in the spring and fall and increase water conservation throughout the year.
21	CII Water Check Up Level 1	CII	All CII customers would be offered a free water survey/evaluation, i.e. "water checkup" that would evaluate ways for the business to save water and money. The Level 1 CII surveys (accounts that use less than 5,000 gallons of water per day) would be for the simpler CII such as hotels, restaurants, and small schools conducted by City staff.
22	CII Water Check Up Level 2	CII	For Level 2, the 100 highest CII water users would be offered a free water survey/evaluation, i.e. "water checkup" that would evaluate ways for the business to save water and money. The Level 2 audits would be performed by a trained technical professional. Marketing would be focused to target the high water using accounts (complex sites with higher than 10,000 gallons of water use per day). This may include sights such as hospital, zoo, and commercial laundries. These Level 2 sites would most likely be done by a contractor and would include a high level of follow up communication and assistance to encourage use of rebates. Program would work with the business individually to build relationships. Goal would be to encourage business to continue to take actions even after the survey to improve site water use efficiency. Publish success stories on City website and in papers. For hotel laundries can recommend things such as adjusting the programming on laundry machines.
23	Customized CII Incentive Program	CII	Provides financial incentives for CII accounts that have participated in the City's free "Water Check Up" Program. After the free water use assessment has been completed at site, the City will analyze the recommendations on the findings report that is provided and determine if site qualifies for a financial incentive. Financial incentives will be provided after analyzing the cost benefit ratio of each proposed project. Incentives are tailored to each individual site as each site has varying water savings potentials. Incentives will be granted at the sole discretion of the City while funding lasts. The program is intended to provide financial incentives for unique or site specific items (for example localized recycling systems for commercial laundries and high efficiency toilets for hotels). Assume half of sites that participate in a water check up will request financial assistance.

**Table 3A – “Tool Kit” Conservation Measures Not Included in DSS Model  
(Reserved for qualitative consideration)**

<b>Measures to be qualitatively considered by the City of Santa Barbara</b>			
<b>No.</b>	<b>Measures, Device or Program</b>	<b>Applicable Category</b>	<b>Measure Description</b>
TK-1	Media Campaign:	ALL	Determine appropriate media campaign message with marketing study/focus groups/customer phone survey and revise media campaign and marketing of measures based on study and revisions to WC Program.
TK-2	Prohibit Water Waste and Practices	CII	City Ordinance No. 4558, adopted on February 1989, prohibits the waste of water defined as gutter flooding and failure to repair leaks in a timely manner.
TK-3	Public Information Program	SF	Public information programs are used to raise awareness of conservation measures available to customers. Programs could continue efforts including school programs, poster contests, speakers to community groups, conservation hotline, website, video loan, radio and television time, demonstration gardens and printed educational material such as bill inserts, etc. Could also consider increasing current City efforts possibly adding cell phone apps, Face book, interactive kiosk with view screen, etc. Program would continue indefinitely.
TK-4	Efficient Outdoor Use Education and Training Programs	SF	City would continue to offer, organize and sponsor a series of educational workshops or other means for educating homeowners in efficient landscaping and irrigation principals. Utilize guest speakers, demonstration gardens, incentives, such as a nursery plant coupon. Current programs include Green Gardener Program, SBCC Adult Ed workshops, Garden Wise Guys television show, and participation in other organizations’/business’ events. Consider increasing current program.
TK-5	ND Require Plumbing for Future Gray Water Use	SF	Require that the drain lines in new single-family homes be plumbed for future installation of gray water systems. City recommends further research before establishing a full program.
TK-6	Water Wise Demonstration Gardens	ALL	City would continue funding and coordinating demonstration gardens on City property displaying living examples of water wise gardens. The City would continue to provide signs and brochures to educate those people visiting the garden.
TK-7	Distribute Retrofit Kits	SF	Provide owners of pre-1992 homes with retrofit kits that contain easy-to-install low flow showerheads, faucet aerators. Update kits with 1.25 gpm or 1.75 gpm showerheads. Research saturation of current showerheads.

**Measures to be qualitatively considered by the City of Santa Barbara**

No.	Measures, Device or Program	Applicable Category	Measure Description
TK-8	Toilet Leak Detection	SF	Distribute leak detection tablets for homeowners to test toilets for leaks; offer advice on toilet leak repair.
TK-9	ND Enforce Landscape and Irrigation Requirements	ALL	Enforce current City of Santa Barbara Landscape Design Standards for Water Conservation Resolution No. 08-083. Standards specifies that development projects subject to design review be landscaped with water wise plant, appropriate turf ratios, plant selection, efficient irrigation systems and smart irrigation controllers. Enforcement is the key.
TK-10	Landscape Watering Calculator and Watering Index	ALL	Increase marketing and promoting on Landscape Watering Calculator and Watering Index. Consider cell phone app with Watering Index, following up in person with large landscape customers on a frequent basis to encourage use of WI. Need to increase number of weather stations. Upgrade CIMIS stations to get better coverage. Possibly finance a weather station.
TK-11	Train Landscape Maintenance Workers (Green Gardener Program)	CII	City would continue to sponsor bilingual training for gardeners in landscape maintenance methods that will save irrigation water, which is the Green Gardener Program of Santa Barbara <a href="http://www.greengardener.org">www.greengardener.org</a> . Consider requiring this with business licenses as a short course of required classes. This element needs additional research.
TK-12	MLS Listing for water efficiency	SF	Require real estate MLS listing service to have a blank list to include items such as a water efficient rating of homes. This could list a scoring system where showerheads are listed in gallons per minute (gpm), toilets in gallons per flush (gpf), and washers in gallons per load (gpl)
TK-13	ND Require Hot Water on Demand/Structured Plumbing	SF	Require developers to equip new homes or buildings with efficient hot water on demand systems such as structured plumbing systems. These systems use a pump placed under the sink to recycle water sitting in the hot water pipes to the water heater or to move the water heater into the center of the house and/or reduce hot water waiting times by having a an on-demand pump on a recirculation line. City recommends to promote this item but not require. Use LEED building requirements.
TK-14	Require or Rebate Swimming Pool Covers	SF, MF	Provide a \$100 rebate through pool equipment supply stores for purchase of a swimming pool cover. Require on new residential homes.
TK-15	Require Irrigation Designers/Installer be Certified by IA	CII	Require design and installation of irrigation systems that are efficient and installed by trained/certified contractors. Certification to be done by Irrigation Association (IA). Model after Cary North Carolina's program.

**Measures to be qualitatively considered by the City of Santa Barbara**

No.	Measures, Device or Program	Applicable Category	Measure Description
TK-16	New Home Award Programs (Patterned after WaterSense)	SF	Provide annual awards to developers that are "Green Builders" and offer homes for sale that meet certain criteria such as EPA's new Water Sense program for new homes. This could be combined with energy efficient homes. Provide awards to homeowners for existing homes as well. Highlight awards with ceremony with Mayor, press release, customer profile in news sources, etc. Support this measure with permits. Fast track the permit process.
TK-17	Award Programs for Water Savings by Businesses	CII	Providers would sponsor an annual awards program for businesses that significantly reduce water use. They would receive a plaque, presented at a lunch with the mayor. Possibly join together with existing Looking Good SB Awards Program. Continue to participate in the Green Business Program.
TK-18	Ordinance to allow for a pilot test for innovative water generating systems		Model after Seattle program to reduce hurdles to customers who want to develop innovative buildings that may include a self generation of water on site.
TK-19	Green Building State Support	ALL	Consider supporting the State legislation on Green buildings introduced in January 2010.
TK-20	Survey water utility customers	SF	Conduct a brief 2 page written or electronic survey of customers that asks what they currently have in their homes. Goal would be to collect saturation data. The survey would be passed out during farmer's markets, during site surveys for CII or SF and MF, and on the website, and via mailers. The data would be entered into a database that would automatically generate a customize savings letter. The customers would be provided a copy of the "customized letter" that would list current City opportunities for programs and rebates. Would help with the following (a) communication with customers (b) program design to reflect customer needs (c) gathering saturation data from historical programs
TK-21	ND Install AMS	ALL	Fully install Automatic Meter System (AMS) capable of providing hourly consumption data back to City and purchase means of viewing daily consumption inside customers home/business either through the Internet (if available) or separate device. The AMS would, on demand, indicate to the customer and City where and how their water is used thereby facilitating water use reduction. Consider phasing AMS with target customer groups; start with pilot study and/or consultant analysis of options. Installation of meters would be phased over time. Possible investigation of a Wi-Fi system network connection. Also investigate data being available inside homeowner's homes. The AMS system could help to benefit programs such as SF and MF water checkups, CII Surveys updating irrigation water budgets and leak detection.

## 3.2 Perspectives on Benefits and Costs

The determination of the economic feasibility of water conservation programs involves comparing the costs of the programs to the benefits provided. This analysis was performed using the DSS Model. The DSS Model calculates savings at the end-use level; for example, the model determines the amount of water a toilet rebate program saves in daily toilet use for each single family account.

Present value analysis using constant 2010 dollars and a real discount rate of 3% is used to discount costs and benefits to the base year. From this analysis, benefit-cost ratios of each measure are computed. When measures are put together in programs, the model is set up to avoid double counting savings from multiple measures that act on the same end use of water. For example, multiple measures in a program may target toilet replacements. The model includes assumptions to apportion water savings between multiple measures.

Economic analysis can be performed from several different perspectives, based on which party is affected. For planning water conservation programs for utilities, the perspectives most commonly used for benefit-cost analyses are the “utility” perspective and the “community” perspective. The “utility” benefit-cost analysis is based on the benefits and costs to the water provider. The “community” benefit-cost analysis includes the utility benefit and costs together with account owner/customer benefits and costs. These include customer energy and other capital or operating cost benefits plus costs of implementing the measure, beyond what the utility pays.

The utility perspective offers two advantages. First, it considers only the program costs that will be directly borne by the utility. This enables the utility to fairly compare potential investments for saving versus supplying water. Second, because revenue shifts are treated as transfer payments, which means program participants will have lower water bills and non-participants will have slightly higher water bills so that City revenue needs continue to be met. Therefore, the analysis is not complicated with uncertainties associated with long-term rate projections and retail rate design assumptions. It should be noted that there is a significant difference between the utility’s savings from the avoided cost of procuring water and the reduction in retail revenue that results from reduced water sales due to conservation. This budget impact occurs slowly, and can be accounted for in water rate planning. Because it is the water provider’s role in developing a conservation plan that is paramount in this study, the utility perspective was primarily used to evaluate elements of the plan.

The community perspective is defined to include the utility and the customer costs and benefits. Costs incurred by the aggregate of all customers striving to save water while participating in conservation programs are considered, as well as the benefits received in terms of reduced energy bills (from water heating costs) and wastewater savings, among others. Water bill savings are not a customer benefit in the aggregate for reasons described above. Other factors external to the utility, such as environmental effects, are often difficult to quantify and are not necessarily under the control of the utility. They are therefore frequently excluded from economic analyses, including this one.

## 3.3 Present Value Parameters

The time value of money is explicitly considered. The value of all future costs and benefits is discounted to the first year in the DSS Model (the base year, which in this case is 2006), at the real interest rate of 3.0%. The DSS Model calculates this real interest rate, adjusting the current nominal interest rate (assumed to be approximately 6.1%) by the assumed rate of inflation (3.0%). Cash flows discounted in this manner are herein referred to as “Present Value” sums.

## 3.4 Assumptions about Measure Costs

Costs were determined for each of the measures based on industry knowledge, past experience and data provided by the City. Costs may include incentive costs, usually determined on a per-participant basis; fixed costs, such as marketing; variable costs, such as the costs to staff the measures and to obtain and maintain equipment; and a one-time set-up cost. The set-up cost is for measure design by staff or consultants, any required pilot testing, and preparation of materials that will be used in marketing the measure. The model was

run for 30 years, (each year between 2006 and 2036) to encompass the 20-year planning period of 2010 to 2030. Costs were spread over the time period depending on the length of the implementation period for the measure and estimated voluntary customer participation levels.

Lost revenue due to reduced water sales is not included as a cost because the conservation measures evaluated herein generally take effect over a span of time that is sufficient to enable timely rate adjustments, if necessary, to meet fixed cost obligations.

### 3.5 Assumptions about Avoided Costs

Future benefits from program water savings can be considered to be future costs that are avoided because the water conservation program makes these expenditures unnecessary or delayed in time (creating a savings in the present value of future costs). The City provided the information shown in Table 4 in February 2010 for use in this study. The table shows that the City has many sources of water supply that vary in marginal cost, which is the basis for the avoided costs.

**Table 4**  
**Avoided Cost Tabulation - City of Santa Barbara**

**For Use in the Water Conservation Technical/Economic Evaluation**

Assumed Base Supplies (not affected by conservation savings):

SWP Exchange Water as required by agreement

Groundwater as needed for peak demand, distribution water quality, and utilizing safe yield of the basins

Mission Tunnel & Gibraltar as available

Cachuma (including carryover) as needed

Recycled water to meet connected demand

\$ 100 = Variable cost of treatment at Cater Water Treatment Plant (\$/AF)

\$ 500 = Variable cost of treatment at Ortega Groundwater Treatment Plant (\$/AF)

Additional supplies as needed, per below:

		Acquisition Cost	Delivery/ Production Cost	Cater Treatment Cost	TOTAL AVOIDED COST (\$/AF)
A	Groundwater (wellhead treatment only)		\$120		\$120
B	State Water Project- Table A Deliveries		\$290	\$100	\$390
C	Groundwater (Ortega Groundwater Treatment Plant)		\$610		\$610
D	SWP deliveries other than City Table A water (Non-Critical Drought Period)	\$300	\$300	\$100	\$700
E	SWP deliveries other than City Table A water (Critical Drought Period)	\$600	\$300	\$100	\$1,000
F	Desalination (amortization of \$18 million reactivation cost not included here)		\$1,470		\$1,470

Avoided Cost Conclusion:

Item A is likely to occur regardless of conservation savings; Items E & F are relatively infrequent. Therefore, avoided cost is assumed to be an average of Items B, C, & D.

**\$600 = Avoided cost of water saved through conservation**

For this conservation evaluation it is assumed that the above avoided cost of water will apply to all water saved. Future benefits are discounted to the base year as stated above to compute the Present Value figures reported in this memorandum.

### 3.6 Measure Assumptions including Unit Costs, Water Savings, and Market Penetrations

In using the DSS model to evaluate the water conservation measures selected by the City, assumptions regarding the following variables were made for each measure:

- Targeted Water User Group; End Use – Water user group (e.g., single-family residential) and end use (e.g., indoor or outdoor water use).
- Utility Unit Cost – Cost of rebates, incentives, and contractors hired (by the utility) to implement measures.
- Retail Customer Unit Cost – Cost for implementing measures that is paid by retail customers (i.e., the remainder of a measure’s cost that is not covered by a utility rebate or incentive).
- Utility Administration and Marketing Cost – The cost to the utility for administering the measure, including consultant contract administration, marketing, and participant tracking. The mark-up is sufficient (in total) to cover local agency conservation staff time and general expenses and overhead.

The unit costs vary according to the type of account and implementation method being addressed. For example, a measure might cost a different amount for a residential single family account, than a residential multifamily account, and for a rebate versus an ordinance requirement or a direct installation implementation method. Typically water utilities have found there are increased costs associated with achieving higher market saturation, such as more surveys per year. Appendix A shows the unit costs and other measure assumptions used in the study for each measure analyzed. The model calculates the annual costs based on the number of participants each year. The general formula for calculating annual utility costs is:

Annual Utility Cost = Annual market penetration rate x total accounts in category x unit cost per account x (1+administration and marketing markup percentage)

Annual Customer Cost = Annual number of participants x unit customer cost

Annual Community Cost = Annual utility cost + annual customer cost

### 3.7 Comparison of Individual Measures

Table 5 presents how much water the measures would save over 20 years, how much they would cost, and what cost of saved water per unit volume *if the measures were implemented on a stand-alone basis (i.e. without interaction or overlap from other measures that might address the same end use(s))*. Only the net water savings for overlapping conservation measures was included in each program. Savings from measures which address the same end use(s) are not additive. The model uses impact factors to avoid double counting in estimating the water savings from programs of measures. For example if two measures are planned to address the same end use and both save 10% of the prior water use then the net effect is not the simple sum (20%). Rather it is the cumulative impact of first measure reducing the use to 90% of what it was without the first measure in place and then reducing the use another 10% to result in the use being 89% of what it was originally. In this example the net savings is 19%, not 20%. Using impact factors the model computes the reduction as follows  $0.9 \times 0.9 = 0.89$  or 19% water savings.

Since interaction between measures has not been accounted for in Table 5, it is not appropriate to include totals at the bottom of the table. However, the table is useful to give a close approximation of the cost effectiveness of each individual measure.

Cost categories are defined below:

- Utility Costs - those costs that the City as the water utility would incur to operate the Water Conservation Program, including administrative costs.
- Utility Benefits - the avoided cost of purchasing water at the identified rate of \$600/AF.
- Customer Costs - those costs customers would incur to implement a measure in the City's Conservation Program and maintain its effectiveness over the life of the measure.
- Customer Benefits - the savings other than from reduced water/sewer utility bills, such as energy savings resulting from reduced use of hot water. Reduced water and sewer bills are not included because they are a transfer payment among water users and any lost revenue would be made up with an overall rate increase. Conservation program participants would see lower water and sewer bills but overall there would be no net customer benefit.
- Community Costs and Benefits - Community Costs and Benefits include Utility Costs plus Customer Costs, and Utility Benefits plus Customer Benefits, respectively.

The column headings in Table 5, as well as those used later in Table 7, are defined as follows:

- Demand Reduction by 2030 = the reduction in 2030 annual water demand (as measured by water system production) attributable to implementation of a given measure (for Table 5) or a given program (for Table 7) over the 20-year planning period. Expressed either as an AFY reduction or a percentage reduction from the "Without Plumbing Code" baseline demand projection.
- 20-Year Water Savings (AF) = the volume of water in acre-feet that is the sum of the annual demand reductions in each of the 20 years in the planning period.
- Average Annual Program Cost to Utility (\$) = the sum of the annual Utility Costs (undiscounted) divided by the 20 years in the planning period.
- Present Value of Utility and Community Costs and Benefits (\$) = the present value of the 20-year time stream of annual costs or benefits, discounted to the base year.
- Utility Benefit-Cost ratio = PV of Utility Costs divided by PV of Utility Benefits over 20 years.
- Community Benefit-Cost ratio = PV of Utility Benefits plus PV of customer energy savings) divided by (sum of PV of Utility Costs plus PV of Customer Costs), over 20 years
- Utility Cost of Water Saved (\$/AF) = PV of Utility Costs over 20 years divided by the 20-Year Water Savings. This value is compared to the utility's avoided cost of water as one indicator of the cost effectiveness of conservation efforts. It should be noted that the value somewhat undervalues the cost of savings because program costs are discounted to present value and the water benefit is not.

From Table 5 the following observations about the measures can be made:

- There is a considerable range in demand reduction from very small amounts to over 300 AFY in 2030.
- Ten of the 23 measures are cost-effective (BC ratio > 1.0) from the utility perspective.
- Eight of the 23 measures are cost-effective (BC ratio > 1.0) from the community perspective.
- Four of the measures have a utility cost of water saved that is less than the avoided cost of water for the City.
- The measures with the highest water savings target landscape water use.

- The top five measures in terms of demand reduction in 2030 (third column of Table 5) are existing programs or a modification of an existing program (demand reduction by measure ranges from about 40 AFY to over 300 AFY in 2030):
- Customized CII Incentive Program (Measure 23)
- Financial incentives for irrigation upgrades (Measure 6)
- CII Level 1 Checkups (Measure 21)
- CII Level 2 Checkups (Measure 22)
- Irrigation Water Surveys (Measure 19)

The three most expensive measures for the utility (last column in Table 5) over the study period (2011-2030, i.e., 20 years) are:

1. Financial incentives for irrigation upgrades (Measure 6)
2. Customized CII Incentive Program (Measure 23)
3. Washer Rebates for High Efficiency Machines (Measure 8)

**Table 5**

**Conservation Measure Costs and Savings**

No.	Measure	Demand Reduction in 2030 (AFY) <sup>1</sup>	Present Value of Utility Costs (\$)	Utility Benefit Cost Ratio	Community Benefit Cost Ratio	Utility Cost of Water Saved (\$/AF) <sup>2</sup>	Average Annual Cost to the Utility
1	Promote Water Efficiency in Green Buildings	30.92	\$ 191,015	0.87	0.25	\$ 374	\$ 14,469
2	ND Require High Efficiency Toilets	2.66	\$ 2,342	10.69	1.50	\$ 34	\$ 142
3	ND Require High Efficiency Faucets and Showerheads	23.60	\$ 8,359	15.21	10.76	\$ 21	\$ 633
4	Fixture Replacement SB 407	34.16	\$ 18,540	10.96	0.85	\$ 29	\$ 1,351
5	Financial Incentives for Irrigation and Landscape Upgrades (Current)	31.11	\$ 607,907	0.27	0.12	\$ 1,190	\$ 46,201
6	Financial Incentives for Irrigation and Landscape Upgrades	129.90	\$ 2,749,478	0.25	0.10	\$ 1,292	\$ 209,219
7	Washer Rebates	1.49	\$ 18,229	0.92	1.77	\$ 408	\$ 1,057
8	Washer Rebates for High Efficiency Machines	41.65	\$ 786,236	0.29	0.88	\$ 1,118	\$ 60,704
9	High Efficiency Toilet (HET) Rebates	1.75	\$ 22,736	0.71	0.40	\$ 510	\$ 1,179
10	Single Family Water Check Up	28.36	\$ 339,647	0.61	0.91	\$ 595	\$ 25,758
11	Multifamily Water Check Up	17.38	\$ 152,262	0.81	1.24	\$ 446	\$ 11,616
12	Existing Commercial Washer Rebate	6.44	\$ 15,739	3.90	10.33	\$ 94	\$ 913
13	Cisterns/Rain Catchments	11.65	\$ 278,395	0.22	0.05	\$ 1,453	\$ 17,893
14	Gray water Retrofit SF	44.71	\$ 165,715	1.44	0.82	\$ 225	\$ 10,610
15	Current High Efficiency Urinal Rebate (<0.25 gallon)	0.88	\$ 14,635	0.70	0.21	\$ 541	\$ 849
16	ND Require 0.5 gal/flush or less urinals in new buildings	0.14	\$ 99	14.68	0.48	\$ 25	\$ 6
17	School Building Retrofit	22.17	\$ 73,880	2.37	2.83	\$ 147	\$ 4,745
18	Irrigation (Landscape) Water Budgets	34.03	\$ 539,376	0.46	0.46	\$ 814	\$ 41,009
19	Irrigation Water Surveys	44.72	\$ 656,500	0.49	0.33	\$ 754	\$ 49,914
20	Mulch Program	6.87	\$ 234,795	0.22	0.07	\$ 1,747	\$ 17,819
21	CII Water Check Up Level 1	80.33	\$ 228,108	1.88	2.12	\$ 173	\$ 15,678
22	CII Water Check Up Level 2	67.62	\$ 253,451	1.43	1.62	\$ 228	\$ 17,420
23	Customized CII Incentive Program	327.49	\$ 1,641,249	1.06	0.60	\$ 306	\$ 124,786

Notes:

1. Demand Reduction by 2030 is measured from the 14,825 AFY projected 2030 demand without the effects of the Plumbing Code.
2. Utility Cost of Water Saved somewhat undervalues the cost of savings because program costs are discounted to present value and the water benefit is not.

## 4. RESULTS OF CONSERVATION PROGRAM EVALUATION

### 4.1 Selection of Measures for Programs

Table 6 provides a summary of which measures are included in each of the three alternative programs. The three packages are designed to illustrate an increasing level of water savings for the City, with the third level (Program C) representing the maximum theoretical level of water savings. The decision of which measures go into each program will be reviewed and finalized by the City staff.

These programs are not intended to be rigid programs but rather to demonstrate the range in savings that could be generated if selected measures were run together. This step of the process accounts for a percent overlap in water savings (and benefits) and estimates combined savings and benefits from packages of measures that form programs.

Each program builds on the prior program. Program A is the least intensive, approximating a continuation of the current City program, and contains 10 measures. Program B includes Program A measures and 7 additional measures. The selection criterion for new measures added to Program B was to include all new measures that had an individual utility benefit to cost ratio equal to or greater than 0.9. Program C has 22 of the 23 measures evaluated. Measure 5 would be replaced by an enhanced version represented by measure 6.

**Table 6**  
**Conservation Measures Selected for Programs**

No.	Measure Name	Program		
		A	B	C
1	Promote Water Efficiency in Green Buildings		✓	✓
2	ND Require High Efficiency Toilets		✓	✓
3	ND Require High Efficiency Faucets and Showerheads		✓	✓
4	Fixture Replacement SB 407		✓	✓
5	Financial Incentives for Irrigation and Landscape Upgrades (Current)	✓	✓	
6	Financial Incentives for Irrigation and Landscape Upgrades			✓
7	Washer Rebates	✓	✓	✓
8	Washer Rebates for High Efficiency Machines			✓
9	High Efficiency Toilet (HET) Rebates	✓	✓	✓
10	Single Family Water Check Up	✓	✓	✓
11	Multifamily Water Check Up	✓	✓	✓
12	Existing Commercial Washer Rebate	✓	✓	✓
13	Cisterns/Rain Catchments			✓
14	Gray water Retrofit SF			✓
15	Current High Efficiency Urinal Rebate (<0.25 gallon)	✓	✓	✓
16	ND Require 0.5 gal/flush or less urinals in new buildings		✓	✓
17	School Building Retrofit		✓	✓
18	Irrigation (Landscape) Water Budgets	✓	✓	✓
19	Irrigation Water Surveys	✓	✓	✓
20	Mulch Program			✓
21	CII Water Check Up Level 1	✓	✓	✓
22	CII Water Check Up Level 2		✓	✓
23	Customized CII Incentive Program			✓
Total Measures in each Program		10	17	22

## 4.2 Results of Program Evaluation

Figure 5 shows projected annual water demand with no plumbing code effects, plumbing code only, and the three conservation programs. The plumbing code reduces water production (demand) 6.2 percent by 2030. The alternate programs reduce production in 2030 as follows:

- Program A savings are 2.6 percent or, including the plumbing code, 8.8 percent  
(2.6% Program A+ Plumbing Code 6.2% = Total Savings 8.8%)
- Program B savings are 3.4 percent or, with the plumbing code, 9.6 percent  
(3.4% Program B+ Plumbing Code 6.2% = Total Savings 9.6%)
- Program C savings are 6.7 percent or, with plumbing code, 12.9 percent  
(6.7% Program C+ Plumbing Code 6.2% = Total Savings 12.9%)

The lines in Figure 5 depict the projected demand with the alternative conservation programs and the plumbing code effects.

**Figure 5**

**Long Term Demands with Conservation Programs**  
(Demand is measured by total water system production, including potable and recycled water)

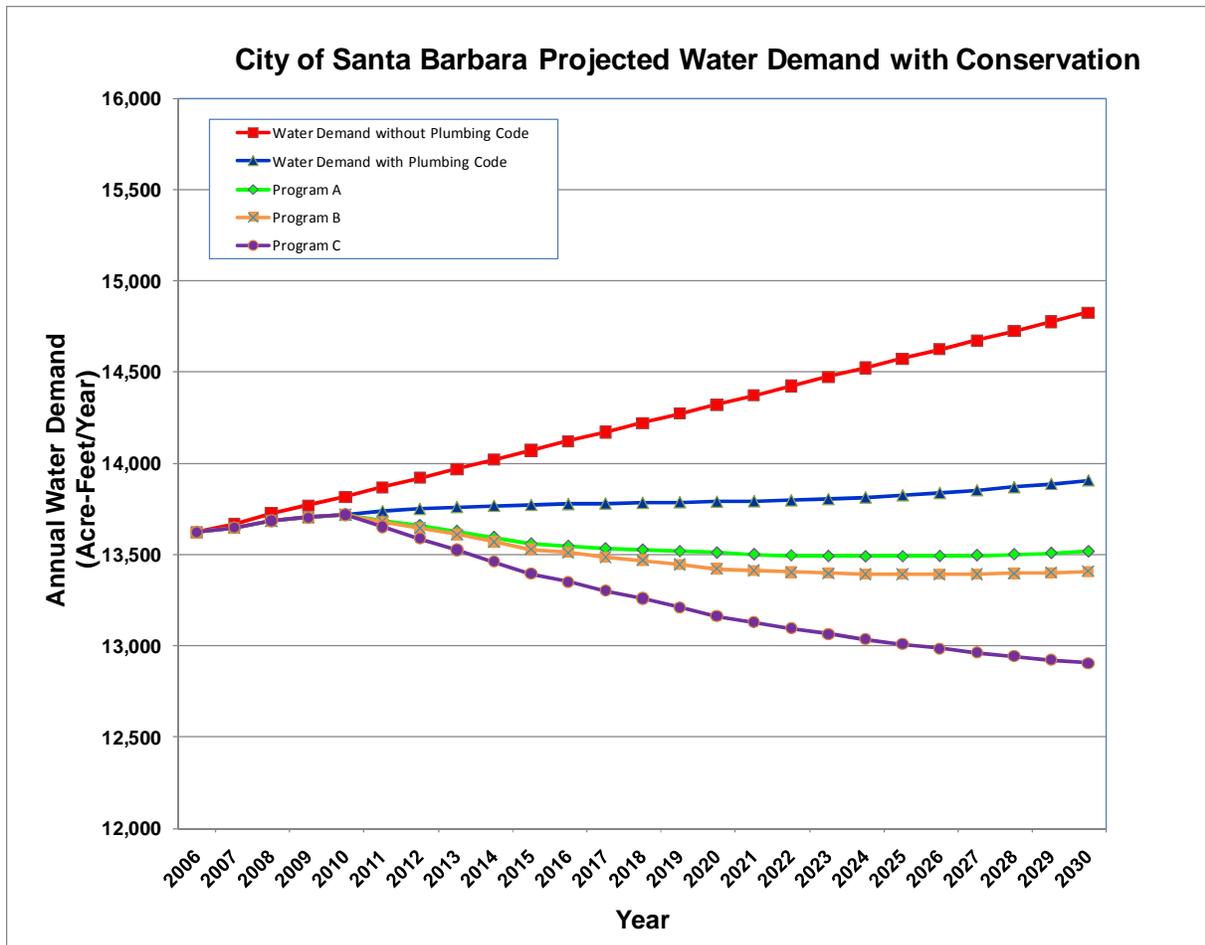


Table 7 presents key evaluation statistics compiled from the DSS Model. Assuming all measures are successfully implemented, projected demand reduction for 2030 in AF is shown, as are the costs of achieving this reduction. These cost values are derived from the annual time stream of utility, customer and community costs, and are expressed two ways:

1. Present value derived benefit-to-cost ratios for the period of analysis, from both the utility and community perspectives,
2. The utility cost of water saved.

The water savings are also expressed two ways:

1. As a percentage reduction of the projected 2030 demand (as measured by total production) compared to the base line demand projection without the effects of the plumbing code,
2. Total volume of water saved over the 20-year period of analysis.

Figure 6 graphically depicts the three programs. Program A reflects continuing the 10 measures that are part of the current program, plus the effects of the plumbing code. The additional measures that create programs B and C produce increasing program costs and savings. After program B the curve flattens, indicating that there are diminishing marginal returns when measures are added to form Program C. That is not to say that extending the water savings to Program C, the theoretical maximum determined in the study, is a poor investment. Whether it is economical to spend the extra money depends on the need to reduce water demand and the cost of the other options to obtain additional water for the City service area, if needed.

**Figure 6**  
**Present Value of Utility Costs versus Cumulative Water Saved**

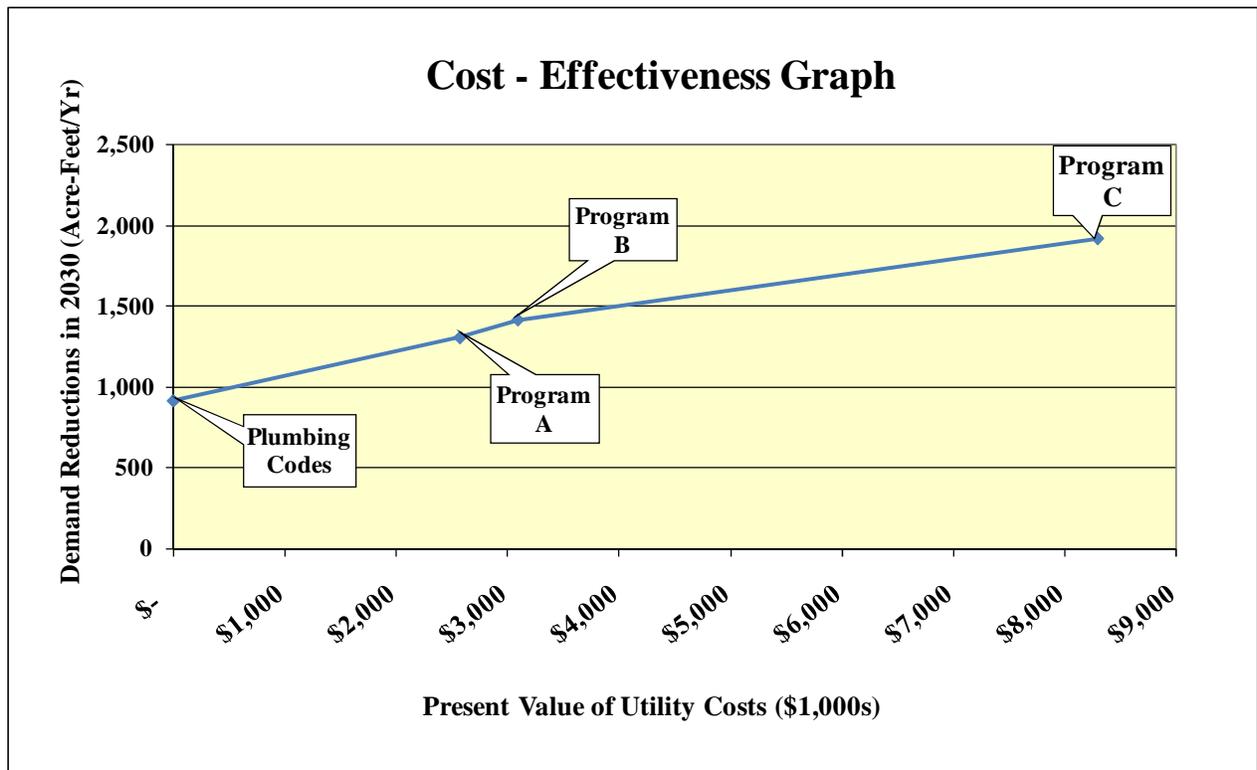


Table 7

Economic Summary of Long-Term Conservation Programs  
(Excluding "Tool Kit" Measures)

Conservation Program	Demand Reduction by 2030 (AFY)	Demand Reduction by 2030 (%)	Total Conservation Program Water Savings in 2030 (AF)	Average Annual Program Cost to Utility (\$)	Present Value of Utility Benefits (\$)	Present Value of Utility Costs (\$)	Utility Benefit - Cost Ratio	Community Benefit - Cost Ratio	Utility Cost of Water Saved (\$/AF)
Plumbing Code Only	919	6.20%	11,085	NA	NA	NA	NA	NA	NA
Program A + Plumbing Code	1,308	8.80%	16,419	\$194,000	\$2,455,000	\$2,570,000	0.96	0.96	\$480
Program B + Plumbing Code	1,417	9.60%	17,801	\$233,200	\$3,131,000	\$3,089,000	1.01	0.92	\$460
Program C + Plumbing Code	1,919	13.00%	23,193	\$629,400	\$5,867,000	\$8,287,000	0.71	0.53	\$680
<p>Notes:</p> <ol style="list-style-type: none"> <li>1. The DSS model is a 30-year model. It was run for 2006 to 2036 to include the base year of 2006 and the 20-year conservation program period of 2011 to 2030.</li> <li>2. Demand Reduction by 2030 is measured from the 14,825 AFY projected 2030 demand without the effects of the Plumbing Code.</li> <li>3. Average Annual Program Cost excludes any potential cost associated with the 21 measures in the Tool Kit. Cost is calculated for the years 2011 to 2030.</li> <li>4. Utility Cost of Water Saved somewhat undervalues the cost of savings because program costs are discounted to present value and the water benefit is not.</li> </ol>									

## 5. CONCLUSIONS

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### 5.1 Relative Savings and Cost-Effectiveness of Programs

The City service area has a relatively high proportion of residential water use and a significant amount of outdoor water use. Consequently, residential conservation programs produce significant savings. However, due to lack of historical conservation program penetration in the commercial sector, there are attractive opportunities for savings here as well. Despite the relatively low avoided cost of new water, water conservation programs are or close to being cost-effective. Overall conclusions are:

- Total savings from Program A + Plumbing Code (continuing the current program) would save approximately 8.8 percent of demand in 2030 (1,308 AF) as shown in Table 7.
- The theoretical maximum savings from the measures analyzed would be that of Program C + Plumbing Code or 1,919 AF in 2030. This equates to a 13.0 percent reduction in 2030 water demand, as shown on Table 7.
- The average utility cost of water saved (present value basis) for all programs ranges from a \$460 to \$680 per AF. Program A and B costs are less than the \$600/AF avoided cost of water used in this analysis, as shown in Table 7.
- The average community cost of water saved ranges from \$594 to \$1,005 per AF.
- Program B appears to optimize the investment in water conservation, as costs and savings are at the point of diminishing marginal returns, as seen in Figure 6.

## Appendix A - Assumptions for Water Conservation Measures Evaluated in the DSS Model

	1	2	3
Measure Name	<b>Promote Water Efficiency in Green Buildings</b>	<b>ND Require High Efficiency Toilets</b>	<b>ND Require High Efficiency Faucets and Showerheads</b>
Applicable Customer Classes	New SF, MF, CII	New SF, MF, CII	New SF, MF, CII
Applicable End Uses	Indoor	Toilet end use	Faucet and shower end use
Market Penetration by End Of Program (%)	10%	75%	75%
Annual Market Penetration (% of accounts)	0.5%	75% of new	75% of new
Water Use Reductions For Targeted End Uses	10%	20%	15%
Evaluation Start Year	2011	2011	2011
Evaluation End Year	2030	2014	2030
Program Length, years	19	3	19
Measure Life, years	Permanent	Permanent	Permanent
Utility Unit Cost for SF accounts, \$/unit	\$ 75	\$ 10	\$ 10
Utility Unit Cost for MF accounts, \$/unit	\$ 150	\$ 10	\$ 10
Utility Unit Cost for non-Res accounts, \$/unit	\$ 200	\$ 15	\$ 15
Customer Unit Cost. \$/SF unit	\$ 250	\$ 75	\$ 50
Customer Unit Cost. \$/MF unit	\$ 500	\$ 75	\$ 50
Customer Unit Cost. \$/CII unit	\$ 500	\$ 75	\$ 50
Annual Utility Admin & Marketing Cost	25%	15%	15%
Affected Units (used for Cost calculations)	Accounts	Toilets	Per Fixture
Measure Description	All staff time to work with local Green Building associations, City Building Division, developers, designers, vendors to promote incorporating water efficiency into building design. Co-sponsor award program.	Revise City's Building Code to require high efficiency toilets (HET). HETs are defined as any toilet to flush 1.28 gpf or less. HETs would be required if a customer needs to get a permit for a remodel or new development.	Revise City's Building Code to require lavatory faucets that flow at no more than 1.5 gpm and showerheads at no more than 2.0 gpm. Currently encourage WaterSense labels in stores. Plan to require this measure in the year July 2013 before the State Law requiring HETs and HEUs goes into effect in the year 2014. Would be required if a customer needs to get a permit for a remodel or new development.
Basis of Water Savings	50% as effective as Water Sense for New Homes	Calculated based on flush volume HET vs. ULFT (1.6gal per flush - 1.28 gallons per flush/1.6gallons per flush)	Based on reduced flow volume when in use; not at maximum flow and a pressure of (60-80 psi).
Basis of Utility Costs	Staff Cost to Promote-Follow-up; Check projection for adequacy.	Cost is for set up of code. Assume inspection done by building department permitting process.	Random staff inspection costs
Basis of Customer Costs	Incremental cost: \$75 per toilet, \$25 per shower, \$25 per lavatory faucet (2 bathrooms totals \$250)	Assumed incremental cost of HET vs. ULFT	Incremental costs per sink and shower.

