



CITY OF SANTA BARBARA

COUNCIL AGENDA REPORT

AGENDA DATE: December 18, 2007

TO: Mayor and Councilmembers

FROM: Water Resources Division, Public Works Department

SUBJECT: Annual Water Supply Management Report

RECOMMENDATION:

That Council approve and adopt the City of Santa Barbara Water Supply Management Report for the 2007 water year, finding groundwater resources are in long-term balance under the City's program for conjunctive management of groundwater.

DISCUSSION:

The Water Supply Management Report (WSMR) is an annual report summarizing activities of the past water year (October 1, 2006 through September 30, 2007). The WSMR fulfills a mitigation requirement of the Coastal Branch of the State Water Project development by requiring that water supplies be managed in such a manner as to prevent long-term overdrafting of local groundwater supplies. In addition to meeting annual reporting requirements, City staff uses the WSMR as an opportunity to inform Council and the public about recent activities and current water supply conditions. Key issues discussed in the 2007 WSMR are summarized below:

- Groundwater resources are in balance and long-term groundwater production does not exceed perennial basin yield.
- Despite having the driest year in over 100 years, the end-of-year storage at Lake Cachuma was at 70% of capacity. Lake Cachuma is the City's primary water supply. Gibraltar Reservoir ended the year with storage at 38% of capacity.

REVIEWED BY: _____Finance _____Attorney

Agenda Item No. _____

- The Zaca fire burned over 60% of the watershed that drains to Gibraltar Reservoir. Resultant erosion and sedimentation could significantly reduce storage capacity at the reservoir and may cause water quality problems that are difficult to treat. Planning is underway to minimize these impacts through use of debris racks and temporary sedimentation basins.
- A major ruling by the State Water Resources Control Board on water rights for the Cachuma Project is still pending. At issue is how water should be managed to balance the needs for our water supply, while protecting fish. A ruling is not expected before Spring 2008.
- The City's award winning Water Conservation Program continues to serve City customers. Increased use of water for irrigation, caused by extraordinarily dry weather, pushed demand for the past water year to approximately 15,000 acre feet (AF). Current normal year demand is considered 14,000 AF per year, or 14% below the 1988 level of 16,300 AF.

In summary, water supplies continue to be sufficient to meet the goals of the adopted Long-Term Water Supply Program. Continued dry weather will result in further drawing down of Lake Cachuma and Gibraltar Reservoir. Staff anticipates regular updates to Council in the coming months and anticipates recommending that Council declare a Water Shortage Condition if there is insubstantial rainfall this winter. However, given that we are at the beginning of the rainy season and there are still three years of capacity in Lake Cachuma, we do not recommend such action at this time.

On November 12, 2007, the City Water Commission reviewed the draft WSMR and voted to recommend approval with suggested additions and clarifications that have been incorporated. The WSMR has been made available for public review and comment.

ATTACHMENT(S): 2007 Water Supply Management Report

PREPARED BY: Rebecca Bjork, Acting Water Resources Manager/BF/mj

SUBMITTED BY: Paul Casey, Acting Public Works Director

APPROVED BY: City Administrator's Office



City of Santa Barbara
Water Supply Management Report
2007 Water Year (October 1, 2006 – September 30, 2007)
Water Resources Division, Public Works Department
December 2007

INTRODUCTION

The City of Santa Barbara operates the water utility to provide water for its citizens and visitors. Santa Barbara is an arid area and providing an adequate water supply requires careful management of water resources. The City has developed several water supply sources including local reservoirs (Lake Cachuma and Gibraltar Reservoir), groundwater, State water, desalination, and recycled water. The City also considers conservation an important tool for balancing water supply and demand.

The City's Long-Term Water Supply Program (LTWSP) was adopted by City Council on July 5, 1994 and is the current strategic plan for the City's water supply. It was developed and adopted based on the 1991 update of the City's General Plan and will be updated again in conjunction with the current "Plan Santa Barbara" process.

