ITEM 9

Agenda Item No._____

File Code No.

CITY OF SANTA BARBARA

COUNCIL AGENDA REPORT

DRAFT

AGENDA DATE: January 11, 2011

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 2010 water year, finding that groundwater resources are in long-term balance in accordance with the conjunctive management element of the City's Long-Term Water Supply Program (LTWSP).

DISCUSSION:

The Water Supply Management Report (WSMR) is an annual report summarizing activities of the past water year (October 1, 2009 through September 30, 2010). City staff uses the WSMR to inform Council and the public about recent activities and current water supply conditions. The report also fulfills a mitigation requirement for the Coastal Branch of the State Water Project that water supplies be managed to prevent long-term overdraft of local groundwater. Key issues of the report are summarized below.

- Groundwater resources are in balance and long-term groundwater production does not exceed perennial basin yield.

- Lake Cachuma ended the year at 82% of capacity. As the City's largest water supply source, Lake Cachuma is the most important indicator of the City's water supply status. While our water supply is always managed with potential drought in mind, the current level of storage indicates there is no immediate concern about local drought.

- The City continues to deal with the effects of the 2007 Zaca Fire in terms of high water treatment costs and accelerated siltation of Gibraltar Reservoir. The fire burned 60% of the Gibraltar watershed and was followed by heavy rainfall and erosion that has now reduced the storage capacity of Gibraltar Reservoir from 6,800 acre-feet (AF) to 5,251 AF. Due to this loss in capacity, staff is working to implement provisions of the 1989 "Pass Through Agreement" to allow delivery of a portion of the City's Gibraltar water through Lake Cachuma.

- A major ruling by the State Water Resources Control Board (SWRCB) on water rights for the Cachuma Project is still pending. At issue is how water should be managed to balance the needs for water supply, while protecting fish. Recent progress at SWRCB suggests that the environmental documentation could be finished and an order issued during the first half of 2011.

- The City's award winning Water Conservation Program continues to implement programs to help City customers save water. The increasingly popular Smart Landscape Rebate Program offers rebates on irrigation equipment and landscape materials for residential and commercial landscapes. A graywater workshop for landscape professionals was part of City efforts to promote the recent elimination of permitting requirements for certain simple graywater systems. Free water checkups and a comprehensive public information program inform our customers of opportunities to save water and money.

- Demand for the year fell to 13,341 AF, reflecting slightly above average rainfall, economic conditions, and ongoing conservation efforts. This drop continues a recent trend of declining demand since the extraordinarily dry year of 2007.

- Staff regularly briefs the Water Commission on efforts to update the LTWSP. This includes issues such as an updated long-term demand estimate, the potential for additional water conservation, the yield of our various water supply sources, the optimal roles for desalination and recycled water, the appropriate water supply safety margin, and a reasonable level of short term extraordinary demand reductions that can be planned on during a severe drought.

In summary, water supplies continue to be sufficient to meet the goals of the City's LTWSP, adopted in 1994. Our goal is to present a recommendation to update the LTWSP during the first half of 2011.

The draft WSMR has been made available for public review and comment. Council will be briefed at the time of our report on any feedback that has been received. On December 13, 2010, the City Water Commission reviewed the draft WSMR and voted to _____.

ATTACHMENT(S): 2010 Water Supply Management Report

PREPARED BY: Rebecca Bjork, Water Resources Manager BF/mh

SUBMITTED BY: Christine F. Andersen, Public Works Director

APPROVED BY: City Administrator's Office

DRAFT

City of Santa Barbara
Water Supply Management Report
2010 Water Year (October 1, 2009 – September 30, 2010)

Water Resources Division, Public Works Department
December 2010

INTRODUCTION

The City of Santa Barbara operates the water utility to provide water for its citizens, certain out-of-City areas, and visitors. Santa Barbara is an arid area and providing an adequate water supply requires careful management of water resources. The City has a diverse water supply including local reservoirs (Lake Cachuma and Gibraltar Reservoir), groundwater, State Water, desalination, and recycled water. The City also considers water 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. While it is the current strategic plan for the City's water supply, staff is developing information and recommendations in support of an update of the LTWSP.

