



# City of Santa Barbara Water Supply Management Report 2005-2006 Water Year

Prepared by Water Resources Division, Public Works Department  
December 2006

## Introduction

This report summarizes water supply issues for the City of Santa Barbara in the context of the City's Long-Term Water Supply Program (LTWSP), adopted by City Council on July 5, 1994. It is also an opportunity for Council action on annual reporting requirements. The report has been made available for public review consistent with project conditions of the State Water Project (SWP). On November 13, 2006, the Water Commission reviewed the draft and voted 3-0-0 to recommend approval with included changes. The report refers to conditions as of September 30, 2006, or for the water year ending September 30, 2006, except as otherwise noted. Volumes of water are measured in acre-feet (AF) and acre-feet per year (AFY), except as noted. Additional information about the City's water supply can be found on-line at:

<http://www.SantaBarbaraCa.gov/Government/Departments/PW/WaterHomePage.htm>

## Water Supplies

**Table 1. Surface Water (as of 9/30/06)**

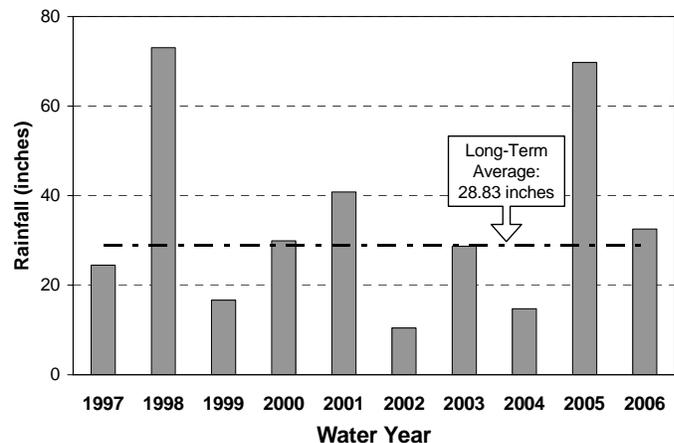
	Total Capacity (AF)	Water Surface Elevation (Feet)	Total Storage (AF)	% of Total Capacity
Gibraltar Reservoir	7,087	1388.06	4,546	64%
Cachuma Project	188,030	747.38	180,203	96%

The City's share of the Cachuma Project normal annual deliveries is 32.19%, or 8,277 AF. The unused portion of the City's 2005-2006 share, in the amount of 6,790 AF, has been carried over to the current year.

## Rainfall

The City's surface water comes from the upper Santa Ynez River watershed, so rainfall data for Gibraltar Reservoir is tracked for water supply purposes. Figure 1 shows rainfall for the past ten years as compared to the 46-year average. Runoff generated by average rainfall is generally enough to fill Gibraltar; however, it takes above-average rainfall to produce any significant inflow to Cachuma. Rainfall during the past winter was sufficient to refill Lake Cachuma. The City continues to participate in the cloud seeding program

**10-Year Rainfall History at Gibraltar**



**Figure 1.**

administered by the County of Santa Barbara as a way of increasing rainfall and runoff in the Santa Ynez River watershed.

### Groundwater

*Storage Levels:* Due to availability of other supplies, groundwater was only produced during the summer and fall months to help control levels of disinfection byproducts in the distribution system. City pumping amounts in Storage Unit No. 1 (downtown area) and the Foothill Basin (upper State Street area) were 157 AF and 363 AF respectively. Since 1991, pumping has not been required to meet the demand for water, except for occasional peak demand periods. Groundwater levels remain equal to levels prior to the drought of 1987-1991.

*Long-Term Groundwater Balance and Quality:* Project conditions of the State Water Project (SWP) require the City to use SWP water to offset any demonstrated groundwater basin overdraft. Under the LTWSP, the City uses groundwater conjunctively with surface supplies, such that groundwater is generally used only when surface supplies are reduced. Basins are rested following periods of heavy pumping to allow water levels to recover. As summarized in Table 2, the perennial yield exceeds average annual pumping and groundwater basins are in long-term balance with no overdraft projected. More detailed analysis is available in the LTWSP Environmental Impact Report.