This annual report summarizes the following information:

- The status of water supplies at the end of the water year (September 30, 2007)
- Water conservation and demand
- Dry weather water supply projection
- Major capital projects that affect the City's ability to provide safe clean water
- Significant issues that affect the security of the City's water supplies

Appendix A provides supplemental detail. Additional information about the City's water supply can be found on-line at: <http://www.SantaBarbaraCa.gov/water>

On November 12, 2007, the Water Commission reviewed the draft and voted 4-0-0 to recommend adoption by the City Council with minor modifications which have now been incorporated.

WATER SUPPLIES

The City has developed five different water supplies: Local surface water; local groundwater (which includes water that seeps into the Mission Tunnel); State water; desalinated seawater; and recycled water. Typically, all of the City's demand is met by local surface water reservoirs and recycled water, augmented as necessary by local groundwater and State Water. The City's desalination facility is currently off-line.

The City's local surface water comes from Gibraltar Reservoir and Lake Cachuma, both of which are located in the upper Santa Ynez River watershed. The inflow to these reservoirs is rainwater, so rainfall data for Gibraltar Reservoir is very important for water supply

management purposes. Figure 1 shows rainfall for the past ten years as compared to the 46-year average. Additional historic rainfall information is included in Appendix A. 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 year was the lowest amount in over 100 years. To enhance rainfall, the City participates in the cloud seeding program administered by the County of Santa Barbara. However, the program has been suspended for the coming year due to concerns about potential erosion resulting from the Zaca Fire.

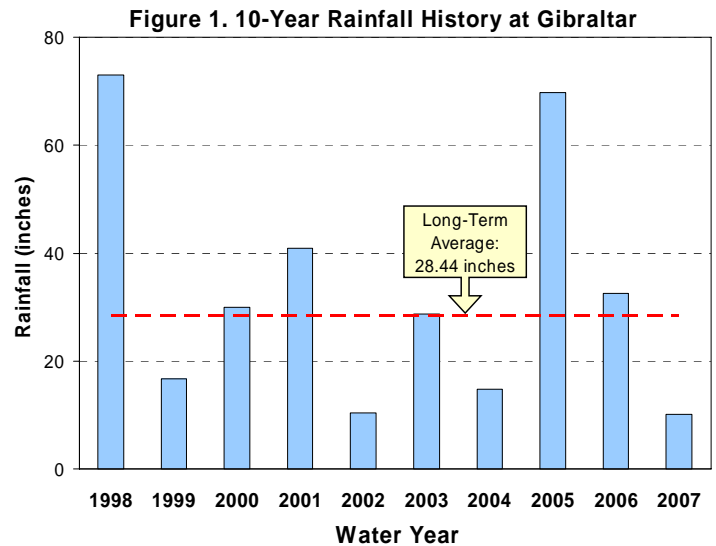


Table 1, below, summarizes the status of the City's various water supplies at the end of the 2006-2007 water year.

Lake Cachuma	Total Capacity: 188,030 AF (2003 survey) End of Year Storage: 132,392 AF Percent of Total Capacity: 70% The City's share of the Cachuma Project normal annual deliveries is 8,277 AF. The unused portion of the City's 2006-2007 share, in the amount of 5,171 AF, has been carried over to the current year.
Gibraltar Reservoir	Total Capacity: 7,087 AF (2004 survey) End of Year Storage: 2,665 AF Percent of Total Capacity: 38% Gibraltar Reservoir typically fills and spills about two out of every three years. Planned production is typically 5,000 AFY. Due to minimal rainfall, deliveries were reduced in 2007 to 2,120 AF to preserve water for summer peaking purposes.
Mission Tunnel	Groundwater that seeps into Mission Tunnel is an important part of the City's water supply, providing an average of approximately 1,100 AFY.
Groundwater	Groundwater levels remain high since they have been pumped at less than the annual recharge rate during the past decade. Four of nine production wells are currently available for production. Four additional wells feeding Ortega Groundwater Treatment Plant (OGTP) are scheduled for rehabilitation in conjunction with the OGTP reconstruction. The ninth well will enter Phase 2 design shortly.
State Water Project (SWP)	The City has a 3,000 AF entitlement, plus 300 AF drought buffer. The Coastal Branch and Santa Ynez Extension of the SWP are in place to deliver the City's SWP water into Lake Cachuma, subject to availability of water supplies. The City used 693 AF of State Water in 2007.
Desalination	The desalination plant remains in long-term storage mode and no desalinated water was produced this year. Staff projects no need for desalinated water within at least the next 5 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. The system typically provides approximately 5% of the total water demand.