SF = Single Family    MF = Multi Family (greater than 2 units)    CII= Commercial, Institutional, Industrial

	4	5	6
Measure Name	<b>Fixture Replacement SB 407</b>	<b>Financial Incentives for Irrigation and Landscape Upgrades (Current)</b>	<b>Financial Incentives for Irrigation and Landscape Upgrades</b>
Applicable Customer Classes	Pre-1994 Existing Accounts	SF, MF, CII, IRR	SF, MF, CII, IRR
Applicable End Uses	Toilet, urinal, shower, lavatory faucet	Irrigation	Irrigation
Market Penetration by End Of Program (%)	4% SF, 2% MF and CII	4.0%	4% SF and MF; 22% Other
Annual Market Penetration (% of accounts)	1% 2017-2020 SF, 1% 2019-2020 MF, 1% CII 2019-2020	0.2%	0.2 SF, 1.1% Other
Water Use Reductions For Targeted End Uses	Varies	15%	15% all categories, 30% for COM
Evaluation Start Year	2014	2011	2011
Evaluation End Year	2020	2030	2030
Program Length, years	7	19	19
Measure Life, years	Permanent	Permanent	Permanent
Utility Unit Cost for SF accounts, \$/unit	\$ 25	\$ 560	\$ 560
Utility Unit Cost for MF accounts, \$/unit	\$ 25	\$ 840	\$ 840
Utility Unit Cost for non-Res accounts, \$/unit	\$ 25	\$ 1,000	\$ 2,500
Customer Unit Cost: \$/SF unit	Varies	\$ 200	\$ 200
Customer Unit Cost: \$/MF unit	Varies	\$ 2,500	\$ 2,500
Customer Unit Cost: \$/CII unit	Varies	\$ 2,500	\$ 2,500
Annual Utility Admin & Marketing Cost	25%	\$150 per rebate, or 3 hours of staff time at \$75 per hour	\$150 per rebate, or 3 hours of staff time at \$75 per hour
Affected Units (used for Cost calculations)	Dwelling unit or CII account	Accounts	Accounts
Measure Description	Measure will start in the year 2017 (SF) and 2019 (CII) to coincide with the California State Law SB 407. Work with the real estate industry to require a certificate of compliance be submitted to the City that the property and efficient fixtures were either already there or were installed at the time of sale, before close of escrow. Consider allowing this certification to be made as a part of the conventional private building inspection report process.	For SF, MF, CII, and IRR customers with landscape, provide a Smart Landscape Rebate Program with rebates towards the purchase and installation of selected types of irrigation equipment upgrade including smart controllers, water wise plants and mulch, rain sensors, turf removal, hardscape surfaces (material only) etc. Rebate is up to \$1,000 for residential accounts and up to 50% more for commercial customers. Increase rebate for large non-residential customers as a percent of overall project.	Same program as Measure 5, but increased penetration due to increased rebate amounts for CII categories only. CII increased up to \$5,000 maximum. Values shown of \$2,500 for CII is the average value are based on current program data assuming that each participant does not use the maximum rebate value.
Basis of Water Savings	Calculated based on current flow volumes vs. required	Assumed based on average of technologies savings percentages. Average includes technologies with significant upgrade in system (new sprinkler heads, new controller, etc.)	Assumed based on significant upgrade in system (new sprinkler heads, new controller, etc.)
Basis of Utility Costs	Random staff inspection costs	City cost experience for existing program	City cost experience with increase for CII accounts
Basis of Customer Costs	Use unit costs: HET \$150; shower \$25, lavatory faucet \$25, urinal \$400; self installed.	Assumed installation cost of equipment upgrade	Assumed installation cost of equipment upgrade

	7	8	9
Measure Name	Washer Rebates	Washer Rebates for High Efficiency Machines	High Efficiency Toilet (HET) Rebates
Applicable Customer Classes	SF, MF (in unit washers)	SF, MF (in-unit washers)	Existing Customers SF, MF
Applicable End Uses	Laundry	Laundry	Toilets
Market Penetration by End Of Program (%)	0.75% SF, 0.25% MF	14.25% SF, 4.75% MF	0.35%
Annual Market Penetration (% of accounts)	0.75% SF, 0.25% MF	0.75% SF, 0.25% MF	0.07%
Water Use Reductions For Targeted End Uses	35%	50%	63%
Evaluation Start Year	2011	2012	2011
Evaluation End Year	2011	2030	2015
Program Length, years	1	17	4
Measure Life, years	Permanent	Permanent	Permanent
Utility Unit Cost for SF accounts, \$/unit	\$ 75	\$ 200	\$ 100
Utility Unit Cost for MF accounts, \$/unit	\$ 75	\$ 200	\$ 100
Utility Unit Cost for non-Res accounts, \$/unit	\$ -	\$ -	\$ -
Customer Unit Cost, \$/SF unit	\$ 200	\$ 250	\$ 100
Customer Unit Cost, \$/MF unit	\$ 200	\$ 250	\$ 100
Customer Unit Cost, \$/CII unit	\$ -	\$ -	\$ -
Annual Utility Admin & Marketing Cost	\$33 per rebate fee + \$900/yr staff time	65%	\$33 per rebate fee + \$900/yr staff time
Affected Units (used for Cost calculations)	Clothes Washer	Clothes Washer	Toilet
Measure Description	<p>Homeowners would be eligible to receive a \$150 rebate on a new high efficiency clothes washer. It is assumed that the rebates would remain consistent with relevant state and federal regulations (Department of Energy, Energy Star) and only offer the best available technology. Discontinue program in 1 year or after CUWCC programs are no longer available. City plans to possibly run high efficiency program after the CUWCC Program ends. Concern over too many free riders for this program. Administration percentage is based on \$33 per rebate issued paid to the CUWCC as they run the program. CUWCC grant program funds 50% of rebate.</p>	<p>Same as above, except that a higher rebate is offered for higher efficiency machines. Assume 2% of accounts take rebates per year. Less of a free rider concern with the higher efficiency machines.</p>	<p>Provide a \$100 rebate or voucher for the installation of a high efficiency toilet (HET). HET's are defined as any toilet flushing at 1.28 gpf or less and include dual flush technology. Rebate amounts would reflect the incremental purchase cost. Program will be shorter lived as it is intended to be a market transformation measure and eventually would be stopped as 1.28 gpf units reach saturation. City would continue program for 4 years even after CUWCC programs is no longer available. Low annual market penetration of 0.07% is due to possible high level of saturation of 1.6 gpf toilets. The new California Law will require HETs starting in the year 2014. The program is assumed to run until the year 2015 such that it gives the customers 1 year to adapt to the new law and HET requirement.</p>
Basis of Water Savings	CUWCC Cost and Savings Study, 2005, pg 2-14.	CUWCC Cost and Savings Study, 2005, pg 2-14 + allowance for more efficient machines (40% lower water factor)	Calculated based on current flush volumes vs. HET (3.5 gallons per flush-1.28 gallons per flush/3.5 gallons per flush)
Basis of Utility Costs	Rebate cost	Rebate cost	Rebate cost
Basis of Customer Costs	Assumed incremental cost of HEW	Assumed incremental cost of higher efficiency HEW	Use unit costs: HET \$150 + \$50 installation minus rebate = \$100.

	10	11	12
Measure Name	Single Family Water Check Up	Multifamily Water Check Up	Existing Commercial Washer Rebate
Applicable Customer Classes	SF	MF	CII
Applicable End Uses	Internal and External	Internal and External	Laundry
Market Penetration by End Of Program (%)	7%	10%	20%
Annual Market Penetration (% of accounts)	1%	1.5%	0.5%
Water Use Reductions For Targeted End Uses	5% indoor, 10% outdoor	5% indoor, 10% outdoor	35%
Evaluation Start Year	2011	2011	2011
Evaluation End Year	2030	2030	2011
Program Length, years	19	19	1
Measure Life, years	7	7	Permanent
Utility Unit Cost for SF accounts, \$/unit	\$ 150	\$ -	\$ -
Utility Unit Cost for MF accounts, \$/unit	\$ -	\$ 150	\$ -
Utility Unit Cost for non-Res accounts, \$/unit	\$ -	\$ -	\$ 200
Customer Unit Cost. \$/SF unit	\$ 30	\$ -	\$ -
Customer Unit Cost. \$/MF unit	\$ -	\$ 100	\$ -
Customer Unit Cost. \$/CII unit	\$ -	\$ -	\$ 200
Annual Utility Admin & Marketing Cost	0%	25%	25%
Affected Units (used for Cost calculations)	Accounts	Accounts	Clothes Washer
Measure Description	Conventional indoor and outdoor water surveys for existing single-family residential customers. Normally those with high water use are targeted and provided a customized report to the homeowner on how to save water in their home. Currently ~450 per year completed.	Indoor and outdoor water surveys for existing multifamily residential customers. Target those with high water use are targeted and provided a customized report to owner. Average cost is \$150 per MF account. There is an average of 4 dwelling units per MF account, so cost for an average MF account is \$150 for all 4 dwelling units.	Provide a \$400rebate to apartment complexes and commercial laundry facilities (5 or more units) for efficient washing machines in buildings over a certain size that has a common laundry room. It is assumed that the rebates would remain consistent with relevant state and federal regulations (Department of Energy, Energy Star) and only offer the best available technology. Plan to phase out this program as it has been running for 4 years and there is concern over high saturation levels. CUWCC grant program funds 50% of rebate.
Basis of Water Savings	CUWCC Cost and Savings Study, 2005, pg 2-47,48 + reduction due to less indoor fixture savings opportunity since water savings evaluated in 1994.	CUWCC Cost and Savings Study, 2005, pg 2-47,48 + reduction due to less indoor fixture savings opportunity since water savings evaluated in 1994.	CUWCC Cost and Savings Study, 2005, pg 2-14.
Basis of Utility Costs	Use current SB Costs (1 hour survey + .5 hr travel time + set-up, .5 hr admin & follow-up)	Use current SB Costs (1 hour survey at \$50 per hour for an average of 4 units + \$75 for travel time and set-up, follow-up for an average of 4 MF dwelling units)	Rebate cost
Basis of Customer Costs	Assumed average cost of recommended equipment not covered by other conservation programs.	Assumed installation cost of recommended equipment.	Assumed incremental cost of HEW

	13	14
Measure Name	<b>Cisterns/Rain Catchments</b>	<b>Gray water Retrofit SF</b>
Applicable Customer Classes	SF, MF	SF
Applicable End Uses	Irrigation	Irrigation
Market Penetration by End Of Program (%)	5%	5%
Annual Market Penetration (% of accounts)	0.5%	0.25%
Water Use Reductions For Targeted End Uses	4.4%	40%
Evaluation Start Year	2011	2011
Evaluation End Year	2030	2030
Program Length, years	19	19
Measure Life, years	Permanent	Permanent
Utility Unit Cost for SF accounts, \$/unit	\$ 100	\$ 200
Utility Unit Cost for MF accounts, \$/unit	\$ 200	\$ -
Utility Unit Cost for non-Res accounts, \$/unit	\$ -	\$ -
Customer Unit Cost. \$/SF unit	\$ 500	\$ 200
Customer Unit Cost. \$/MF unit	\$ 750	\$ -
Customer Unit Cost. \$/CII unit	\$ -	\$ -
Annual Utility Admin & Marketing Cost	25%	30%
Affected Units (used for Cost calculations)	Accounts	Accounts
Measure Description	Provide a rebate (\$100) to assist a certain percentage of single family homeowners per year with installation of rain barrels or cisterns.	Provide a rebate (up to \$200) to assist a certain percentage of single family homeowners per year to install gray water systems. Parts cost approx \$200, installation would not be included.
Basis of Water Savings	SB County Estiamte of savings are 720 gal/account/year or ~2 gpd/account. This level of saving is 2.2% of irrigation use of a typical home. Then we assume added behavioral change by homeowner doubles the savings to 4.4%	Assume reduces summer irrigation 25% and spring/fall irrigation 60%; overall annual 40% reduction.
Basis of Utility Costs	Rebate cost	Cost of rebate for storage, filters, pump.
Basis of Customer Costs	Assumed added purchase and installation cost of needed equipment.	Installation cost

	15	16	17
Measure Name	<b>Current High Efficiency Urinal Rebate (&lt;0.25 gallon)</b>	<b>ND Require 0.5 gal/flush or less urinals in new buildings</b>	<b>School Building Retrofit</b>
Applicable Customer Classes	Existing CII	New CII	CII
Applicable End Uses	Urinals	Urinals	Indoor and Outdoor use
Market Penetration by End Of Program (%)	20%	75% of New	Plan to do an average of 3 schools per year (3 schools per year based on data from City)
Annual Market Penetration (% of accounts)	2%	varies	varies
Water Use Reductions For Targeted End Uses	88%	75%	15%
Evaluation Start Year	2011	2011	2011
Evaluation End Year	2011	2014	2030
Program Length, years	1	4	19
Measure Life, years	Permanent	Permanent	Permanent
Utility Unit Cost for SF accounts, \$/unit	\$ -	\$ 10	\$ -
Utility Unit Cost for MF accounts, \$/unit	\$ -	\$ -	\$ -
Utility Unit Cost for non-Res accounts, \$/unit	\$ 150	\$ 10	\$ 3,000
Customer Unit Cost, \$/SF unit	\$ -	\$ -	\$ -
Customer Unit Cost, \$/MF unit	\$ -	\$ -	\$ -
Customer Unit Cost, \$/CII unit	\$ 400	\$ 400	\$ 3,000
Annual Utility Admin & Marketing Cost	\$33 per rebate fee + \$900/yr staff time	15%	30%
Affected Units (used for Cost calculations)	Urinal	Urinal	Accounts
Measure Description	Provide a rebate of \$300 for high efficiency and waterless urinals to existing high use CII customers (such as restaurants). Discontinue program in 1 year or after CUWCC programs are no longer available. City plans to possibly run high efficiency program after the CUWCC Program ends.	Revise City's Building Code to require that new buildings are fitted with 0.5 gpf or less (or one liter) urinals rather than the current standard of 1.0-gal/flush models. This measure includes waterless urinals, or 1 pint (0.125 gpf) urinals.	Run a program patterned after MWD of Southern California's school retrofit program wherein school receives a grant to replace fixtures and upgrade irrigation systems. City would like to formalize the process. The Schools lack funding \$, so possibly set this up as a Pay for Performance Program. The \$3,000 cost assumes an average of 6 HETs installed at \$300 each (parts and labor) and one \$1,200 irrigation controller installed per school.
Basis of Water Savings	Calculated based on current flush volumes vs. HEU (2 gal-0.25 gal/ 2 gal)	Calculated based on current flush volumes vs. HEU (1 gal-0.25 gal/ 1 gal)	5% of total use due to replacing high use toilets + 10% of total use for irrigation system upgrade.
Basis of Utility Costs	Rebate cost	Rebate cost	Rebate cover 6 HETs for staff restrooms (6 @ \$300 installed) + new irrigation controller (\$800 + \$400 installation cost)
Basis of Customer Costs	Use unit costs: HEU \$400 + \$100 installation minus rebate = \$400.	Use unit costs: HEU \$400 + \$100 installation minus rebate = \$400.	Assumed incremental cost of 6 additional HETs for staff restrooms (6 @ \$300) + other irrigation upgrades (sprinklers, drip systems, etc.)

	18	19	20
Measure Name	Irrigation (Landscape) Water Budgets	Irrigation Water Surveys	Mulch Program
Applicable Customer Classes	IRR	CII	SF, MF, CII
Applicable End Uses	Irrigation	Irrigation	Irrigation
Market Penetration by End Of Program (%)	90%	19%	19%
Annual Market Penetration (% of accounts)	10%	1%	1%
Water Use Reductions For Targeted End Uses	10%	15%	10%
Evaluation Start Year	2011	2011	2011
Evaluation End Year	2030	2030	2030
Program Length, years	19	19	19
Measure Life, years	5	5	2
Utility Unit Cost for SF accounts, \$/unit	\$ -	\$ -	\$ 40
Utility Unit Cost for MF accounts, \$/unit	\$ -	\$ -	\$ 75
Utility Unit Cost for non-Res accounts, \$/unit	\$ 500	\$ 1,500	\$ 75
Customer Unit Cost. \$/SF unit	\$ -	\$ -	\$ 100
Customer Unit Cost. \$/MF unit	\$ -	\$ -	\$ 200
Customer Unit Cost. \$/CII unit	\$ -	\$ 1,000	\$ 300
Annual Utility Admin & Marketing Cost	15%	30%	30%
Affected Units (used for Cost calculations)	Large Landscape Accounts	Large Landscape Accounts	Accounts
Measure Description	Irrigators of landscapes with separate irrigation account (meter) can utilize the California Landscape Budgets Program (CLBP): provides monthly water use reports via www.landscapebudget.com for the properties served by dedicated irrigation meters and compares the usage to a weather-based water allocation calculation. Assume 10% of large accounts receive utilize website tool per year. The current cost is approximately \$16,000 per year.	All public and private irrigators of landscapes would be eligible for free landscape water surveys upon request. Normally those with high water use would be targeted and provided a customized report. Assume 10 percent of large turf areas are surveyed per year. Increase cost is for more outreach and marketing efforts to increase participation.	Free mulch program. City will subsidize delivery charges which are currently \$25 or \$40 dollars for free mulch currently offered by the County and other sources, so it is completely free to customers. Goal would be to keep irrigation and storm water on site and reduce runoff and keep water from evaporating. The benefit water savings would be to keep the soil moist for 2 to 3 weeks per year in the spring and fall and increase water conservation throughout the year.
Basis of Water Savings	CUWCC Cost and Savings Study, 2005, pg 2-102-105 + Tampa Bay Water pilot project for SWFWMD (2000).	CUWCC Cost and Savings Study, 2005, pg 2-102-105.	Assume savings of 20 days of irrigation in spring and fall out of an irrigation season of 200 days or 10% savings.
Basis of Utility Costs	Total cost was \$32K, half for \$16K for consultant + Staff budget preparation cost and follow-up every five years.	Assume 3 acres at \$500/acre cost; repeated every five years (CUWCC Cost and Savings Study, 2005, pg 2-102-105).	Free delivery cost (one load).
Basis of Customer Costs	Assume simple adjustments to irrigation schedules made by landscape contractor at no extra cost.	Assume adjustments to irrigation system to improve uniformity + scheduling at \$1,000/site.	Installation costs by homeowner or contractor.

	21	22	23
Measure Name	CII Water Check Up Level 1	CII Water Check Up Level 2	Customized CII Incentive Program
Applicable Customer Classes	CII	CII	CII
Applicable End Uses	All	All	Process water use
Market Penetration by End Of Program (%)	30.0%	2.0%	14%
Annual Market Penetration (% of accounts)	1.5%	0.1%	0.75%
Water Use Reductions For Targeted End Uses	10%	10%	20%
Evaluation Start Year	2011	2011	2011
Evaluation End Year	2030	2030	2030
Program Length, years	19	19	19
Measure Life, years	Permanent	Permanent	Permanent
Utility Unit Cost for SF accounts, \$/unit	\$ -	\$ -	\$ -
Utility Unit Cost for MF accounts, \$/unit	\$ -	\$ -	\$ -
Utility Unit Cost for non-Res accounts, \$/unit	\$ 300	\$ 5,000	\$ 5,000
Customer Unit Cost. \$/SF unit	\$ -	\$ -	\$ -
Customer Unit Cost. \$/MF unit	\$ -	\$ -	\$ -
Customer Unit Cost. \$/CII unit	\$ 300	\$ 5,000	\$ 5,000
Annual Utility Admin & Marketing Cost	15%	15%	30%
Affected Units (used for Cost calculations)	Accounts	Accounts	Accounts
Measure Description	All CII customers would be offered a free water survey/evaluation, i.e. "water checkup" that would evaluate ways for the business to save water and money. The Level 1 CII surveys (accounts that use less than 5,000 gallons of water per day) would be for the simpler CII such as hotels, restaurants, and small schools.	The top 100 CII customers would be offered a free water survey/evaluation, i.e. "water checkup" that would evaluate ways for the business to save water and money. The Level 2 CII surveys (accounts that use more than 5,000 gallons of water per day) would be for the simpler CII such as hotels, restaurants, and small schools. The Level 2 audits would be performed by a trained technical professional. Marketing would be focused to target the high water using accounts (complex sites with higher than 10,000 gallons of water use per day). This may include sights such as hospital, zoo, and commercial laundries. These Level 2 sites would most likely be done by a contractor and would include a high level of follow up communication and assistance to encourage use of rebates. Program would work with the business individually to build relationships. Goal would be to encourage business to continue to take actions even after the survey to improve site water use efficiency. Example of a Level 2 survey can be the zoo or ice cream factory. Publish success stories on City website and in papers. For hotel laundries can recommend things such as adjusting the programming on laundry machines.	Provides financial incentives for CII accounts that have participated in the City's free Water Use "Check Up" Program. After the free water use assessment has been completed at site, the City will analyze the recommendations on the findings report that is provided and determine if site qualifies for a financial incentive. Financial incentives will be provided after analyzing the cost benefit ratio of each proposed project. Incentives are tailored to each individual site as each site has varying water savings potentials. Incentives will be granted at the sole discretion of the City while funding lasts. The program is intended to provide financial incentives for unique or site specific items (for example localized recycling systems for commercial laundries). Assume half of sites that participate in a water check up will request financial assistance.
Basis of Water Savings	Assume 30% potential and 35% compliance, CUWCC Cost and Savings Study, 2005, pg 2-66-68.	Assume 30% potential and 35% compliance, CUWCC Cost and Savings Study, 2005, pg 2-66-68.	Assume participants who take rebate use it to achieve savings identified in surveys or by CII site manager.
Basis of Utility Costs	Average Level I survey (\$300)	Average Level II survey (\$3,000)	Rebate cost.
Basis of Customer Costs	Assumed customer implementation costs.	Assumed customer implementation costs.	Added installation cost for substantial equipment such as ice machine, steamer, toilets, etc.

**APPENDIX F:**  
EXISTING AND PROJECTED HOUSING UNITS IN THE CITY  
OF SANTA BARBARA

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**2015--Existing and Projected Housing Units in City of Santa Barbara**

	2010 Baseline	2015	2020	2025	2030	2035	Total Projected Housing Units (2015-2035)
<b>Existing Housing</b>							
Total housing units in City <sup>1</sup> (includes SF & MF units)	37,720 du	38,393 du					
Housing types <sup>2</sup>							
single-family	20,193 du	21,447 du (55.9%)					
multiple-family	17,527 du	16,946 du (44.1%)					
Existing lower-income housing units in City <sup>3</sup>	2,580 du	1,775 du (4.6%)					
<b>Projected Housing</b>							
Net increase in housing units in City (incl SF & MF units) <sup>3</sup>			700	700	700	700	2800
Total housing units in City <sup>4</sup>			39,093	39,793	40,493	41,193	41,193
Net increase in lower-income housing units in City <sup>5</sup>			250	250	250	250	1000
Total lower income housing units in City <sup>6</sup>			2,025	2,275	2,525	2,775	2,775 (6.7%)

*Notes:*

- Total Existing Housing Units in City (2015)**, Sources: City of Santa Barbara General Plan Housing Element Table H-14 p. 25 (2015); Dept of Finance.
- Existing Housing Types in City (2015)**, Sources: City of Santa Barbara General Plan Housing Element Table H-14 p. 25 (2015); Dept of Finance.
- Existing Lower-Income Housing Units in City (2015)** - Lower Income Housing Units are defined as affordable to 80% of median household income. Includes single-family (SF) and multiple-family (MF) units w/ recorded affordability agreements (not vouchers & certificates that travel with resident). For 2015, 55 units are SF and 1,720 units are MF. Source: City of Santa Barbara Housing Staff (Personal Communication with Deirdre Randolph, April 6, 2016).
- Projected Net Increase in Housing Units in City**  
Additional housing unit projections are based on Plan Santa Barbara General Plan Certified Final EIR growth assumptions for the Plan Santa Barbara project which estimates build-out of a total of up to 2,800 net new dwelling units between 2010 and 2030, and extrapolated out per Extended Range assumptions to 2035. Source: Certified Final Environmental Impact Report for Plan Santa Barbara General Plan Update (September 2010).
- Total Projected Housing Units in City** = Existing 2015 Total Housing Units + Projected Net Increase in Housing units.
- Projected Net Increase in Lower Income Housing Units in City**  
Source: City of Santa Barbara, Community Development Department, Administrative, Housing, & Human Services, Division, Deirdre Randolph, personal communication, December 15, 2015. Extremely Low; Very Low; and Low du = 50 du/yr x 20 yrs = estimated 1,000 du to 2035. All new Affordable Units to be multi-family housing type.
- Total Projected Lower Income Housing Units in City** = Existing 2015 Lower Housing Units + Projected Net Increase in Lower Income Housing Units.

**Additional Note:**

The decrease in existing lower-income housing units in City between 2010 baseline and 2015 is attributable to the inclusion of units in the 2010 baseline that did not meet the definition of “lower-income” and the reduction in the number of units qualifying as “lower-income” due to a price restricted loan terming out.

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**APPENDIX G:**  
SBX7-7 VERIFICATION FORM

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## WUEdata Entry Exceptions

The data from the tables below will not be entered into WUEdata tables (the tabs for these tables' worksheets are colored **purple**). These tables will be submitted as separate uploads, in Excel, to WUEdata.

### Process Water Deduction

SB X7-7 tables 4-C, 4-C.1, 4-C.2, 4-C.3, 4-C.4 and 4-D

A

supplier that will use the process water deduction will complete the appropriate tables in Excel, submit them as a separate upload to the WUE data tool, and include them in its UWMP.

### Target Method 2

SB X7-7 tables 7-B, 7-C, and 7-D

A supplier that selects Target Method 2 will contact DWR ([gwen.huff@water.ca.gov](mailto:gwen.huff@water.ca.gov)) for SB X7-7 tables 7-B, 7-C, and 7-D.

### Target Method 4

These tables are only available online at

<http://www.dwr.water.ca.gov/wateruseefficiency/sb7/committees/urban/u4/ptm4.cfm>

A supplier

that selects Target Method 4 will save the tables from the website listed above, complete the tables, submit as a separate upload to WUE data, and include them with its UWMP.

**SB X7-7 Table 0: Units of Measure Used in UWMP\***

*(select one from the drop down list)*

Acre Feet

*\*The unit of measure must be consistent with Table 2-3*

NOTES:

SB X7-7 Table-1: Baseline Period Ranges			
Baseline	Parameter	Value	Units
10- to 15-year baseline period	2008 total water deliveries	14,175	Acre Feet
	2008 total volume of delivered recycled water	837	Acre Feet
	2008 recycled water as a percent of total deliveries	5.90%	Percent
	Number of years in baseline period <sup>1,2</sup>	10	Years
	Year beginning baseline period range	2000	
5-year baseline period	Year ending baseline period range <sup>3</sup>	2009	
	Number of years in baseline period	5	Years
	Year beginning baseline period range	2006	
	Year ending baseline period range <sup>4</sup>	2010	
<p><sup>1</sup> If the 2008 recycled water percent is less than 10 percent, then the first baseline period is a continuous 10-year period. If the amount of recycled water delivered in 2008 is 10 percent or greater, the first baseline period is a continuous 10- to 15-year period.</p> <p><sup>2</sup> The Water Code requires that the baseline period is between 10 and 15 years. However, DWR recognizes that some water suppliers may not have the minimum 10 years of baseline data.</p> <p><sup>3</sup> The ending year must be between December 31, 2004 and December 31, 2010.</p> <p><sup>4</sup> The ending year must be between December 31, 2007 and December 31, 2010.</p> <p>NOTES: Data source for 2008 total water deliveries and total volume of delivered recycled water = FY08 Meter Water Sales by Class.</p>			

**SB X7-7 Table 2: Method for Population Estimates****Method Used to Determine Population**  
(may check more than one)

<input checked="" type="checkbox"/>	<b>1. Department of Finance (DOF)</b> DOF Table E-8 (1990 - 2000) and (2000-2010) and DOF Table E-5 (2011 - 2015) when available
<input type="checkbox"/>	<b>2. Persons-per-Connection Method</b>
<input type="checkbox"/>	<b>3. DWR Population Tool</b>
<input type="checkbox"/>	<b>4. Other</b> DWR recommends pre-review

NOTES: DOF population data for the combined City of Santa Barbara Census Area and the Mission Canyon Census Designated Place were used to determine water service area population.

**SB X7-7 Table 3: Service Area Population**

Year	Population	
<b>10 to 15 Year Baseline Population</b>		
Year 1	2000	91,908
Year 2	2001	92,249
Year 3	2002	92,543
Year 4	2003	92,191
Year 5	2004	92,040
Year 6	2005	91,311
Year 7	2006	90,144
Year 8	2007	90,046
Year 9	2008	90,748
Year 10	2009	90,661
<i>Year 11</i>		
<i>Year 12</i>		
<i>Year 13</i>		
<i>Year 14</i>		
<i>Year 15</i>		
<b>5 Year Baseline Population</b>		
Year 1	2006	90,144
Year 2	2007	90,046
Year 3	2008	90,748
Year 4	2009	90,661
Year 5	2010	91,114
<b>2015 Compliance Year Population</b>		
<b>2015</b>		93,532
NOTES:		

SB X7-7 Table 4: Annual Gross Water Use *								
Baseline Year <i>Fm SB X7-7 Table 3</i>	Volume Into Distribution System <i>This column will remain blank until SB X7-7 Table 4-A is completed.</i>	Deductions					Annual Gross Water Use	
		Exported Water	Change in Dist. System Storage (+/-)	Indirect Recycled Water <i>This column will remain blank until SB X7-7 Table 4-B is completed.</i>	Water Delivered for Agricultural Use	Process Water <i>This column will remain blank until SB X7-7 Table 4-D is completed.</i>		
<b>10 to 15 Year Baseline - Gross Water Use</b>								
Year 1	2000	14,846	934	-	120	-	13,792	
Year 2	2001	14,092	635	-	113	-	13,344	
Year 3	2002	13,962	969	-	114	-	12,879	
Year 4	2003	13,250	914	-	113	-	12,223	
Year 5	2004	14,133	926	-	134	-	13,073	
Year 6	2005	13,510	877	-	105	-	12,528	
Year 7	2006	13,713	719	-	134	-	12,860	
Year 8	2007	14,901	638	-	157	-	14,106	
Year 9	2008	15,802	1,215	-	155	-	14,432	
Year 10	2009	14,533	818	-	139	-	13,576	
Year 11	0	-		-		-	-	
Year 12	0	-		-		-	-	
Year 13	0	-		-		-	-	
Year 14	0	-		-		-	-	
Year 15	0	-		-		-	-	
<b>10 - 15 year baseline average gross water use</b>							<b>13,281</b>	
<b>5 Year Baseline - Gross Water Use</b>								
Year 1	2006	13,713	719	-	134	-	12,860	
Year 2	2007	14,901	638	-	157	-	14,106	
Year 3	2008	15,802	1,215	-	155	-	14,432	
Year 4	2009	14,533	818	-	139	-	13,576	
Year 5	2010	14,442	1,060	-	106	-	13,276	
<b>5 year baseline average gross water use</b>							<b>13,650</b>	
<b>2015 Compliance Year - Gross Water Use</b>								
2015	11,506	629		-	152	-	<b>10,725</b>	
* NOTE that the units of measure must remain consistent throughout the UWMP, as reported in Table 2-3								
NOTES: Exported water includes net exports to Goleta Water District, conveyance to La Cumbre Mutual Water District and exports to long term storage (groundwater injection). Agricultural water and exported water is subtracted from annual gross water use; therefore, annual gross water use is not equal to volume of total demands or total volume into the distribution system in other tables.								

**SB X7-7 Table 4-A: Volume Entering the Distribution System(s)**

Complete one table for each source.

<b>Name of Source</b>		Cachuma		
<b>This water source is:</b>				
<input checked="" type="checkbox"/>		The supplier's own water source		
<input type="checkbox"/>		A purchased or imported source		
<b>Baseline Year</b> <i>Fm SB X7-7 Table 3</i>	Volume Entering Distribution System	Meter Error Adjustment* <i>Optional (+/-)</i>	Corrected Volume Entering Distribution System	
<b>10 to 15 Year Baseline - Water into Distribution System</b>				
Year 1	2000	11,300		11,300
Year 2	2001	5,523		5,523
Year 3	2002	7,373		7,373
Year 4	2003	6,484		6,484
Year 5	2004	7,777		7,777
Year 6	2005	7,523		7,523
Year 7	2006	5,305		5,305
Year 8	2007	7,804		7,804
Year 9	2008	10,734		10,734
Year 10	2009	8,236		8,236
Year 11	0			-
Year 12	0			-
Year 13	0			-
Year 14	0			-
Year 15	0			-
<b>5 Year Baseline - Water into Distribution System</b>				
Year 1	2006	5,305		5,305
Year 2	2007	7,804		7,804
Year 3	2008	10,734		10,734
Year 4	2009	8,236		8,236
Year 5	2010	7,637		7,637
<b>2015 Compliance Year - Water into Distribution System</b>				
<b>2015</b>		2,773		2,773
<i>* Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document</i>				
NOTES:				

**SB X7-7 Table 4-A: Volume Entering the Distribution System(s)**

**Name of Source** Gibraltar

**This water source is:**

The supplier's own water source

A purchased or imported source

<b>Baseline Year</b> <i>Fm SB X7-7 Table 3</i>	Volume Entering Distribution System	Meter Error Adjustment* <i>Optional (+/-)</i>	Corrected Volume Entering Distribution System	
<b>10 to 15 Year Baseline - Water into Distribution System</b>				
Year 1	2,000	1394		1,394
Year 2	2,001	5573		5,573
Year 3	2,002	3827		3,827
Year 4	2,003	3127		3,127
Year 5	2,004	3414		3,414
Year 6	2,005	1879		1,879
Year 7	2,006	4546		4,546
Year 8	2,007	3783		3,783
Year 9	2,008	1576		1,576
Year 10	2,009	2569		2,569

Year 11	-			0
Year 12	-			0
Year 13	-			0
Year 14	-			0
Year 15	-			0
<b>5 Year Baseline - Water into Distribution System</b>				
Year 1	2,006	4546		4,546
Year 2	2,007	3783		3,783
Year 3	2,008	1576		1,576
Year 4	2,009	2569		2,569
Year 5	2,010	2933		2,933
<b>2015 Compliance Year - Water into Distribution System</b>				
<b>2015</b>		951		951
<i>* Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document</i>				
NOTES:				

**SB X7-7 Table 4-A: Volume Entering the Distribution**

<b>Name of Source</b>	Mission Tunnel			
<b>This water source is:</b>				
<input checked="" type="checkbox"/>	The supplier's own water source			
<input type="checkbox"/>	A purchased or imported source			
<b>Baseline Year</b> <i>Fm SB X7-7 Table 3</i>	<b>Volume Entering Distribution System</b>	<b>Meter Error Adjustment* Optional (+/-)</b>	<b>Corrected Volume Entering Distribution System</b>	
<b>10 to 15 Year Baseline - Water into Distribution System</b>				
Year 1	2,000	1149		1,149
Year 2	2,001	1886		1,886
Year 3	2,002	1267		1,267
Year 4	2,003	942		942
Year 5	2,004	1256		1,256
Year 6	2,005	1585		1,585
Year 7	2,006	1786		1,786
Year 8	2,007	1409		1,409
Year 9	2,008	1093		1,093
Year 10	2,009	1142		1,142
Year 11	-			0
Year 12	-			0
Year 13	-			0
Year 14	-			0
Year 15	-			0
<b>5 Year Baseline - Water into Distribution System</b>				
Year 1	2,006	1786		1,786
Year 2	2,007	1409		1,409
Year 3	2,008	1093		1,093
Year 4	2,009	1142		1,142
Year 5	2,010	1220		1,220
<b>2015 Compliance Year - Water into Distribution System</b>				
<b>2015</b>		815		815
<i>* Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document</i>				
NOTES:				

**SB X7-7 Table 4-A: Volume Entering the Distribution**

<b>Name of Source</b>	Devil's Canyon			
<b>This water source is:</b>				
<input checked="" type="checkbox"/>	The supplier's own water source			
<input type="checkbox"/>	A purchased or imported source			

<b>Baseline Year</b> <i>Fm SB X7-7 Table 3</i>	Volume Entering Distribution System	Meter Error Adjustment* <i>Optional (+/-)</i>	Corrected Volume Entering Distribution System
<b>10 to 15 Year Baseline - Water into Distribution System</b>			
Year 1	2,000	0	0
Year 2	2,001	0	0
Year 3	2,002	3	3
Year 4	2,003	31	31
Year 5	2,004	20	20
Year 6	2,005	70	70
Year 7	2,006	0	0
Year 8	2,007	0	0
Year 9	2,008	160	160
Year 10	2,009	76	76
Year 11	-		0
Year 12	-		0
Year 13	-		0
Year 14	-		0
Year 15	-		0
<b>5 Year Baseline - Water into Distribution System</b>			
Year 1	2,006	0	0
Year 2	2,007	0	0
Year 3	2,008	160	160
Year 4	2,009	76	76
Year 5	2,010	0	0
<b>2015 Compliance Year - Water into Distribution System</b>			
<b>2015</b>		0	0
<i>* Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document</i>			
NOTES:			

**SB X7-7 Table 4-A: Volume Entering the Distribution**

<b>Name of Source</b>	Groundwater		
<b>This water source is:</b>			
<input checked="" type="checkbox"/>	The supplier's own water source		
<input type="checkbox"/>	A purchased or imported source		
<b>Baseline Year</b> <i>Fm SB X7-7 Table 3</i>	Volume Entering Distribution System	Meter Error Adjustment* <i>Optional (+/-)</i>	Corrected Volume Entering Distribution System
<b>10 to 15 Year Baseline - Water into Distribution System</b>			
Year 1	2,000	357	357
Year 2	2,001	280	280
Year 3	2,002	8	8
Year 4	2,003	0	0
Year 5	2,004	0	0
Year 6	2,005	0	0
Year 7	2,006	906	906
Year 8	2,007	434	434
Year 9	2,008	751	751
Year 10	2,009	1112	1,112
Year 11	-		0
Year 12	-		0
Year 13	-		0
Year 14	-		0
Year 15	-		0
<b>5 Year Baseline - Water into Distribution System</b>			
Year 1	2,006	906	906
Year 2	2,007	434	434

Year 3	2,008	751		751
Year 4	2,009	1112		1,112
Year 5	2,010	1164		1,164
<b>2015 Compliance Year - Water into Distribution System</b>				
<b>2015</b>		1,673		1,673
<i>* Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document</i>				
NOTES:				

**SB X7-7 Table 4-A: Volume Entering the Distribution**

<b>Name of Source</b>	CCWA/State Water Project			
<b>This water source is:</b>				
<input type="checkbox"/>	The supplier's own water source			
<input checked="" type="checkbox"/>	A purchased or imported source			
<b>Baseline Year</b> <i>Fm SB X7-7 Table 3</i>	Volume Entering Distribution System	Meter Error Adjustment* <i>Optional (+/-)</i>	Corrected Volume Entering Distribution System	
<b>10 to 15 Year Baseline - Water into Distribution System</b>				
Year 1	2,000	646		646
Year 2	2,001	830		830
Year 3	2,002	1484		1,484
Year 4	2,003	2666		2,666
Year 5	2,004	1666		1,666
Year 6	2,005	2453		2,453
Year 7	2,006	1170		1,170
Year 8	2,007	1471		1,471
Year 9	2,008	1488		1,488
Year 10	2,009	1398		1,398
Year 11	-			0
Year 12	-			0
Year 13	-			0
Year 14	-			0
Year 15	-			0
<b>5 Year Baseline - Water into Distribution System</b>				
Year 1	2,006	1170		1,170
Year 2	2,007	1471		1,471
Year 3	2,008	1488		1,488
Year 4	2,009	1398		1,398
Year 5	2,010	1488		1,488
<b>2015 Compliance Year - Water into Distribution System</b>				
<b>2015</b>		5,294		5,294
<i>* Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document</i>				
NOTES: Data includes water received for La Cumbre Mutual Water District conveyance.				