**Table 2. Groundwater Balance**

Estimated Perennial Groundwater Yield of Three Groundwater Storage Units:	1,900 AFY
Approximate Pumping by Private Pumpers:	-500 AFY
Net Perennial Yield Available to the City:	1,400 AFY
Average projected City groundwater pumping under LTWSP analysis at full LTWSP demand of 18,200 AFY:	1,000 to 1,300 AFY
Groundwater Production in 2005-2006:	520 AFY

### Mission Tunnel

Mission Tunnel is an important part of the City's water supply. This year's total contribution was 1,773 AF, compared to a long-term average of approximately 1,100 AFY.

### State Water Project

The Coastal Branch and Santa Ynez Extension of the SWP are in place to deliver the City's 3,000 AF project share into Lake Cachuma, subject to availability of water supplies. The City took delivery of 622 AF of State Water during the year.

### Desalination

The desalination plant remains in long-term storage mode and no desalinated water was produced. Staff projects that desalinated water will not be needed to meet demand for at least the next five years.

Recycled Water

The City's Water Reclamation Project provides recycled water to parks, schools, golf courses, other large landscaped areas, and some public restrooms. During the reporting period, 620 AF of recycled water were distributed, or 5% of the total water demand.

Projection of Supply Availability

Table 3 summarizes the City's current and long-term water supply sources and fulfills a requirement of the project conditions for the SWP. The LTWSP Estimated Average values are the projected average annual deliveries as calculated by model runs for a 76-year simulation of current City water supplies, completed as a part of the LTWSP analysis. The projected 2006-2007 Supply Plan reflects a nearly full reservoir at Lake Cachuma as a result of rainfall sufficient to fill Cachuma again this year.

**Table 3. Sources of Supply (AF)**

Source of Supply	2005-2006 Original Plan	2005-2006 Actual	2006-2007 Supply Plan Projected	LTWSP Estimated Average
Gibraltar Reservoir	5,000	4,571	5,000	4,310
Cachuma Project	5,615	5,523	5,615	8,203
Mission Tunnel	1,100	1,773	1,100	1,109
Devil's Canyon	(w/ Gibraltar)	0	(w/ Gibraltar)	(w/ Gibraltar)
Juncal Res. (300 AF from MWD)	(w/ Cachuma)	(w/ Cachuma)	(w/ Cachuma)	300
State Water Project	630	622	630	2,200
Groundwater	855	520	855	1,018
Desalination	0	0	0	141
Recycled Water	800	620	800	900
Net Other Supplies <sup>1</sup>	(na)	-455	(na)	(na)
<b>Total Supply:</b>	14,000	13,174	14,000	18,181
<b>Total Demand:</b>	14,000	13,174	14,000	18,200 <sup>2</sup>
<b>Percent Shortage:</b>	0	0	0	0.1% <sup>3</sup>

<sup>1</sup> Represents miscellaneous production sources (positive values) and water used from the distribution system for purposes such as transfers to adjacent water purveyors, groundwater recharge, or blending with recycled water (negative values).

<sup>2</sup> Includes a 10% safety margin as a contingency for unforeseen demand or supply changes.

<sup>3</sup> Represents one year of 10% shortage in the worst year of modeled drought, averaged over the full period.

Water Supply Projects

Design of Phase 2 facilities at the new San Roque Well continued during the year, consisting of above ground facilities, drain lines, and electrical/control facilities. Phase 2 design at the new High School is pending further analysis of an appropriate wellhead treatment scheme. Staff continued with the extensive process of rehabilitating the Ortega Groundwater Treatment Plant and the four wells that feed into it. The Preliminary Design Report was completed and work began on developing a scope of work for permitting and final design. The goal is to help maintain a 4,500 AFY pumping capacity for use during drought and in the event of interruption of supplies to the City from the Santa Ynez River and the SWP. Maintenance and investigative work was conducted at Corporation Yard Well, where it was determined that the well's deteriorated condition does not warrant further repair efforts. Due to the relatively good quality

and yield at this site, staff has planned a replacement well as a part of the Capital Program. At Los Robles Well, work to correct a problem with entrained air and upgrade electronic controls is almost complete.