*The Water year runs from October 1 through September 30. All data above is as of September 30, 2007

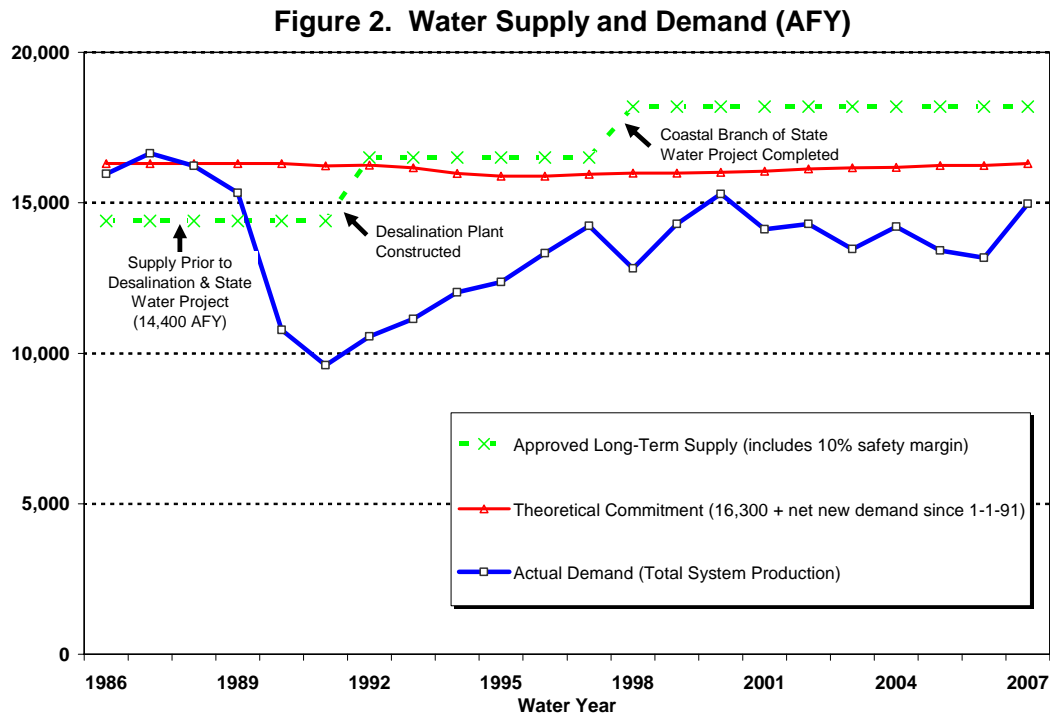
CITY WATER CONSERVATION PROGRAM

The City depends on water conservation as a part of its water supply plan and is an active member of the California Urban Water Conservation Council (CUWCC). The City's Water Conservation Program continues to focus on implementing the Best Management Practices (BMPs) defined by CUWCC, as well as pursuing additional progressive opportunities for water conservation. 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 (480 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 an ongoing media campaign, the "Garden Wise Guys" television show, the California Landscape Budgets Program, Water Awareness Month, and residential and commercial rebate programs.
- Green Gardener Program, which provides bilingual training for landscape maintenance professionals in resource-efficient and pollution-preventing landscape maintenance practices (Almost 900 participants in the standard class and 122 in the advanced class since 2000).
- Continued implementation of the Smart Irrigation Controller Program, providing "smart" irrigation controllers to eligible City water customers. The smart controller automatically calculates a scientifically-based irrigation schedule based on a variety of factors, including plant and soil type. It then adjusts the irrigation schedule as local weather changes. The result has been an average 20% reduction in annual landscape water use. Since May 2002, a total of 176 smart controllers have been installed in the City.
- Maintain the "Watering Index and Landscape Watering Calculator," easy-to-use web-based tools that help estimate the right amount of water to apply to a landscape.
- Public information for City water customers including videos, advertising, and over 20 different brochures on water efficient practices and low-water using landscapes available free to City water customers. A wide variety of web-based conservation information is also available at the City's web site (www.SantaBarbaraCA.gov/water) and the regional web site (www.sbwater.org).
- Water education program reaching approximately 2,000 K-12th grade students per year through classroom presentations, teacher training workshops, curriculum distribution, and the Water Awareness High School Video Contest.
- Updated standards for water conservation in City facilities have been drafted and site assessments of all facilities are underway.
- The City's Landscape Design Standards for Water Conservation are being reviewed for updating.
- Hotels and motels are being contacted to encourage participation in public information efforts aimed at their guests.
- The rain sensor rebate program is about to begin, providing a \$50 rebate for installation of a sensor that will turn off the irrigation system when there has been recent rainfall.