**SB X7-7 Table 4-A: Volume Entering the Distribution**

<b>Name of Source</b>	Source 7			
<b>This water source is:</b>				
<input type="checkbox"/>	The supplier's own water source			
<input type="checkbox"/>	A purchased or imported source			
<b>Baseline Year</b> <i>Fm SB X7-7 Table 3</i>	Volume Entering Distribution System	Meter Error Adjustment* <i>Optional (+/-)</i>	Corrected Volume Entering Distribution System	
<b>10 to 15 Year Baseline - Water into Distribution System</b>				
Year 1	2,000			0
Year 2	2,001			0
Year 3	2,002			0

Year 4	2,003			0
Year 5	2,004			0
Year 6	2,005			0
Year 7	2,006			0
Year 8	2,007			0
Year 9	2,008			0
Year 10	2,009			0
Year 11	-			0
Year 12	-			0
Year 13	-			0
Year 14	-			0
Year 15	-			0
5 Year Baseline - Water into Distribution System				
Year 1	2,006			0
Year 2	2,007			0
Year 3	2,008			0
Year 4	2,009			0
Year 5	2,010			0
2015 Compliance Year - Water into Distribution System				
2015				0
<i>* Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document</i>				
NOTES:				

<b>SB X7-7 Table 4-A: Volume Entering the Distribution</b>				
<b>Name of Source</b>		Source 8		
<b>This water source is:</b>				
<input type="checkbox"/>	The supplier's own water source			
<input type="checkbox"/>	A purchased or imported source			
<b>Baseline Year</b> <i>Fm SB X7-7 Table 3</i>	<b>Volume Entering Distribution System</b>	<b>Meter Error Adjustment*</b> <i>Optional (+/-)</i>	<b>Corrected Volume Entering Distribution System</b>	
10 to 15 Year Baseline - Water into Distribution System				
Year 1	2,000			0
Year 2	2,001			0
Year 3	2,002			0
Year 4	2,003			0
Year 5	2,004			0
Year 6	2,005			0
Year 7	2,006			0
Year 8	2,007			0
Year 9	2,008			0
Year 10	2,009			0
Year 11	-			0
Year 12	-			0
Year 13	-			0
Year 14	-			0
Year 15	-			0
5 Year Baseline - Water into Distribution System				
Year 1	2,006			0
Year 2	2,007			0
Year 3	2,008			0
Year 4	2,009			0
Year 5	2,010			0
2015 Compliance Year - Water into Distribution System				
2015				0
<i>* Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document</i>				
NOTES:				

SB X7-7 Table 4-A: Volume Entering the Distribution				
Name of Source		Source 9		
This water source is:				
<input type="checkbox"/>		The supplier's own water source		
<input type="checkbox"/>		A purchased or imported source		
Baseline Year <i>Fm SB X7-7 Table 3</i>	Volume Entering Distribution System	Meter Error Adjustment* <i>Optional (+/-)</i>	Corrected Volume Entering Distribution System	
10 to 15 Year Baseline - Water into Distribution System				
Year 1	2,000			0
Year 2	2,001			0
Year 3	2,002			0
Year 4	2,003			0
Year 5	2,004			0
Year 6	2,005			0
Year 7	2,006			0
Year 8	2,007			0
Year 9	2,008			0
Year 10	2,009			0
Year 11	-			0
Year 12	-			0
Year 13	-			0
Year 14	-			0
Year 15	-			0
5 Year Baseline - Water into Distribution System				
Year 1	2,006			0
Year 2	2,007			0
Year 3	2,008			0
Year 4	2,009			0
Year 5	2,010			0
2015 Compliance Year - Water into Distribution System				
2015				0
<i>* Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document</i>				
NOTES:				

SB X7-7 Table 4-A: Volume Entering the Distribution				
Name of Source		Source 10		
This water source is:				
<input type="checkbox"/>		The supplier's own water source		
<input type="checkbox"/>		A purchased or imported source		
Baseline Year <i>Fm SB X7-7 Table 3</i>	Volume Entering Distribution System	Meter Error Adjustment* <i>Optional (+/-)</i>	Corrected Volume Entering Distribution System	
10 to 15 Year Baseline - Water into Distribution System				
Year 1	2,000			0
Year 2	2,001			0
Year 3	2,002			0
Year 4	2,003			0
Year 5	2,004			0
Year 6	2,005			0
Year 7	2,006			0
Year 8	2,007			0
Year 9	2,008			0
Year 10	2,009			0
Year 11	-			0
Year 12	-			0
Year 13	-			0

Year 14	-			0
Year 15	-			0
<b>5 Year Baseline - Water into Distribution System</b>				
Year 1	2,006			0
Year 2	2,007			0
Year 3	2,008			0
Year 4	2,009			0
Year 5	2,010			0
<b>2015 Compliance Year - Water into Distribution System</b>				
<b>2015</b>				0
<i>* Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document</i>				
NOTES:				

<b>SB X7-7 Table 4-A: Volume Entering the Distribution</b>				
<b>Name of Source</b>	Source 11			
<b>This water source is:</b>				
<input type="checkbox"/>	The supplier's own water source			
<input type="checkbox"/>	A purchased or imported source			
<b>Baseline Year</b> <i>Fm SB X7-7 Table 3</i>	Volume Entering Distribution System	Meter Error Adjustment* <i>Optional (+/-)</i>	Corrected Volume Entering Distribution System	
<b>10 to 15 Year Baseline - Water into Distribution System</b>				
Year 1	2,000			0
Year 2	2,001			0
Year 3	2,002			0
Year 4	2,003			0
Year 5	2,004			0
Year 6	2,005			0
Year 7	2,006			0
Year 8	2,007			0
Year 9	2,008			0
Year 10	2,009			0
Year 11	-			0
Year 12	-			0
Year 13	-			0
Year 14	-			0
Year 15	-			0
<b>5 Year Baseline - Water into Distribution System</b>				
Year 1	2,006			0
Year 2	2,007			0
Year 3	2,008			0
Year 4	2,009			0
Year 5	2,010			0
<b>2015 Compliance Year - Water into Distribution System</b>				
<b>2015</b>				0
<i>* Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document</i>				
NOTES:				

<b>SB X7-7 Table 4-A: Volume Entering the Distribution</b>				
<b>Name of Source</b>	Source 12			
<b>This water source is:</b>				
<input type="checkbox"/>	The supplier's own water source			
<input type="checkbox"/>	A purchased or imported source			
<b>Baseline Year</b> <i>Fm SB X7-7 Table 3</i>	Volume Entering Distribution System	Meter Error Adjustment* <i>Optional (+/-)</i>	Corrected Volume Entering Distribution System	

10 to 15 Year Baseline - Water into Distribution System				
Year 1	2,000			0
Year 2	2,001			0
Year 3	2,002			0
Year 4	2,003			0
Year 5	2,004			0
Year 6	2,005			0
Year 7	2,006			0
Year 8	2,007			0
Year 9	2,008			0
Year 10	2,009			0
Year 11	-			0
Year 12	-			0
Year 13	-			0
Year 14	-			0
Year 15	-			0
5 Year Baseline - Water into Distribution System				
Year 1	2,006			0
Year 2	2,007			0
Year 3	2,008			0
Year 4	2,009			0
Year 5	2,010			0
2015 Compliance Year - Water into Distribution System				
<b>2015</b>				0
<i>* Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document</i>				
NOTES:				

**SB X7-7 Table 4-A: Volume Entering the Distribution**

Name of Source		Source 13		
This water source is:				
<input type="checkbox"/>	The supplier's own water source			
<input type="checkbox"/>	A purchased or imported source			
Baseline Year <i>Fm SB X7-7 Table 3</i>	Volume Entering Distribution System	Meter Error Adjustment* <i>Optional (+/-)</i>	Corrected Volume Entering Distribution System	
10 to 15 Year Baseline - Water into Distribution System				
Year 1	2,000			0
Year 2	2,001			0
Year 3	2,002			0
Year 4	2,003			0
Year 5	2,004			0
Year 6	2,005			0
Year 7	2,006			0
Year 8	2,007			0
Year 9	2,008			0
Year 10	2,009			0
Year 11	-			0
Year 12	-			0
Year 13	-			0
Year 14	-			0
Year 15	-			0
5 Year Baseline - Water into Distribution System				
Year 1	2,006			0
Year 2	2,007			0
Year 3	2,008			0
Year 4	2,009			0
Year 5	2,010			0
2015 Compliance Year - Water into Distribution System				
<b>2015</b>				0

\* Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document

NOTES:

**SB X7-7 Table 4-A: Volume Entering the Distribution**

<b>Name of Source</b>		Source 14		
<b>This water source is:</b>				
<input type="checkbox"/>		The supplier's own water source		
<input type="checkbox"/>		A purchased or imported source		
<b>Baseline Year</b> <i>Fm SB X7-7 Table 3</i>	Volume Entering Distribution System	Meter Error Adjustment* <i>Optional (+/-)</i>	Corrected Volume Entering Distribution System	
<b>10 to 15 Year Baseline - Water into Distribution System</b>				
Year 1	2,000		0	
Year 2	2,001		0	
Year 3	2,002		0	
Year 4	2,003		0	
Year 5	2,004		0	
Year 6	2,005		0	
Year 7	2,006		0	
Year 8	2,007		0	
Year 9	2,008		0	
Year 10	2,009		0	
Year 11	-		0	
Year 12	-		0	
Year 13	-		0	
Year 14	-		0	
Year 15	-		0	
<b>5 Year Baseline - Water into Distribution System</b>				
Year 1	2,006		0	
Year 2	2,007		0	
Year 3	2,008		0	
Year 4	2,009		0	
Year 5	2,010		0	
<b>2015 Compliance Year - Water into Distribution System</b>				
<b>2015</b>			0	
<i>* Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document</i>				
NOTES:				

**SB X7-7 Table 4-A: Volume Entering the Distribution**

<b>Name of Source</b>		Source 15		
<b>This water source is:</b>				
<input type="checkbox"/>		The supplier's own water source		
<input type="checkbox"/>		A purchased or imported source		
<b>Baseline Year</b> <i>Fm SB X7-7 Table 3</i>	Volume Entering Distribution System	Meter Error Adjustment* <i>Optional (+/-)</i>	Corrected Volume Entering Distribution System	
<b>10 to 15 Year Baseline - Water into Distribution System</b>				
Year 1	2,000		0	
Year 2	2,001		0	
Year 3	2,002		0	
Year 4	2,003		0	
Year 5	2,004		0	
Year 6	2,005		0	
Year 7	2,006		0	
Year 8	2,007		0	
Year 9	2,008		0	

Year 10	2,009			0
Year 11	-			0
Year 12	-			0
Year 13	-			0
Year 14	-			0
Year 15	-			0
<b>5 Year Baseline - Water into Distribution System</b>				
Year 1	2,006			0
Year 2	2,007			0
Year 3	2,008			0
Year 4	2,009			0
Year 5	2,010			0
<b>2015 Compliance Year - Water into Distribution System</b>				
<b>2015</b>				0
<i>* Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document</i>				
NOTES:				

**SB X7-7 Table 4-B: Indirect Recycled Water Use Deduction** (For use only by agencies that are deducting indirect recycled water)

Baseline Year <i>Fm SB X7-7 Table 3</i>	Surface Reservoir Augmentation					Groundwater Recharge			Total Deductible Volume of Indirect Recycled Water Entering the Distribution System
	Volume Discharged from Reservoir for Distribution System Delivery	Percent Recycled Water	Recycled Water Delivered to Treatment Plant	Transmission/ Treatment Loss	Recycled Volume Entering Distribution System from Surface Reservoir Augmentation	Recycled Water Pumped by Utility*	Transmission/ Treatment Losses	Recycled Volume Entering Distribution System from Groundwater Recharge	
<b>10-15 Year Baseline - Indirect Recycled Water Use</b>									
Year 1	2000		-		-			-	-
Year 2	2001		-		-			-	-
Year 3	2002		-		-			-	-
Year 4	2003		-		-			-	-
Year 5	2004		-		-			-	-
Year 6	2005		-		-			-	-
Year 7	2006		-		-			-	-
Year 8	2007		-		-			-	-
Year 9	2008		-		-			-	-
Year 10	2009		-		-			-	-
Year 11	0		-		-			-	-
Year 12	0		-		-			-	-
Year 13	0		-		-			-	-
Year 14	0		-		-			-	-
Year 15	0		-		-			-	-
<b>5 Year Baseline - Indirect Recycled Water Use</b>									
Year 1	2006		-		-			-	-
Year 2	2007		-		-			-	-
Year 3	2008		-		-			-	-
Year 4	2009		-		-			-	-
Year 5	2010		-		-			-	-
<b>2015 Compliance - Indirect Recycled Water Use</b>									
2015			-		-			-	-
*Suppliers will provide supplemental sheets to document the calculation for their input into "Recycled Water Pumped by Utility". The volume reported in this cell must be less than total groundwater pumped - See Methodology 1, Step 8, section 2.c.									
NOTES:									

**SB X7-7 Table 4-C: Process Water Deduction Eligibility**

*(For use only by agencies that are deducting process water) Choose Only One*

<input type="checkbox"/>	<b>Criteria 1</b> - Industrial water use is equal to or greater than 12% of gross water use. Complete SB X7-7 Table 4-C.1
<input type="checkbox"/>	<b>Criteria 2</b> - Industrial water use is equal to or greater than 15 GPCD. Complete SB X7-7 Table 4-C.2
<input type="checkbox"/>	<b>Criteria 3</b> - Non-industrial use is equal to or less than 120 GPCD. Complete SB X7-7 Table 4-C.3
<input type="checkbox"/>	<b>Criteria 4</b> - Disadvantaged Community. Complete SB x7-7 Table 4-C.4

NOTES:

## SB X7-7 Table 4-C.1: Process Water Deduction Eligibility

### Criteria 1

Industrial water use is equal to or greater than 12% of gross water use

<b>Baseline Year</b> <i>Fm SB X7-7 Table 3</i>	Gross Water Use Without Process Water Deduction	Industrial Water Use	Percent Industrial Water	Eligible for Exclusion Y/N
<b>10 to 15 Year Baseline - Process Water Deduction Eligibility</b>				
Year 1	2000	13,792	0%	NO
Year 2	2001	13,344	0%	NO
Year 3	2002	12,879	0%	NO
Year 4	2003	12,223	0%	NO
Year 5	2004	13,073	0%	NO
Year 6	2005	12,528	0%	NO
Year 7	2006	12,860	0%	NO
Year 8	2007	14,106	0%	NO
Year 9	2008	14,432	0%	NO
Year 10	2009	13,576	0%	NO
Year 11	0	-		NO
Year 12	0	-		NO
Year 13	0	-		NO
Year 14	0	-		NO
Year 15	0	-		NO
<b>5 Year Baseline - Process Water Deduction Eligibility</b>				
Year 1	2006	12,860	0%	NO
Year 2	2007	14,106	0%	NO
Year 3	2008	14,432	0%	NO
Year 4	2009	13,576	0%	NO
Year 5	2010	13,276	0%	NO
<b>2015 Compliance Year - Process Water Deduction Eligibility</b>				
<b>2015</b>		10,725	0%	NO
NOTES:				

## SB X7-7 Table 4-C.2: Process Water Deduction Eligibility

### Criteria 2

Industrial water use is equal to or greater than 15 GPCD

Baseline Year <i>Fm SB X7-7 Table 3</i>	Industrial Water Use	Population	Industrial GPCD	Eligible for Exclusion Y/N
<b>10 to 15 Year Baseline - Process Water Deduction Eligibility</b>				
Year 1	2000		91,908	- NO
Year 2	2001		92,249	- NO
Year 3	2002		92,543	- NO
Year 4	2003		92,191	- NO
Year 5	2004		92,040	- NO
Year 6	2005		91,311	- NO
Year 7	2006		90,144	- NO
Year 8	2007		90,046	- NO
Year 9	2008		90,748	- NO
Year 10	2009		90,661	- NO
<i>Year 11</i>	0		-	NO
<i>Year 12</i>	0		-	NO
<i>Year 13</i>	0		-	NO
<i>Year 14</i>	0		-	NO
<i>Year 15</i>	0		-	NO
<b>5 Year Baseline - Process Water Deduction Eligibility</b>				
Year 1	2006		90,144	- NO
Year 2	2007		90,046	- NO
Year 3	2008		90,748	- NO
Year 4	2009		90,661	- NO
Year 5	2010		91,114	- NO
<b>2015 Compliance Year - Process Water Deduction Eligibility</b>				
<b>2015</b>		93,532	-	NO

NOTES:

**SB X7-7 Table 4-C.3: Process Water Deduction Eligibility**

**Criteria 3**

Non-industrial use is equal to or less than 120 GPCD

<b>Baseline Year</b> <i>Fm SB X7-7 Table 3</i>	Gross Water Use Without Process Water Deduction <i>Fm SB X7-7 Table 4</i>	Industrial Water Use	Non-industrial Water Use	Population <i>Fm SB X7-7 Table 3</i>	Non-Industrial GPCD	<b>Eligible for Exclusion</b> <b>Y/N</b>	
<b>10 to 15 Year Baseline - Process Water Deduction Eligibility</b>							
Year 1	2000	13,792		13,792	91,908	134	NO
Year 2	2001	13,344		13,344	92,249	129	NO
Year 3	2002	12,879		12,879	92,543	124	NO
Year 4	2003	12,223		12,223	92,191	118	YES
Year 5	2004	13,073		13,073	92,040	127	NO
Year 6	2005	12,528		12,528	91,311	122	NO
Year 7	2006	12,860		12,860	90,144	127	NO
Year 8	2007	14,106		14,106	90,046	140	NO
Year 9	2008	14,432		14,432	90,748	142	NO
Year 10	2009	13,576		13,576	90,661	134	NO
Year 11	0	-		-	-	-	NO
Year 12	0	-		-	-	-	NO
Year 13	0	-		-	-	-	NO
Year 14	0	-		-	-	-	NO
Year 15	0	-		-	-	-	NO
<b>5 Year Baseline - Process Water Deduction Eligibility</b>							
Year 1	2006	12,860		12,860	90,144	127	NO
Year 2	2007	14,106		14,106	90,046	140	NO
Year 3	2008	14,432		14,432	90,748	142	NO
Year 4	2009	13,576		13,576	90,661	134	NO
Year 5	2010	13,276		13,276	91,114	130	NO
<b>2015 Compliance Year - Process Water Deduction Eligibility</b>							
<b>2015</b>		10,725		10,725	93,532	102	YES

NOTES:

**SB X7-7 Table 4-C.4: Process Water Deduction Eligibility**

**Criteria 4**

Disadvantaged Community

Use *IRWM DAC Mapping tool* [http://www.water.ca.gov/irwm/grants/resources\\_dac.cfm](http://www.water.ca.gov/irwm/grants/resources_dac.cfm)

California Median Household Income	Service Area Median Household Income	Percentage of Statewide Average	Eligible for Exclusion? Y/N
------------------------------------	--------------------------------------	---------------------------------	-----------------------------

**2015 Compliance Year - Process Water Deduction Eligibility**

2010	\$53,046		0%	YES
------	----------	--	----	-----

*A "Disadvantaged Community" is a community with a median household income less than 80 percent of the statewide average.*

NOTES:

**SB X7-7 Table 4-D: Process Water Deduction - Volume** *Complete a separate table for each industrial customer with a process water exclusion*

Name of Industrial Customer		Industrial Customer 1				
Baseline Year <i>Fm SB X7-7 Table 3</i>	Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer	
<b>10 to 15 Year Baseline - Process Water Deduction</b>						
Year 1	2000				-	
Year 2	2001				-	
Year 3	2002				-	
Year 4	2003				-	
Year 5	2004				-	
Year 6	2005				-	
Year 7	2006				-	
Year 8	2007				-	
Year 9	2008				-	
Year 10	2009				-	
Year 11	0				-	
Year 12	0				-	
Year 13	0				-	
Year 14	0				-	
Year 15	0				-	
<b>5 Year Baseline - Process Water Deduction</b>						
Year 1	2006				-	
Year 2	2007				-	
Year 3	2008				-	
Year 4	2009				-	
Year 5	2010				-	
<b>2015 Compliance Year - Process Water Deduction</b>						
<b>2015</b>					-	

NOTES:

**SB X7-7 Table 4-D: Process Water Deduction - Volume** *Complete a separate table for each industrial customer with a process water exclusion*

Name of Industrial Customer		Industrial Customer 2				
Baseline Year <i>Fm SB X7-7 Table 3</i>	Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer	

10 to 15 Year Baseline - Process Water Deduction						
Year 1	2000					-
Year 2	2001					-
Year 3	2002					-
Year 4	2003					-
Year 5	2004					-
Year 6	2005					-
Year 7	2006					-
Year 8	2007					-
Year 9	2008					-
Year 10	2009					-
Year 11	0					-
Year 12	0					-
Year 13	0					-
Year 14	0					-
Year 15	0					-
5 Year Baseline - Process Water Deduction						
Year 1	2006					-
Year 2	2007					-
Year 3	2008					-
Year 4	2009					-
Year 5	2010					-
2015 Compliance Year - Process Water Deduction						
<b>2015</b>						-
NOTES:						

SB X7-7 Table 4-D: Process Water Deduction - Volume					<i>Complete a separate table for each industrial customer with a process water exclusion</i>	
Name of Industrial Customer		<i>Industrial Customer 3</i>				
Baseline Year <i>Fm SB X7-7 Table 3</i>	Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer	
10 to 15 Year Baseline - Process Water Deduction						
Year 1	2000					-
Year 2	2001					-
Year 3	2002					-
Year 4	2003					-
Year 5	2004					-
Year 6	2005					-
Year 7	2006					-
Year 8	2007					-
Year 9	2008					-

Year 10	2009					-
Year 11	0					-
Year 12	0					-
Year 13	0					-
Year 14	0					-
Year 15	0					-
<b>5 Year Baseline - Process Water Deduction</b>						
Year 1	2006					-
Year 2	2007					-
Year 3	2008					-
Year 4	2009					-
Year 5	2010					-
<b>2015 Compliance Year - Process Water Deduction</b>						
<b>2015</b>						-
NOTES:						

<b>SB X7-7 Table 4-D: Process Water Deduction - Volume</b>						<i>Complete a</i>
<i>separate table for each industrial customer with a process water exclusion</i>						
<b>Name of Industrial Customer</b>		<i>Industrial Customer 4</i>				
<b>Baseline Year</b> <i>Fm SB X7-7 Table 3</i>	Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer	
<b>10 to 15 Year Baseline - Process Water Deduction</b>						
Year 1	2000				-	
Year 2	2001				-	
Year 3	2002				-	
Year 4	2003				-	
Year 5	2004				-	
Year 6	2005				-	
Year 7	2006				-	
Year 8	2007				-	
Year 9	2008				-	
Year 10	2009				-	
Year 11	0				-	
Year 12	0				-	
Year 13	0				-	
Year 14	0				-	
Year 15	0				-	
<b>5 Year Baseline - Process Water Deduction</b>						
Year 1	2006				-	
Year 2	2007				-	
Year 3	2008				-	

Year 4	2009					-
Year 5	2010					-
2015 Compliance Year - Process Water Deduction						
	<b>2015</b>					-
NOTES:						

<b>SB X7-7 Table 4-D: Process Water Deduction - Volume</b>						<i>Complete a</i>
<i>separate table for each industrial customer with a process water exclusion</i>						
<b>Name of Industrial Customer</b>		<i>Industrial Customer 5</i>				
<b>Baseline Year</b> <i>Fm SB X7-7 Table 3</i>	Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer	
10 to 15 Year Baseline - Process Water Deduction						
Year 1	2000					-
Year 2	2001					-
Year 3	2002					-
Year 4	2003					-
Year 5	2004					-
Year 6	2005					-
Year 7	2006					-
Year 8	2007					-
Year 9	2008					-
Year 10	2009					-
<i>Year 11</i>	0					-
<i>Year 12</i>	0					-
<i>Year 13</i>	0					-
<i>Year 14</i>	0					-
<i>Year 15</i>	0					-
5 Year Baseline - Process Water Deduction						
Year 1	2006					-
Year 2	2007					-
Year 3	2008					-
Year 4	2009					-
Year 5	2010					-
2015 Compliance Year - Process Water Deduction						
	<b>2015</b>					-
NOTES:						

<b>SB X7-7 Table 4-D: Process Water Deduction - Volume</b>		<i>Complete a</i>
<i>separate table for each industrial customer with a process water exclusion</i>		
<b>Name of Industrial Customer</b>	<i>Industrial Customer 6</i>	

<b>Baseline Year</b> <i>Fm SB X7-7 Table 3</i>		Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer
<b>10 to 15 Year Baseline - Process Water Deduction</b>						
Year 1	2000					-
Year 2	2001					-
Year 3	2002					-
Year 4	2003					-
Year 5	2004					-
Year 6	2005					-
Year 7	2006					-
Year 8	2007					-
Year 9	2008					-
Year 10	2009					-
<i>Year 11</i>	0					-
<i>Year 12</i>	0					-
<i>Year 13</i>	0					-
<i>Year 14</i>	0					-
<i>Year 15</i>	0					-
<b>5 Year Baseline - Process Water Deduction</b>						
Year 1	2006					-
Year 2	2007					-
Year 3	2008					-
Year 4	2009					-
Year 5	2010					-
<b>2015 Compliance Year - Process Water Deduction</b>						
<b>2015</b>						-
NOTES:						

<b>SB X7-7 Table 4-D: Process Water Deduction - Volume</b>						<i>Complete a</i>
<i>separate table for each industrial customer with a process water exclusion</i>						
<b>Name of Industrial Customer</b>		<i>Industrial Customer 7</i>				
<b>Baseline Year</b> <i>Fm SB X7-7 Table 3</i>		Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer
<b>10 to 15 Year Baseline - Process Water Deduction</b>						
Year 1	2000					-
Year 2	2001					-

Year 3	2002					-
Year 4	2003					-
Year 5	2004					-
Year 6	2005					-
Year 7	2006					-
Year 8	2007					-
Year 9	2008					-
Year 10	2009					-
Year 11	0					-
Year 12	0					-
Year 13	0					-
Year 14	0					-
Year 15	0					-
<b>5 Year Baseline - Process Water Deduction</b>						
Year 1	2006					-
Year 2	2007					-
Year 3	2008					-
Year 4	2009					-
Year 5	2010					-
<b>2015 Compliance Year - Process Water Deduction</b>						
<b>2015</b>						-
NOTES:						

<b>SB X7-7 Table 4-D: Process Water Deduction - Volume</b>						<i>Complete a</i>
<i>separate table for each industrial customer with a process water exclusion</i>						
<b>Name of Industrial Customer</b>		<i>Industrial Customer 8</i>				
<b>Baseline Year</b> <i>Fm SB X7-7 Table 3</i>	Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer	
<b>10 to 15 Year Baseline - Process Water Deduction</b>						
Year 1	2000					-
Year 2	2001					-
Year 3	2002					-
Year 4	2003					-
Year 5	2004					-
Year 6	2005					-
Year 7	2006					-
Year 8	2007					-
Year 9	2008					-
Year 10	2009					-
Year 11	0					-
Year 12	0					-

Year 13	0					-
Year 14	0					-
Year 15	0					-
<b>5 Year Baseline - Process Water Deduction</b>						
Year 1	2006					-
Year 2	2007					-
Year 3	2008					-
Year 4	2009					-
Year 5	2010					-
<b>2015 Compliance Year - Process Water Deduction</b>						
<b>2015</b>						-
NOTES:						

<b>SB X7-7 Table 4-D: Process Water Deduction - Volume</b>						<i>Complete a</i>
<i>separate table for each industrial customer with a process water exclusion</i>						
<b>Name of Industrial Customer</b>		<i>Industrial Customer 9</i>				
<b>Baseline Year</b> <i>Fm SB X7-7 Table 3</i>	Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer	
<b>10 to 15 Year Baseline - Process Water Deduction</b>						
Year 1	2000					-
Year 2	2001					-
Year 3	2002					-
Year 4	2003					-
Year 5	2004					-
Year 6	2005					-
Year 7	2006					-
Year 8	2007					-
Year 9	2008					-
Year 10	2009					-
Year 11	0					-
Year 12	0					-
Year 13	0					-
Year 14	0					-
Year 15	0					-
<b>5 Year Baseline - Process Water Deduction</b>						
Year 1	2006					-
Year 2	2007					-
Year 3	2008					-
Year 4	2009					-
Year 5	2010					-
<b>2015 Compliance Year - Process Water Deduction</b>						

<b>2015</b>					-
NOTES:					

**SB X7-7 Table 4-D: Process Water Deduction - Volume** *Complete a separate table for each industrial customer with a process water exclusion*

Name of Industrial Customer		Industrial Customer 10				
Baseline Year <i>Fm SB X7-7 Table 3</i>	Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer	
<b>10 to 15 Year Baseline - Process Water Deduction</b>						
Year 1	2000				-	
Year 2	2001				-	
Year 3	2002				-	
Year 4	2003				-	
Year 5	2004				-	
Year 6	2005				-	
Year 7	2006				-	
Year 8	2007				-	
Year 9	2008				-	
Year 10	2009				-	
<i>Year 11</i>	0				-	
<i>Year 12</i>	0				-	
<i>Year 13</i>	0				-	
<i>Year 14</i>	0				-	
<i>Year 15</i>	0				-	
<b>5 Year Baseline - Process Water Deduction</b>						
Year 1	2006				-	
Year 2	2007				-	
Year 3	2008				-	
Year 4	2009				-	
Year 5	2010				-	
<b>2015 Compliance Year - Process Water Deduction</b>						
<b>2015</b>					-	

NOTES:

**SB X7-7 Table 5: Gallons Per Capita Per Day (GPCD)**

<b>Baseline Year</b> <i>Fm SB X7-7 Table 3</i>		<b>Service Area Population</b> <i>Fm SB X7-7 Table 3</i>	<b>Annual Gross Water Use</b> <i>Fm SB X7-7 Table 4</i>	<b>Daily Per Capita Water Use (GPCD)</b>
<b>10 to 15 Year Baseline GPCD</b>				
Year 1	2000	91,908	13,792	134
Year 2	2001	92,249	13,344	129
Year 3	2002	92,543	12,879	124
Year 4	2003	92,191	12,223	118
Year 5	2004	92,040	13,073	127
Year 6	2005	91,311	12,528	122
Year 7	2006	90,144	12,860	127
Year 8	2007	90,046	14,106	140
Year 9	2008	90,748	14,432	142
Year 10	2009	90,661	13,576	134
<i>Year 11</i>	0	-	-	
<i>Year 12</i>	0	-	-	
<i>Year 13</i>	0	-	-	
<i>Year 14</i>	0	-	-	
<i>Year 15</i>	0	-	-	

**10-15 Year Average Baseline GPCD** **130**

**5 Year Baseline GPCD**

<b>Baseline Year</b> <i>Fm SB X7-7 Table 3</i>		<b>Service Area Population</b> <i>Fm SB X7-7 Table 3</i>	<b>Gross Water Use</b> <i>Fm SB X7-7 Table 4</i>	<b>Daily Per Capita Water Use</b>
Year 1	2006	90,144	12,860	127
Year 2	2007	90,046	14,106	140
Year 3	2008	90,748	14,432	142
Year 4	2009	90,661	13,576	134
Year 5	2010	91,114	13,276	130

**5 Year Average Baseline GPCD** **135**

**2015 Compliance Year GPCD**

<b>2015</b>	93,532	10,725	<b>102</b>
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NOTES:

**SB X7-7 Table 6:** Gallons per Capita per Day  
*Summary From Table SB X7-7 Table 5*

10-15 Year Baseline GPCD	130
5 Year Baseline GPCD	135
2015 Compliance Year GPCD	102
NOTES:	

**SB X7-7 Table 7: 2020 Target Method***Select Only One*

Target Method		Supporting Documentation
<input type="checkbox"/>	Method 1	SB X7-7 Table 7A
<input type="checkbox"/>	Method 2	SB X7-7 Tables 7B, 7C, and 7D <i>Contact DWR for these tables</i>
<input checked="" type="checkbox"/>	Method 3	SB X7-7 Table 7-E
<input type="checkbox"/>	Method 4	Method 4 Calculator

NOTES:

**SB X7-7 Table 7-A: Target Method 1**

20% Reduction

10-15 Year Baseline GPCD	2020 Target GPCD
130	104

NOTES:

Tables for Target Method 2 (SB X7-7 Tables 7-B, 7-C, and 7-D) are not included in the SB X7-7 Verification Form, but are still required for water suppliers using Target Method 2. These water suppliers should contact Gwen Huff at (916) 651-9672 or [gwen.huff@water.ca.gov](mailto:gwen.huff@water.ca.gov)

**SB X7-7 Table 7-C: Target Method 2**

**Target CII Water Use**

Tables for Target Method 2 (SB X7-7 Tables 7-B, 7-C, and 7-D) are not included in the SB X7-7 Verification Form, but are still required for water suppliers using Target Method 2. These water suppliers should contact Gwen Huff at (916) 651-9672 or [gwen.huff@water.ca.gov](mailto:gwen.huff@water.ca.gov)

**SB X7-7 Table 7-D: Target Method 2 Summary**

Tables for Target Method 2 (SB X7-7 Tables 7-B, 7-C, and 7-D) are not included in the SB X7-7 Verification Form, but are still required for water suppliers using Target Method 2. These water suppliers should contact Gwen Huff at (916) 651-9672 or [gwen.huff@water.ca.gov](mailto:gwen.huff@water.ca.gov)

**SB X7-7 Table 7-E: Target Method 3**

Agency May Select More Than One as Applicable	Percentage of Service Area in This Hydrological Region	Hydrologic Region	"2020 Plan" Regional Targets	Method 3 Regional Targets (95%)
<input type="checkbox"/>		North Coast	137	130
<input type="checkbox"/>		North Lahontan	173	164
<input type="checkbox"/>		Sacramento River	176	167
<input type="checkbox"/>		San Francisco Bay	131	124
<input type="checkbox"/>		San Joaquin River	174	165
<input checked="" type="checkbox"/>	100%	Central Coast	123	117
<input type="checkbox"/>		Tulare Lake	188	179
<input type="checkbox"/>		South Lahontan	170	162
<input type="checkbox"/>		South Coast	149	142
<input type="checkbox"/>		Colorado River	211	200
<b>Target</b> <i>(If more than one region is selected, this value is calculated.)</i>				<b>117</b>
NOTES:				

**SB X7-7 Table 7-F: Confirm Minimum Reduction for 2020 Target**

5 Year Baseline GPCD From SB X7-7 Table 5	Maximum 2020 Target <sup>1</sup>	Calculated 2020 Target <sup>2</sup>	<b>Confirmed 2020 Target</b>
135	128	117	<b>117</b>

<sup>1</sup> Maximum 2020 Target is 95% of the 5 Year Baseline GPCD  
Target is calculated based on the selected Target Method, see SB X7-7 Table 7 and  
corresponding tables for agency's calculated target. <sup>2</sup> 2020

NOTES:

**SB X7-7 Table 8: 2015 Interim Target GPCD**

Confirmed 2020 Target <i>Fm SB X7-7 Table 7-F</i>	10-15 year Baseline GPCD <i>Fm SB X7-7 Table 5</i>	<b>2015 Interim Target GPCD</b>
117	130	<b>123</b>

NOTES:

**SB X7-7 Table 9: 2015 Compliance**

Actual 2015 GPCD	2015 Interim Target GPCD	Optional Adjustments <i>(in GPCD)</i>					2015 GPCD <i>(Adjusted if applicable)</i>	Did Supplier Achieve Targeted Reduction for 2015?
		Enter "0" if Adjustment Not Used			TOTAL Adjustments	Adjusted 2015 GPCD		
		Extraordinary Events	Weather Normalization	Economic Adjustment				
102	123	<i>From Methodology 8 (Optional)</i>	<i>From Methodology 8 (Optional)</i>	<i>From Methodology 8 (Optional)</i>	-	102	102	YES

NOTES:

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**APPENDIX H:**

CITY OF SANTA BARBARA LONG TERM WATER SUPPLY  
PLAN 2011

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# City of Santa Barbara Long-Term Water Supply Plan 2011



Prepared by Water Resources Division,  
Public Works Department

Adopted by the Santa Barbara City Council on June 14, 2011,  
as Agenda Item No. 15

## City Council:

Helene Schneider, Mayor  
Grant House, Councilmember  
Dale Francisco, Councilmember  
Frank Hotchkiss, Councilmember  
Michael Kathleen Self, Councilmember  
Harwood "Bendy" White, Councilmember  
Randy Rowse, Councilmember

## Board of Water Commissioners:

Landon Neustadt, Chair  
Barry Keller, Vice-Chair  
Russell Ruiz, Commissioner  
James Smith, Commissioner  
Bill Thomas, Commissioner

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# City of Santa Barbara

## Long-Term Water Supply Plan 2011

### Introduction

The City of Santa Barbara provides water service to most properties within the City limits, as well as several unincorporated areas, including Mission Canyon and the Barker Pass. The service area is approximately 20 square miles with a population of approximately 91,416. The water utility is administered by the Water Resources Division of the Public Works Department. The City's potable water supply sources include surface water from Gibraltar Reservoir, Devils Canyon Creek, and Lake Cachuma; groundwater from City production wells and Mission Tunnel infiltration; State Water; and desalination. A separate recycled water system supplies treated wastewater, primarily for irrigation, to offset the need to use potable water. In addition, water conservation is a key component of water supply management due to its role in offsetting the need to develop new water supplies and reducing the demand on existing water supplies. The Water Fund budget for FY 2011 includes an Operating Budget of \$31,301,242 and a Capital Program of \$3,349,702, for a total budget of \$34,650,944.