### Cachuma Project Water Rights Hearing and Steelhead Listing

Members of the Cachuma Project continue to await a decision by the State Water Resources Control Board (SWRCB) following a major hearing on the Cachuma Project's water rights, which was completed 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. A December 2002 settlement agreement among several of the participants in the hearing significantly reduced the number of issues involved. The SWRCB ruling has been delayed pending completion of the necessary environmental documents, which are now expected to get expedited attention by State staff with the goal of completing the documents and allowing a decision to be made by SWRCB by mid-2007.

The outcome of the hearing has the potential for significant impacts on the water rights for the Cachuma Project, the largest single source of supply for the City. It was made more complex by the endangered species listing of the steelhead trout. The listed steelhead are defined as rainbow trout that are anadromous (travel to the ocean) *and* that inhabit areas below the first ocean migration barrier, which is Bradbury Dam at Lake Cachuma. Thus, rainbow trout above Bradbury Dam are not listed. The City has worked as a member of the Cachuma Conservation Release Board, along with other affected agencies, to continue data collection and research, and to complete projects aimed at enhancing steelhead habitat, improving fish passage, and providing flow augmentations for steelhead, consistent with the Lower Santa Ynez River Fish Management Plan adopted in 2000.

## Water Demand

### 2005-2006 Water Demand

Water demand is measured by water production, since water is produced to meet the demand. Total system water production (potable plus recycled water) for the 2005-2006 water year was 13,174 AF compared to a projected value of 14,000 AF. The reduced demand reflects significant rainfall during late spring 2006. The recent demand history is shown as the "Actual Demand" line in Figure 2.

### Efficiency Programs

The City continues to provide an award-winning water conservation program and implement the Best Management Practices (BMPs) defined by the California Urban Water Conservation Council (CUWCC). The City is an active member in CUWCC. Highlights of the City's water conservation program include the following, some of which are administered jointly with other local water agencies:

- Free water check-ups for City water customers (382 check-ups during the past water year). A customer survey program demonstrates a continuing high level of customer satisfaction.
- Joint sponsorship of regional water efficiency programs, including Water Awareness Month, the “Be Water Wise” media campaign, the Rinse and Save Restaurant Program, and the Commercial Rebate Program; \$23,500 additional regional grant funding awarded recently.
- Administering the Green Gardener Certification Program, which provides bilingual training for landscape maintenance professionals in resource-efficient and pollution-preventing landscape maintenance practices (over 800 participants in standard class and 110 in advanced class since 2000).
- Continued implementation of the ET Irrigation Controller Distribution Program to provide state-of-the-art “smart” irrigation controllers to the City’s highest residential water users, at minimal cost to participants. This technology provides automatic irrigation scheduling using a built-in radio receiver to create weekly irrigation schedules based on real time data from local weather stations. The result has been an average 20% reduction in annual landscape water use. Since May 2002, a total of 171 ET controllers have been installed in the City.
- Launched the “Watering Index,” an irrigation coefficient published weekly and used by customers to adjust watering schedules for current weather conditions by entry of a single value into the irrigation controller.
- Public information for City water customers, including websites, videos, advertising, and over 20 different brochures on water efficient practices and low-water using landscapes available free to City water customers.
- Water education program reaching approximately 2,000 K-12<sup>th</sup> grade students per year through classroom presentations, teacher training workshops, curriculum distribution, and the Water Awareness High School Video Contest.

### Monitoring of Net New Commitments

January 1, 1991 is the reference date for which the LTWSP estimated a "normal" pre-drought water demand of 16,300 AFY. Since then, staff has tracked the net changes in the City’s commitment to serve water, as summarized by the following calculation:

1991 Normal Demand:	16,300 AF
Plus theoretical additional demand due to new development since 1991:	+944 AF
Minus cumulative identified conservation savings:	-999 AF
Current Theoretical Normal Year Demand:	<u>16,245 AF</u>

It should be noted that “normal” year demand is now about 14,000 AFY, based on recent actual production data. Staff expects to adjust the accounting procedure to reflect this change as a part of the update of the LTWSP that will accompany the City’s General Plan Update.