MONITORING OF WATER SUPPLY AND DEMAND

Water demand is measured by water production, because water is produced to meet the demand. Figure 2 illustrates the tracking of supply and demand during the period of the LTWSP. It shows the original approved water supply, and how it was augmented with desalination and State Water. It also shows the history of demand, both on an actual basis and as a tracking of theoretical changes in demand since 1991, reflecting the estimated net effect of new development and conservation savings.



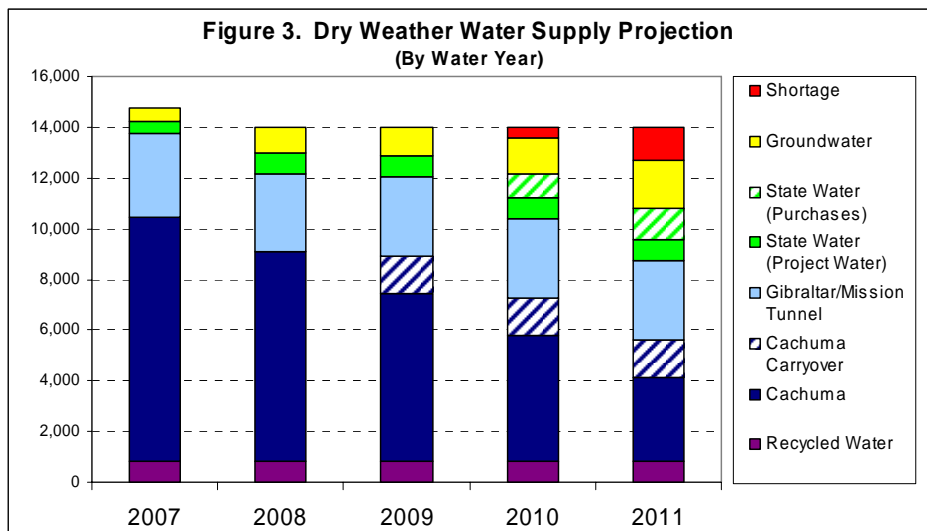
Total system water production (potable plus recycled water) for the 2006-2007 water year was 14,963 AF compared to a projected volume of 14,000 AF. A minor portion of this increase can be attributed to new development; however, it is apparent that the increased usage is primarily the result of increased irrigation in response to record dry weather. The recent demand history is shown as the “Actual Demand” line in Figure 2.

DRY WEATHER WATER SUPPLY PROJECTION

In response to recently experiencing the driest year in over a century, staff’s public information efforts have aimed at conveying two points:

- The recent dry weather follows two years of above average rainfall resulting in full reservoirs. The City’s water supply has multiple sources and is designed to accommodate multiple dry years.
- Water conservation is always important and helps us stretch our water supplies during dry periods. Customers are being encouraged to keep up efforts to improve the efficiency of their water use.

In August, staff provided a water supply update to the Council illustrating our water supply plan in the event of continuing dry weather. Staff has reviewed that analysis in response to developments since that time, including the recent judicial decision on State Water Project deliveries, indications of a continuing La Nina



condition, and unknown impacts at Gibraltar Reservoir and Lake Cachuma associated with the Zaca Fire. The supply projection is illustrated in Figure 3. It has been revised slightly to reduce assumed State Water deliveries from 32% to 25% of allotment and to begin using Cachuma carryover water one year earlier to defer some supplemental State Water purchases and avoid stranding carryover storage if Cachuma were to approach empty.