This annual report summarizes the following information:

- The status of water supplies at the end of the water year (September 30, 2010)
- Water conservation and demand
- Drought outlook
- 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
- A brief summary of key issues associated with the LTWSP update

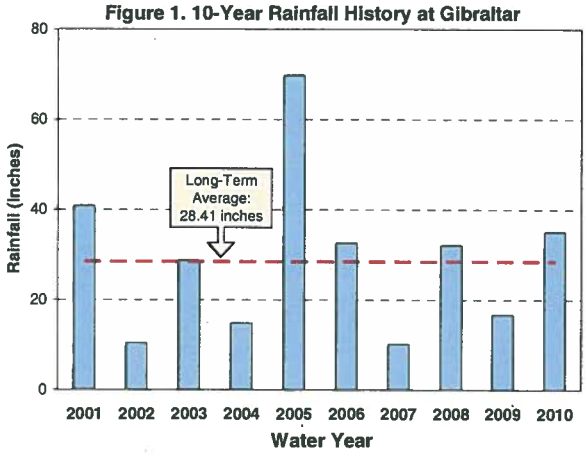
Appendix A provides supplemental detail. Additional information about the City's water supply can be found on-line at: www.SantaBarbaraCA.gov/water

On December 13, 2010, the Water Commission _____and voted to _____.

WATER SUPPLIES

The City has developed five different water supplies: local surface water; local groundwater (which includes water that seeps into Mission Tunnel); State Water; desalinated seawater; and recycled water. Typically, most 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.

Figure 1. 10-Year Rainfall History at Gibraltar



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 50-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 about 23% above average and Lake Cachuma received almost enough inflow to fill. To enhance rainfall, the City participates in the cloud seeding program administered by the County of Santa Barbara. However, the program has been limited in recent years due to concern about potential erosion of burn areas.

Table1, below, summarizes the status of the City's various water supplies at the end of the 2009-2010 water year.

Table 1. End of Year Status of City Water Supplies*	
Lake Cachuma	Total Capacity: 186,636 AF (2008 survey) End of Year Storage: 152,855 AF Percent of Total Capacity: 82% The City's share of the Cachuma Project normal annual deliveries is 8,277 AF. Actual use was 6,803 AF. The unused portion in the amount of 6,755 AF has been carried over to the current year.
Gibraltar Reservoir	Total Capacity: 5,251 AF (2010 survey) End of Year Storage: 2,680 AF Percent of Total Capacity: 49% Gibraltar Reservoir typically fills and spills about two out of every three years. Deliveries over the past ten years have averaged 3,276 AFY. Deliveries in 2010 were 3,331 AF.
Mission Tunnel	Groundwater that seeps into Mission Tunnel is an important part of the City's water supply, providing 1,288 AF in 2010, slightly above the long-term average.
Groundwater	Groundwater levels remain high in the downtown storage basin, since pumping has been less than the annual recharge rate during the past decade. Levels in the upper State Street area are lower than normal due to additional use of groundwater to meet water quality requirements. Four of nine production wells are currently available for production. Four additional wells feeding Ortega Groundwater Treatment Plant (OGTP) are being considered for rehabilitation in conjunction with the upgrade of the OGTP. The City used 1,273 AF of groundwater during 2010.
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 777 AF of State Water in 2010.
Desalination	The desalination plant remains in long-term storage mode and no water was produced this year. Staff projects no need for desalinated water within at least the next 5 years.
Recycled Water	The City's recycled water system provides recycled water to parks, schools, golf courses, other large landscaped areas, and some public restrooms. The system provides approximately 5% of the total water demand. Demand from recycled water customers was 660 AF in 2010, not including process water at El Estero Wastewater Treatment Plant. In recent years, recycled water has included a significant fraction of potable water for blending to meet water quality standards and reduce mineral content. A project to address this issue is pending review of secondary treatment modifications.