For the past 17 years, the water supply has been managed under the 1994 Long-Term Water Supply Program (1994 LTWSP). Important events at the time of the program's adoption included the recent end of the severe drought of 1987 to 1991, an extensive inventory and analysis of water supply alternatives, and the addition of recycled water, State Water, and desalination to the City's water supply portfolio. The program incorporated water demand estimates derived from the City's 1988 General Plan Update process and water conservation savings anticipated from a rapidly developing City Water Conservation Program. During the two decades since the drought, the City's normal year water system demand (including potable and recycled water demand) has dropped from a pre-drought amount of 16,300 AFY to 14,000 AFY, despite a population increase of approximately 5%. This is a significant consideration in the development of this updated plan and is discussed in detail in later sections.

The fundamental challenge for the City's water supply continues to be the ability to provide adequate water during an extended drought. However, the water supply situation may also be affected by potential climate change impacts on hydrology and sea level, new constraints on deliveries of State Water through the Sacramento-San Joaquin Delta, a statewide water supply deficit with an accompanying legislative mandate for water use reduction, new technologies and practices for conserving water, and increasing costs for water supply and operation of the water system.

The City has recently certified an Environmental Impact Report (EIR) for the *Plan Santa Barbara* process to update the City's General Plan. The document included an analysis

of the City's water supply, which was developed in conjunction with the City's Water Commission in preparation for a recommendation to update the 1994 LTWSP. On June 14, 2011, the City Council adopted this Long-Term Water Supply Plan as Agenda Item No. 15.

### **Terms and Concepts**

A number of key terms and concepts play a role in water supply planning and are discussed below:

Planning Period: The period covered by this plan is from 2011 through 2030, intended to roughly correspond with the term of the anticipated General Plan update.

Water Production: Production is the amount of water treated and put into the City distribution system in order to serve City water customers, net of deductions for water that leaves the distribution system as transfers for other purposes. As such, production is a measure of the amount of water supply needed to serve City customers. Production is tracked separately for the potable and recycled distribution systems. The sum of these two is referred to as "system production."

Metered Sales: The City maintains 26,513 retail water meters that measure the water used from the distribution system by City water customers. The sum of usage on these meters is referred to as "metered sales." Due to system losses, distribution system flushing, and normal meter inaccuracy, this number is generally about 90% to 92% of the production amount.

Cloud Seeding: Clouds can be seeded with certain compounds that enhance the amount of precipitation generated. The City participates, with other Santa Barbara County agencies, in an annual cloud seeding program to augment precipitation and runoff into local reservoirs.

Marginal Cost: To evaluate the economic benefits of ordering more water from one supply over another, only those costs that vary with the amount of water delivered are considered. These are called the "marginal" costs, also referred to as "variable" costs. Fixed or "sunk" costs are not included since they are the same regardless of whether more water is taken from a given source. For example, State Water has substantial costs for debt service and fixed operation and maintenance, but it is only the variable costs for chemicals and electricity that influence the economics of ordering additional State Water.

Avoided Cost: The cost effectiveness of a water conservation measure is evaluated by comparing the cost of the measure to the marginal cost that is avoided as a result of implementing the conservation measure and reducing the amount of water supply required.

Critical Drought Period: A water supply is evaluated by how well it performs in meeting the target level of demand during the expected worst case water supply situation. For the Santa Barbara area, this worst case is an extended drought, characterized by multiple years of below average rainfall, resulting in minimal inflow to Lake Cachuma and declining reservoir levels. The historical critical drought period for Santa Barbara is the 5-year period of 1947 to 1951. The most recent drought of 1987-1991 was somewhat less severe. Importantly, any year following the filling and spilling of Lake Cachuma could be the first year of a critical drought period, but this generally doesn't become apparent until about the third year.

Conservation: The City's Water Conservation Program promotes ongoing efforts to improve water efficiency and reduce waste in ways that don't require lifestyle sacrifices on the part of customers. Examples include using a high efficiency clothes washer to do the job with less water, fixing leaks, replacing a conventional irrigation controller with a smart irrigation controller, and replacing lawn with water wise plants. This type of conservation can be counted on for long-term reduction in demand, which avoids the need to procure more water supplies with high marginal cost. For water supply planning, it is important to distinguish between these ongoing efforts, and planned short-term extraordinary demand reductions employed during an extended severe drought or other catastrophic water supply interruption.

Safety Margin: In addition to quantifiable estimates of water supply yield and projected water demand, there is the potential for unplanned and unquantifiable shortages in supply or increases in demand. The approach used in this plan is to make reasoned estimates of supply and demand for the planning period and then add a safety margin on top of the projected demand target to recognize that unexpected events will occur.

Planned Demand Reductions During Severe Drought: A water supply can be planned for 100% reliability (i.e., able to meet full demand under all circumstances). However, meeting this reliability standard can result in significant additional cost. Because there is short-term flexibility in water demand during extraordinary conditions, it is reasonable to count on such short-term reductions to some extent to reduce the cost of operating the water system. During the most recent severe drought of 1987-1991, it became necessary to seek extraordinary reductions of up to 50%, which came at some considerable expense to the community. This level of planned reduction was deemed excessive during the development of the 1994 LTWSP and an amount equal to 10% of target demand was adopted at that time. This percentage was referred to as the "acceptable shortage" in the 1994 LTWSP.

Water Supply Performance: A water supply plan is evaluated by whether it meets the established technical and policy goals during the planning period. Performance of the water supply is based on assumptions for anticipated deliveries from the various sources. For the City's plan, much of this information comes from the Santa Ynez River Hydrology Model (SYRHM), a computer model developed by the Santa Barbara County Water Agency. The model covers a 76-year period from 1918 to 1993. It uses historical weather and river flow data, along with current water supply facilities and

operational strategies, to simulate the long-term yield of the river in its current state. The purpose is to illustrate how our current water supply portfolio might perform over a future period that is similar to the past. This explains why, for example, the model results include yield from Lake Cachuma in years before the reservoir actually existed.

A second important element of the performance analysis is to evaluate the relative costs of various options for meeting the supply goals. The focus is on marginal costs for the supplies that are part of the various alternatives evaluated.

### **Current Water Supply Portfolio**

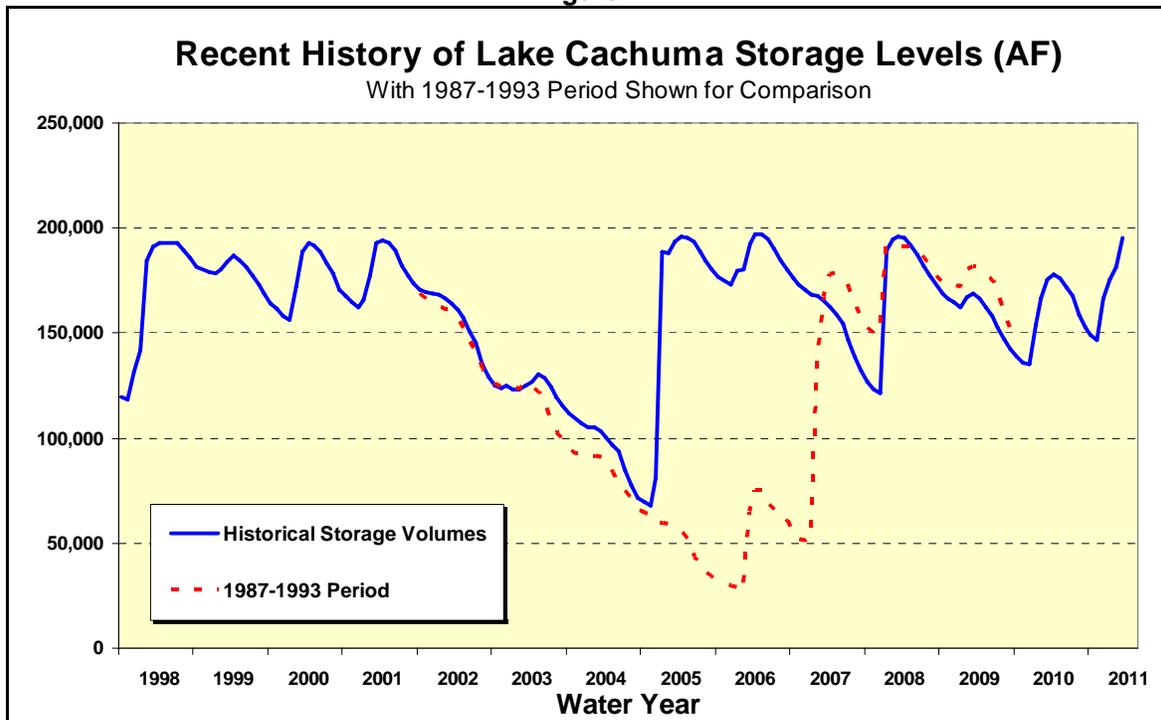
The City operates a diverse water supply. The various supply sources are summarized below. Additional discussion is included in the Final EIR for the *Plan Santa Barbara* process to update the City's General Plan.

#### Lake Cachuma

The federally-owned Cachuma Project on the Santa Ynez River supplies water to the City and four other member agencies. The most recent capacity survey (2008) estimated the storage capacity at 186,636 AF. The reservoir is currently operated to supply a total yield of 25,714 AFY to the five member agencies in most years. The City's current share of this annual yield is 8,277 AFY. In later years of extended dry periods (characterized by consecutive years of below average rainfall), storage typically drops below 100,000 AF and deliveries to member agencies are reduced. Historically the reservoir has filled and spilled an average of once every three years, but there occasionally are longer dry periods, the longest of which defines the critical drought period for planning purposes. Lake Cachuma is the City's primary water supply and the multi-year storage capacity provides an important buffer against dry periods. Figure 1 illustrates the recent history of storage levels at Lake Cachuma.

The lake is operated by the U.S. Bureau of Reclamation pursuant to orders of the State Water Resources Control Board (SWRCB) and in compliance with a Biological Opinion issued by the U.S. Fish and Wildlife Service (USFWS) for protection of steelhead trout, which were designated as endangered in the Lower Santa Ynez River in 2003. SWRCB is considering Lake Cachuma and Santa Ynez River water rights following a major hearing on the Cachuma Project conducted in November 2003. This was a continuation of SWRCB's long-standing review of the Cachuma Project in terms of its effects on downstream water users and on Public Trust resources (i.e., steelhead trout). The SWRCB ruling has been delayed pending completion of the necessary environmental documents.

Figure 1



For estimating future deliveries from Lake Cachuma during the planning period, the following assumptions were used:

- Alternative 3-C of the 2003 Cachuma Water Rights hearing Draft EIR, as modeled by the SYRHM was assumed. This includes a reservoir surcharge of 3-foot elevation (now in place) to provide additional water for fish releases and operation of the reservoir in compliance with the above mentioned Biological Opinion.
- Siltation has historically averaged about 332 AFY from the time of dam construction in 1953 until the most recent reservoir survey in 2008. Though options to control such siltation will be important, it should be assumed that this rate of siltation will continue, and would result in a 5% reduction in the reservoir capacity, and a roughly similar reduction in yield, by the end of the planning period. As a result, it could be estimated that normal year deliveries would be reduced from the current amount of 8,277 AFY to 7,863 AFY by the year 2030.
- Deliveries of Cachuma water during surplus (spill) conditions are not deducted from member agency annual entitlements, meaning that spill years usually result in some accumulation of water in excess of entitlement. The excess becomes “carryover” water that continues to be available until lost to spill or evaporation. This provides increased flexibility for members, but can not necessarily be expected to increase project yield above the amount modeled. Therefore, delivery estimates do not assume increased yield as a result of the carryover accounting of water accumulated during a spill condition.

## Gibraltar Reservoir

In 1920, the City completed construction of Gibraltar Dam on the Santa Ynez River upstream of where Lake Cachuma was subsequently constructed. The dam formed Gibraltar Lake, with an initial storage capacity of 15,793 AF. Water is conveyed from Gibraltar Reservoir to the City through Mission Tunnel. From the beginning, siltation has been an issue, particularly following wildfires. In 1948, siltation had reduced the volume by about half and the dam was raised 23 feet to its current height of 1,400 feet above sea level. Prior to the 2007 Zaca Fire, which burned 60 percent of the Gibraltar watershed, the volume was 6,786 AF. Erosion since the fire, particularly the heavy rainfall of January 2008, has reduced the reservoir volume to 5,251 AF as of the June 2010 lake survey.

Since before the completion of Gibraltar Dam, the City has also diverted water from Devils Canyon Creek just downstream of the dam, with long-term average annual diversions of approximately 100 AFY. The City counts Devils Canyon diversions as part of its total allowable Gibraltar diversions.

As a result of the sale of the Juncal Dam site upstream of Gibraltar Reservoir and associated water rights in the early 1900's, the City receives an annual transfer of 300 AFY from the Montecito Water District. The water is transferred to the City's account at Lake Cachuma.

Current Gibraltar Reservoir operations are based on the 1989 Upper Santa Ynez River Operations Agreement (also known as the "Pass Through Agreement") by which the City agreed to defer a second enlargement of the reservoir in exchange for the right to receive a portion of its Gibraltar water through Lake Cachuma. The intent of this arrangement was to allow the City to stabilize the yield of Gibraltar so it would be consistent with the 1988 reservoir volume, while recognizing the interests of the Cachuma Project and other downstream users.

The City and other signatories to the Pass Through Agreement are currently working to implement the Pass Through mode of the agreement, which tracks the yield of a hypothetical "Base Reservoir" that is equal to the 1988 storage capacity of 8,567 AF, and operated under the procedures defined in the Pass Through Agreement. The Pass Through mode allows Gibraltar Reservoir diversions (including diversions to Mission Tunnel and the portion taken through Cachuma) up to the amount that could have been diverted under the "Base Reservoir" operations. Modeling done in 1989 indicated that long-term average yield of the Base Reservoir would be 5,160 AFY. Yield under the actual Pass Through operations can be expected to be somewhat less on average, due to potential losses associated with conveyance of water between Gibraltar and Cachuma, and spill and evaporation of Pass Through water at Cachuma.

## Mission Tunnel

Mission Tunnel conveys water from Gibraltar Reservoir through the Santa Ynez Mountains to the City and was completed in 1910. Infiltration into the tunnel from watersheds on both sides of the mountains contributes to the City's water supply. Water supplies from infiltration to Mission Tunnel have varied from a low of 500 AFY in 1951 to a high of 2,375 AFY, with an average annual yield of 1,125 AFY based on analysis in the DEIR for the Cachuma Project water rights hearings.

## State Water Project

The City is a participant in the State Water Project (SWP). Deliveries to Santa Barbara County participants are administered by the Central Coast Water Authority (CCWA). Project water is delivered into Lake Cachuma through the Coastal Branch of the State Aqueduct and two locally-operated pipeline extensions. The SWP contract defines the maximum amount each project contractor is entitled to request each year, which is referred to as the "Table A" amount, referring to the table of that name in the contract. The City's SWP Table A amount is 3,300 AFY and the City has a share of pipeline capacity to deliver that amount. However, deliveries of Table A amounts are subject to availability and delivery constraints.

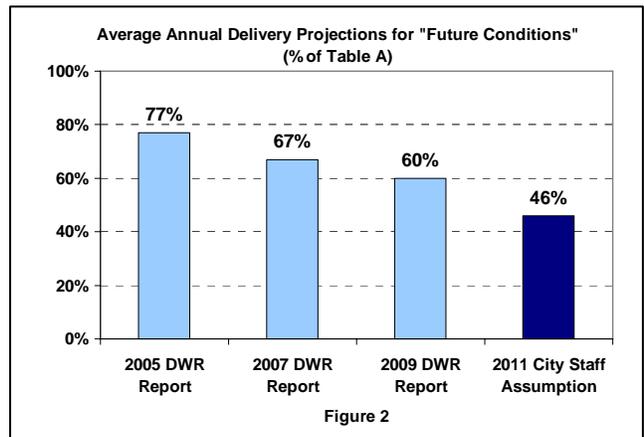
The California Department of Water Resources produces the State Water Delivery Reliability Report every two years to assist project participants in estimating anticipated deliveries. The 2009 version (published August 2010) is the most recent. The report is based on analysis using the CALSIM II computer model developed by DWR and USBR to simulate Delta flows and predict available deliveries.

Deliveries are estimated for "current conditions" (2009) and "future conditions" (2029). Projections for this plan are based on the "future" conditions, but it is important to note that "future" conditions do not assume improvements in the ability to deliver water through the Delta. Key assumptions are listed below:

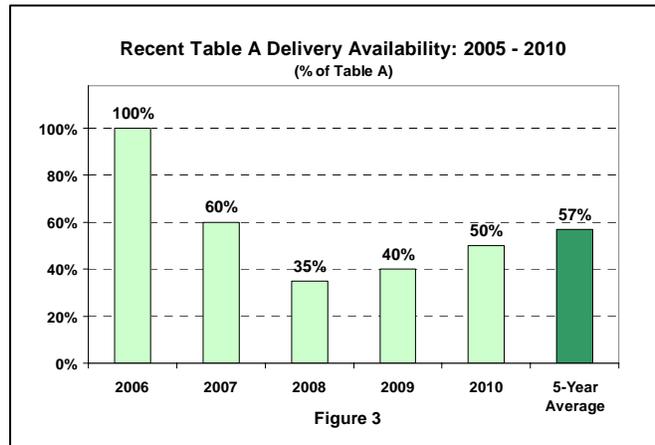
- Despite substantial efforts being made to address Delta delivery constraints, DWR's modeling assumes no improvements to the current conveyance system through the Delta. For example, there is no assumption that a Peripheral Canal or other form of "isolated facility" to convey water around or under the Delta will be in place.
- The beneficial effects of planned increases in SWP reservoir capacity are not assumed as a part of the analysis.
- Current constraints on exports, including federal biological opinions of December 2008 (Delta smelt) and June 2009 (salmon, steelhead, green sturgeon, and killer whale) are assumed to remain in place.

- The model does not assume any easing of delivery constraints associated with potential habitat improvements related to the ongoing development of the Delta Habitat Conservation and Conveyance Program, which targets the co-equal goals of ecosystem restoration and water supply conveyance.
- The model has been modified to include the projected future hydrological effects of climate change. The most important of these effects are the assumed continuation of sea level rise and a reduction in the amount of precipitation that falls as snow. The latter reduces the “storage” effect provided by snowpack and results in more concentrated runoff during winter and early spring, versus late spring and summer, which has the effect of reducing the amount of water available for delivery to SWP contractors.

Based on the above assumptions for future conditions, the 2009 report projects 6-year average annual dry period deliveries of 32% to 36% of Table A amount, median deliveries of 63%, and long-term average annual deliveries of 60%. The estimated long-term average continues a downward trend in DWR’s previous biennial reports, as shown in Figure 2, reflecting the restrictions of the biological opinions and the projected effects of climate change. Given the number of variables associated with State Water Project deliveries, staff analysis for this plan assumes annual deliveries would be limited in all years to no more than 50% of Table A amounts, reflecting experience during 2008 and 2009. This results in an average annual predicted delivery of 46% of Table A amount (also shown in Figure 2).



For comparison purposes, actual Table A availability for the past 5 years is shown in Figure 3. This period of 2005 to 2010 includes the recent statewide drought. Three of the five years were classified as “dry” or “critically dry.” The period also includes significant new restrictions in SWP deliveries due to environmental and endangered species issues. The 57% average delivery amount for this period suggests that the assumption of 46% average annual deliveries is reasonably conservative.

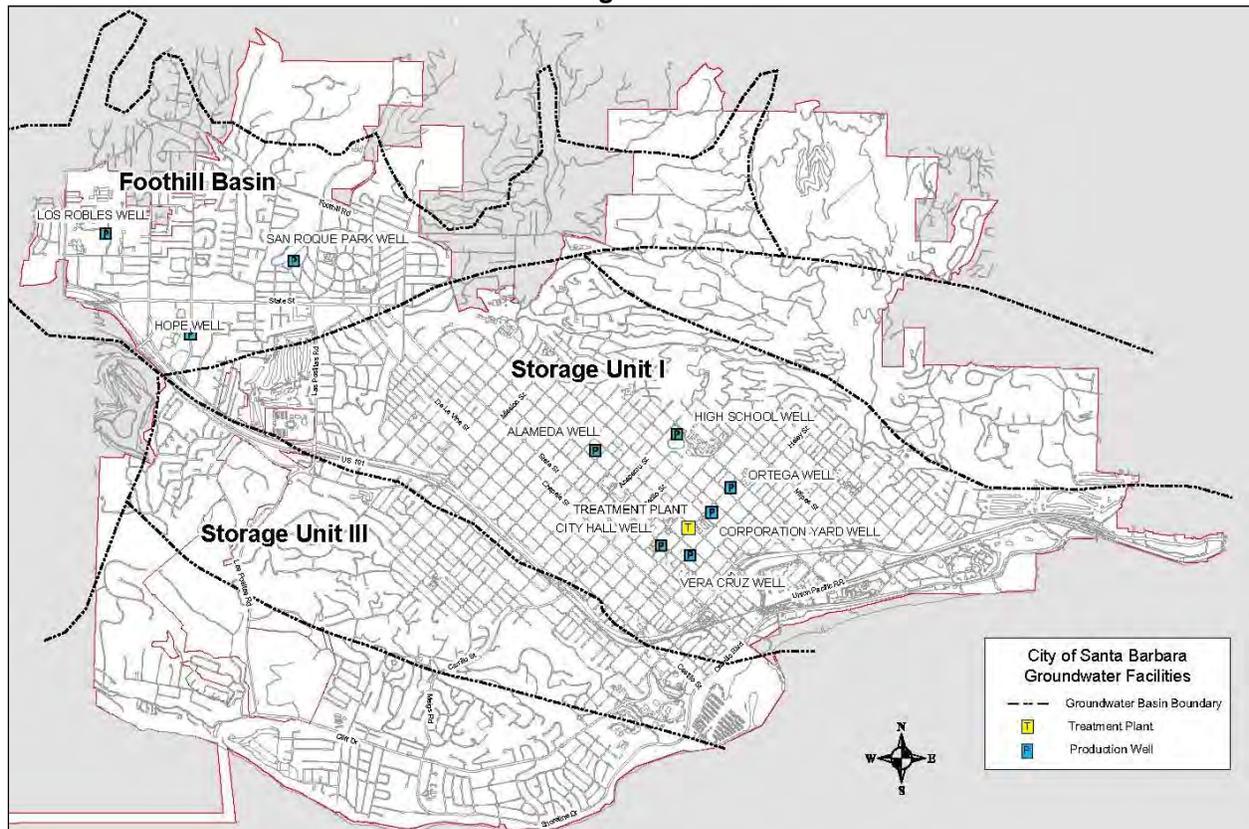


An additional important consideration is the ability of the SWP pipeline to convey non-project water to augment drought year supplies. These potential supplemental water supplies include the State's Dry Weather Water Purchase Program, purchase of unused Table A water available through San Luis Obispo County, or other open market water purchases, such as purchase of agricultural water.

## Groundwater

City groundwater supplies are produced from two basins: Storage Unit No. 1 (downtown area) and the Foothill Basin (outer State Street area) as shown in Figure 4. The City conjunctively manages groundwater supplies, withdrawing water when needed and allowing recharge to occur following drought periods. A primary goal of this program is to attempt to utilize the perennial yield of the groundwater basins, while also managing the basins to maximize available storage to act as a back-up supply during drought periods.

Figure 4



The estimated long-term safe yield of these two basins is approximately 1,800 AFY. Extraction by private pumpers is estimated at 500 AFY. The City has six production wells in Storage Unit No. 1 and three in the Foothill Basin, though the wells are in need of varying degrees of maintenance or replacement. While the estimated total pumping capacity is approximately 4,500 AFY, a capacity of 4,150 AFY is assumed for planning

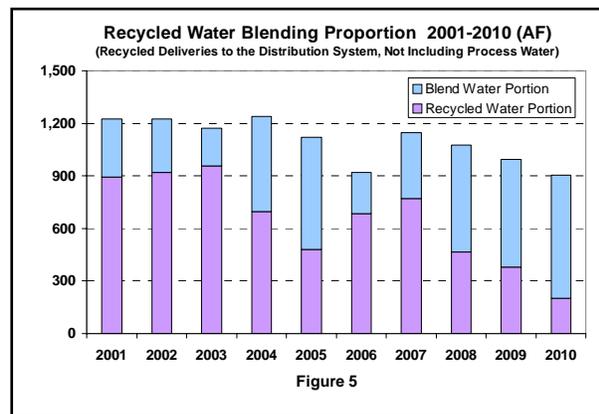
purposes. The total usable storage capacity of these two basins is estimated at 16,000 AF of City pumping. A third basin (Storage Unit No. 3 in the Las Positas Valley area) provides additional safe yield of approximately 100 AFY, but water quality is inferior and is not planned for use.

Seawater intrusion into Storage Unit No. 1 is a key issue because the groundwater basin is in contact with seawater that can flow into the basin during periods of heavy pumping. Under normal periods of little or no pumping, the groundwater flow is toward the ocean, which stops intrusion and pushes the seawater interface seaward. The City's Multiple Objective Optimization Model (developed by USGS) was used to estimate pumping levels that represent a compromise between maximizing production and minimizing seawater intrusion. The model results in total pumping of up to about 17,800 AF during the drought period, allowing some intrusion for the last portion of the drought. It should be noted that this modeling was based on one additional well in each basin, which may have implications for future capital program needs. In Storage Unit No. 1, the assumption was that new wells would be placed further inland to minimize intrusion.

### Recycled Water

Recycled water is used in the City to irrigate over 400 acres of landscaped areas (including schools, parks, the zoo, and golf courses) and for toilet flushing in some public restrooms. The City system as currently configured has the capacity to treat and deliver approximately 1,400 acre-feet per year (AFY) of recycled water. Current connected recycled water demand is approximately 800 AFY, plus approximately 300 AFY process water used at the wastewater treatment plant, leaving about 300 AFY of additional capacity.

To meet a City goal of no more than 300 mg/L of chloride during irrigation season, approximately 300 AFY of potable water has historically been blended into the recycled water. This is because blending is the least costly solution and potable water is currently available for this use. A ten-year history of blend amounts is shown in Figure 5.



*Secondary Process Issues:* Beginning in 2004, due to challenges with the secondary treatment process, blending has increased recently to approximately 700 AFY to meet regulatory requirements. Improvements to the secondary process are being evaluated to address this recent increased use of potable water for blending. Once the secondary process is resolved, it is expected that the blend water component can be reduced.

*Further Mineral Reduction:* Mineral content suitable for irrigation purposes is an important part of fully utilizing the City's recycled water capacity and a standard other than the 300 mg/L chloride limit has been considered. Carollo Engineers identified an Environmental Protection Agency guideline of 1,000 mg/L of total dissolved solids (TDS) as a possible updated standard. A Carollo Engineers study on the recycled water filter rehabilitation project identified a conceptual project to meet this target without the need for blending. For a production rate of 1,910 AFY, the demineralization component was estimated to have a capital cost of \$4.6 million. Annualized costs were estimated at approximately \$652,000 (including the capital component) resulting in added unit cost of \$341/AF of produced recycled distribution water. A blending alternative to meet the same standard is estimated to resulting in added unit cost of about \$180/AF of produced water, assuming a cost of \$600/AF for potable blend water. A modified blending alternative could involve blending only during the primary irrigation season, as is currently conducted to meet the chloride standard.

The recycled water system provides an important component of the City water supply, even with a partial potable water component for blending. In addition, the fact that users are signed up and connected to the separate recycled water system provides increased flexibility in how the City balances the economic and water supply aspects of this source of water.

### Desalination

The Charles Meyer Desalination Facility was built in 1991 at an original capacity of 7,500 AFY and has a maximum hydraulic capacity of 10,000 AFY. Sale of a portion of this facility reduced current production capacity to a maximum of 3,125 AFY, which is also the capacity identified in the environmental analysis and permitting to convert the facility to permanent status in 1996. Due to reduced demand and relatively wet weather since 1992, the facility has been kept in long-term storage mode. However, the facility is permitted as a permanent part of the City water supply under a Coastal Development Permit approved by the City and the Coastal Commission. The City's current Regional Water Quality Control Board National Pollutant Discharge Elimination System (NPDES) permit for discharge from the City's wastewater treatment plant includes provisions for discharge of brine when the desalination facility is in operation.

The construction and operation of the Desalination Facility was approved by City voters in an advisory election held in 1991. No major technical barriers have been identified that would prevent reactivation of this facility to produce 3,125 AFY if needed. Although permit requirements would be subject to review by various regulatory agencies, the City has approval of all major permits required to operate this facility.

Reactivation of the facility at a capacity of 3,125 AFY was estimated by Carollo Engineers to cost \$17.7 million. (An additional \$2.5 million in distribution system improvements that would be required to operate the facility are already planned for construction due to their value in improving overall distribution of water throughout the

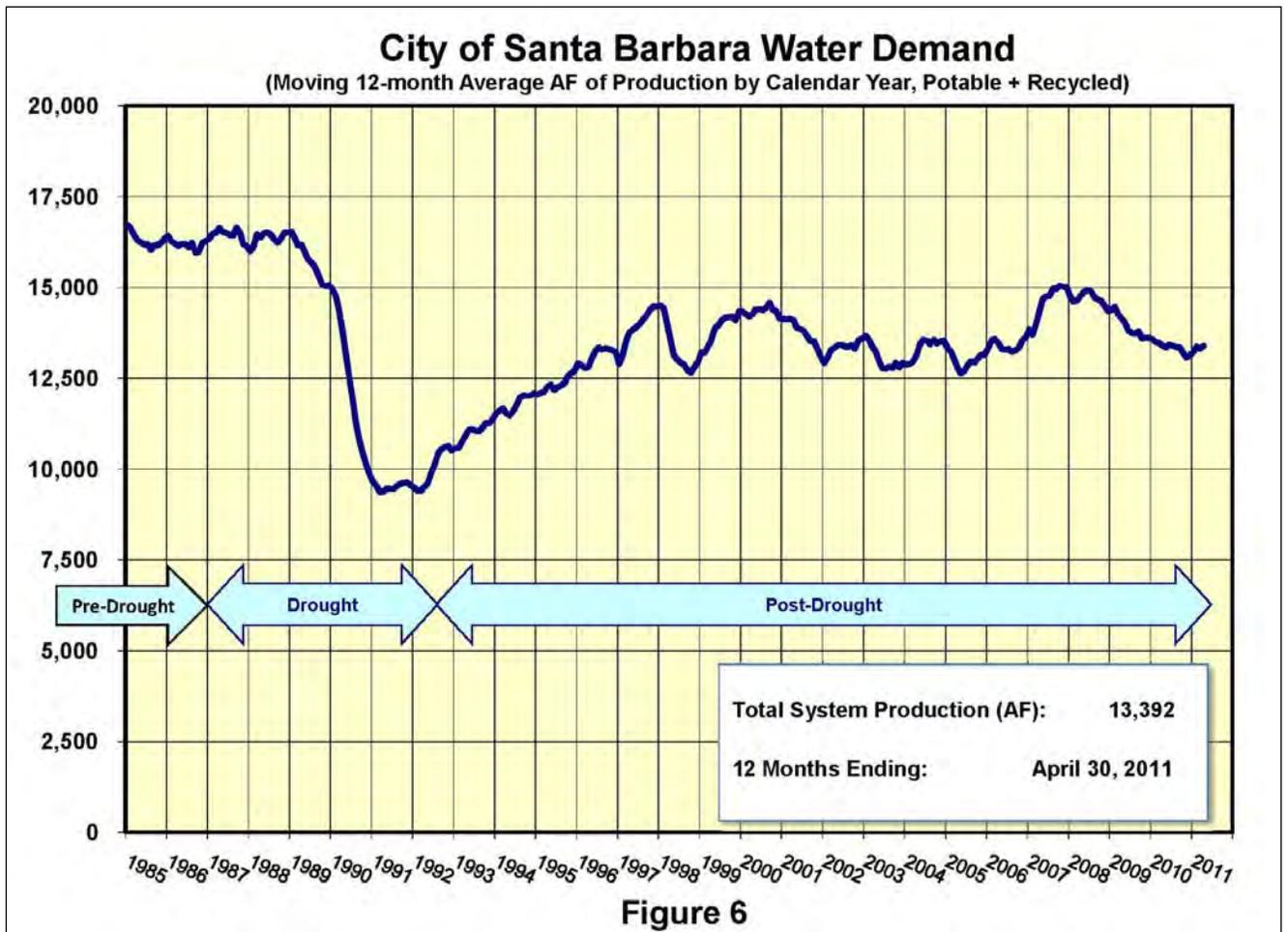
system). Operating costs are estimated to be \$1,470 per AF, compared to variable costs of about \$100 to \$700 for other City water supplies. It should be noted that desalinated water includes a substantial energy component, estimated at 4,615 kilowatt-hours (kWh) per AF of produced water. This is lower than the original facility's energy use of 6,600 kWh per AF, but still well in excess of the energy requirements for other City water supplies. Should the need arise, reactivation is estimated to require about 16 months from the time of approval of any required permits.

## Demand Management

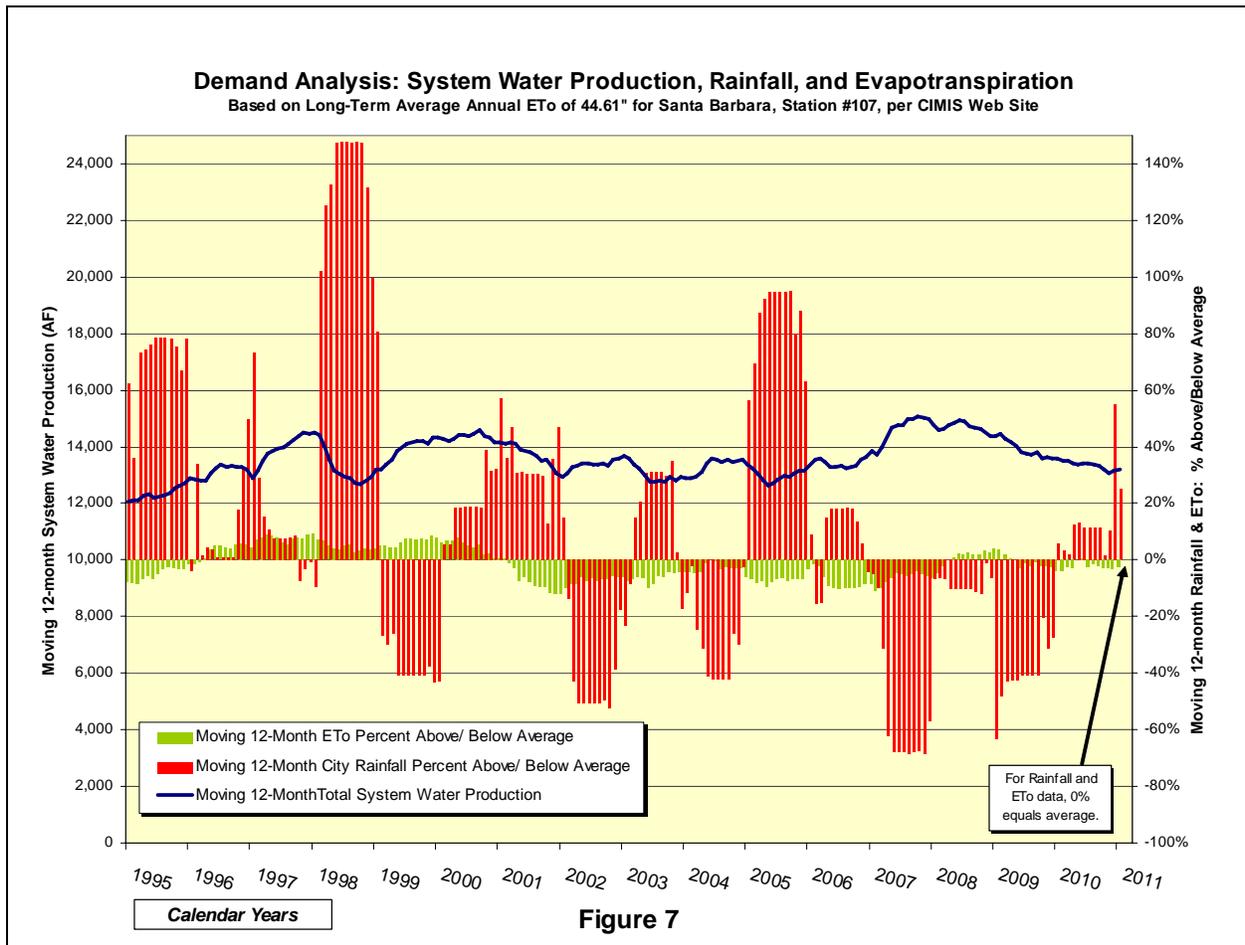
Demand management (i.e., water conservation), provides a viable alternative to the high marginal costs of procuring new water supplies or increased deliveries from the more expensive existing supplies. Projected water demand is a key input assumption of the water supply planning process. Balancing the assumptions of projected water demand with the projected water conservation savings is necessary to develop an accurate water demand forecast. This section reviews the history of the City's water demand, summarizes current water conservation efforts, and discusses recent analysis and regulations that are relevant to the anticipated level of demand during the planning period.

### Current Status

The total water system production is used to track the demand for water, since water is produced and put into the distribution system to match customer demand. The history of water demand from 1986 to present is shown in Figure 6 as a moving 12-month average.



Moderate cutbacks in response to a Stage 1 Drought are evident during 1989 and response to the Drought Emergency is reflected in significant reductions during 1990. From 1992 to 1998, a steady post-drought recovery occurred, followed by a period of generally flat demand, but with significant fluctuations from year to year. To analyze this period of fluctuations, staff began tracking demand in relation to rainfall and evapotranspiration (ETo) data, as shown in Figure 7.



This information suggests that weather based fluctuations are the predominant effect on water demand. It is used to help estimate the “normal year” demand (i.e., approximately average rainfall), as the basis for planning water supply and estimating revenues.

Under the 1994 LTWSP, the City’s water supply was planned to meet a total water system demand of 18,200 AFY. This number was derived as 17,900 AFY of demand projected during the 1989 update of the City’s General Plan, plus a 10% safety margin, for a total of 19,700 AFY, minus an assumed “supply” of 1,500 AFY from new water conservation (some rounding included). Demand without safety margin for the end of the period was projected to be 16,400 AFY, including the assumed effects of water conservation. As the 1994 LTWSP planning period comes to an end, the normal year

demand is approximately 14,000 AFY, about 2,400 AFY less than projected. Demand for the 2010 water year, with rainfall about 12% above average, was 13,347 AFY.

The significant reduction in current demand compared to pre-drought levels can be attributed to a number of factors:

- An aggressive water conservation program;
- Less actual development than was projected;
- The cumulative effects of stricter plumbing codes and appliance standards on both new and existing development, and
- The relatively high cost of water, accentuated by the block rate pricing structure that charges a higher unit rate for higher levels of water usage.