The City's Water Shortage Contingency Plan serves as a guide for City response to drought conditions and includes three stages of Water Shortage Conditions, summarized as follows:

- Stage 1 – Water Shortage Watch (potential for 10% shortage within the next three years)
 - Enhanced public information campaign
 - Expect 20% reduction in Cachuma deliveries
 - Investigate options and need for supplemental purchases

- Stage 2 – Water Shortage Alert (potential for 10% shortage within the next two years)
 - Announce community target for 10% cutback in water usage
 - Consider rate changes to induce additional conservation
 - Consider suspension of development applications
 - Assess need for temporary water supply projects, including desalination
 - Evaluate need for additional water use restrictions and/or water purchases

- Stage 3 – Water Shortage Emergency (potential shortage substantially greater than 10%)
 - Not anticipated under the LTWSP, but possible due to extraordinary events.
 - Drastic water use restrictions may be necessary
 - Rate adjustments would be expected to substantially curtail demand
 - Additional specific responses based on the nature of the situation

Based on rainfall during the coming winter, staff will evaluate a recommendation to declare a Stage 1 Water Shortage Condition in spring of 2008. Such a declaration is not recommended at this time since one wet year could change the entire water supply outlook.

Also, in order to get a good response when needed, it is important to avoid asking for extraordinary measures too frequently. However, we continue to promote the efficient use of water through the City's Water Conservation Program.

CAPITAL PROJECTS

Staff continues work on a number of projects to improve the reliability and quality of City water supplies:

- ***Gibraltar Reservoir-Zaca Fire Disaster Preparedness:*** Staff is currently working on Phase 1 of this project which is intended to be an immediate response to lessen the potential impacts of storm water and debris flows anticipated this winter. The proposed work includes excavating and contouring debris basis at the reservoir inlet, and installing weather monitoring stations, debris racks, and log booms at strategic locations in and upstream of the reservoir.
- ***San Roque and High School Wells:*** Phase 2 design and pilot testing continued on two recently constructed water production wells. At San Roque Park Well, the 90% construction plans are almost complete. Pilot testing of treatment options has been completed at the High School Well and a report is due soon, to be used in determining the final design parameters.
- ***Ortega Groundwater Treatment Plant:*** Staff continues the extensive process of reconstructing the Ortega Groundwater Treatment Plant and rehabilitating the four wells that feed into it. The project aims to preserve an important part of the City's water supply for use to meet peak demands, back-up surface water supplies during drought, and provide an emergency water supply in the event of catastrophic supply interruptions. Environmental analysis is beginning and completion of the plant reconstruction is targeted for 2011.
- ***Reservoir No. 1 Rehabilitation:*** This project is currently in construction. The project repairs the reservoir's damaged concrete basin and roof structure, upgrades the valve house, and improves related appurtenances. Once completed, the reservoir will provide much needed groundwater water storage capacity.
- ***Tertiary Treatment Plant:*** The preliminary design report on rehabilitation of the tertiary filters at El Estero Wastewater Treatment Plant is nearing completion. The project aims to improve turbidity removal and assess options for reducing the level of dissolved salts in the City's recycled water.

WATER SUPPLY ISSUES

There are three significant issues that may affect the City's water supplies, discussed briefly below.

Cachuma Project Water Rights Hearing: 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 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. A decision might be issued by SWRCB during 2008.

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 prepared by the Santa Ynez River Technical Advisory Committee in 2000.

Zaca Fire: The Zaca Fire burned approximately 60% of the Gibraltar Reservoir watershed, normally the source of about 35% of the City's water supply. The reservoir is at risk of losing half or more of its current water storage capacity due to accelerated siltation. Staff is developing projects aimed at minimizing impacts from siltation and debris and maintaining water quality. Disaster Survey Reports in the amount of \$4.3 million have been submitted for review by State officials.

Delta Smelt/ State Water Project Wanger Decision: In August of this year, U. S. District Judge Oliver Wanger ordered a major decrease in the amount of water pumped out of the Delta. The ruling came in a suit involving the endangered Delta smelt. The decision is widely reported to mean a 30% reduction in SWP deliveries to entities south of the Delta. Staff is assessing the projected impact and how this reduction interacts with other limitations already assumed for SWP deliveries.