*The Water year runs from October 1 through September 30. All data above is as of September 30, 2010

CITY WATER CONSERVATION PROGRAM

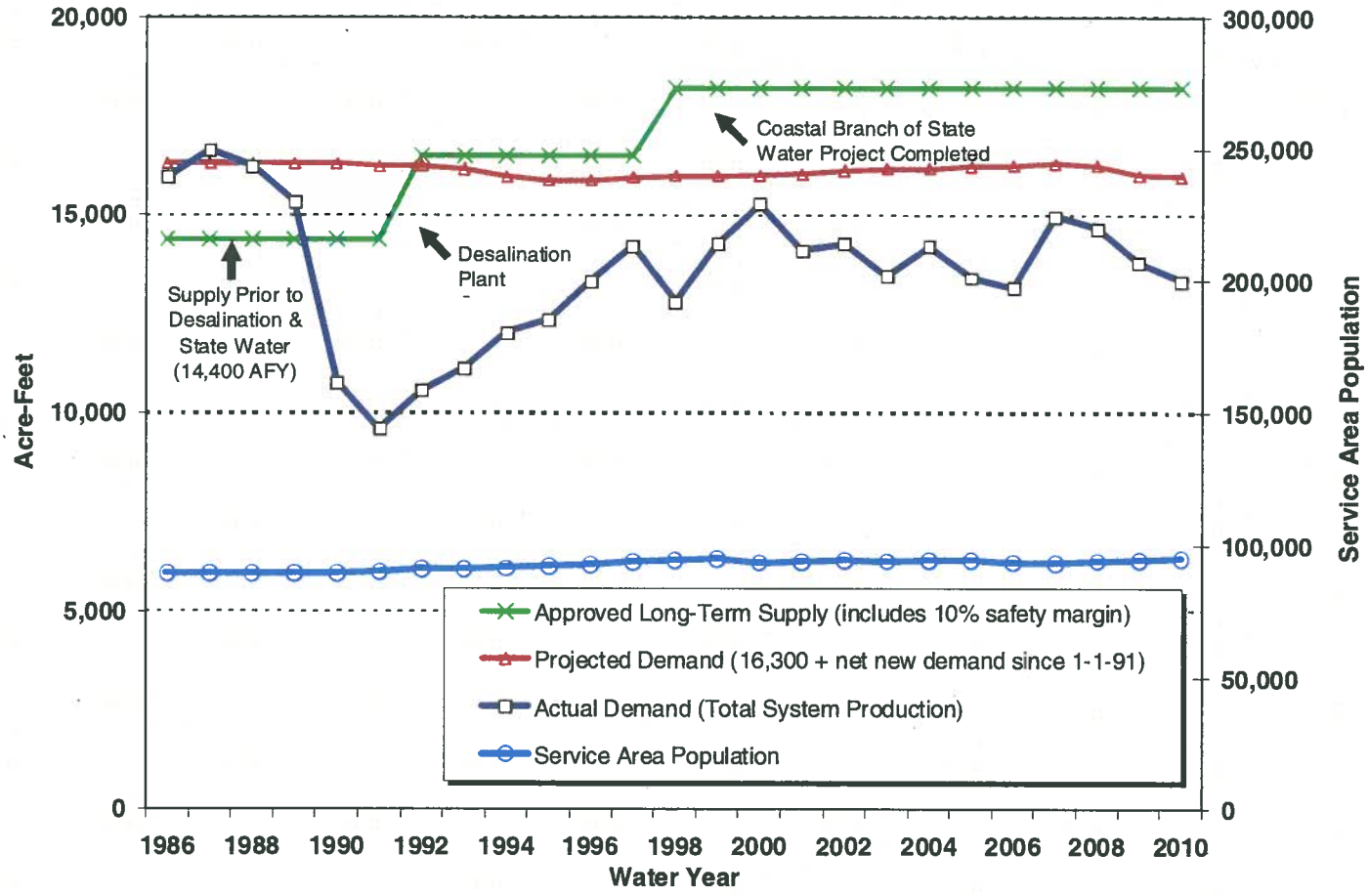
The City depends on water conservation as a part of its water supply plan and is an active member of the California Urban Water Conservation Council (CUWCC). The City's Water Conservation Program is based on implementing the Best Management Practices (BMPs) defined by CUWCC, as well as pursuing additional progressive opportunities for water conservation. Highlights of the City's water conservation program include the following activities, some of which are administered jointly with other local water agencies and the Santa Barbara County Water Agency:

- Free water check-ups for City water customers (322 check-ups during the past water year). Customer surveys of water check-ups demonstrate a continuing high level of customer satisfaction.
- Joint sponsorship of regional water efficiency programs, including the regional media campaign, the "Garden Wise Guys" television show, Water Wise Gardening for Santa Barbara County CD and website, and participating in local events and workshops.
- Green Gardener Program, which provides bilingual training for landscape maintenance professionals in resource-efficient and pollution-prevention landscape maintenance practices. Since 2000, over 1,000 Green Gardeners have participated. More info at www.greengardener.org.
- 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 is provided for City water customers including a wide variety of web-based conservation information at the City's web site (www.savewatersb.org) and the regional web site (www.sbwater.org). Additionally, over 20 different brochures on water efficient practices and water wise landscaping are available free to City water customers.
- Water education program reaching approximately 2,000 K-12th grade students per year through classroom presentations, wastewater treatment plant tours, curriculum distribution, and the Water Awareness High School Video Contest.
- Hotels and motels are being contacted to encourage participation in public information efforts aimed at their guests. Table tents are available for restaurants to provide notice that water will be served upon request.
- Continued the Smart Landscape Rebate Program, offering rebates to increase water efficiency in both commercial and residential landscapes. Rebates on approved irrigation equipment and landscape materials are up to 50% of material costs. For Residential customers: Any combination of irrigation equipment and planting costs may qualify up to a one-time, maximum rebate of $1,000. For Commercial and Multi-Family customers, including home-owners associations: A maximum rebate amount of $2,000 per account serving irrigated area, and $4,000 per site. A pre-inspection is required for to confirm eligibility for all rebates.
- Rain Sensor Program, which provides a free rain sensor to City water customers. A rain sensor automatically shuts off the irrigation controller during and immediately after it rains.
- Held a hands-on "Laundry to Landscape" Graywater System workshop which twenty landscape professionals attended.

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 1988 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 theoretical year by year demand projection, reflecting the estimated net effect of new development and identifiable conservation savings since 1991. This graph illustrates the current LTWSP, now about to be updated. Staff expects a different format will be used upon adoption of the new LTWSP.

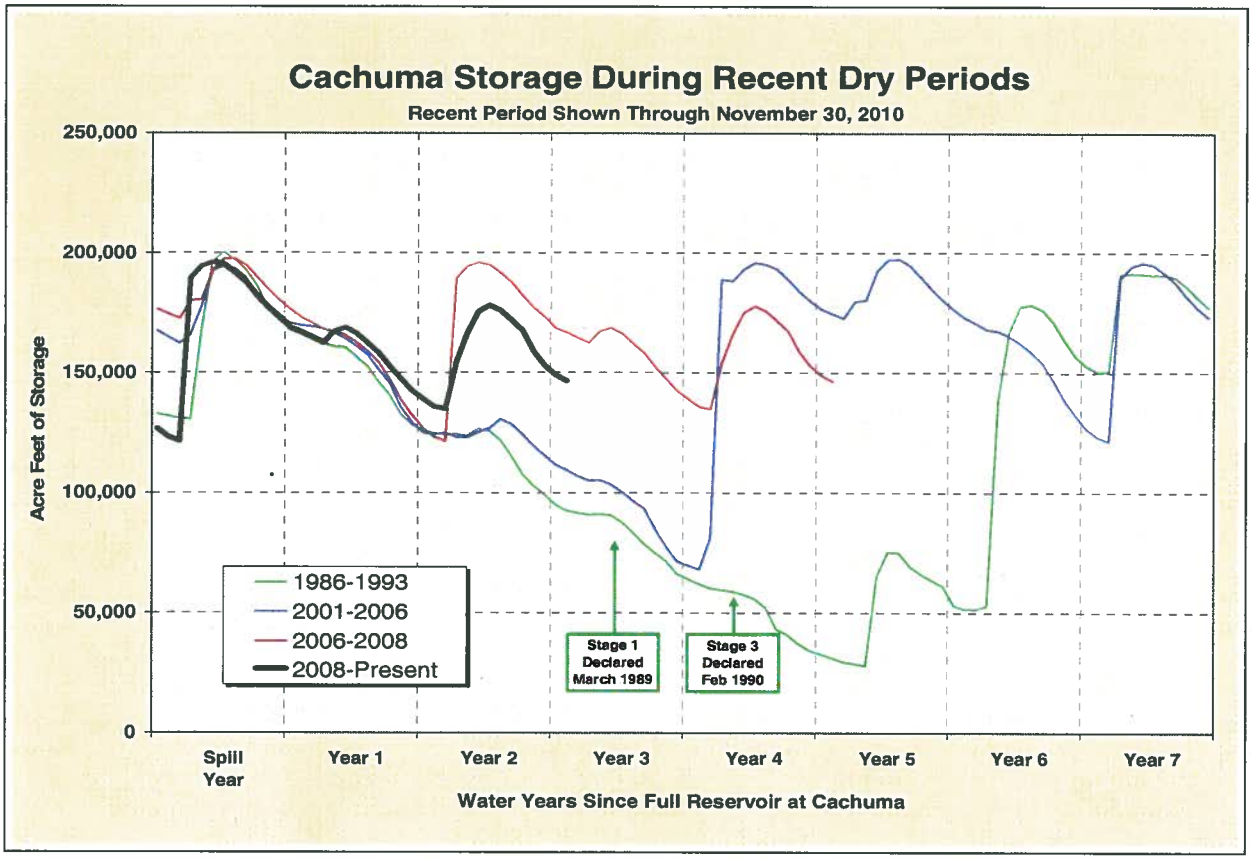
Figure 2. Water Supply and Demand (AFY)