Figure 2 tracks the net change in the theoretical water supply commitments (i.e., demand), the City's approved water supply capability, and the actual demand (as measured by water system production). From the 1997-98 water year onward, the water supply values include supplies from permanent desalination and the SWP. The figure shows that both the actual demand and the updated theoretical commitment continue to be within the production capability, which demonstrates the adequacy of the City’s water supply for the foreseeable future. The

significant difference between the theoretical commitment and actual demand can be attributed to conservation efforts on the part of the City and its customers.

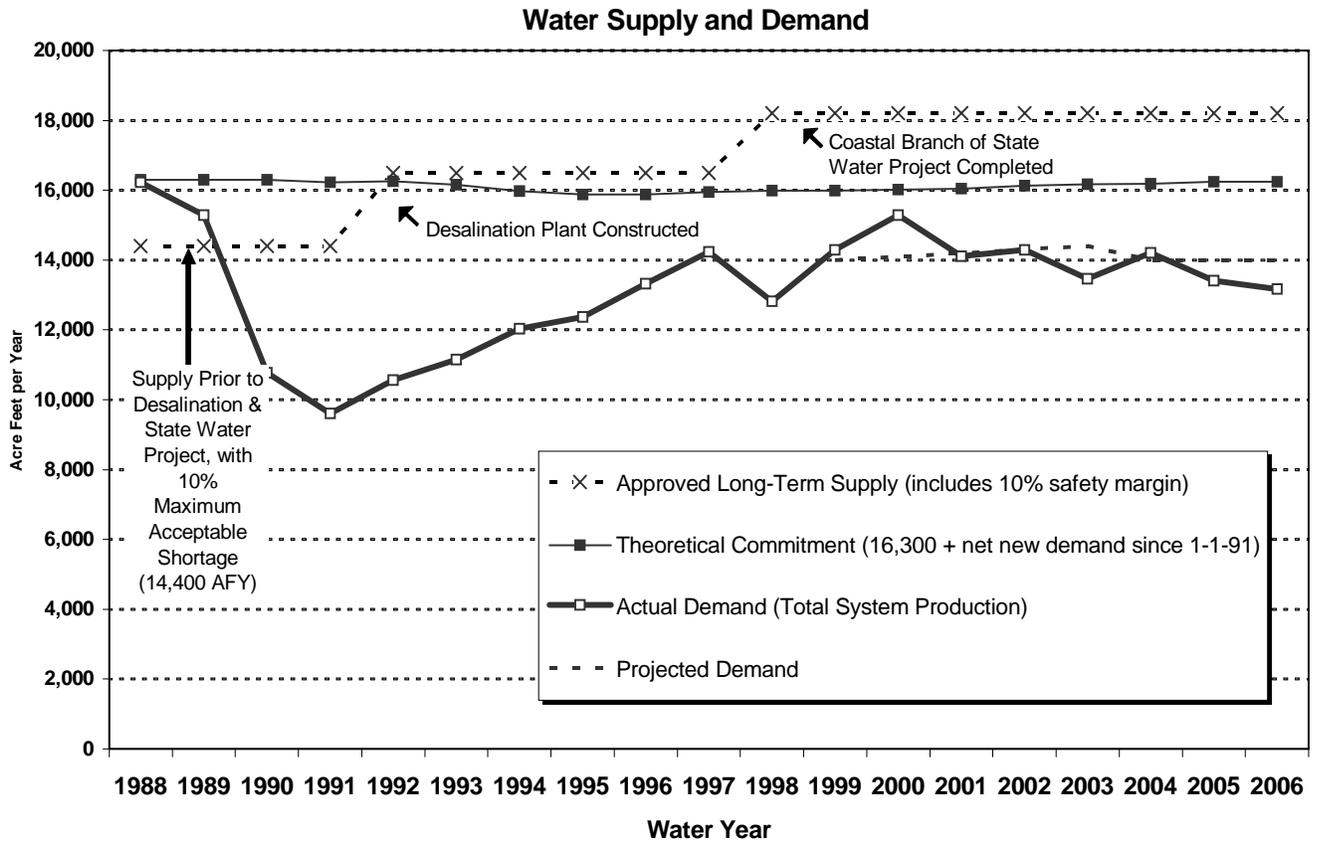


Figure 2.