The City's Water Conservation Program has developed into a comprehensive demand management effort. An important focus of the water conservation program has been to comply with, and to help shape, the Best Management Practices for Urban Water Conservation (BMPs) administered by the California Urban Water Conservation Council (CUWCC). These BMPs constitute the officially recognized standard for urban water conservation. Implementing the BMPs satisfies contractual requirements associated with the Cachuma Project. The BMPs have become a requirement for water utilities to remain eligible for state and federal loans and grants and Urban Water Management Plan acceptance. The City has been a signatory to the CUWCC Memorandum of Understanding Regarding Urban Water Conservation since 1992 and has worked with CUWCC to insure that the BMPs are practical and effective in achieving cost effective conservation savings.

Highlights of the water conservation program include:

- A broad selection of up-to-date print and on-line information on indoor and outdoor water conservation for both homes and businesses, including water wise plant selection, on-line irrigation scheduling tools, sustainable landscaping, high efficiency appliances, and water use awareness;
- Rebates for installation of water wise plants, smart irrigation controllers, and efficient irrigation systems, as well as high efficiency toilets, urinals, and clothes washers;
- A youth education program for elementary and secondary students, including classroom presentations, curriculum, treatment plant tours, and assemblies;
- The Green Gardener program, which trains landscape maintenance professionals in resource efficient and pollution prevention landscape maintenance practices;

- Practical guidelines and ordinances that reflect current technology for water conservation, including the City’s Landscape Design Standards for Water Conservation;
- Targeted billing system analysis to reach customers with particularly high water usage, with an emphasis on providing site-specific landscape water budgets and real-time irrigation demand information; and
- A residential and commercial customer assistance program, providing free water check-ups to evaluate all water uses on the property and make recommendations for improved indoor efficiency, water wise plant selections, and irrigation system upgrades.

The current program is outlined in more detail in Appendix A (Water Conservation Program Summary).

City General Plan Growth Policies

Growth policies and projections analyzed for the City’s General Plan update process (*Plan Santa Barbara*) were used as the basis for projecting water demand through the end of the planning period. Under proposed General Plan policies, development of up to 2,795 new dwelling units (DU) and 2.0 million square feet of new non-residential development are projected to occur within the City limits by the year 2030. Water demand for these projections is estimated as follows, based on recently updated aggregate demand factors for applicable customer classes:

Single Family Residential:	13% of 2,795 DU = 363 DU X .40 AFY/DU =	145 AFY
Multi-Family Residential:	87% of 2,795 DU = 2,432 DU X .16 AFY/DU =	389 AFY
Non-Residential:	2,000,000 ft <sup>2</sup> X .13 AFY per 1,000 ft <sup>2</sup> =	260 AFY

When 100 AFY of demand from projected added demand outside the current City limits is included (e.g. for annexations to the City), the result is a projected new demand of about 895 AFY. It is important to note that using current aggregate demand factors to project future demand can be expected to overestimate demand for new development. This is because new development will be subject to new codes and standards, while aggregate demand includes a significant portion of the building stock constructed under older standards.

## State and Federal Requirements

A number of factors at the State and Federal levels will affect water demand in the future:

*CUWCC BMP's:* As noted above, the City's ongoing implementation of the BMP's can be expected to continue to exert a downward pressure on water use.

*State & Federal Plumbing Codes:* Currently, Federal plumbing and appliance efficiency standards require 1.6 gpf toilets, 1.0 gpf urinals, and 2.5 gpm showerheads. Effective 2014, all toilets and urinals sold in California will need to meet the new standards of 1.28 gallons per flush for toilets and 0.5 gallons per flush for urinals. This change will affect demand from new development, as well as demand from existing development as older fixtures are gradually replaced with models meeting the new standards. As required by the legislation, compliant models are already on sale in California at major retail and wholesale outlets. In addition, the California Green Building Standards have recently become effective and now essentially mandate the above standards for new construction. Additionally, after July 1, 2011, the 2010 California Plumbing code will require installations of 1.28 gpf toilets and .5 gpf urinals for all residential occupancy remodels. These include single family residential, dorms, hotels, apartments and basically any structure where overnight sleeping takes place.

*S.B. 407 Fixture Replacement:* Recent State legislation requires that new building owners be notified if the property does not have high efficiency fixtures. Implementation requirements are still unclear, but this can be expected to further the pace of conversion to high efficiency plumbing fixtures.

*California's 20 X 2020 Requirement:* In 2008, the Governor initiated a goal of 20% reduction in per capita urban water use by 2020. In 2009, the legislature adopted this goal into law by passing the Water Conservation Act of 2009 (SBx7-7). The penalty for non-compliance is ineligibility for State grants and loans. The focus is on public potable water distribution systems only. As such, the use of recycled water helps toward meeting the requirement. Targets were established by hydrologic regions, with several options for defining the baseline and the eventual 2020 target of per capita water use. The most suitable option for the City is "Method #3" in the legislation. This results in a baseline of 154 gallons per capita per day (GPCD) and a 2020 target of 117 GPCD. The 2009 potable per capita demand for the City was 130 GPCD, as calculated in compliance with the legislation.

## Water Conservation Technical Evaluation

In preparing this plan, it was important to evaluate all of the above factors and determine to what extent additional water conservation could be relied upon during the planning period. This is in the context of meeting the State requirements of 20 X 2020

for per capita water use, meeting the CUWCC BMP requirements, and for properly identifying a cost effective role for water conservation in avoiding water supply costs.

Maddaus Water Management (MWM) is an engineering firm that is widely recognized as expert in estimating the costs and benefits of water conservation measures. MWM was hired to analyze the City's existing conservation program and use its proprietary Demand Management Decision Support System (DSS) to model current and potential conservation measures. The DSS also quantified the demand reduction effects of these measures along with the effects of plumbing codes and appliance standards. The process evaluated 92 potential measures which were screened for several factors to identify 23 that are most appropriate for Santa Barbara water customers. These 23 measures were inserted into the model, along with detailed information about the City's customer base and demand history. The project is described in more detail in the Executive Summary of the project report included as Appendix B (Water Conservation Technical Evaluation – Executive Summary). Key findings, including the effect of assumed development consistent with the Plan Santa Barbara process, are as follow:

- The 2030 demand would be expected to increase by 1,202 AFY (compared to the 2006 model reference point of 13,623 AFY) to 14,825 AFY, if the effects of already adopted plumbing codes and appliance standards were not considered. (It should be noted that this is not a projection that will actually occur, but it is a useful reference point to illustrate the ongoing effect of stricter codes and standards on both new and existing development.)
- The effects of the plumbing code and appliance standards are estimated to reduce 2030 demand by 919 AFY, to 13,906 AFY, not including the effects of conservation program activities and measures.
- Conservation Program B, which includes current conservation program measures along with those that together meet a utility benefit-cost ratio of 1.0, is estimated to reduce demand by an additional 498 AFY, to 13,408 AFY.

The benefit-cost ratio was calculated on the basis of an avoided cost of \$600 per AF, which is an average of the variable costs associated with State Water Project Table A deliveries, groundwater produced from the Ortega Groundwater Treatment Plant, and deliveries of purchased water through the State Water Project during non-critical drought periods.

Figure 8

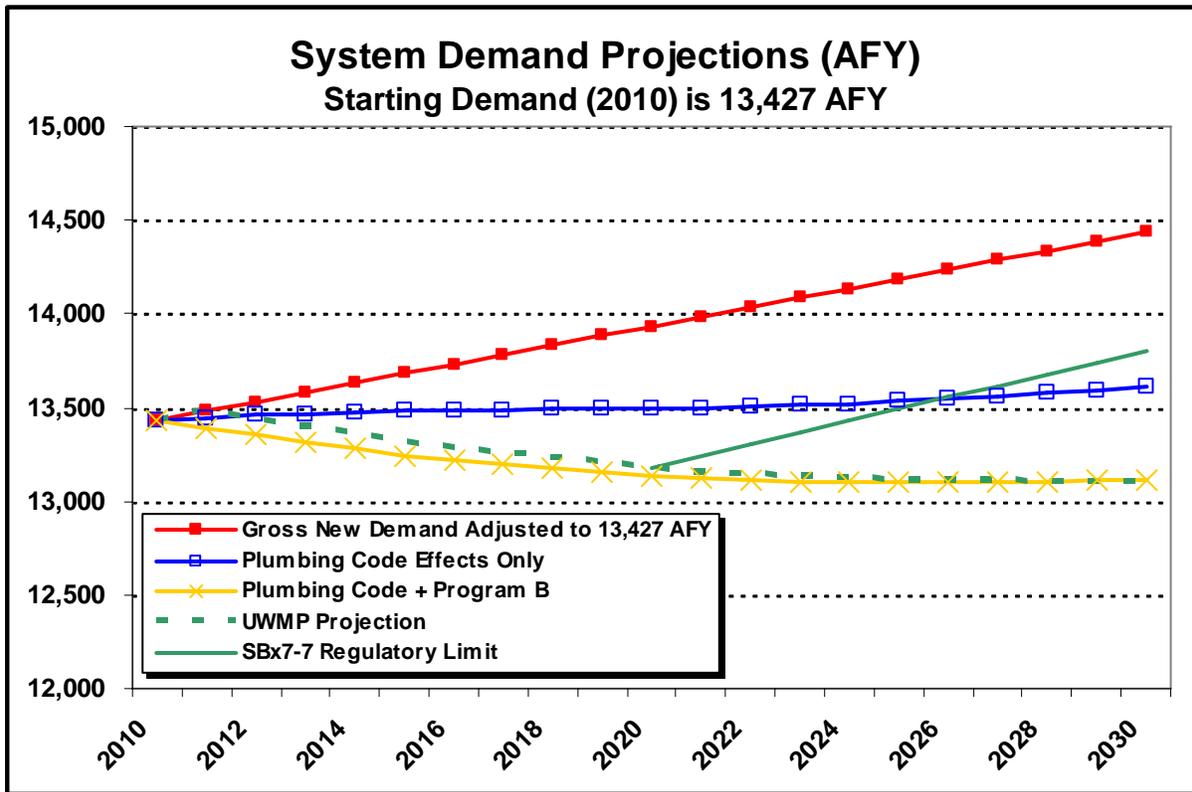


Figure 8 shows demand projections reflecting the various factors that will influence the City's actual water demand over the course of the planning period. These are based on the modeling results from the Maddaus report, adjusted to a reference point equal to the Fiscal Year 2010 total system demand of 13,427 AFY.

### Primary Planning Issues

Given the water supply as described above, there are several key issues that shaped the water supply policies contained in this plan, as discussed below.

#### Planned Duration of Critical Drought Period

The critical drought period for the City's water supply occurs when there are multiple consecutive years of below average rainfall. This is due to the particular hydrology of the Santa Ynez River, where little or no inflow to Lake Cachuma typically occurs until at least average rainfall has occurred. When this condition of average or less rainfall continues for multiple years in succession, the storage level of Lake Cachuma drops and shortages in deliveries occur. Based on historical data, the critical drought period has had a duration of five years.

Climate change has the potential to impact the water supply, though it is still unclear whether this will have a significant effect during the planning period. To the extent information is available for the local area, overall rainfall amounts would be expected to be similar to recent history, but an increasing frequency of extreme rainfall events can be expected. This has the potential to result in an extended irrigation season with some associated increase in demand. From a water supply perspective, more concentrated rainfall events may have the benefit of increased inflow to Lake Cachuma. Guidance from the State planning agencies is that California can expect a 20% increase in both the frequency and the duration of dry periods. For the City's water supply this would suggest a critical drought period frequency of perhaps once every 30 years, instead of 40 years, and a duration of 6 years, instead of 5 years. Even though climate change impact information is incomplete and still undergoing critical review, the six-year drought period is a reasonable test and staff has used it for critical drought period analysis of the water supply.

### Role of Desalination

The City's desalination facility is a vital resource as a back-up for potential prolonged drought and unforeseen interruptions of the water supply and would help mitigate the economic impact of such situations. It is also a reliable source of water, once in operation. However, as noted above, reactivation of the facility will result in significant costs, if only for the planning and design work that would be needed to start the process. In recent years, a dry period of only three years has been enough to trigger the start of planning to reactivate the facility in case of continuing dry weather. In 2004, after three years of drought, the storage level at Lake Cachuma had been reduced to about 70,000 AF out of 190,000 AF (37% of capacity) and the City was beginning this process of planning for reactivation.

As a result of discussion of this issue between staff and the Water Commission, the water supply has been modeled to stretch available Cachuma supplies over a potential 6-year drought period, with the goal of deferring the reactivation process, i.e. to plan for operation in the sixth year of a critical drought period instead of the fifth year. This would reduce the frequency of the planning and design effort, as well as reducing the likelihood that the substantial expense of actually reactivating the facility would be needed. This is another basis for the six-year critical drought period used in performance modeling.

### Sedimentation Management at Reservoirs

Reservoirs on the Santa Ynez River are vulnerable to loss of storage capacity due to siltation, as are reservoirs throughout the west. Reduced storage capacity reduces the yield of a reservoir. At Gibraltar Reservoir, efforts to maintain storage capacity by dredging have had marginal impact and high cost. There has been some interest on the part of federal agencies to cooperate in vegetation management using controlled burns, but budget issues have made this unlikely to occur. Implementation of the Pass

Through provisions of the Upper Santa Ynez River Operations Agreement will essentially stabilize Gibraltar deliveries at a level close to historical amounts, despite continuing sedimentation. Still, an updated analysis of potential alternatives for managing sediment will be useful.

Efforts to control sedimentation at Lake Cachuma will require a joint effort among the Cachuma Project members, the downstream water users, and the various state and federal agencies that would have responsibility for permitting and/or implementing measures to address siltation. Issues related to such efforts are likely to be shared with numerous other reservoirs throughout the state, meaning that a coordinated statewide effort may be appropriate.

### Groundwater Management

The City has initiated a three-year USGS study to update the groundwater flow and water quality models to allow more accurate management of groundwater. Better indicators of basin fullness are expected to be developed. More importantly, the modeling of seawater intrusion effects in Storage Unit No. 1 is expected to be made more accurate. This will guide placement of new wells in the basin, assist with scheduling well operation to minimize intrusion, and provide the ability to estimate the benefits of groundwater recharge for basin replenishment and creating barriers to seawater intrusion. In addition, the City should formalize its groundwater management role by developing a Groundwater Management Plan in accordance with State regulations.

### Recycled Water Expansion

Recycled water is a relatively expensive source of water, but it is a reliable way to extend potable water supplies, thereby deferring the expense of procuring additional potable supplies. Additionally, increased recycled water connections will allow flexibility in meeting regulatory demand management requirements, such as the statewide requirement to reduce gross daily per capita water consumption. Current recycled water system capacity is 1,400 AFY, and current demand includes 800 AFY of retail demand and about 300 AFY of process water at EEWTP, for a total of 1,100 AFY. Carollo Engineers identified about 300 AFY of potential new users of recycled water, some adjacent to the existing system and some that could be served with extensions of the distribution system. These opportunities are being evaluated for their potential to cost effectively improve the reliability of the City's water supply and aid in meeting the state mandate on per capita water use. A caveat is that such expanded use will be more difficult to achieve if the mineral content is not reduced below that of the raw wastewater that feeds the recycled water system.

## Water Supply Performance

The charts included as Appendix C are based on a worksheet developed by staff to simulate the City's water supply using the long-term model results from the Santa Ynez River Hydrology Model and other delivery assumptions as described above. An additional hypothetical year was added at the end of the 1947-1951 drought to simulate the 6-year critical drought period. For this sixth year, deliveries from Gibraltar, Mission Tunnel, and SWP are assumed to be the average of the preceding five years of drought. Cachuma is assumed to have negligible inflow during year six and the 5-year modeled yield is stretched out over the 6-year period. The charts illustrate how the City's water supplies would be used in the most cost effective manner to meet the projected demand during varying water supply conditions, ranging from very wet to very dry. The worksheet was used to explore the potential to defer the use of desalination at least until the sixth year of a drought. Three conditions are represented:

- The first represents "Current Conditions", with Cachuma entitlement of 8,277 AFY and no use of the safety margin.
- The second represents the near-term condition with Cachuma entitlement also at 8,277, but with a 10% safety margin included.
- The third represents 2030 conditions, with projected future Cachuma entitlement at 7,863 AFY and 10% safety margin included.

Planned demand reductions during the critical drought period are set at 10% in year 4, 15% in year 5, and 15% in year 6.

The worksheet uses a projected system demand of 14,000 AFY (plus safety margin as specified above), based on the combined effects of new development during the planning period, reductions in water use due to updated plumbing codes and appliance standards, the effects of the City's water conservation program, and the statutory requirement to meet a reduction in per capita daily water use by 2020.

A category called "Drought Supplies" is used to indicate water that would be used defer the use of desalination, either from unused State Water that is banked for use during dry periods or from the purchase of water during the critical drought period. The worksheet estimates that approximately 4,400 AF of unused State Water would be available for banking if contractual arrangements could be made to store the water for future use. Assuming a 50% deduction for the service of banking the water, about 2,200 AF of water would be available to meet the need for drought supplies. Water purchases would be pursued if additional water were needed. The desalination facility is proposed to remain a part of the City's water supply and would be used, if needed, to address shortages remaining after the use of banked water and purchased water.

The worksheet uses supplies as needed to meet the target demand according to the following sequence of priorities:

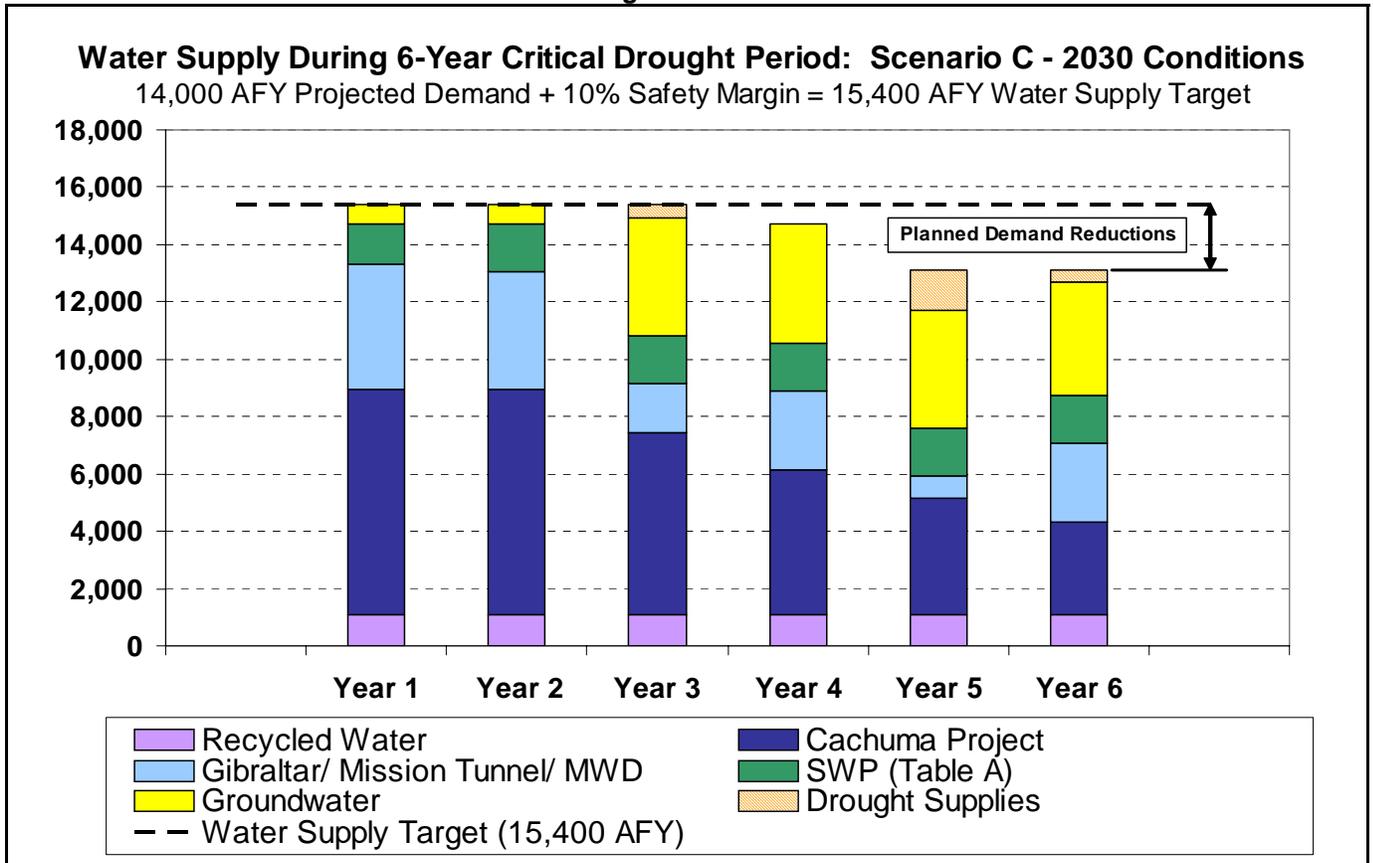
1. All available water from Gibraltar, Mission Tunnel and the Montecito Water District transfer, plus the 1,100 AFY of recycled water;
2. Minimum groundwater usage of 700 AFY;
3. The City's "exchange water" obligation of SWP Table A water (600 AFY);
4. Available Cachuma entitlement (except that remaining SWP Table A water is taken in year 2 and later to preserve available Cachuma water);
5. Remaining available SWP Table A water;
6. Added groundwater pumping up to the maximum amount of 4,150 AFY, subject to a cumulative pumping limit to minimize seawater intrusion;
7. Deliveries of "Drought Supplies" (banked water or purchased water to the extent available) through SWP facilities; and
8. Desalination (if necessary).

The worksheet is set up to take Planned Demand Reductions in years 4, 5, and 6 prior to taking delivery of Drought Supplies. The cumulative drawdown of available groundwater is tracked.

The water supply charts illustrate that the City's water supply can be met in most years with limited groundwater pumping, an average of only about 75% of available State Water, no drought supplies (banked water, purchased water, or desalination), and no need for extraordinary demand reductions. The real test of the water supply is the six-year critical drought period, beginning with model year 1947. Note that the sixth year is a hypothetical year that extends the historical 5-year drought to a 6-year drought. The 6-year critical drought period for 2030 Conditions (Scenario C) is highlighted in Figure 9. Key points illustrated include:

- Years 1 & 2: much like any non-drought year (mostly surface water, plus limited groundwater pumping);
- Year 3: Cachuma deliveries reduced to stretch remaining supplies; maximum groundwater pumping begins; small amount of Drought Supplies required;
- Year 4: First year of Planned Demand Reductions (4% of allowed 10%); further reduction at Cachuma is offset by some increased inflow at Gibraltar; no Drought Supplies required;
- Year 5: 15% Planned Demand Reductions; 1,364 AF of Drought Supplies taken; zero water delivered from Gibraltar; and
- Year 6: 15% Planned Demand Reductions; maximum pumping constrained slightly by the cumulative limit; some Drought Supplies required as a result; rainfall provides water from Gibraltar, but not enough to increase Cachuma deliveries.

Figure 9



## Water Supply Policies

This plan has been developed to evaluate the adequacy and reliability of the City's water supply and provide a long-term view of how the City's water supplies will be managed. It is based on the best currently available projections and assumptions, and is to be considered a plan, not a prescription. New information or conditions may necessitate adjustments or new policy direction. Based on the information contained and referenced herein, the City's water supply management program will be guided by the following policies:

1. Safety Margin: A safety margin of 10% above projected demand will be used for planning purposes to accommodate unplanned increases in demand or decreases in available supply.
2. Demand Reductions During Drought: Planned short-term reductions of up to 15% in customer demand will be a part of the City's response during a critical drought period. Such reductions will be in addition to the ongoing promotion of long-term water use efficiency and will be achieved by measures such as restrictions on landscape irrigation and other water uses, a modified water rate structure, and intensive public information efforts to promote the community goal of reduced water use. This policy of planned cutbacks is established in recognition of short-term elasticity in customer demand that can be tapped during rare emergency conditions to avoid the cost of 100% reliability of the water supply.
3. Recycled Water: State and City regulations requiring use of recycled water where available will be implemented. Capacity in the City's recycled water system will be utilized to continue to serve existing connected demand plus an additional 300 AFY of expanded use, for a total of approximately 1,100 AFY, in addition to recycled water used for process water. The use of potable water for blending will be tracked and reported annually. A contingency plan for eliminating the need for blending will be developed for implementation based on economic, regulatory or water supply requirements. The City's goal is to be able to deliver recycled water to its customers, without blending, by the end of the planning period. Status of this goal will be reported at five-year intervals as a part of the City's Urban Water Management Plan updates.
4. Water Conservation: The City will operate a water conservation program aimed at minimizing the use of potable water supplies, meeting the requirements of the California Urban Water Conservation Council Best Management Practices, and achieving compliance with 20 X 2020 per capita water use limitations. Conservation measures will be evaluated for cost effectiveness based on avoided cost of additional water supplies.
5. Groundwater Management: Groundwater production capacity of at least 4,125 AFY will be maintained in Storage Unit No. 1 and the Foothill Basin to augment

depleted surface water supplies during a severe drought. Ongoing modeling will assess strategies for groundwater management, including optimal use of available recharge, injection of potable water for artificial recharge, and injection of recycled water as a barrier to sea water intrusion. Sites for new or replacement production wells will be evaluated with the goal of minimizing sea water intrusion. The City will develop a Groundwater Management Plan, consistent with state law, to provide for the orderly and responsible use of the City's groundwater resources.

6. Gibraltar Pass Through Operations: Pass Through operations will be implemented for storage of Gibraltar water in Lake Cachuma, pursuant to the 1989 Upper Santa Ynez Rive Operations Agreement. An updated analysis of sedimentation management will be conducted to assess whether efforts to arrest or reverse the sedimentation process at Gibraltar Reservoir are feasible.
7. Sedimentation Management at Lake Cachuma: To address ongoing reduction in capacity at Lake Cachuma due to sedimentation, the City will promote development of a long-term strategy to minimize sedimentation in conjunction with Cachuma Project Member Units and other appropriate parties and agencies, including state and federal agencies.
8. Water Banking: The City will investigate opportunities to bank unused State Water, with the goal of using this water to reduce the amount of drought water purchases that may be needed during a critical drought period, and deferring the potential need for production from the desalination facility at least until the sixth year of a critical drought period.
9. Desalination Facility: The City's desalination facility is an important component of the City's water supply, despite the significant cost of activating and operating the plant. The desalination facility will be retained as an official part of the City's water supply for use as may be needed during extended drought.
10. Water Supply Reliability: The City will adequately fund the maintenance, rehabilitation, and replacement of the water conveyance and distribution infrastructure to provide reliable delivery of the City's water supplies and prevent increased costs from deferred maintenance. In addition to planning for periodic droughts, the City will develop an emergency water supply plan to address catastrophic interruption of water supplies due to earthquake, South Coast Conduit failure, or other disaster that could interrupt the City's ability to convey water from the Santa Ynez River for a substantial period of time. The groundwater production capacity identified for drought response will also be maintained for response on short notice to such catastrophic interruptions.
11. Management of Water Fund Assets: Land and equipment assets purchased with Water Fund resources will be managed for the purpose of optimizing the economic and sustainable operation of the water system.

12. Monitoring and Reporting: Ongoing monitoring and reporting of the City's water supply status will be conducted, including annual reports to City Council on the near-term drought outlook, preparation of 5-year updates of the City's Urban Water Management Plan, and an update of this plan in approximately 2030, or sooner as may be appropriate.

Finding

Based on implementation of the above policies, the City's water supply is determined to be adequate to serve anticipated demand for the duration of the planning period.

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Appendix A:

City of Santa Barbara  
Water Conservation Program

Program Summary

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**City of Santa Barbara Public Works Department  
Water Resources Division**

**WATER CONSERVATION PROGRAM SUMMARY  
February 2011**

The City of Santa Barbara is a long-term leader in water conservation. The City's Water Conservation Program began as a response to the drought in the late 1970's. In 1988, the Water Conservation Program was increased as a result of the recommendations from the City's Five-Year Water Policy Action Plan. As a result of the 1986-1991 California Drought, the City accelerated implementation of the Water Conservation Program.

The City's current Water Conservation Program is a combination of the City's commitment to carrying out the California Urban Water Conservation Council's (CUWCC) Best Management Practices and the City's dedication to water conservation as a element of the City's water supply plan. The City joined the CUWCC in January 1992 as a result of signing the Memorandum of Understanding Regarding Urban Water Conservation. Since that time, the City has been actively carrying out the Best Management Practices. Below is a description of the City's Water Conservation Program.

**Foundational BMPs**

**BMP 1. Utility Operations Programs**

**BMP 1.1 Utility Operations Practices**

**1. Conservation Coordinator**

The City's Water Conservation Program staff includes the FTE of one Water Resources Specialist, administrative support from one Senior Office Specialist, and 10 hours per week from a temporary Water Resources Technician.

**2. Water Waste Prevention**

City Ordinance No. 4558, adopted on February 1989, prohibits the waste of water defined as gutter flooding and failure to repair leaks in a timely manner.

**BMP 1.2 Water Loss Control**

Annually City completes the standard water audit and balance using the AWWA Water Loss software. The City's system unaccounted loss is ~1%. The City implements an annual water main replacement program. Age, material, and break history of water mains are tracked to determine overall condition of main in order to determine the priority of mains to be replaced. The City replaces three miles per year of the 275 miles of main in the distribution system.

**BMP 1.3 Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections**

City meters all customers and has an inclining block rate structure.

**BMP 1.4 Retail Conservation Pricing**

City has an inclining block rate structure.

## **BMP 2. Education Programs**

### **BMP 2.1 Public Information Programs**

Water Conservation Hotline. The Hotline handles the incoming calls for the Water Conservation Program. Hotline staff schedule water checkups and provides administrative assistance to the Conservation Program.

Website. The City's Water Conservation Programs website is [www.savewatersb.org](http://www.savewatersb.org). Additionally the City promotes the regional water conservation program website, [www.sbwater.org](http://www.sbwater.org).

Water Conservation Brochures and Handouts. Brochures and handouts are distributed both hard copy and via the website on indoor water conservation, efficient irrigation and sustainable landscaping.

Video Loan. Videos on sustainable landscaping, water conservation, efficient irrigation, and water supply are available to the public to loan.

Media Campaign. An annual media campaign is implemented in conjunction with the Santa Barbara County Water Agency and funding from water purveyors countywide.

Water Bill Message. A monthly water conservation message is printed directly on the water bill.

Demonstration Gardens. The Water Conservation Program has two low-water using demonstration gardens, at Alice Keck Park Memorial Garden in conjunction with the Parks Department and the Firescape Garden in conjunction with the Fire Department.

Garden Wise Guys. Garden Wise Guys a thirty-minute television show about designing & maintaining a sustainable landscape. The quarterly show is produced by City TV and funded by the Santa Barbara County Water Agency, the City of Santa Barbara Public Works Department, and the Goleta Water District. It is hosted by two local landscape architects: Owen Dell and Billy Goodnick. With a unique sense of humor, the Garden Wise Guys will give viewers the basic information they need to start making changes in their own yard.

Water Wise Gardening for Santa Barbara County CD and Website.

A free "tool" for water wise gardening—a compact disc and website of gardening information tailored to our climate and our need for water conservation, titled "Water Wise Gardening in SB County". Available on CD or online at [www.savewatersb.org](http://www.savewatersb.org) or [www.sbwater.org](http://www.sbwater.org), it includes: extensive database with searchable information on over 1,000 water wise plants; more than 300 photos grouped into garden tours and garden galleries, all from local gardens Countywide; helpful facts, resources, and guidance on gardening design and practices; and links to other useful sustainable gardening sites.

### **BMP 2.2 School Education Programs**

Water education presentations are given in approximately 90 classes and summer camps per year. Water education materials are provided to schools. Tours of the City's water treatment facilities with free bus transportation are provided. The City participates in the Annual Water Awareness High School Video Contest.

## **Programmatic BMPS**

### **BMP 3. Residential**

#### **Residential Assistance Program**

The City's Water Resources Specialist conducts residential water surveys (water checkups) upon request by water customers. A water checkup includes evaluating all water uses on the property including, and providing recommendations to the customer for improved efficiency including both indoor usage, evaluating irrigation system, and specific recommendations on improvements and upgrades.

#### **Landscape Water Survey**

As an element of the water checkups staff performs site-specific landscape water surveys that include checking the irrigation system for maintenance and repairs, reviewing the irrigation schedule and making recommendations for adjusting program of irrigation controller, providing customer with evaluation results and water savings recommendations.

The City has conducted an average of 400 water checkups per year for a total of 9,290 surveys since June 1990 (this includes both residential and commercial water checkups.) Savings for this program is projected to be 400 AFY for the 20 year period as projected in the LTWSP.

#### **Smart Rebates Program**

The Smart Rebates Program is co-funded through Proposition 50 grant received by the California Urban Water Conservation Council (CUWCC) and participating water suppliers throughout California. The Program provides rebates for water users to improve their efficiency through appliance and equipment retrofits and replacements. The City is participating with water broom (high efficiency pavement washers) rebates at \$50 each, high efficiency clothes washer rebates at \$150 for residential customers, and \$400 for commercial customers; high efficiency toilet rebates at \$100 for residential customers and \$200 for commercial customers; and waterless or high efficiency urinal rebates at \$300 for commercial customers.

## City's Water Conservation Program

The City's Toilet Rebate Program was in place from August 1988 through June 1995. An \$80 rebate was issued per toilet retrofitted to a 1.6 gallon or less per flush toilet. The rebate was reduced to \$40 for the period July 1994 to June 1995. The total number of residential rebates that were issued is 18,842.

### **BMP 4. Commercial, Industrial and Institutional**

#### Commercial Water Checkups

As mentioned in the Residential BMP section, water checkups are offered for both commercial, industrial, and residential customers.

CII Toilet Rebates. 2,995 toilets at commercial sector sites were retrofitted during the City's Toilet Rebate Program from August 1988 through June 1995.

Save Water, Save a Buck CII Rebate Program. This rebate program offered rebates for the installation of water efficient fixtures for CII water customers and was coordinated by the Santa Barbara County Water Agency. Rebates issued through this program: toilets (1.28 gpf) = 80, (1.6 gpf) = 25, urinals = 21, and clothes washers = 32.

#### Smart Rebates Program

Currently commercial high efficiency toilets, waterless and high efficiency urinals, high efficiency clothes washers, and waterbroom. See information on Smart Rebates Program in Residential BMP section.

Rinse and Save Pre-rinse Spray Valve Program. Through *Rinse & Save*, an innovative door-to-door installation program, restaurants in the City received a free 1.6 gpm pre-rinse spray valve. 199 spray valves were installed in the City in 2003, and 104 from January to September 2005, for a total of 303. Each replaced valve will save approximately one acre foot (326,000 gallons) of water over five years. *Rinse & Save* Program is administered by the CUWCC and funded by a grant from the California Public Utilities Commission and the participating agencies.

Lodging Industry Water Conservation Program consists of table tents and door hangers encouraging patrons to conserve water for lodging industry as well as educational videos for lodging industry staff.

Restaurant Table Cards are provided which inform restaurant customers that water will be served upon request.

## **BMP 5. Landscape**

### Smart Landscape Rebate Program

The Smart Landscape Rebate Program offers rebates to increase water efficiency in both the commercial and residential landscapes. Rebates on approved irrigation equipment and landscape materials will be up to 50% of material costs. Rebates are available for up to \$1,000 for single family homes and up to \$2,000 per account serving irrigated area (\$4,000 per site) for commercial, multi-family, and HOAs. Rebate will cover: drip irrigation parts, sprinkler system efficiency retrofits and rotating sprinkler nozzles; water-wise plants and mulch; and smart irrigation controller. The process is 3 steps: a pre-inspection, a 60 day window to complete the approved projects and then a post-inspection. Since the program began in April 2009, there have been 146 participants, with 86 properties completing the rebate process to date.

### California Landscape Budgets Program (CLBP)

This program provides monthly water use reports via [www.landscapebudgets.com](http://www.landscapebudgets.com) for the properties served by dedicated irrigation meters and compares the usage to a weather-based water allocation calculation. The goal is to provide education to the customers, as well as monthly reporting, identifying ways to help customers irrigate more efficiently. Currently, all City dedicated landscape irrigation meters billing is based on a water budget calculated from historical evapotranspiration data.

### Green Gardener Program

The City of Santa Barbara and the Santa Barbara County Water Agency began in March 2000 the Green Gardener Program (GGP) along with eleven other partnering agencies and organizations. The GGP trains gardeners in resource efficiency and pollution prevention landscape maintenance practices. In order to be a Green Gardener, gardeners attend a fifteen-week training session (two and half hour class per week) taught in both English and Spanish covering topics including water efficiency, non-point source pollution reduction, fertilizing, integrated pest management, and reduction of air pollution emissions and green waste. A test covering training material is required for Green Gardener status plus annual ongoing educational requirements. This program includes promotion of the Green Gardeners through advertising and a list of gardeners distributed by partnering agencies and on [www.greengardener.org](http://www.greengardener.org). So far, the GGP countywide has trained 1,000 gardeners.

### California Irrigation Management Information System (CIMIS)

Two CIMIS weather stations are owned by the California Department of Water Resources (DWR) are located on the City's Golf Course and the Vic Trace Reservoir. City staff assists in maintenance of the stations. CIMIS is a network of weather stations that automatically read and collect information on wind speed and run, average vapor pressure, air temperature, relative humidity, dew point, solar radiation, soil temperature, and precipitation. The information is transmitted to a central computer data base in Sacramento which gives daily evapotranspiration rates that can be accessed on DWR's website.

## City's Water Conservation Program

### Smart Irrigation Controller Distribution Program

In May 2002, the Santa Barbara County Water Agency, City of Santa Barbara, and Goleta Water District began implementing the Smart Irrigation Controller Distribution Program. The program involves distribution and installation of Weather TRAK ET irrigation controllers at no cost to residential customers with significant landscape water usage. The Weather TRAK ET Controller automatically calculates a scientifically-based irrigation schedule based on several factors, including plant and soil type. It then adjusts the irrigation schedule as local weather changes. To date, 180 irrigation controllers have been installed in the City.

### Watering Index and Landscape Watering Calculator

**Landscape Watering Calculator:** This is an easy-to-use web-based tool that helps estimate the right amount of water to give a landscape. The calculator has been designed to give a weekly irrigation schedule. Information needed is zip code of the site, the type of plants watered by a particular station on the irrigation system, the soil type, and the sprinkler type. Available at [www.SantaBarbaraCA.gov/water](http://www.SantaBarbaraCA.gov/water).

**Watering Index:** On many irrigation controllers there is a feature called "water budget", or seasonal adjust, which one can easily adjust the watering schedule as the weather changes. Set the water budget to the weekly watering index (W.I.) which represents the recommended percentage setting for the water budget feature. The W.I. is normally 100% for much of July and August. Over the course of the year, the W.I. changes to reflect the landscape's changing need for water as climatic conditions change. As new W.I. values are published weekly, the controller's water budget feature should be changed to match to current W.I. value. For the weekly watering index, visit [www.SantaBarbaraCA.gov/water](http://www.SantaBarbaraCA.gov/water).