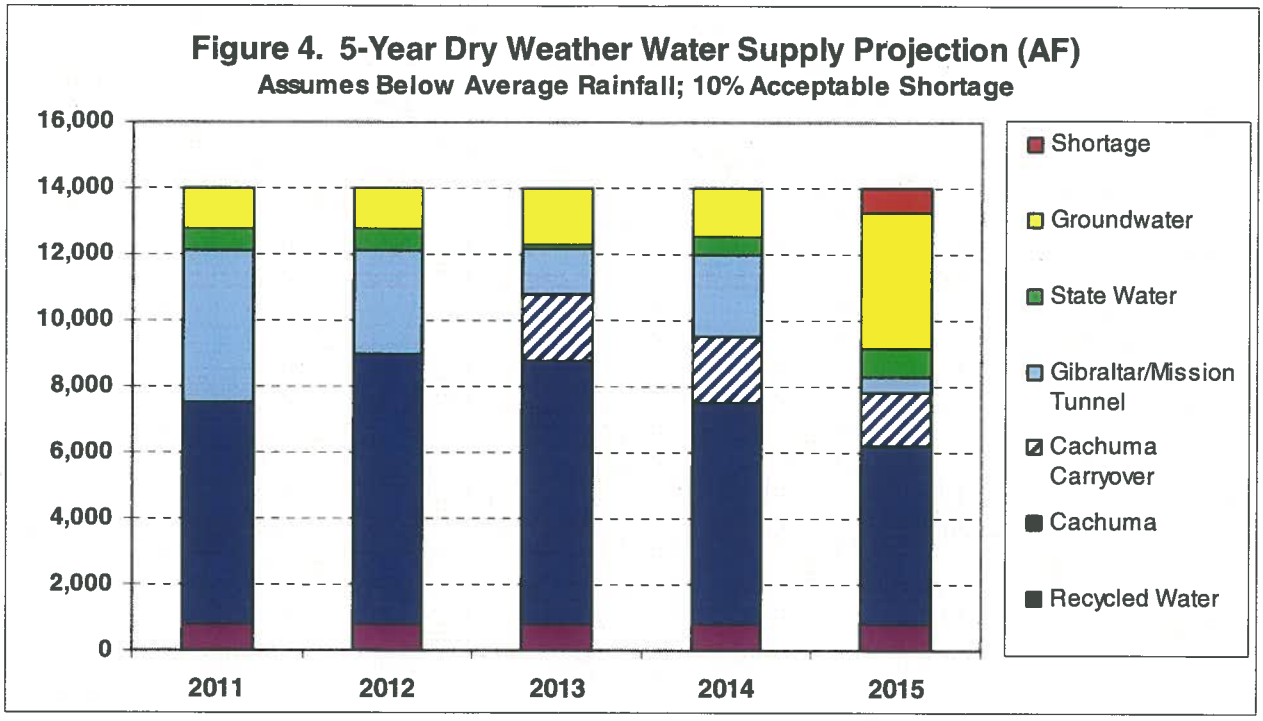
Total system water production (potable plus recycled water) for the 2009-2010 water year was 13,341 AF. This is below the estimated normal year water demand of 14,000 AFY, reflecting somewhat above average rainfall for the year, following three years of below average rainfall, including extraordinarily dry weather in 2007. The lower demand may also reflect the poor economic situation.