Appendix A – Supplemental Water Supply Information

Groundwater Balance

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 A-1, 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 A-1. Groundwater Balance

Estimated Perennial Groundwater Yield of 3 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 2006-2007:	599 AFY

Long-Term Projection of Supply Availability

Table A-2 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 2007-2008 Supply Plan reflects the extremely dry year just completed and aims to position the City to for potential continuing dry weather.

Table A-2. Sources of Supply (AF)

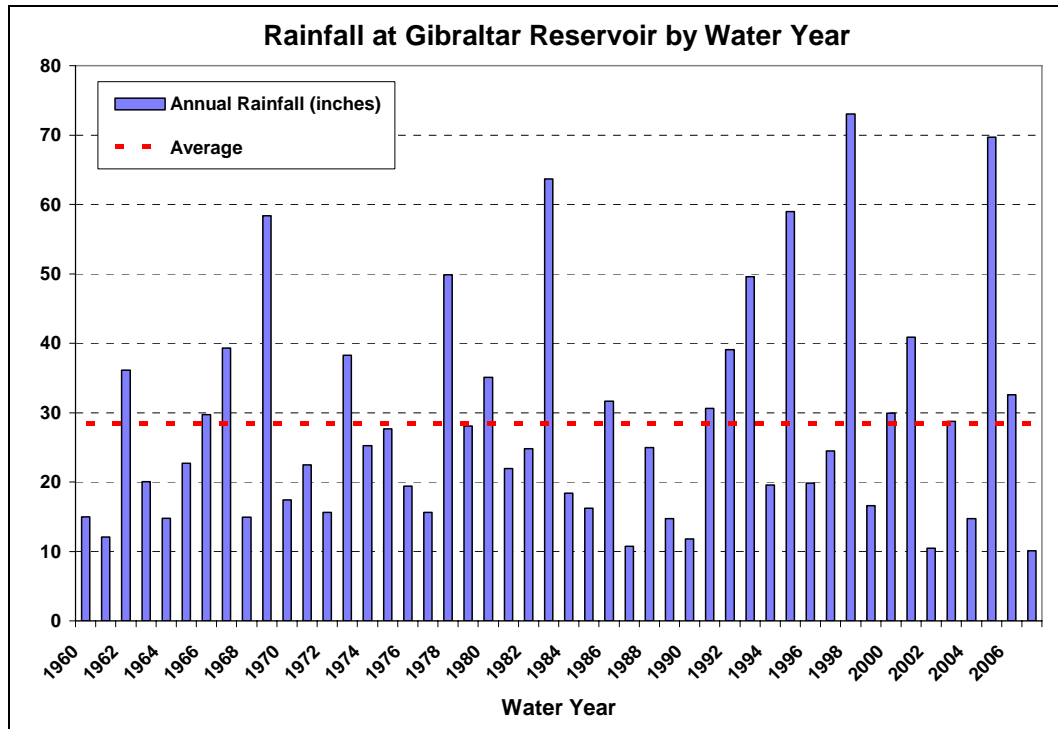
Source of Supply	2006-2007 Original Plan	2006-2007 Actual	2007-2008 Supply Plan Projected	LTWSP Estimated Average
Gibraltar Reservoir	5,000	2,120	2,000	4,310
Cachuma Project	5,615	9,843	8,277	8,203
Mission Tunnel	1,100	1,201	1,100	1,109
Devil's Canyon	(w/ Gibraltar)	0	(w/ Gibraltar)	(w/ Gibraltar)
Juncal Res. (300 AF from MWD)	(w/ Cachuma)	(w/ Cachuma)	(w/ Cachuma)	300
State Water Project	630	601	825	2,200
Groundwater	855	599	998	1,018
Desalination	0	0	0	141
Recycled Water	800	856	800	900
Net Other Supplies ¹	(na)	-257	(na)	(na)
Total Supply:	14,000	14,963	14,000	18,181
Total Demand:	14,000	14,963	14,000	18,200 ²
Percent Shortage:	0	0	0	0.1% ³

¹ 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).

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

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

Long-Term Rainfall Data



Per Capita Water Usage