### Free Rain Sensor Program

Free rain sensors are now available from the City of Santa Barbara and Goleta Water District. Rain sensors automatically shut off the sprinkler timer during and immediately after it rains, thus saving tremendous amounts of otherwise wasted water. There are two options to receive a rain sensor: 1. receive a voucher of up to \$50 and purchase a rain sensor from approved list, or 2. receive a free rain sensor with a brief training on how to install it. The goal of the rain sensor rebate program is to reduce the amount of water wasted by automatically shutting off irrigation controllers during rain events. Since April 2008, 416 rain sensors have been distributed to City water customers.

### Graywater

The City provides outreach on the use of graywater with handouts, fact sheet, sample plan sheet, workshops and information on the City's website. City promotes use of graywater in accordance with the California Plumbing Code Chapter 16A.

**Landscape Design Standards.** On August 12, 2008, the City Council adopted the revised Landscape Design Standards for Water Conservation, Resolution No. 08-083. The Landscape Design Standards were originally adopted by resolution of the City Council on June 27, 1989. There has been much progress in irrigation technology and sustainable landscaping practices in the last 19 years; therefore, it was time to bring the standards up to date. Chapters 14.23 and 22.80 of the Santa Barbara Municipal Code require projects that are subject to design review to comply with Landscape Design Standards.

### **Additional Programs**

#### **Regional Cooperative Programs**

The City participates in many regional water conservation programs with neighboring water purveyors. The Santa Barbara County Water Agency's regional water conservation program administers these programs.

**City Facilities Water Conservation Retrofit Program.** City facilities are equipped with the latest in water-saving devices, including waterless urinals, low-flow toilets and showerheads. Many City facilities and parks are landscaped with water-wise plants. City facility and parks irrigation systems continue to upgrade with smart irrigation controllers, rain sensors and state-of-the-art irrigation equipment. To date, 145 low-flow showerheads, 317 low-flow toilets, and 22 waterless urinals are installed in City facilities. Eight City public restrooms are plumbed with recycled water for toilet flushing. In one City facility retrofitted two years ago with four waterless urinals, the building's water use has decreased by 45%.

**City Facility Requirements for New Construction and Renovations at City Facilities.** Require state-of-the-art water conservation technology for landscape, irrigation and plumbing for new construction and renovations at City Facilities. Approved by Resolution No. 08-008 on February 5, 2008.

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## Appendix B:

### Executive Summary: Water Conservation Technical Evaluation

#### Maddaus Water Management

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## EXECUTIVE SUMMARY

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### Introduction

This conservation technical analysis was conducted by Maddaus Water Management (MWM) for the City of Santa Barbara (City). The purpose of the analysis is to:

1. Evaluate current conservation measures and identify new conservation measures that will reduce future water demand.
2. Estimate the costs and water savings of these measures.
3. Combine the measures into increasingly more aggressive programs and evaluate the costs and water savings of these programs.

### Long-Term Conservation Program Analysis

A list of 92 potential conservation measures was developed from known water saving technologies and services. Twenty-three conservation measures, selected by the City and local stakeholders during an evaluation workshop, were further analyzed by the Least Cost Planning Decision Support System Model (DSS Model). The DSS Model is a planning tool that assists water planners with evaluating alternative water conservation programs. The model itself is an end use model that calculates water savings, costs and benefits from individual measures, and programs of a number of measures. Projections of future water demand with and without water conservation programs are made for the City water service area. Calculations are made for every year in the 30-year analysis period. In addition, twenty one measures, both current and potential future measures, were put into a “Tool Kit” for further qualitative evaluation.

Based on analysis by the model, conservation measures were grouped into alternative programs of increasingly higher water savings and implementation costs (Table ES-1). Conservation Program A consists of 10 measures that are part of the existing City water conservation program. Conservation Program B includes all of Program A, plus those additional measures that have an individual benefit-cost ratio of 0.9 or greater, for a total of 17 measures. Conservation Program C includes all measures evaluated, except for Measure 5 which is replaced with the enhanced Measure 6. The measures included in Conservation Programs A, B, and C are identified in Table ES-1 in the columns at the right. Figure ES-1 shows the projected demand without the effects of the plumbing code, with the plumbing code effects, and with the plumbing code and three conservation program alternates. Water savings were evaluated and benefit-cost ratios computed for 20-year period of 2011 to 2030, coinciding with the City’s water supply planning period. Savings were then calculated to the year 2030 for each of these programs (see Table ES-2).

Table ES-3 shows the relative demand reductions in the year 2030, conservation program costs for the utility, present value economic information, and the utility cost of water saved for each of the alternate programs. Demand reduction by 2030 is measured from the 14,825 AFY projected 2030 demand without the effects of the plumbing code. Additional resources and customer contacts as embodied in the conservation programs identified in this memorandum, are required to reach higher levels of potential water savings. Utility costs include the cost to the City to run the program, including staff time, rebates, any contracted services, expense, etc. While utility cost is the primary consideration, this memorandum also considers customer costs and community costs to some extent, as described in the body of the memorandum. The plumbing code is included as passive baseline savings in addition to the long-term conservation program in Programs A-C. Most of the future program water savings consist of outdoor landscape improvements.

A Benefit-Cost ratio, which is the ratio of the present value of benefits to the present value of costs, is the most accurate indicator of cost-effectiveness. When the ratio of the Present Value of the benefits to the Present Value of the costs is greater than 1.0 for a particular program of measures, that program can be said to be cost-effective. Benefits for the utility can also be expressed as the value to the utility of the saved water. For the City, the value of the saved water is the cost savings from not producing the water that is saved. This could range from not treating pumped groundwater to not buying water from the State Water Project. An

assessment was made by the City and the value of the saved water was determined to be \$600 per acre-foot. This value is hereafter referred to as the City's "Avoided Costs".

Program A reflects estimated water savings derived from the plumbing code and continuing the current program. The additional measures that create programs B and C produce increasing incremental water savings and costs. Figure ES-2 illustrates there are apparent diminishing returns when measures are added beyond Program B. Demand reductions for year 2030 range from 920 to 1,919 AF/Yr. As the plumbing code water savings do not cost the City any money, the graph starts at the plumbing code water savings in 2030.

**Table ES-1  
Conservation Measures Selected for Programs**

No.	Measure Name (ND = Requirements for New Development)	Program		
		A	B	C
1	Promote Water Efficiency in Green Buildings		✓	✓
2	ND Require High Efficiency Toilets		✓	✓
3	ND Require High Efficiency Faucets and Showerheads		✓	✓
4	Fixture Replacement SB 407		✓	✓
5	Financial Incentives for Irrigation and Landscape Upgrades (Current)	✓	✓	
6	Financial Incentives for Irrigation and Landscape Upgrades			✓
7	Washer Rebates	✓	✓	✓
8	Washer Rebates for High Efficiency Machines			✓
9	High Efficiency Toilet (HET) Rebates	✓	✓	✓
10	Single Family Water Check Up	✓	✓	✓
11	Multifamily Water Check Up	✓	✓	✓
12	Existing Commercial Washer Rebate	✓	✓	✓
13	Cisterns/Rain Catchments			✓
14	Gray water Retrofit SF			✓
15	Current High Efficiency Urinal Rebate (<0.25 gallon)	✓	✓	✓
16	ND Require 0.5 gal/flush or less urinals in new buildings		✓	✓
17	School Building Retrofit		✓	✓
18	Irrigation (Landscape) Water Budgets	✓	✓	✓
19	Irrigation Water Surveys	✓	✓	✓
20	Mulch Program			✓
21	CII Water Check Up Level 1	✓	✓	✓
22	CII Water Check Up Level 2		✓	✓
23	Customized CII Incentive Program			✓
	Total Measures in each Program	10	17	22

Figure ES-1

Long Term Demands with Conservation Programs

(Demand is measured by total water system production, including potable and recycled water)

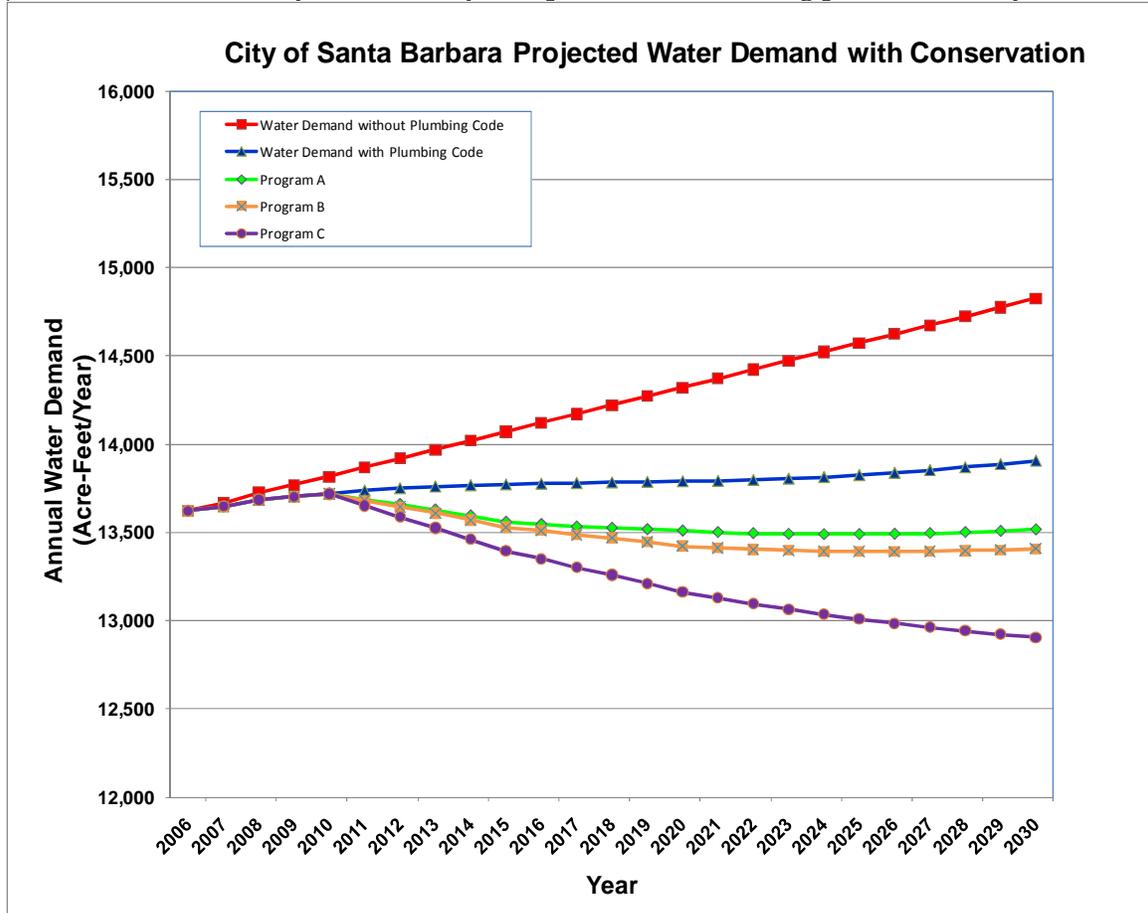


Table ES-2

Conservation Program Description and Future Water Savings

Conservation Program	Description	2030 Demand Reduction (AF/Yr)
-	No Conservation Programs, Plumbing Code Only	919
A	Continue Current Conservation Program (10 measures) and Plumbing Code	1,308
B	Add 7 Cost-Effective Measures to Current Program A and Plumbing Code	1,417
C	Add 5 More Measures to Program B and Plumbing Code	1,919

**Table ES-3  
Economic Summary of Long-Term Conservation Programs  
(Excluding Tool Kit Measures)**

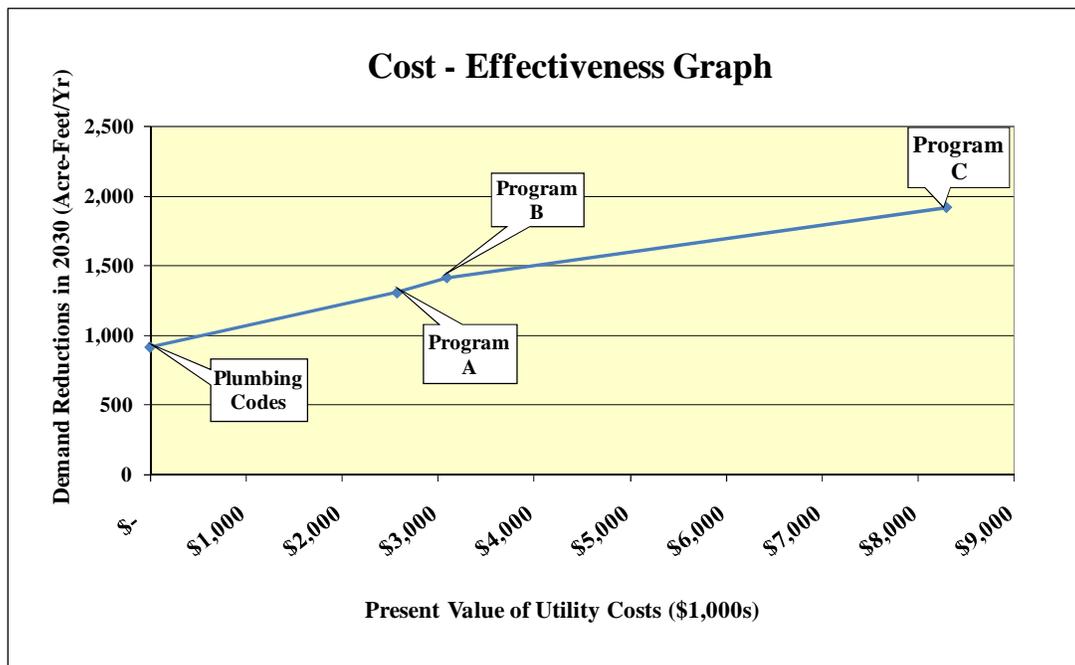
Conservation Program	Demand Reduction by 2030 (AFY)	Total 20-Year Conservation Program Water Savings (AF)	Average Annual Program Cost to Utility (\$)	Present Value of Utility Benefits (\$)	Present Value of Utility Costs (\$)	Utility Benefit - Cost Ratio	Utility Cost of Water Saved (\$/AF)
Plumbing Code Only	919	11,085	NA	NA	NA	NA	NA
Program A + Plumbing Code	1,308	16,419	\$194,000	\$2,455,000	\$2,570,000	0.96	\$482
Program B + Plumbing Code	1,417	17,801	\$233,200	\$3,131,000	\$3,089,000	1.01	\$460
Program C + Plumbing Code	1,919	23,193	\$629,400	\$5,867,000	\$8,287,000	0.71	\$684

**Notes:**

1. The DSS model is a 30-year model. It was run for 2006 to 2036 to include the base year of 2006 and the 20-year conservation program period of 2011 to 2030.
2. Demand Reduction by 2030 is measured from the 14,825 AFY projected 2030 demand without the effects of the Plumbing Code.
3. Average Annual Program Cost excludes any potential costs for the 21 measures in the Tool Kit
4. Utility Cost of Water Saved somewhat undervalues the cost of savings because program costs are discounted to present value and the water benefit is not. Utility Benefit-Cost ratio is the most accurate measure of cost effectiveness, because it accounts for the time value of money.

**Figure ES- 2**

**Present Value of Utility Costs versus Cumulative (Total) Water Saved**



## Appendix C:

# Long-Term Water Supply Performance Charts

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# Water Supply Performance: Scenario A - Current Conditions

Projected System Demand (AFY): **14,000**

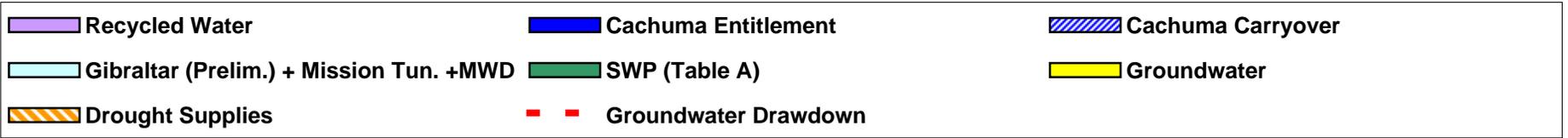
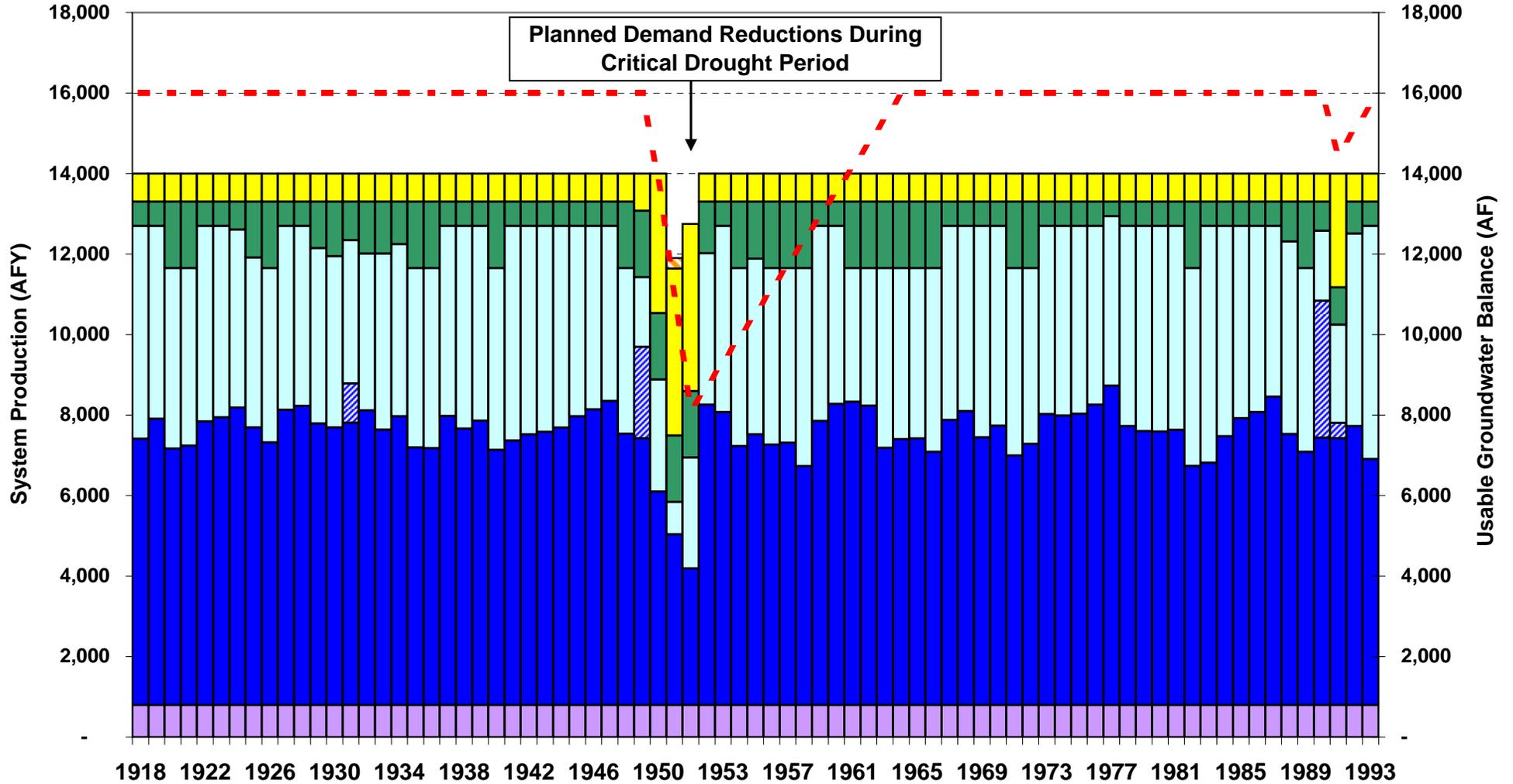
Water Supply Target (including Safety Margin): **14,000**

Cachuma Yield Assumption: **Current Entitlement**

Planned Demand Reductions: Stage 1    Stage 2    Stage 3

Total Critical Period Drought Supplies Required (AF): **262**

**10%    15%    15%**



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# Water Supply Performance: Scenario B - Near Term

Projected System Demand (AFY): **14,000**

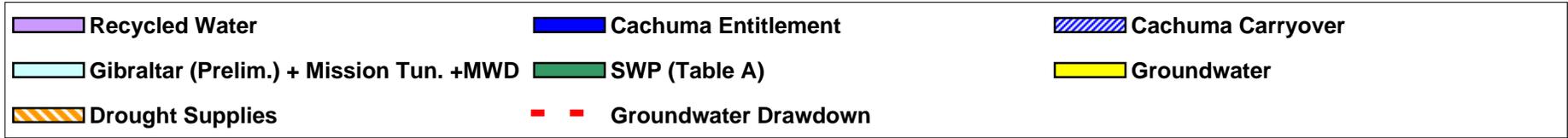
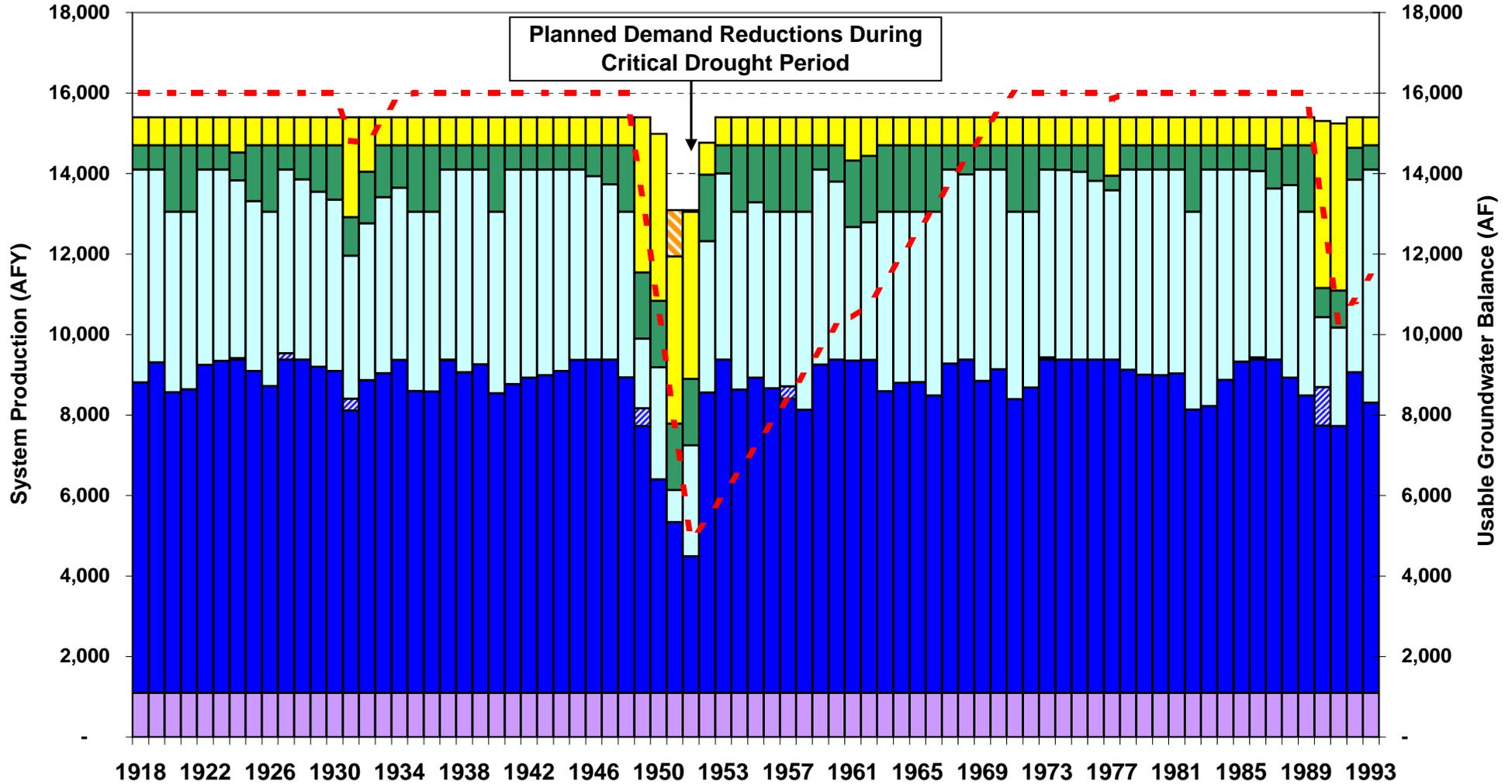
Water Supply Target (including Safety Margin): **15,400**

Cachuma Yield Assumption: **Current Entitlement**

Planned Demand Reductions: Stage 1    Stage 2    Stage 3

Total Critical Period Drought Supplies Required (AF): **1,195**

**10%    15%    15%**



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# Water Supply Performance: Scenario C - 2030 Conditions

Projected System Demand (AFY): **14,000**

Water Supply Target (including Safety Margin): **15,400**

Cachuma Yield Assumption: **Projected Entitlement**

Planned Demand Reductions: Stage 1

Stage 2

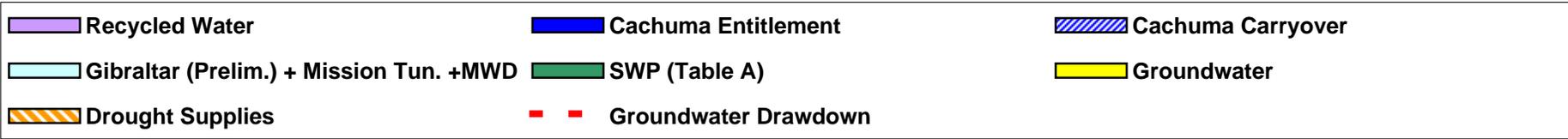
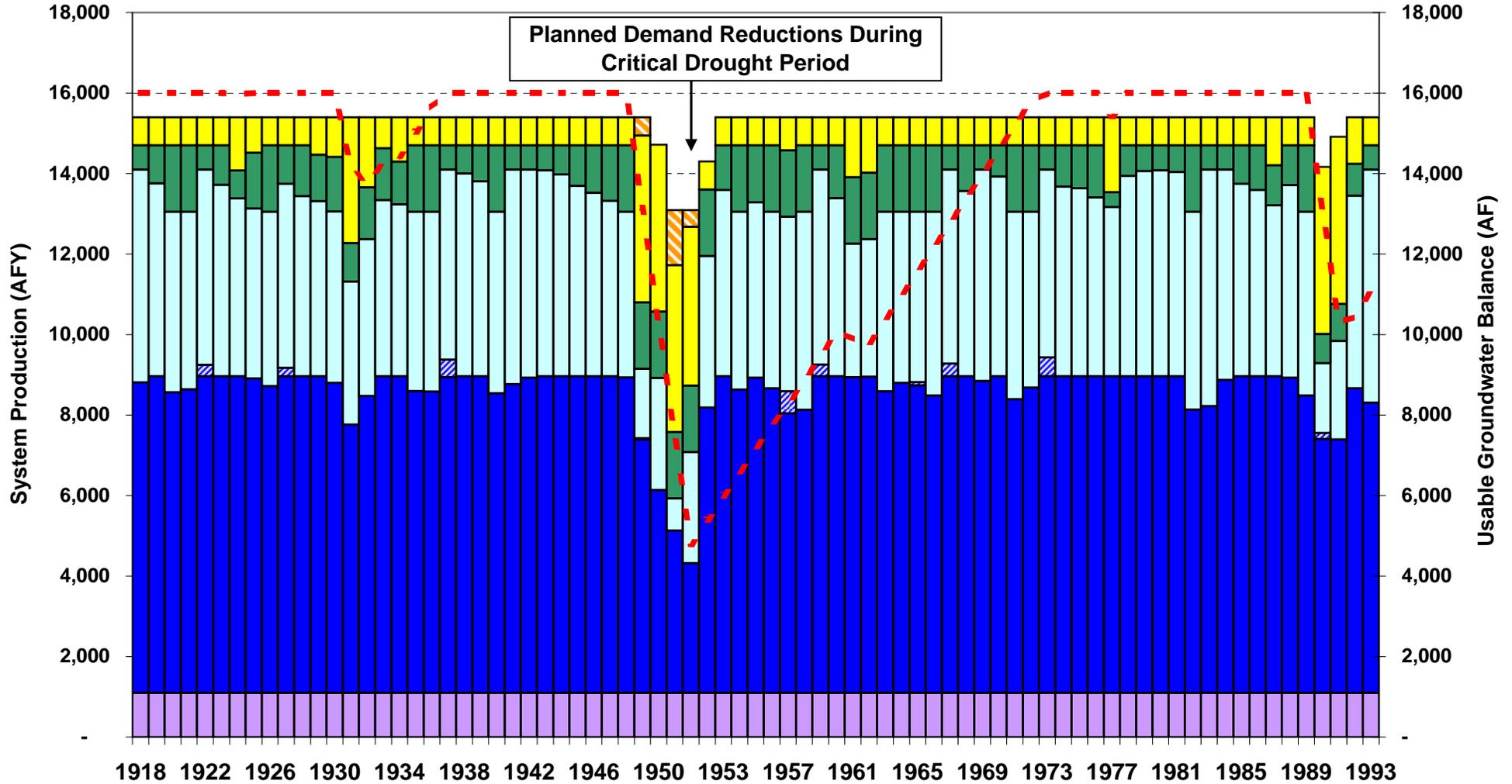
Stage 3

Total Critical Period Drought Supplies Required (AF): **2,228**

**10%**

**15%**

**15%**



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**APPENDIX I:**

**WATER SUPPLY MIX BY TYPE OF YEAR**

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# Water Supply Performance: Scenario A - Current Conditions

Projected System Demand (AFY): **14,000**

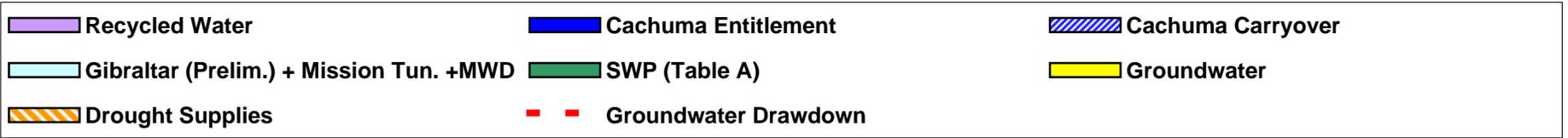
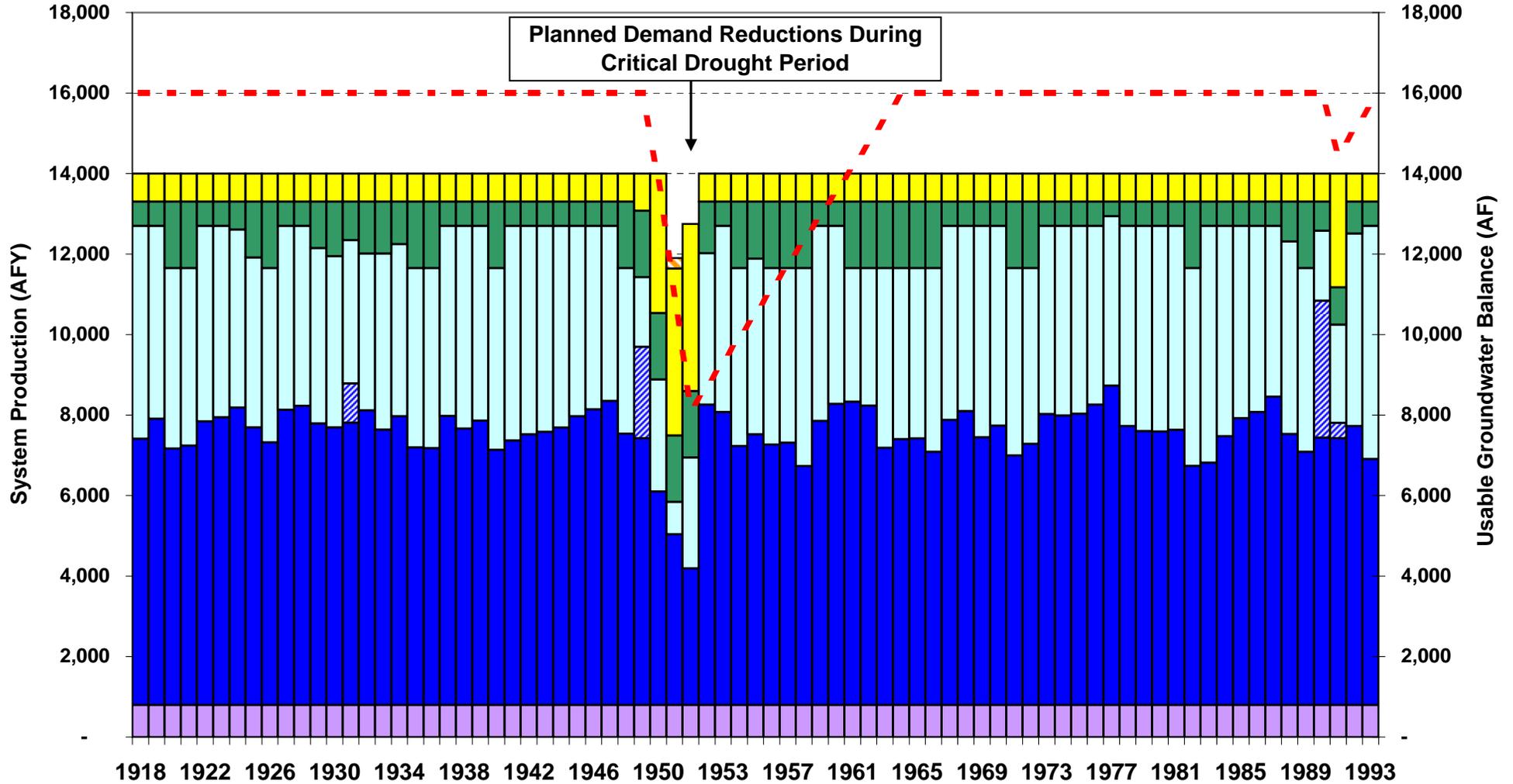
Water Supply Target (including Safety Margin): **14,000**

Cachuma Yield Assumption: **Current Entitlement**

Planned Demand Reductions: Stage 1    Stage 2    Stage 3

Total Critical Period Drought Supplies Required (AF): **262**

**10%    15%    15%**



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# Water Supply Performance: Scenario B - Near Term

Projected System Demand (AFY): **14,000**

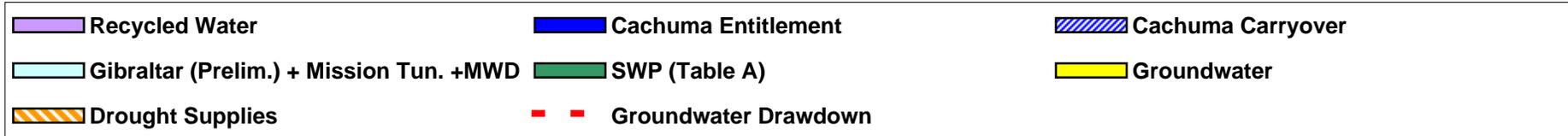
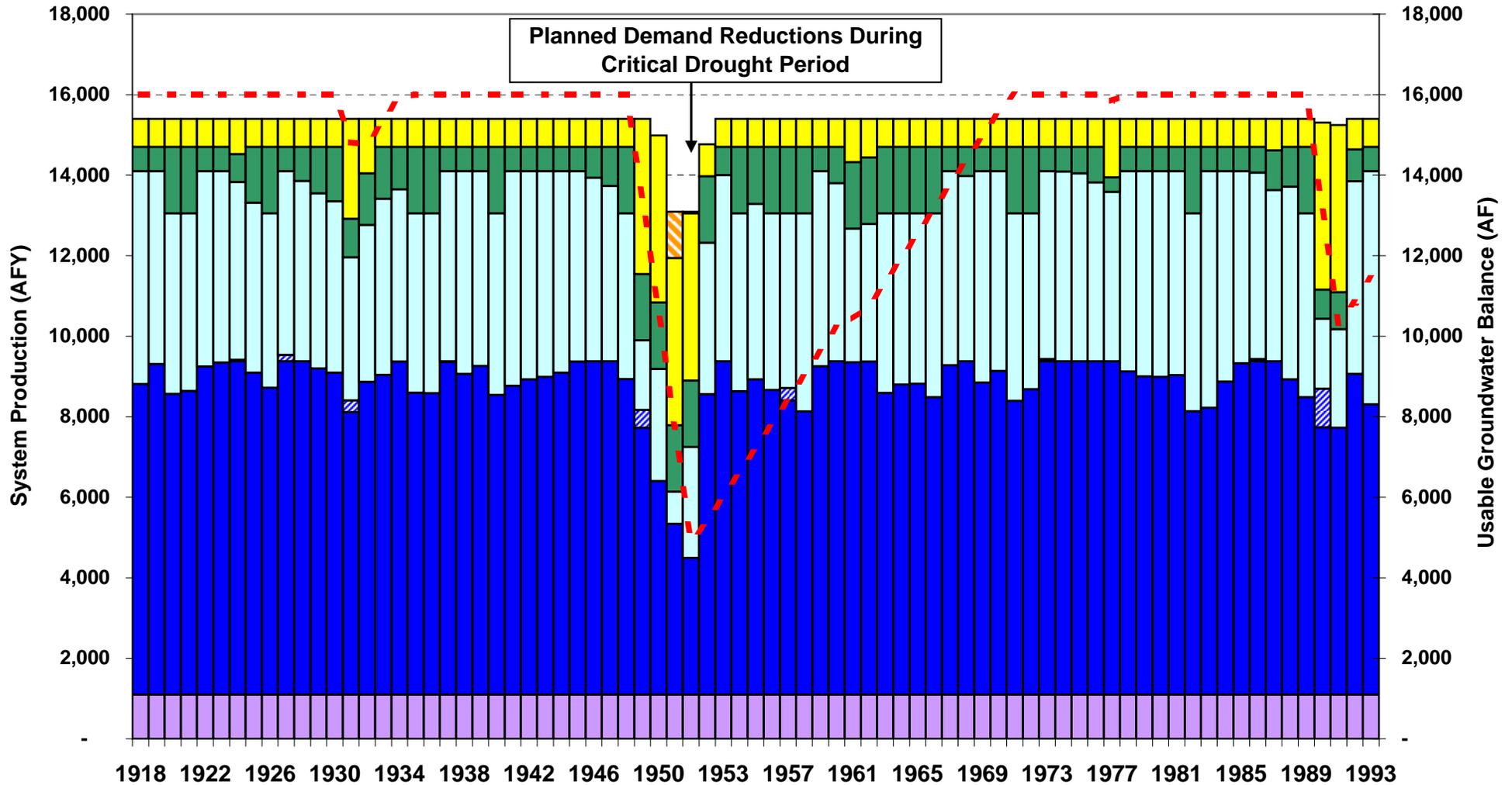
Water Supply Target (including Safety Margin): **15,400**

Cachuma Yield Assumption: **Current Entitlement**

Planned Demand Reductions: Stage 1    Stage 2    Stage 3

Total Critical Period Drought Supplies Required (AF): **1,195**

**10%    15%    15%**



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# Water Supply Performance: Scenario C - 2030 Conditions