DROUGHT OUTLOOK

Because the City depends heavily on local surface water, drought is the situation most likely to reduce our available water supplies. Lake Cachuma is our primary source of surface water and its storage level is the most important indicator of potential near-term drought impacts. Figure 3 shows a recent history of storage levels at Lake Cachuma. The severe drought period of 1987-1993 is also shown for comparison to the less severe dry period of 2002 through 2004. Cachuma members normally begin to take voluntary reductions in deliveries when the reservoir storage drops below 100,000 AF as a way of stretching supplies in case drought continues.



The City's water supply is planned to meet 100% of normal year demand in most years and no less than 90% of normal year demand during a 5-year period of below average rainfall, which defines our "critical drought period." When rainfall is below average, there is limited inflow to Lake Cachuma and the storage level continues to drop. So we typically plan as if the first year after a spill at Cachuma is the first year of a 5-year critical drought period. Figure 4 shows a projection of how we would expect to meet a current normal year demand of 14,000 AFY over such a 5-year period beginning with the current (2011) water year and assuming continued below average rainfall and minimal inflow to Lake Cachuma. The figure shows Cachuma carryover and increased groundwater pumping to offset reductions in surface water availability as the drought progresses. The projection shows a 5% shortage in the fifth year, which is consistent with the LTWSP standard of an acceptable shortage of up to 10% during a critical drought period.



CAPITAL PROJECTS

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

- ***Ortega Groundwater Treatment Plant:*** A comprehensive process to identify the optimal treatment scheme has been conducted, and a rehabilitation and upgrade of the plant is expected to be bid within the next several months. The project aims to preserve an important part of the City's water supply for use to meet peak demands, provide back-up for depleted surface water supplies during drought, and serve as an emergency water supply in the event of catastrophic supply interruptions.

- ***Advanced Water Treatment Project:*** Addition of ozone treatment facilities has been designed for the Cater Water Treatment Plant. A low-interest State Revolving Fund loan has been approved to fund this project as well as groundwater treatment improvements, well rehabilitation, and distribution system improvements at Reservoir No. 1 to facilitate distribution of water from low elevations to higher zones as would be necessary during catastrophic water supply interruptions. The ozone improvements are expected to allow reduced the amount of groundwater used to meet water quality standards.

- ***Recycled Water Treatment Plant Rehabilitation:*** Funding has been appropriated to rehabilitate the recycled water filters. However, this project has been suspended pending evaluation of how to better treat the wastewater to achieve readily filterable water.

WATER SUPPLY ISSUES

There are a number of significant issues related to the City's water supplies, discussed briefly below.

Cachuma Project Water Rights Hearing: The Bureau of Reclamation and the 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 operations in terms of its effects on downstream water users and on public trust resources (steelhead trout). A December 2002 settlement agreement resolved a number of issues among several of the participants in the hearing, and is under consideration by the SWRCB. The SWRCB ruling has been repeatedly delayed pending completion of the necessary environmental documents. The Final EIR for Cachuma operations is now expected to be released in spring 2011; however a new SWRCB water rights decision is not anticipated until summer 2011.