Projected System Demand (AFY): **14,000**

Water Supply Target (including Safety Margin): **15,400**

Cachuma Yield Assumption: **Projected Entitlement**

Planned Demand Reductions: Stage 1

Stage 2

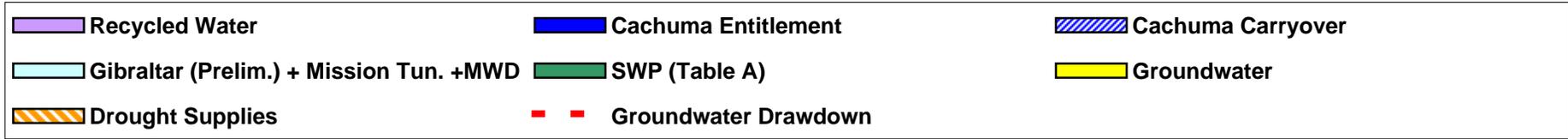
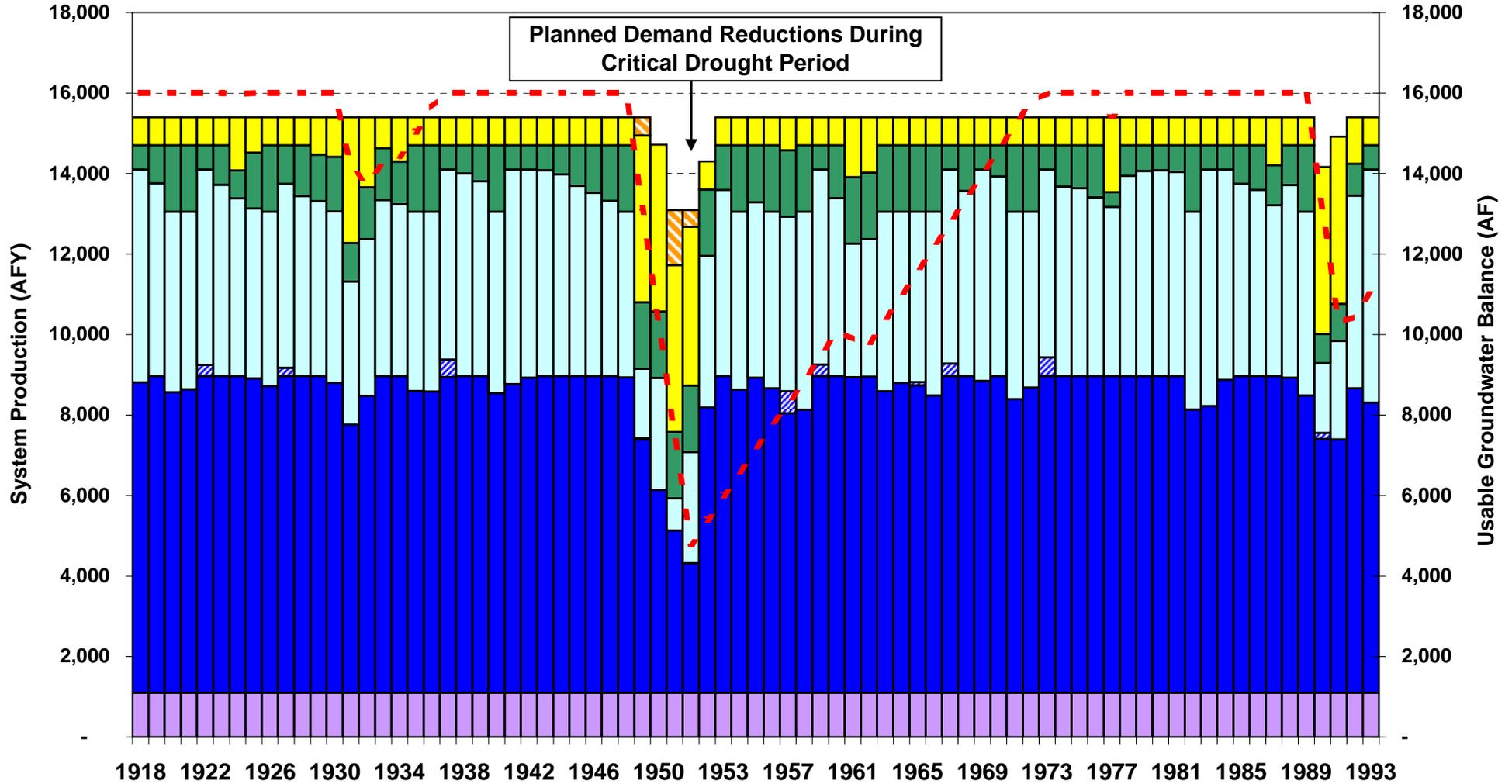
Stage 3

Total Critical Period Drought Supplies Required (AF): **2,228**

**10%**

**15%**

**15%**



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**APPENDIX J:**  
**2016 WATER SHORTAGE CONTINGENCY PLAN**

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City of Santa Barbara  
2016 Water Shortage Contingency Plan



Prepared by the City of Santa Barbara, Water Resources Division, Pursuant to  
California Water Code, Section 10632

Adopted by the Santa Barbara City Council on \_\_\_\_\_,  
as Agenda Item No. \_\_\_\_\_

## *Introduction*

This plan outlines key steps in responding to supply shortages ranging from slowly developing drought to sudden and potentially catastrophic interruptions, such as earthquakes, regional power failure, and failure of major water system components. It is intended for use in conjunction with more detailed emergency response documents addressing various aspects of the City water system, including:

1. CDPH Water Quality Emergency Notification Plan
2. Emergency Management – Standard Operating Procedures, Water Resources Division, Carollo Engineers, July 2008
3. Emergency Chlorination Plan – Treatment Section
4. Emergency Chemical Addition Log for Individual Reservoirs
5. Emergency Procedures for Distribution Workers

Consistent with past plans and experience with severe droughts of the late 1990's and the currently ongoing record drought, the plan uses four stages of action to accommodate the different timeframes for response to water shortages. It reflects the City's experience that each shortage situation is different and that flexibility is needed in response to water conditions as they develop. This is especially important with the increasing diversity of the City's water supply and the need to comply with State mandates on reduction targets and water use regulations.

The plan is intended to provide guidance, rather than absolute direction, for City action in response to water shortages. The stages are defined in the context of Water Supply Policy #2 in the 2011 Long-Term Water Supply Plan, which identifies short-term reductions of up to 15% from extraordinary water conservation as a planned part of the City's response to drought, which have been relatively easy to achieve historically. Shortages of up to and beyond 50% are possible as well, in which case the City Council would consider a more aggressive combination of public information efforts, water use regulations, development restrictions, and water supply augmentations to reduce demand to be within available supplies. Catastrophic interruptions, including earthquake and regional power outages, can also be expected to produce shortages in excess of 50%.

A moving 12-month total of production is used to monitor water usage during periods of normal supply and during water shortages, with actual consumption compared to the target on a monthly basis. The plan identifies considerations and actions to be taken at various stages. Also included is a list of increasingly more stringent actions on water use regulations and development restrictions to be considered for use in responding to water shortages.

Decision points for changes in the water shortage condition in relation to drought typically occur in the spring of each year, following assessment of projected runoff to surface water reservoirs. However, unusually dry conditions during the early part of the rainy season may warrant changes prior to spring. Since the Cachuma Project is the City's primary water supply, its status is a key factor in the decision making. All changes, whether in response to slowly developing drought or a sudden catastrophic water supply interruption, can be addressed on a short timeframe by City Council adoption of a water shortage resolution at any of its weekly meetings, under authority established in the Santa Barbara Municipal Code (SBMC), Chapter 14.20.

## *Stages of Action*

### Normal Supply Stage

Definition: Supplies are considered normal when full Cachuma entitlement is projected for the coming water year and there are no extraordinary shortages in other City supplies.

#### Actions:

- ⇒ Continue efforts to preserve water supply sources, such as management of watersheds to minimize siltation, banking of water as feasible to firm up deliveries through the State Water Project, and development of optimal groundwater pumping capacity;
- ⇒ Continue implementation of conservation Program B of the Technical Analysis prepared by Maddaus Water Management and included in the City's 2011 Long-Term Water Supply Plan, with the goal of improving efficiency without impacting lifestyles, including high efficiency plumbing retrofits, low water using landscaping, efficient irrigation practices, public information regarding water awareness, and tiered rate pricing;
- ⇒ Extend and expand the use of recycled water where feasible and cost effective;
- ⇒ Monitor demand in terms of actual consumption and cumulative commitments to serve;
- ⇒ Water use restrictions are limited to prohibition of water waste.

## Stage 1 Water Shortage Condition -- "Water Shortage Watch"

Definition: A short-term water shortage condition declared by Resolution of the City Council upon being advised that a Cachuma entitlement reduction is projected for the coming water year, assuming continued dry weather; or an extraordinary reduction in other City supplies has been identified.

### Actions:

- ⇒ Staff prepares a report to the Water Commission and City Council addressing:
  - Status of surface water supplies;
  - Status of City's groundwater resources and pumping capability;
  - Status of the City's desalination facility and any related cost and permitting issues;
  - Projected deliveries of State Water Project entitlement;
  - Anticipated availability of banked water and one-time purchase of water through the State Dry Weather Purchase Program or other short term transfers of water;
  - Possible reduction in Cachuma deliveries to City in excess of reductions agreed to by member units to allow build-up of City carryover at Cachuma.
  - A range of water supply scenarios based on various levels of assumed rainfall;
- ⇒ Water Commission and City Council consider Staff recommendation regarding adoption of a resolution declaring a Stage I Water Shortage Condition.
- ⇒ Cachuma Project deliveries reduced by up to 20% as agreed by Member Units when Project storage drops below 100,000 AF;
- ⇒ Public advised of the City's water supply situation; the need for extraordinary reductions in water use is expected to range from 0% to 15% at this stage.
- ⇒ Water use restrictions are limited to prohibition of water waste.

## Stage 2 Water Shortage Condition -- "Water Shortage Alert"

Definition: A short-term water shortage condition declared by Resolution of Council upon being advised that continuing conditions of average or less rainfall have resulted in continued decline in Cachuma storage following a reduction in entitlement; or, an extraordinary reduction in other City supplies has been identified.

### Actions:

- ⇒ Staff prepares a report to the Water Commission and City Council addressing:
  - Updated water supply scenarios based on various levels of assumed rainfall or other applicable metrics;
  - Need for:
    - ✓ Demand reduction by the public;
    - ✓ Water use restrictions;
    - ✓ Design and permitting work associated with temporary water supply augmentations;
    - ✓ Possible activation or increase in production level of the desalination facility;
  - Revenue projections and changes in water rates;
- ⇒ City Council considers staff and Water Commission recommendation regarding adoption of a resolution declaring a Stage II Water Shortage Condition.
- ⇒ Public advised of need for water conservation savings in the range of 15% - 25%.
- ⇒ Suspension of development approvals to be considered.
- ⇒ Determine the need for water use restrictions pursuant to SBMC Section 14.20.215 and incorporate appropriate exemptions into the water shortage resolution.
- ⇒ Public information effort is aimed at advising the public regarding:
  - The City's water supply situation;
  - Efforts being made by the City to minimize impacts of the water shortage;
  - The public's role in achieving demand reductions;
  - Staff enforces water use restrictions, pursuant to Council direction; and
  - Staff implements rate changes, pursuant to Council direction.

### Stage 3 Water Shortage Condition -- "Water Shortage Emergency"

Definition: A short-term water shortage condition declared by Resolution of Council upon being advised that Cachuma supplies are projected to be exhausted during the coming water year; or a catastrophic interruption to City water supplies is imminent or has occurred.

#### Actions:

- ⇒ Staff prepares a report to the Water Commission and City Council addressing:
  - Updated water supply scenarios based on various levels of assumed rainfall or other applicable metrics;
  - Need for:
    - ✓ Further demand reduction by the public;
    - ✓ Increased water use restrictions, including potential prohibition on uses other than drinking water and sanitation;
    - ✓ Accelerated design, permitting, and construction work associated with temporary water supply augmentations;
  - Review of revenue projections and appropriate changes in water rates;
  - Evaluate potential increased supply from desalination facility and from purchases of supplemental water:
- ⇒ City Council considers staff and Water Commission recommendations regarding adoption of a resolution declaring a Stage III Water Shortage Emergency Condition pursuant to California Water Code, Chapter 3.
- ⇒ Revised demand reduction target is announced to public, accompanied by information about how to achieve required reductions and efforts being made by the City to resolve the water shortage condition.
- ⇒ Water use restrictions adjusted as necessary pursuant to Santa Barbara Municipal Code Section 14.20.215.B.
- ⇒ Evaluate revenues and the need for further rate changes; staff implements changes pursuant to Council direction.
- ⇒ Consider further action regarding suspension of development approvals.
- ⇒ Water use restrictions enforced by staff pursuant to Council direction.
- ⇒ Success in meeting reduction targets is measured by tracking monthly production of water into the distribution system and by targeted analysis of specific water use sectors using the City's utility billing system.

While the City's long-term supply planning is based on a maximum planned shortage of 10% - 15%, unforeseen circumstances can result in the need to respond to shortages of up to 50%. Based on the City's experience with the 1987-1991 drought, the measures identified above are expected to be capable of achieving short-term demand reductions of up to 50%, carefully tailored to the situation at hand. Flexible application of tiered rates and allotments, water use restrictions, and public information will be used to meet the required demand reduction target. Steeply inclined block rates would partially offset lost revenue due to demand reductions. City reserve policies dictate maintaining Water Fund reserves at about 30% of annual Water Fund budget to address a variety of contingencies, which will also help mitigate revenue impacts associated with a severe shortage.

Phased Drought Response Options

Phase	Water Use Regulations	Development Restrictions
Normal Conditions	<ul style="list-style-type: none"> <li>• Waste of water prohibited</li> <li>• Leak repair required</li> <li>• Restrict or prohibit runoff from landscape irrigation prohibited</li> </ul>	<ul style="list-style-type: none"> <li>• No Public Works permits for groundwater wells on properties served by the City water system</li> </ul>
More Restrictive	<ul style="list-style-type: none"> <li>• Shut-off nozzle required on all hoses</li> <li>• Prohibit use of potable water for washing hard surfaces</li> <li>• Prohibit vehicle washing except by use of hose with shut-off nozzle or at facilities using recycled or re-circulated water</li> <li>• Limit landscape irrigation to specific times</li> <li>• Limit landscape irrigation to specific days</li> <li>• Prohibit certain types of landscape irrigation</li> <li>• Prohibit irrigation with potable water during and within 48 hours after measurable rainfall</li> <li>• Restrict water use for decorative water features, such as fountains</li> <li>• Irrigation of landscaping at new homes and buildings must comply with the requirements of the California Building Standards Commission and the Department of Community Development</li> <li>• Lodging establishment must offer opt out of linen service</li> <li>• Restaurants may only serve water upon request</li> <li>• Require posting of water shortage notice at restaurants, hotel/motels, and commercial showering &amp; car washing facilities</li> <li>• Require covers for pools and spas</li> <li>• Restrict draining and refilling of pools</li> </ul>	<ul style="list-style-type: none"> <li>• Mandatory deferral of installation of approved “aesthetic” landscaping, which does not include landscaping for storm water management, required mitigation, creek restoration, tree relocations, erosion control</li> <li>• No Building Permits for projects with net new water use, with exceptions:               <ul style="list-style-type: none"> <li>- 100% Affordable Housing</li> <li>- Essential Services (schools, libraries, Public Works projects)</li> <li>- Minor additions (e.g. non-residential additions of less than 500 sq. ft.)</li> </ul> </li> <li>• Mandatory deferral of new planting that is not water wise, except if irrigated with non-potable water</li> <li>• Require irrigation with drip or microspray for new homes or buildings</li> <li>•</li> </ul>
Most Restrictive	<ul style="list-style-type: none"> <li>• Prohibit irrigation of turf on public street medians using potable water</li> <li>• Restrict irrigation to high efficiency methods</li> <li>• Restrict irrigation to watering by hand only</li> <li>• Restrict draining and refilling of pools</li> <li>• Prohibit irrigation of turf</li> <li>• Prohibit all outdoor water use</li> <li>• Institute water rationing</li> </ul>	<ul style="list-style-type: none"> <li>• No Building Permits for new swimming pools</li> <li>• No Building Permits for projects with net new water use</li> </ul>

## Catastrophic Supply Interruption

Besides drought, the City may experience a catastrophic interruption of the water supply as a result of natural disasters such as earthquake or tsunami, a regional power outage, terrorism, wildfire, or sabotage. Emergency administrative procedures are detailed and periodically updated in the City's Emergency Operations Center Manual. The following are planning and response measures particularly associated with the City's water supply.

### **Preparations in Anticipation of Catastrophic Interruptions**

- A diverse portfolio of supplies provides redundancy that increases the likelihood of being able to meet emergency needs even under catastrophic conditions.
- Primary water supply sources and the main treatment plant have been planned to flow to the City by gravity to reduce normal operating costs and minimize disruption during disasters.
- A groundwater production system has been developed and maintained to augment supplies to the distribution system or provide direct emergency drinking water supplies should the distribution system be put out of service. In the event of prolonged power outage, power would be provided by portable generators.
- Back-up power supplies with automatic transfer switching and SCADA control capability have been installed at the primary water treatment plant and critical distribution pump stations.
- The potentially unstable and uncovered Sheffield Reservoir has been demolished and replaced with underground tanks designed and built to current seismic standards.
- Computerized telemetry system (SCADA) is being provided throughout the distribution system to monitor system problems, whether minor day-to-day problems or major disruptions.
- An ongoing program of water main replacement targets sections of the distribution system with the highest history of breaks.
- Upgraded security, including more secure fencing, video monitoring, and alarms, is being provided at all water supply facilities.
- Public access to water supply facilities has been limited for security reasons.
- City distribution system crews are trained in pipe repair and replacement as a part of their normal duties and are continually ready to perform such work on an emergency basis as needed.
- All City employees are designated as emergency service workers and would be activated to do damage assessment and repairs, and to fill gaps left by staff that live out of town and may be unable to get to Santa Barbara due to disaster.
- The City's emergency response program includes emergency communications procedures that would be used for notifying the public about emergency water use restrictions, potential need to boil tap water prior to drinking, and locations where drinking water is available in the event of widespread distribution system failure.

## Catastrophic Interruption Scenarios

Given the diversity of the City’s water supply, there is a range of catastrophic supply interruption scenarios that may occur. At the extreme end of the range, a catastrophic seismic event could include failure of both Gibraltar Dam and Bradbury Dam (Lake Cachuma), also impacting State Water deliveries. Damage to groundwater wells would be expected as well. The following table summarizes some foreseeable interruptions of lesser, but more probable, magnitude. In an actual event, detailed analysis would be conducted to assess the extent and duration of interruption and the alternatives for short term replacement of lost supplies.

<b>Description</b>	<b>Projected Water Supply Reduction</b>	<b>Anticipated Duration</b>	<b>Response</b>
<u>Damage limited to distribution system</u> : Main breaks in various parts of the City	No reduction in supply; delivery capability interrupted to portions of the City	Ranging from days to months depending on extent of damage	<ul style="list-style-type: none"> <li>• Valve off damaged sections</li> <li>• Inventory customers without service &amp; provide for access to emergency drinking water as necessary</li> <li>• Prioritize repair efforts based on health, safety, and sanitation</li> </ul>
<u>Collapse of Mission Tunnel</u> : Supplies from Gibraltar Reservoir and Mission Tunnel infiltration interrupted	Initial loss of 35% to 50% of potable supplies; reduced to 12% to 27% by increasing Cachuma deliveries and groundwater pumping	Ranging from months to a year or more	<ul style="list-style-type: none"> <li>• Assess extent of remaining tunnel flow</li> <li>• Restrict irrigation uses</li> <li>• Water usage restrictions, pricing, and public notification to reduce water use to targeted level based on actual circumstances</li> <li>• Consider increases in State Water Project delivery requests</li> <li>• Initiate emergency design and construction process for repair of tunnel</li> </ul>
<u>Collapse of Tecolote Tunnel</u> : Supplies from Lake Cachuma, tunnel infiltration, and State Water Project interrupted	Initial loss of 50% to 65% of potable supplies; reduced to 15% to 30% by increasing Gibraltar deliveries and groundwater pumping	Ranging from months to a year or more	<ul style="list-style-type: none"> <li>• Assess extent of remaining tunnel flow</li> <li>• Curtail most or all irrigation uses</li> <li>• Water usage restrictions, pricing, and public notification to reduce water use to targeted level based on actual circumstances</li> <li>• Consider extent to which supplies are available to assist neighboring agencies affected by loss of Cachuma deliveries</li> <li>• Participate with COMB &amp; USBR in emergency design and construction process for repair of tunnel</li> </ul>
<u>Regional Power Outage</u>			<ul style="list-style-type: none"> <li>• Initiate contact with City Emergency Operations Center</li> <li>• Activate and monitor back-up generators at Cater Treatment Plant and key distribution pumping stations</li> <li>• Assess supplies of generator fuel and develop a schedule of prioritized fuel needs</li> <li>• Identify optimal sites for deployment of portable generators (wells, pump stations, treatment system)</li> <li>• Prepare to issue a consumer alert about potential for: 1) low system pressure, 2) need to curtail water use, and 3) need to boil</li> </ul>

			<p>water prior to drinking</p> <ul style="list-style-type: none"> <li>• Evaluate the need for water quality sampling</li> <li>• Consider increasing disinfectant residual as a precaution against potential system contamination</li> <li>• Isolate any segments of known contamination; issue notice not to drink water in the affected areas</li> </ul>
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### **Actions to Be Implemented During Catastrophic Interruptions**

- Mobilization:
  - Supervisors assemble at Public Works Yard, 630 Garden Street
  - Determine which staff are present and which need to be contacted
  - Contact absent staff and direct them to report once families are safe
  - Check status of all equipment, refuel, and restock supplies on vehicles
  - Water Resources Laboratory staff mobilize at City lab and prepare for anticipated water quality test requests

- Dispatch crews to inspect, patrol, and report on condition of facilities and distribution piping in designated areas of the system:

Group A:

- Vic Trace Reservoir & La Coronilla Pump Station
- La Mesa Reservoir
- Escondido Reservoir & Pump Station
- Hope (Calle Las Caleras) Pump Station,
- Hope Reservoir
- Campanil Hills Pump Station

Group B:

- Reservoir No. 1
- East Reservoir & Bothin Pump Station
- El Cielito Reservoir and Skofield Pump Station
- Skofield Reservoir
- La Vista Reservoir
- Northridge Pump Station

Group C:

- Reservoir No. 2
- Sheffield Reservoirs No. 1 and No. 2 and El Cielito Pump Station
- South Portal of Mission Tunnel
- Rocky Nook Pump Station
- Sheffield Pump Station
- Tunnel Road Reservoir & Pump Station
- Cater Cross-Tie Pump Station

Group D - Wastewater Lift Stations at:

- Campanil
- Braemar
- Cliff Drive
- Linda Lane
- El Camino De la Luz

Group E – Wastewater Lift Stations at:

- Skofield
- La Colina
- Via Lucero
- Tallant Road
- Miradero Lane
- Andante
- Vista Elevada

- Assign qualified staff to use SCADA telemetry system, to the extent it is still functional, to determine the extent of system damage and the most critical isolation points on the distribution system.
- Conduct a complete inspection of the Cater Water Treatment Plant and Ortega Groundwater Treatment Plant to determine status and extent of damage.
- Contact Cachuma Project operators (USBR and COMB) to determine condition of Bradbury Dam and related facilities.
- Contact the City's dam caretaker at Gibraltar Reservoir to determine condition of Gibraltar Dam and related facilities.
- Assess condition of City groundwater wells by measuring water levels and well depth, and taking water samples for analysis of water quality.
- Assess the condition of two tunnels (Tecolote Tunnel from Lake Cachuma and Mission Tunnel from Gibraltar Reservoir) by measuring flow from the tunnels. While earthquake may result in tunnel collapse, it is likely that some residual flow from tunnel infiltration will be available and will flow to the City's treatment plant by gravity.
- Assign qualified staff to utilize the City's hydraulic computer model to simulate identified field deficiencies and run scenarios to identify the most efficient repair, isolation, or reconstruction recommendations.
- Prioritize distribution system repairs to best meet critical needs, including firefighting, drinking water, and sanitation; identify a portion of available potable supply to be reserved for drinking water purposes in the event of prolonged interruption.
- Develop materials list for treatment plant and distribution system repairs and communicate with potential suppliers.
- Allocate available portable generators and pumps according to highest need for groundwater wells, flood remediation, sanitation, firefighting, or powering emergency facilities.
- Develop a clear message for dissemination to the public regarding:
  - Nature of the catastrophic event
  - Status of distribution system
  - Water use prohibitions
  - Allowable water uses
  - Potential need to boil drinking water prior to consumption
  - Location and availability of emergency drinking water in the event of distribution system failure.

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**APPENDIX K:**  
CITY OF SANTA BARBARA MUNICIPAL CODE  
CHAPTER 14.20

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## Chapter 14.20

### WATER REGULATIONS

#### Sections:

<b>14.20.005</b>	<b>Use of Water.</b>	<b>14.20.130</b>	<b>Unlawful Use of Water and Meter Removal.</b>
<b>14.20.007</b>	<b>Prohibition Against Waste of Water.</b>	<b>14.20.140</b>	<b>Illegal Consumption Shown by Meter.</b>
<b>14.20.010</b>	<b>Wasting Water - Repairs - Required.</b>	<b>14.20.150</b>	<b>Reconnection Generally.</b>
<b>14.20.040</b>	<b>City's Relation to Seepage, Etc. - Damage on Private Property.</b>	<b>14.20.170</b>	<b>Notice Upon Vacating Premises - Required.</b>
<b>14.20.050</b>	<b>Who May Turn on Water.</b>	<b>14.20.180</b>	<b>Department to Read Meter on Receipt and Stop Service.</b>
<b>14.20.060</b>	<b>Preventing Access to Water System Outlets.</b>	<b>14.20.190</b>	<b>Rules and Regulations to be Established by Health Officer.</b>
<b>14.20.070</b>	<b>Consumer Precautions in Case of Fire.</b>	<b>14.20.200</b>	<b>Illegal Connections.</b>
<b>14.20.080</b>	<b>Right of Access to Water Meters.</b>	<b>14.20.210</b>	<b>Illegal Connection - Denial of Water from Public Water Supply.</b>
<b>14.20.090</b>	<b>Access to Meters Inside Premises.</b>	<b>14.20.215</b>	<b>Water Use Regulations During Water Shortage Conditions.</b>
<b>14.20.100</b>	<b>Shutting Off Water for Repairs, Etc., and Notice.</b>	<b>14.20.225</b>	<b>Violations.</b>
<b>14.20.105</b>	<b>Shutting Off Irrigation Meters.</b>	<b>14.20.226</b>	<b>Penalties and Charges.</b>
<b>14.20.108</b>	<b>Place of Use of Water.</b>	<b>14.20.227</b>	<b>Notice of Violation - Hearing.</b>
<b>14.20.110</b>	<b>Tanks Required for Steam Boilers.</b>		
<b>14.20.120</b>	<b>Check Valves and Anti-Backflow Devices.</b>		

#### **14.20.005 Use of Water.**

The use of all water obtained by or through the distribution facilities of the City shall be governed and controlled by the provisions of this Chapter. (Ord. 4558, 1989.)

#### **14.20.007 Prohibition Against Waste of Water.**

It shall be a violation of this Chapter for any consumer or account holder to waste any water obtained from or through the distribution facilities of the City. (Ord. 4558, 1989.)

#### **14.20.010 Wasting Water - Repairs - Required.**

Each and every consumer shall maintain in good order all his water pipes, faucets, valves, plumbing fixtures or any other appliances, at all times, to prevent waste of water. (Ord. 2931 §2(part), 1963; prior Code §44.30.)

#### **14.20.040 City's Relation to Seepage, Etc. - Damage on Private Property.**

The City shall in no way whatsoever be responsible for any damage to person or property because of any leakage, breakage or seepage from or accident or damage to any meter or pipe situated within any private premises. The City shall not be responsible for any leakage, breakage or seepage from or accident or damage to any meter or pipe situated within any private premises. The City shall not be responsible for any leakage, breakage or seepage from any pipe situated between any meter properly installed at the curb and the private premises served thereby. The City shall not be responsible for or on account of any damage, injury or loss occasioned directly or indirectly by the existence of any meter or pipe situated upon private property. (Ord. 2931 §2(part), 1963; prior Code §44.33.)

#### **14.20.050 Who May Turn on Water.**

No person other than an official or employee of the Public Works Department shall turn on water from the City mains without a written permit from the Director of such department. (Ord. 2931 §2(part), 1963; prior Code §44.34.)

#### **14.20.060 Preventing Access to Water System Outlets.**

No person shall place upon or about a fire hydrant, curbcock, water meter or water gate connected with the water system of the City, any object, material, debris or structure of any kind that shall prevent free access to the same at all times. (Ord. 2931 §2(part), 1963; prior Code §44.42.)

**14.20.070 Consumer Precautions in Case of Fire.**

In case of fire, consumers shall be required to shut off all irrigation or any steady flow of water being used when the fighting of any fire reasonably necessitates the same. (Ord. 2931 §2(part), 1963; prior Code §44.43.)

**14.20.080 Right of Access to Water Meters.**

Any duly authorized representative of the City shall at all times have the right of ingress to and egress from any water meter located upon a consumer's premises by way of such easement, license or right-of-way, if any, as the City may own and for such purposes as are permitted by the easement, license or right-of-way. (Ord.4558, 1989; Ord. 4250, 1984; Ord. 2931 §2(part), 1963; prior Code §44.44.)

**14.20.090 Access to Meters Inside Premises.**

Where a water meter is placed inside the premises of a consumer, provision shall be made for convenient meter reading and repairing by representatives of the City, for shutting off or turning on water service, and for installation or removal of flow restricters. (Ord. 4558, 1989; Ord. 4250, 1984; Ord. 2931 §2(part), 1963; prior Code §44.45.)

**14.20.100 Shutting Off Water for Repairs, Etc., and Notice.**

The City reserves the right to shut off the water from any premises, or from any part of the distribution system, as long as necessary, without notice to the consumer, at any time when the exigencies of the occasion may require it; but in all cases of extension or connections the Department shall notify consumers of the necessity of shutting off water and the probable length of time the water shall be shut off before taking such action. (Ord. 2931 §2(part), 1963; prior Code §44.46.)

**14.20.105 Shutting Off Irrigation Meters.**

The City shall have the right to shut off water service to meters restricted to irrigation uses temporarily and as necessary to determine that the use of such meters is limited to irrigation. Any person applying for service through a meter restricted to irrigation uses shall be informed of such conditions of use at the time he or she applies for such a meter. (Ord. 4558, 1989.)

**14.20.108 Place of Use of Water.**

Except as otherwise provided in this Title or as specifically authorized by the Director, water received from or through a meter may be used only on and for the property served by that meter. (Ord. 4558, 1989.)

**14.20.110 Tanks Required for Steam Boilers.**

No stationary steam boiler shall be connected directly with the water distribution system of the City but in each and every case, a suitable tank of storage capacity, sufficient for twelve (12) hours supply for such boiler, shall be provided and the service pipe supplying such tank shall discharge directly into the top of such tank. (Ord. 2931 §2(part), 1963; prior Code §44.47.)

**14.20.120 Check Valves and Anti-Backflow Devices.**

Whenever the Director shall consider it necessary for the safety of the water system to have an approved check valve or anti-backflow device placed on the property side of any consumer's service, such device shall thereupon be immediately installed at the expense of such consumer. If such device is not installed within ten (10) days after the Director shall order such installation, it shall be installed by the Public Works Department at such consumer's expense on the basis of cost, plus overhead. (Ord. 2931 §2(part), 1963; prior Code §44.48.)

**14.20.130 Unlawful Use of Water and Meter Removal.**

It shall be unlawful:

- (a) for a person or entity that is not an Account Holder to use water through a Meter, unless such person or entity is authorized by agreement with the Account Holder to use such water through such Meter;
- (b) for a person or entity to use water from a fire hydrant, except as authorized by a permit issued by the Public Works Director;
- (c) for a person or entity to use water from a dedicated fireline except in response to a fire or in the minimum amount needed to perform maintenance of such fireline, or as authorized by the Public Works Director;
- (d) for a person or entity to use water from a Connection that does not have a Meter, except as expressly authorized by the Public Works Director;
- (e) for a person or entity to use water from a Meter for which there is no active Account Holder; and

(f) for any person or entity to remove a Meter from a Water Service, except as authorized by the Public Works Director. (Ord. 5653, 2014.)

**14.20.140 Illegal Consumption Shown by Meter.**

When a meter shows a consumption of water after service has been officially discontinued, the owner of the property served shall be held responsible for such consumption, in addition to which he shall pay to the City a service restoration fee and the water shall not again be turned on for either owner or tenant until such illegal consumption has been fully paid for. (Ord. 4250, 1984; Ord. 2931 §2(part), 1963; prior Code §44.50.)

**14.20.150 Reconnection Generally.**

After water has been shut off from any premises, it shall not again be connected until the City has received written application therefor; such application shall be on blanks furnished by the City, and shall be signed by the prospective consumer. (Ord. 4250, 1984; Ord. 2931 §2(part), 1963; prior Code §44.51.)

**14.20.170 Notice Upon Vacating Premises - Required.**

Prior to vacating any premises connected to the City water supply system, the consumer shall request that the City terminate service and prepare a final billing. (Ord. 4250, 1984; Ord. 2931 §2(part), 1963; prior Code §44.53.)

**14.20.180 Department to Read Meter on Receipt and Stop Service.**

Within two (2) working days of receipt of the notice required by Section 14.20.170, the City shall read the water meter and shut off the water to the premises. (Ord. 4250, 1984; Ord. 2931 §2(part), 1963; prior Code §44.54.)

**14.20.190 Rules and Regulations to be Established by Health Officer.**

The Health Officer of the County is hereby authorized to establish written rules and regulations, including procedures for administration, of said rules and regulations, for the protection of public water supplies.

A copy of all regulations adopted hereunder shall be filed with the City Clerk and shall be subject to rejection by the City Council within thirty (30) days of filing. Regulations rejected by the City Council shall be null and void in the City.

For the purposes of this section and Sections 14.20.200 and 14.20.210, the following definitions shall apply:

(a) "Public Water Supply" means water which is piped to the general public for human consumption by a public water system.

(b) "Cross-connection" means the unprotected joining of or connection between any part of a public water supply system and any material or substance that is not safe, wholesome or potable for human consumption.

(c) "Auxiliary water supply" means any water supply other than a public water supply.

(d) "Health Officer" means the Health Officer designated in Title 7 of the Santa Barbara Municipal Code. (Ord. 3936, §1, 1978; Ord. 2931 §2(part), 1963; prior Code §44.55.)

**14.20.200 Illegal Connections.**

It shall be unlawful:

(a) to cause, establish or maintain a cross-connection within the City; or

(b) to cause, establish or maintain an auxiliary water supply on any premises or property which obtains water from a public water supply unless the public water supply is protected by a method approved by the Health Officer of the County; or

(c) to cause, establish or maintain a connection to the public water supply on any premise or property on which any material dangerous to health or toxic substance is handled under pressure, unless the public water supply is protected by an air-gap separation or other method approved by the Health Officer of the County; or

(d) to cause, maintain or establish any use of a public water supply in violation of regulations established by the Health Officer of the County pursuant to Section 14.20.190. (Ord. 3936 §1, 1978; Ord. 2931 §2(part), 1963; prior Code §44.56.)

**14.20.210 Illegal Connection - Denial of Water from Public Water Supply.**

Water service from the public water supply shall be discontinued by the Public Works Department upon any premises upon which there is any use or connection prohibited by Section 14.20.200 and such service shall not be restored until such violation is abated. The Health Officer of the County shall notify the Director of Public Works of the prohibited use or connection. (Ord. 3936 §1, 1978; Ord. 2931 §2(part), 1963; prior Code §44.57.)

#### **14.20.215 Water Use Regulations During Water Shortage Conditions.**

A. WATER SHORTAGE CONDITIONS. A Stage One Water Shortage Condition, a Stage Two Water Shortage Condition and a Stage Three Water Shortage Condition are defined as short-term conditions declared by resolution of the City Council upon being advised by staff that projected water supply conditions warrant response measures consistent with those associated with corresponding stages in the City's adopted Water Shortage Contingency Plan. The Council resolution may identify and refer to such short-term conditions in terms or titles specific to the current water shortage.

B. REGULATIONS DURING WATER SHORTAGE CONDITIONS. Upon adoption by the City Council of a resolution declaring a Stage One Water Shortage Condition, a Stage Two Water Shortage Condition or a Stage Three Water Shortage Condition, or such other titles as may be selected by Council pursuant to subsection A, the City Council may adopt a resolution containing such rules and regulations as necessary to restrict and regulate use of water from the City's water supply system in order to protect the public health and safety. Failure of any person or entity to comply with such rules and regulations as adopted by resolution of the City Council is a violation of this Code subject to the remedies and penalties provided herein and as provided by Chapter 1.28 and as otherwise provided by law.

C. EXEMPTIONS. Exemptions to the water use regulations set forth by City Council resolution during a declared Stage One, Stage Two or Stage Three Water Shortage Condition may be granted by the Public Works Director for specific uses of water on the basis of factually demonstrated need or undue hardship and in accordance with guidelines for exemptions as may be determined by the Public Works Director. If the Public Works Director denies a request for an exemption for a specific water use, a written request for reconsideration may be made to the Board of Water Commissioners. The decision of the Water Commission shall be final.

D. Upon the declaration of and during a Water Shortage Condition, the failure of a mobilehome park owner to introduce water into a swimming pool or spa located in a mobilehome park, in accordance with the City Council resolution, shall not be considered an increase in "rent" for purposes of Municipal Code Section 26.08.030.N. (Ord. 5653, 2014; Ord. 4558, 1989.)

#### **14.20.225 Violations.**

A. Any failure to comply with a provision of this Chapter shall constitute a violation of this Code, regardless of whether the failure to comply is caused by an Account Holder, a Consumer or any other person or entity.

B. Where the failure to comply with this Chapter is continuing and reasonably preventable by the person or entity failing to comply, each successive hour of such failure to comply shall be a separate and distinct violation. (Ord. 5653, 2014; Ord. 4558, 1989.)

#### **14.20.226 Penalties and Charges.**

A. In addition to the penalties and other methods of enforcement provided in Santa Barbara Municipal Code Chapter 1.28, the following penalties may also be applied to any violation of any provision of this Chapter:

1. For the first violation within the preceding twelve (12) calendar months, the Director shall issue a written notice of the fact of such violation.

2. For a second violation within the preceding twelve (12) calendar months, the Director shall impose a penalty on the bill of the Account Holder for the property where the violation occurred or is occurring, in an amount not to exceed two-hundred and fifty dollars (\$250.00).

3. For a third violation within the preceding twelve (12) calendar months, the Director:

a. Shall impose a penalty on the bill of the Account Holder for the property where the violation occurred or is occurring, in an amount not to exceed two-hundred and fifty dollars (\$250.00); and

b. May install a flow restricter on the service where the violation occurred or is occurring, for a period to be determined by the Director.

4. For a fourth and any subsequent violation within the preceding twelve (12) calendar months, the Director:

a. Shall impose a penalty on the bill of the Account Holder for the property where the violation occurred or is occurring, in an amount not to exceed two-hundred and fifty dollars (\$250.00); and

b. May install a flow restricter on or shut off water service to the property where the violation occurred or is occurring, for a period to be determined by the Director.

B. If a flow restricter is installed or water service shut off pursuant to subsection A of this section, prior to restoration of normal water service the Account Holder whose service is affected shall be required to reimburse the City for all costs it has incurred and will incur in installing and removing a flow restricter and in shutting off and turning on water service.

C. Any penalty imposed pursuant to this Section shall be added to the account of the Account Holder for the property where the violation occurred or is occurring and shall be due and payable on the same terms and subject to the same conditions as any other charge for regular water service. (Ord. 5653, 2014; Ord. 4558, 1989.)

#### **14.20.227 Notice of Violation - Hearing.**

A. For each violation of this Chapter, the Director shall give notice as follows:

1. By sending written notice through the U.S. mail to the Account Holder for the property where the violation occurred or is occurring, at the current billing address shown in the City's water billing records; and
2. By personally giving written notice thereof to the person who committed the violation or by leaving written notice with some person of suitable age and discretion at the property where the violation occurred or is occurring; or
3. If neither the person who committed the violation nor a person of suitable age and discretion can be found, then by affixing written notice in a conspicuous place on the property where the violation occurred or is occurring.

B. Any written notice given under this Section shall contain a statement of:

1. The time, place and nature of the violation;
2. The person(s) committing the violation, if known;
3. The provision(s) of this Chapter violated;
4. The possible penalties for each violation;
5. The Account Holder's right to request a hearing on the violation and the time within which such a request must be made; and
6. The Account Holder's loss of the right to a hearing in the event the Account Holder fails to request a hearing within the time required.

C. Any Account Holder provided a notice of violation in accordance with the provisions of this Chapter shall have the right to request a hearing. The request must be made in writing and must be received by the Director within ten (10) calendar days of the date of the notice of violation. The Director shall conduct the hearing, at which both written and oral evidence may be presented, and shall decide whether a violation occurred and the appropriate penalty. In determining the appropriate penalty, the Director shall consider whether the Account Holder knew of the violation at the time it occurred and whether he or she took reasonable action to correct the violation upon notification of it. In addition, the Director shall exercise his or her discretion in accordance with such guidelines as the City Council may adopt by resolution.

1. For a first, second or third violation within a twelve (12) month period, the decision of the Director shall be final.
2. For a fourth or subsequent violation within a twelve (12) month period, the Account Holder shall have the right to appeal the decision of the Director by requesting a hearing before the Board of Water Commissioners ("Board"). The request for hearing before the Board shall be in writing and shall be delivered to the Director not later than seven (7) calendar days after the date of the decision of the Director. At the hearing, the Board may receive and hear both written and oral evidence and shall have the authority to affirm, reverse, or modify the decision of the Director. The decision of the Board shall be final.

D. If an Account Holder fails to request a hearing before the Director or the Board within the period(s) provided in this Section, the action of the Director shall be deemed final.

E. Water service shall not be shut off until a notice of violation has become final or there is a final decision of the Director or the Board ordering the shut-off of water service. (Ord. 5653, 2014; Ord. 4558, 1989.)

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**APPENDIX L:**

**FY 2016 WATER AND WASTEWATER RATES**

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**City of Santa Barbara - Public Works Department  
Rates for City Water, Sewer, and Private Fire Service  
Resolution No. 15-053 (for Fiscal Year 2016)**

1 hcf = 100 cubic feet = 748 gallons

Customer Class	Water Service Rates <sup>1</sup>	Sewer Service Rates
Single Family Residential	First 4 hcf @ \$4.20 Next 12 hcf @ \$8.51 All other @ \$18.59	\$16.56 per month; plus \$2.88 per hcf, up to 10 hcf per month
Multi-Family Residential	First 4 hcf per dwelling unit @ 4.20 Next 4 hcf per dwelling unit @ \$8.51 All other @ \$18.59	\$16.56 per month per dwelling unit; plus \$2.88 per hcf, up to 8 hcf per dwelling for accounts serving 1-4 dwelling units and up to 7 hcf per dwelling unit for accounts serving 5+ dwelling units, per month
Commercial	100% of base allotment <sup>2</sup> @ \$6.53 per hcf; All other @ \$15.24	\$3.26 per hcf; subject to minimum charge by meter size (see table below)
Industrial & High Strength Commercial	100% of base allotment <sup>2</sup> @ \$6.53 per hcf; All other @ \$15.24 per hcf	\$3.96 per hcf; subject to minimum charge by meter size (see table below)
Irrigation – Residential & Commercial	100% of monthly budget <sup>3</sup> @ \$8.51; all other @ \$18.59	Not applicable
Irrigation - Recreation/Parks/Schools	100% of monthly budget <sup>3</sup> @ \$3.70; all other @ \$18.59	Not applicable
Irrigation – Agriculture	100% of monthly budget <sup>3</sup> @ \$2.43; all other @ \$18.59	Not applicable
Recycled Water	All usage @ \$2.96/hcf	Charges based on type of use. Not applicable for irrigation.
Outside City Limits	130% of corresponding in-City rates	Same as in-City rates, except that residential accounts not receiving City water are charged at maximum rate.

**Monthly Water Meter Service Charges By Meter Size<sup>1</sup>**

Meter Size	5/8"	3/4"	1"	1½"	2"	3"	4"	6"	8"	10"
Monthly Service Charge:	\$23.49	\$34.19	\$55.61	\$109.14	\$173.38	\$376.82	\$676.61	\$1,393.98	\$2,571.74	\$4,070.71

**Minimum Monthly Sewer Charges by Meter Size for Non-Residential Customers**

Meter Size	5/8"	3/4"	1"	1½"	2"	3"	4"	6"	8"	10"
Commercial Minimum	\$31.13	\$46.70	\$54.32	\$93.26	\$155.48	\$310.82	\$387.94	\$777.05	\$1,359.87	\$2,087.36
Minimum Applied for Usage (in HCF) Less Than	10	15	17	29	48	96	119	239	418	641
Indus/HS Com. Minimum	\$38.81	\$58.21	\$68.02	\$116.83	\$194.28	\$388.46	\$485.74	\$971.30	\$1,699.72	\$2,671.14
Minimum Applied for Usage (in HCF) Less Than	10	15	18	30	50	99	123	246	430	675

**Private Fire Services**

Meter Size	2"	4"	6"	8"	10"	12"
Monthly Service Charge:	\$4.67	\$17.31	\$46.04	\$95.59	\$170.12	\$273.42

**Typical City Water and Sewer Fees for Connection of a Single-Family Residence**

Water: \$2,495 (1" service connection, with 5/8" meter) + \$ 6,070 (buy-in fee, per residence) = \$ 8,565  
Sewer: \$725 (4" sewer tap) + \$389 (trench inspection) + \$4,977 (buy-in fee, single-family residence) = \$ 6,091

*For more information, contact the City's Water Hotline at (805) 564-5460*

<sup>1</sup> Utility users tax of 6% added to metered water charges and monthly water meter service charges.

<sup>2</sup> Base allotment = average monthly consumption during most recent January - June period.

<sup>3</sup> Water budgets computed monthly using data on weather and irrigated area

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**APPENDIX M:**  
WATER SHORTAGE RESOLUTION  
(STAGE 3 DROUGHT DECLARATION, MAY 2015)

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RESOLUTION NO. 15-036

A RESOLUTION OF THE COUNCIL OF THE CITY OF  
SANTA BARBARA ESTABLISHING WATER USE  
REGULATIONS AND DEVELOPMENT RESTRICTIONS TO  
BE EFFECTIVE DURING A STAGE THREE DROUGHT  
EMERGENCY

WHEREAS, the City of Santa Barbara, along with the rest of the State of California, has experienced the driest four-year period on record and such conditions have resulted in the depletion of surface water resources that are the City's primary water supply;

WHEREAS, the City's 2010 Urban Water Management Plan sets forth the City's Water Shortage Contingency Plan;

WHEREAS, pursuant to the Water Shortage Contingency Plan, a Stage One Drought Condition was declared by Resolution No. 14-009 on February 11, 2014, and a Stage Two Drought Condition was declared by Resolution No. 14-027 on May 20, 2014;

WHEREAS, since the 2014 declarations, there has been a continuing lack of rainfall sufficient to make a substantial improvement to the water supply situation, which has exacerbated the current drought, thereby making it increasingly desirable and necessary to conserve existing water supplies to protect the public health, safety and welfare if the current drought continues;

WHEREAS, the Water Shortage Contingency Plan provides that, when the City determines that the water supply for the current or impending water year is projected to be more than 10 percent below projected normal demand, a Stage Three Water Shortage Emergency shall be declared, and such conditions now exist;

WHEREAS, Santa Barbara Municipal Code Section 14.20.215 provides for the establishment, by resolution of the City Council, of water use rules and regulations necessary to restrict and regulate the use of water provided by the City's water distribution system during drought, and provides for exemptions to such regulations;

WHEREAS, it is the intent of the City Council to minimize inequities resulting from the implementation of water use regulations;

WHEREAS, on April 1, 2015 the Governor issued Executive Order B-29-15, calling for mandatory reductions in potable water use by urban water suppliers and additional water regulations affecting end users, and the State Water Resources Control Board has proposed draft regulations to implement said Executive Order, which regulations are scheduled to be adopted on or about May 5, 2015; and

WHEREAS, on May 5, 2015, the City Council considered a draft resolution that would have established recommended water use regulations and development restrictions to be applicable under a Stage 3 Drought Emergency, provided direction to staff on changes, declared a Stage 3 Drought Emergency, and established a required water use reduction of 25 percent.

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF SANTA BARBARA AS FOLLOWS:

SECTION 1. As of May 5, 2015, there has existed within the City of Santa Barbara a Stage Three Drought Emergency and a 25 percent required reduction from normal citywide water use, based on the City's projected water supply.

SECTION 2. For the protection of public health and safety, the following drought water use regulations regarding use of potable water from the City's water system are hereby established and shall remain in effect for the duration of the Stage Three Drought Emergency, unless repealed or modified by resolution of the City Council:

a. Any outdoor use of potable water through a hose, pipe, or outdoor faucet not otherwise addressed by these regulations is prohibited unless the water is delivered by use of a self-closing valve that requires operator pressure to activate the flow of water. Use of a sprinkler device attached to a movable hose is allowed, subject to applicable restrictions on time of irrigation and prohibition of runoff.

b. The outdoor use of potable water from a hose, pipe, or faucet for the purpose of cleaning buildings, pavement, driveways, sidewalks, tile, wood, plastic, or other hard surfaces is prohibited.

Exceptions: The following exceptions are allowed, provided that potable water is applied only by use of a pressure washer, mop, bucket, brush, and/or other tools to limit the use of running water to the minimum necessary. A pressure washer is defined herein to be equipment that boosts incoming water pressure for the purpose of enhancing cleaning capability and minimizing the amount of water used:

- i. Such use is allowed when it is the only feasible means of correcting an immediate threat to health and safety.
- ii. Such use is allowed as a part of preparation for painting or sealing, provided that such washing occurs immediately prior to such painting or sealing.
- iii. Such use is allowed for dust control, including as a part of street sweeping operations, provided the use of water is the minimum necessary to accomplish the intended control of dust.

c. Outdoor irrigation of any grass, shrub, plant, tree, groundcover, or other vegetation by use of an automatically controlled irrigation system is allowed only between the hours of 6:00 p.m. and 8:00 a.m. of the following day. If manually operated, such

irrigation is allowed only between the hours of 4:00 p.m. and 10:30 a.m. of the following day. Irrigation by hand-held hose is subject to the self-closing valve provision of Section 2.a.

Exceptions:

- i. Irrigation accomplished by use of a water truck that delivers water by injection probe below mulch or below the soil surface is exempt from such scheduling limitations.
  - ii. Irrigation devices such as tree watering bags and other similar devices that release water at a slow rate for the purpose of watering trees are exempt from such scheduling limitations.
- d. Irrigation with potable water that causes runoff onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or parking structures is prohibited.
- e. Irrigation with potable water during and within 48 hours after measurable rainfall is prohibited. Measurable rainfall is defined as a  $\frac{1}{4}$  of an inch or more of precipitation in a 24-hour period.
- f. Irrigation with potable water of turf on public street medians is prohibited.
- g. Vehicles and boats shall be washed only at commercial car washing facilities equipped with water recycling equipment, or by use of a hose, subject to the self-closing valve provision of Section 2.a. Operators of commercial car washing facilities shall post a notice in a conspicuous place advising the public as to whether their operations conform to water recycling requirements.
- h. No use of water shall be allowed in any fountain or other decorative water feature that is not equipped with a recirculation system. The use of water in ornamental water features and fountains is prohibited, even when equipped with a recirculation system, except that such prohibition shall not apply to ornamental water features and fountains that:
- i. Are located indoors; or on residential properties
  - ii. Have a total water surface area less than or equal to twenty five square feet; or
  - iii. As of the adoption date of this resolution, are home to aquatic life, provided that water shall be used and circulated only to the extent needed to maintain suitable living conditions for such aquatic life.
- i. Swimming pools and spas shall have a cover that conforms to the size and shape of the pool or spa and acts as an effective barrier to evaporation. The cover shall be in place during periods when use of the pool is not reasonably expected to occur.
- j. Draining and refilling up to one third of the volume of a pool per year is allowed as necessary to maintain suitable pool water quality. Draining and refilling in

excess of such one third per year is prohibited, except as authorized by the Public Works Director based on evidence from qualified maintenance personnel that such further draining is required to make needed repairs, or to prevent equipment damage or voiding of warranties.

k. All restaurants and other eating and drinking establishments shall post, in a conspicuous place, a Notice of Drought Condition as approved by the Public Works Director and shall not serve water except upon specific request by a customer.

l. Operators of hotels, motels and other commercial establishments offering lodging shall post in each room a Notice of Drought Condition as approved by the Public Works Director. Operators of hotels and motels shall provide guests with the option of choosing not to have towels and linens laundered daily. The hotel or motel shall prominently display notice of this option in each guestroom using clear and easily understood language.

m. Operators of pools, exercise facilities, and other similar commercial establishments providing showering facilities shall promote limitation of showering time and post a Notice of Drought Condition as approved by the Public Works Director in a conspicuous place.

SECTION 3. Violation of any regulation in Section 2 of this resolution is subject to the penalties and charges set forth in Santa Barbara Municipal Code Section 14.20.226.

SECTION 4. For the protection of public health and safety, the following drought-related development restriction is hereby established and shall remain in effect for the duration of the Stage Three Drought Emergency, unless repealed or modified by resolution of the City Council:

- a. Irrigation with potable water of landscapes outside of newly constructed homes and buildings must be accomplished in a manner consistent with regulations and other requirements established by the California Building Standards Commission and the Department of Housing and Community Development.
- b. Exemptions:
  - i. Projects with an application submitted for a building permit prior to adoption of this Resolution are exempt from item 4.a above.
  - ii. Exemptions to the development restrictions identified above may be granted by the Community Development Director, in consultation with the Public Works Director, for specific uses of water on the basis of factually demonstrated need or undue hardship and in accordance with guidelines for exemptions as may be determined by the

Community Development Director. If the Community Development Director denies a request for an exemption for a specific water use, a written request for reconsideration may be made to the Planning Commission. The decision of the Planning Commission shall be final.

- c. Administrative Guidelines for implementation of item 4.a. shall be prepared by the Community Development Director.

**RESOLUTION NO. 15-036**

STATE OF CALIFORNIA                    )  
  )  
COUNTY OF SANTA BARBARA        ) ss.  
  )  
CITY OF SANTA BARBARA            )

I HEREBY CERTIFY that the foregoing resolution was adopted by the Council of the City of Santa Barbara at a meeting held on May 12, 2015, by the following roll call vote:

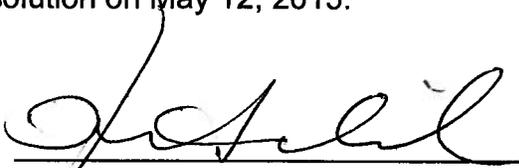
- AYES:                    Councilmembers Dale Francisco, Gregg Hart, Frank Hotchkiss, Cathy Murillo, Randy Rowse, Bendy White; Mayor Helene Schneider
- NOES:                   None
- ABSENT:                None
- ABSTENTIONS:       None

IN WITNESS WHEREOF, I have hereto set my hand and affixed the official seal of the City of Santa Barbara on ~~May 12, 2015~~ <sup>May 19, 2015</sup>.



  
\_\_\_\_\_  
Gwen Peirce, CMC  
City Clerk Services Manager

I HEREBY APPROVE the foregoing resolution on May 12, 2015.

  
\_\_\_\_\_  
Helene Schneider  
Mayor

**APPENDIX N:**

2013-2014 CUWCC BMP COMPLIANCE REPORTS

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CUWCC BMP Retail Coverage Report 2014

*Foundational Best Management Practices for Urban Water Efficiency*

BMP 1.1 Operation Practices

**ON TRACK**

**88 City of Santa Barbara, PWD**

**1. Conservation Coordinator provided with necessary resources to implement BMPs?**

Name:

Title:

Email:

**2. Water Waste Prevention Documents**

WW Document Name	WWP File Name	WW Prevention URL	WW Prevention Ordinance Terms Description
Option A Describe the ordinances or terms of service adopted by your agency to meet the water waste prevention requirements of this BMP.	City of SB PWD 88 BMP 1.1 Waste of Water Enforcement Policy		
Option B Describe any water waste prevention ordinances or requirements adopted by your local jurisdiction or regulatory agencies within your service area.			
Option C Describe any documentation of support for legislation or regulations that prohibit water waste.			
Option D Describe your agency efforts to cooperate with other entities in the adoption or enforcement of local requirements consistent with this BMP.			
Option E Describe your agency support positions with respect to adoption of legislation or regulations that are consistent with this BMP.			
Option F Describe your agency efforts to support local ordinances that establish permits requirements for water efficient design in new development.	City of SB PWD 88 BMP 3 Adopting Ord and Landscape Design Stnds.pdf		

At Least As effective As

Exemption

Comments:



CUWCC BMP Retail Coverage Report 2014  
*Foundational Best Management Practices for Urban Water Efficiency*

BMP 1.1 Operation Practices

**ON TRACK**



## CUWCC BMP Coverage Report 2014

### *Foundational Best Management Practices For Urban Water Efficiency*

#### BMP 1.2 Water Loss Control

**ON TRACK**

#### 88 City of Santa Barbara, PWD

Completed Standard Water Audit Using AWWA Software? Yes

AWWA File provided to CUWCC? Yes

City of Santa Barbara AWWA Water Audit FY14.xls

AWWA Water Audit Validity Score? 67

Complete Training in AWWA Audit Method Yes

Complete Training in Component Analysis Process? Yes

Component Analysis? No

Repaired all leaks and breaks to the extent cost effective? Yes

Locate and Repair unreported leaks to the extent cost effective? Yes

Maintain a record keeping system for the repair of reported leaks, including time of report, leak location, type of leaking pipe segment or fitting, and leak running time from report to repair. Yes

#### Provided 7 Types of Water Loss Control Info

Leaks Repairs	Value Real Losses	Value Apparent Losses	Miles Surveyed	Press Reduction	Cost Of Interventions	Water Saved (AF)
47	25005.64		0	False	104964.4	

At Least As effective As

In lieu of a component analysis, the City replaces 1% of system lines annually. Lines are replaced based on age and other factors. In FY14, the program was suspended to eliminate main line flushing during the drought to save water. Please see doc. [City of SB PWD 88 BMP 1.2 ALEA Main Replacement Prog.pdf](#)

Exemption

Comments:



## CUWCC BMP Coverage Report 2014

### *Foundational Best Management Practices For Urban Water Efficiency*

#### BMP 1.2 Water Loss Control

**ON TRACK**

#### 88 City of Santa Barbara, PWD

Completed Standard Water Audit Using AWWA Software? Yes

AWWA File provided to CUWCC? Yes

City of Santa Barbara AWWA Water Audit FY14.xls

AWWA Water Audit Validity Score? 67

Complete Training in AWWA Audit Method Yes

Complete Training in Component Analysis Process? Yes

Component Analysis? No

Repaired all leaks and breaks to the extent cost effective? Yes

Locate and Repair unreported leaks to the extent cost effective? Yes

Maintain a record keeping system for the repair of reported leaks, including time of report, leak location, type of leaking pipe segment or fitting, and leak running time from report to repair. Yes

#### Provided 7 Types of Water Loss Control Info

Leaks Repairs	Value Real Losses	Value Apparent Losses	Miles Surveyed	Press Reduction	Cost Of Interventions	Water Saved (AF)
25	1537.18		0	False	37302.67	

At Least As effective As

In lieu of a component analysis, the City replaces 1% of system lines annually. Lines are replaced based on age and other factors. In FY14, the program was suspended to eliminate main line flushing during the drought to save water. Please see doc.

Exemption

Comments:



CUWCC BMP Coverage Report 2014

*Foundational Best Management Practices For Urban Water Efficiency*

**BMP 1.3 Metering With Commodity**

**ON TRACK**

**88 City of Santa Barbara, PWD**

Numbered Unmetered Accounts	No
Metered Accounts billed by volume of use	Yes
Number of CII Accounts with Mixed Use Meters	1047
Conducted a feasibility study to assess merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters?	Yes
Feasibility Study provided to CUWCC?	Yes
Date: 3/8/2011	
Uploaded file name:	
Completed a written plan, policy or program to test, repair and replace meters	Yes
At Least As effective As	<input type="text" value="No"/>
Exemption	<input type="text" value="No"/>
Comments:	



CUWCC BMP Coverage Report 2014

Foundational Best Management Practices For Urban Water Efficiency

**BMP 1.4 Retail Conservation Pricing**

**On Track**

**88 City of Santa Barbara, PWD**

Implementation (Water Rate Structure)

Customer Class	Water Rate Type	Conserving Rate?	(V) Total Revenue Comodity Charges	(M) Total Revenue Fixed Carges
Agricultural	Increasing Block	Yes	140276.24	31823.29
Single-Family	Increasing Block	Yes	13471981.05	3237214.8
Multi-Family	Increasing Block	Yes	4990448.88	1667685.96
Commercial	Increasing Block	Yes	5124552.25	1128226.56
Industrial	Increasing Block	Yes	585925.02	53167.92
Dedicated Irrigation	Increasing Block	Yes	1354874.75	246834.48
Other	Uniform	Yes	704469.63	121622.03
			<b>26372527.82</b>	<b>6486575.04</b>

Calculate:  $V / (V + M)$  80 %

Implementation Option: Use Annual Revenue As Reported

Use 3 years average instead of most recent year

Canadian Water and Wastewater Association

Upload file:

Agency Provide Sewer Service: Yes

Customer Class	Rate Type	Conserving Rate?
Single-Family	Uniform	Yes
Multi-Family	Uniform	Yes
Commercial	Uniform	Yes
Industrial	Uniform	Yes

At Least As effective As

Please use Option 3 for compliance.

Exemption

Comments:



# CUWCC BMP Coverage Report 2014

*Foundational Best Management Practices For Urban Water Efficiency*

## BMP 2.1 Public Outreach

**ON TRACK**

88

City of Santa Barbara, PWD

Retail

Does your agency perform Public Outreach programs? Yes

The list of wholesale agencies performing public outreach which can be counted to help the agency comply with the BMP

Santa Barbara County Water Agency
-----------------------------------

The name of agency, contact name and email address if not CUWCC Group 1 members

Did at least one contact take place during each quarter of the reporting year? Yes

Public Outreach Program List	Number
Newsletter articles on conservation	29
Flyers and/or brochures (total copies), bill stuffers, messages printed on bill, information packets	1393
Website	18941
Landscape water conservation media campaigns	15592
General water conservation information	1825
Email Messages	29
<b>Total</b>	<b>37809</b>

Did at least one contact take place during each quarter of the reporting year? Yes

Number Media Contacts	Number
Articles or stories resulting from outreach	46
News releases	9
Newspaper contacts	41
Radio contacts	864
Television contacts	14671
Online Advertisings	16
<b>Total</b>	<b>15647</b>

Did at least one website update take place during each quarter of the reporting year? Yes

Public Information Program Annual Budget

Annual Budget Category	Annual Budget Amount
Total Budget	150776
<b>Total Amount:</b>	<b>150776</b>

Public Outreach Additional Programs

--



CUWCC BMP Coverage Report 2014

*Foundational Best Management Practices For Urban Water Efficiency*

**BMP 2.1 Public Outreach**

**ON TRACK**

Description of all other Public Outreach programs

Irrigation stores, SB Botanic Garden, Sweetwater Collaborative, ChannelKeeper, Surfrider

Comments:

At Least As effective As

Exemption



CUWCC BMP Coverage Report 2014

Foundational Best Management Practices For Urban Water Efficiency

BMP 2.2 School Education Programs

ON TRACK

88 City of Santa Barbara, PWD

Retail

Does your agency implement School Education programs? Yes

The list of wholesale agencies performing public outreach which can be counted to help the agency comply with the BMP

Santa Barbara County Water Agency

Materials meet state education framework requirements? Yes

The materials we distribute include water conservation bookmarks, coloring books, posters, worksheets, and take home kits, as well as water information on our website geared for students. Our presentations and tours meet CCS and EEI curriculum

Materials distributed to K-6? Yes

The materials we distribute include water conservation bookmarks, coloring books, posters, worksheets, and take home kits with aerators and dye tabs. For 6th graders we provide a "LivingWise" kit created by Resource Action Programs

Materials distributed to 7-12 students? Yes (Info Only)

We help sponsor and judge an award for the SB County Science Fair, as well as sponsor and help facilitate the Countywide High School Video Contest. We also give tours to the Water and Wastewater Treatment Plants

Annual budget for school education program: 6304.00

Description of all other water supplier education programs

The City provides water education presentations, materials, and tours to local schools and camps, grade K-12. We also sponsor water conservation assemblies at elementary schools

Comments:

At Least As effective As No

Exemption No 0



# CUWCC BMP Coverage Report 2014

BMP3 - Residential

Agency **City of Santa Barbara, PWD**

Date Agency Signed MOU: 1/28/1992

Coverage Option: Flextrack

**ON TRACK**

## Total Measured Water Savings (AF/Year)

TRADITIONAL	FLEXTRACK	ACTUAL	TARGET	Prior Activities Credit
49.74	0	49.74	10.96	79.560

## Residential Assistance

	Single Family Accounts	Single Family Target	Multi Family Units	Multi Family Target
Total Number Of Accounts/Units	16911		6383	
Total Participants during Reporting	0		0	
Number of Leak Detection Surveys or Assistance on Customer Property	762	126.83	124	47.87
Number of Faucet Aerators Distributed	39		83	
Number of WSS Showerheads Distributed	8		35	
<b>Landscape Water Surveys</b>	579	126.83	68	

Has agency reached a 75% market saturation for showerheads?

No

## High Efficiency Clothes Washers

Single Family Accounts

Single Family Target

Number of installations for HECW

97

135.29

Are financial incentives provided for HECWs?

Yes

Has agency completed a HECW Market Penetration Study?

No

## Water Sense Specification Toilets

Retrofit 'On Resale' Ordinance exists

No

75% Market Penetration Achieved

Yes

Single Family Units

Multi Family Units

Five year average Resale Rate

0.00

0.00

Number Toilets per Household

0

0

Number WSS Toilets Installed

0

0

Target Number of WSS Toilets

0.00

0.00

## WSS for New Residential Development

Does an Ordinance Exists Requiring WSS Fixtures and Appliances in new SF and MF residences?

Single Family Units

Multi Family Units

Yes

Yes

Number of new SF & MF units built

7

44

Incentives



## CUWCC BMP Coverage Report 2014

BMP3 - Residential

**ON TRACK**

### Unique Conservation Measures

Residential Assistance / Landscape Water Survey unique water savings

Measured water savings (AF/YR) 0

Uploaded file name: City of SB PWD 88 BMP 3 Checkup and Irr Eval DSS Summary.pdf

High Efficiency Clothes Washers unique water savings

Measured water savings (AF/YR) 0

Uploaded file name: City of SB PWD 88 BMP 3 HEW DSS Summary.pdf

WaterSense Specification toilets unique water savings

SF Measured water savings (AF/YR) MF Measured water savings (AF/YR)

Uploaded file name:

WaterSense Specification toilets for New Residential development unique water savings

Measured water savings (AF/YR) 0

Uploaded file name:

High bill contact with single-family and multi-family customers

Measured water savings (AF/YR)

Uploaded file name: City of SB PWD 88 BMP 3 Door Hanger Example.pdf

Educate residential customers about the behavioral aspects of water conservation

Measured water savings (AF/YR) 0

Uploaded file name:

Notify residential customers of leaks on the customer's side of the meters

Measured water savings (AF/YR) 0

Uploaded file name: City of SB PWD 88 BMP 3 High Meter Read Letter.pdf

Provide bill or surcharge refunds for customers to repair leaks on the customer's side of the meters

Measured water savings (AF/YR) 0

Uploaded file name: City of SB PWD 88 BMP 3 Application for Extraordinary Use.pdf

Provide unique water savings fixtures that are not included in the BMP list above

Measured water savings (AF/YR) 0

Uploaded file name: City of SB PWD 88 BMP 3 Mulch and Nozzles DSS Summary.pdf

Install residence water use monitors

Measured water savings (AF/YR) 0

Uploaded file name:

Participate in programs that provide residences with school water conservation kits

Measured water savings (AF/YR) 0

Uploaded file name:

Implement in automatic meter reading program for residential customers



**CUWCC BMP Coverage Report 2014**

**BMP3 - Residential**

Measured water savings (AF/YR) 0

Uploaded file name:

OTHER Types of Measures

Measured water savings (AF/YR) 0

Uploaded file name:

**Traditional Water Savings Calculation result:**

Measures	Target Water Savings (AF):	Actual Water Savings (AF):
SF Leak Detection Surveys	2.84	24.74
MF Leak Detection Surveys	0.54	2.16
Landscape Water Surveys	2.84	18.19
SF WSS Toilets Installed	0.00	0.00
MF WSS Toilets Installed	0.00	0.00
HECW	4.74	4.65

Comments:

At Least As Effective As No

Exemption No



# CUWCC BMP Coverage Report 2014

BMP4 - Commercial Industrial Institutional

**ON TRACK**

Agency: **City of Santa Barbara, PWD**

Date Agency Signed MOU: 1/28/1992

Coverage Option: Flextrack

CII Baseline Water Use (AF): 2550.00

CII Water Use Reduction(AF): 255

### Total Measured Water Savings (AF/Year)

TRADITIONAL	FLEXTRACK	ACTUAL	TARGET	Prior Activities Credit
0	0	0	109.65	280.880

<u>Water Efficiency Measures:</u>	<u>Quantity Installed:</u>	<u>Water Savings:</u>	<u>Accept Council's default value</u>
1 High Efficiency Toilets (1.2 GPF or less)	0	0.00	No
2 High Efficiency Urinals (0.5 GPF or less)	0	0.00	No
3 Ultra Low Flow Urinals	0.00		No
4 Zero Consumption Urinals	0.00		No
5 Commercial High Efficiency Single Load Clothes Washers	0.00		No
6 Cooling Tower Conductivity Controllers	0.00		No
7 Cooling Tower pH Controllers	0.00		No
8 Connectionless Food Steamers	0.00		No
9 Medical Equipment Steam Sterilizers	0.00		No
10 Water Efficient Ice Machines	0.00		No
11 Pressurized Water Brooms	0.00		No
12 Dry Vacuum Pumps	0.00		No

**Total Water Savings: 0.00**

### Unique Conservation Measures

Industrial Process Water Use Reduction

Measured water savings (AF/YR)

Uploaded file name:

Commercial Laundry Retrofits

Measured water savings (AF/YR)

Uploaded file name:

Industrial Laundry Retrofits

Measured water savings (AF/YR)

Uploaded file name:

Filter Upgrades (for pools, spas and fountains)



## CUWCC BMP Coverage Report 2014

### BMP4 - Commercial Industrial

**ON TRACK**

#### Institutional

Measured water savings (AF/YR)

Uploaded file name:

Car Wash Reclamation Systems

Measured water savings (AF/YR)

Uploaded file name:

Wet Cleaning

Measured water savings (AF/YR)

Uploaded file name:

Water Audits (to avoid double counting, do not include device/replacement water savings)

Measured water savings (AF/YR)

Uploaded file name: City of SB PWD 88 BMP 4 CII DSS Summary.pdf

Clean In Place (CIP) Technology (such as bottle sterilization in a beverage processing plant)

Measured water savings (AF/YR)

Uploaded file name:

Waterless Wok

Measured water savings (AF/YR)

Uploaded file name:

Alternative On-site Water Sources

Measured water savings (AF/YR)

Uploaded file name:

Sub-metering

Measured water savings (AF/YR)

Uploaded file name:

High Efficiency Showerheads

Measured water savings (AF/YR)

Uploaded file name:

Faucet Flow Restrictors

Measured water savings (AF/YR)

Uploaded file name:

Water Efficiency Dishwashers

Measured water savings (AF/YR)

Uploaded file name:

Hot Water on Demand

Measured water savings (AF/YR)

Uploaded file name:

Pre-rinse spray Valves of 1.3 gpm (gallons per minute) or less



# CUWCC BMP Coverage Report 2014

## BMP4 - Commercial Industrial

**ON TRACK**

### Institutional

Pre-rinse spray Valves of 1.3 gpm (gallons per minute) or less

Measured water savings (AF/YR)

Uploaded file name:

Central Flush Systems

Measured water savings (AF/YR)

Uploaded file name:

IOther Measures chosen by the Agency

Measured water savings (AF/YR)

Uploaded file name:

Comments:

At Least As Effective As                      No

Exemption    No



# CUWCC BMP Coverage Report 2014

BMP5 - Landscape

**ON TRACK**

Agency: **City of Santa Barbara, PWD**

Date Agency Signed MOU: 1/28/1992

Coverage Option: Flextrack

## Total Measured Water Savings (AF/Year)

TRADITIONAL	FLEXTRACK	ACTUAL	TARGET	PRIOR ACTIVITIES CREDIT
92.57	0	92.57	138.4	195.45

### 1) Accounts with Dedicated Irrigation Meters

a) Number of dedicated irrigation meter accounts	716
b) Number of dedicated irrigation meter accounts with water budgets	665
c) Aggregate water use for all dedicated non-recreational landscape accounts with water budgets	562.38
d) Aggregate acreage assigned water budgets for dedicated non-recreational landscape accounts with budgets	
Aggregate acreage of recreational areas assigned water budgets for dedicated recreational landscape accounts with budgets	229.04
Preserved water use records and budgets for customers with dedicated landscape irrigation accounts for at least four years	Yes
Unique measured water Savings (AF/YR) in this measure	
Uploaded the backup data if there are unique measured water savings?	Yes
Technical Assistance	
Number of Accounts 20% over-budget	262
Number of Accounts 20% over-budget offered technical assistance	262
Number of Accounts 20% over-budget accepting technical assistance	96
Unique measured water Savings (AF/YR) in technical assistance	
Uploaded the backup data if there are unique measured water savings?	Yes

### 2) Commercial / Industrial / Institutional Accounts without Meters or with Mixed-Use Meters

Number of mixed use and un-metered accounts.	1047		
Number of irrigation water use surveys offered			
Number of irrigation water use surveys accepted	36		
Type: Incentives numbers received by customers:		\$ Value:	0
Type: Rebates numbers received by customers:	8	\$ Value:	9893.9
Type No- or low-Interest loan offered numbers received by customers:		\$ Value:	0
Annual water savings by customers receiving irrigation water savings surveys and implementing recommendations			
Estimated annual water savings by customers receiving surveys and implementing recommendations			1.3



# CUWCC BMP Coverage Report 2014

## BMP5 - Landscape

**ON TRACK**

Unique measured water Savings (AF/YR) in this measure

Uploaded the backup data if there are unique measured water savings? No

### Financial Incentives

Number Of Incentives	Dollar Value Of Incentives	Incentive Types
79	49856.63	Rebate

Unique measured water Savings (AF/YR) in Financial incentives

Uploaded the backup data if there are unique measured water savings? Yes

### Unique Conservation Measures

#### 1. Monitor and report on landscape water use

1a. Measure landscapes and develop water budgets for customers with dedicated landscape meters. Provide timely water use reports with comparisons of water use to budget that provide customers the information they need to adjust irrigation schedules.

Uploaded file name: City of SB PWD 88 BMP 5 Landscape Budgets Web DSS Summary.pdf

1b. Measure landscapes and develop water budgets for customers with Mixed Use meters. Provide timely water use reports with comparisons of water use to budget that provide customers the information they need to adjust irrigation schedules.

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1c. Establish agency-wide water budget. (Include in Help notes: ETo based water budget in the MWELo changed in 2010 from .8ETo to .7ETo.)

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1d. Establish agency-wide, sector-based irrigation goal to reduce water use, based on season.

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#### 2. Provide technical landscape resources and training

2a. Upon customer requests, provide landscape irrigation management and landscape design information and resources: provide assistance, answer customer questions, respond to run-off and high-bill calls.

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2b. Perform landscape & irrigation audits: including irrigation scheduling, plant information, and landscape area measurement.

Uploaded file name: City of SB PWD 88 BMP 5 Irrig Eval DSS Summary.pdf

2c. Sponsor, co-sponsor, promote, or support landscape workshops, training, presentations and other technical educational events for homeowners and professionals: design, installation, maintenance, water management.

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2d. Establish time-of-day irrigation restrictions.

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2e. Establish day-of-week irrigation restrictions.

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### BMP5 - Landscape

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#### 3. Provide incentives

3a. Establish landscape budget-based rates.

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3b. Provide incentives for conversions from mixed-use meters to dedicated landscape meters.

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3c. Provide incentives for irrigation equipment upgrades that improve distribution uniformity, irrigation efficiency, or scheduling capabilities.

Uploaded file name: **City of SB PWD 88 BMP 5 SLRP DSS Summary.pdf**

3d. Provide incentives for the reduction of water use over an irrigated area, or reduction in the size of the irrigated area due to replacement of turf or other high water-using plants with low water-using plants, artificial turf, or permeable surfaces.

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3e. Provide incentives for conversions from potable to recycled water.

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3f. Provide incentives for the use of alternative sources of water in the landscape (i.e. gray water, rainwater, cisterns, etc.)

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#### 4. Participate in local and regional planning and regulatory activities

4a. Collaborate with planning agencies at the local and regional level, other water suppliers in the area and stakeholders in response to state or federal requirements such as the State Model Water Efficient Landscape Ordinance and AB 1881. Participate in the development, review, implementation, and enforcement of requirements for new developments. Provide water use data to planning agencies.

4b. Establish or participate in a water conservation advisory committee or other community outreach effort to drive market transformation and exchange information about landscape water conservation with developers, community-based organizations, homeowners associations, residential customers, landscape professionals, educators, other water suppliers in region.

4c. Participate in regional efforts: integrated water resource management, watershed management, NPDES permit agencies, etc.

#### 5. Develop a holistic approach to landscape water use efficiency

5a. Develop and implement a comprehensive landscape water conservation program for all customers. Target marketing efforts to those most likely to result in benefits to both customer and Agency.

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#### 6. Other Measures

Other Landscape Measures.

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Comments:



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At Least As Effective As No

Exemption No