Gibraltar Pass Through Operations: The Zaca Fire burned approximately 60% of the Gibraltar Reservoir watershed, normally the source of about 35% of the City's water supply. On top of historical siltation, the reservoir's storage capacity has now been reduced by an additional 1,535 AF, leaving a storage volume of 5,250 AF. In 1989, the City entered into the Upper Santa Ynez River Operations Agreement (the "Pass Through Agreement") with other members of the Cachuma Project. The City agreed to defer its planned enlargement of Gibraltar Reservoir in exchange for provisions that would allow the City to "pass through" a portion of its Gibraltar water to Lake Cachuma for delivery through Cachuma Project facilities. The City has elected to commence this phase of operations and is working with the U.S. Bureau of Reclamation to negotiate a "Warren Act" contract, as required by federal law to allow such use of the Cachuma Project. Modeling work is underway to assess the effects of Pass Through operations as required for an environmental assessment. The Pass Through option will allow the City to maintain its historical deliveries as the Gibraltar Reservoir continues to silt in.

State Water Project/Delta Smelt-Wanger Decision: The Sacramento-San Joaquin Delta is the source of all water moved to the south by the State Water Project. There is substantial debate about the relative importance of water supply and environmental benefits in regard to how the Delta is managed. The current approach is that these two co-equal goals need to be acknowledged as a part of any solution.

Delivery allocations are forecasted as a percentage of each member's maximum delivery amount (referred to as "Table A" amount). Beginning in 2007, a number of federal court decisions impacted diversions from the Delta, meaning a reduction in the delivery allocations for State Project members. At the same time the state was experiencing a prolonged dry period. More recently, there has been some easing of those restrictions and State Water supplies are also more plentiful due to near average runoff amounts during 2010. Following is a table listing State Water Project run-off conditions and delivery allocations for the past five years:

Water Year	Runoff Conditions (Sacramento River watershed)	SWP Delivery Allocation (% of "Table A" Amount)
2006	Wet	100%
2007	Dry	60%
2008	Critically Dry	35%
2009	Dry	40%
2010	Below Normal	50%

The State has issued an initial allocation of 25% for the 2011 water year, which can be expected to increase to the extent precipitation and runoff continue to occur in Northern California during the 2011 water year. The City relies on State Water to a limited extent, but it can be an important source of water for banking as a part of increasing the reliability of our water supply.

Long-Term Water Supply Program Update: Over the past two years, staff has developed a number of analyses in support of an updated Long Term Water Supply Program (LTWSP) as well as the *Plan Santa Barbara* process. The Water Commission has been briefed and has commented on this information as it was developed. During the first half of 2011, we will be presenting a summary analysis of our current and future water supply needs and developing a recommendation for an updated LTWSP. A number of key issues will be addressed:

- Demand Target: The current LTWSP (adopted in 1994) estimated a normal year demand of 16,400 AFY not including the safety margin. Current demand is approximately 14,000 AFY, reflecting an active conservation program, tiered-rate water pricing, stricter plumbing codes and appliance efficiency standards, and new technologies for improving efficiency. An updated demand target will be the foundation of the updated supply analysis.
- Conservation Program: A comprehensive model of our Water Conservation Program has been completed to identify practical and cost-effective conservation measures for the next 20-year planning period. An important factor will be the recent addition to State law requiring 20% reduction in urban per capita water use by 2020.
- Safety Margin: After determining the best estimate of anticipated demand, we have historically added a 10% "safety margin" to account for unplanned shortages in supplies and increases in demand. We are reviewing this value to confirm that it is still appropriate.
- Updated Supply Assessment: Supplies from Gibraltar Reservoir, Lake Cachuma, the State Water Project, groundwater, desalination, and recycled water are being evaluated to develop updated estimates of yield, cost, and effectiveness in improving the reliability of the water supply. The role of desalination in particular is being re-examined, as well as the potential for expanded use of recycled water.
- Acceptable Shortage: Our current LTWSP is planned around 100% deliveries in most years and up to 10% acceptable shortage during a "critical drought period." which has historically had a return frequency of once every 30 to 40 years. This 10% shortage is addressed by extraordinary cutbacks in customer water use to help get us through the drought. During the last severe drought of 1987-1992, it was necessary for customer demand to be reduced by as much as 50%, resulting in

excessive hardship for the community, which influenced the decision to establish the acceptable shortage at 10%. This value will also be reviewed as a part of the LTWSP update.

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 significant groundwater use only occurs 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 2009-2010:	1,273 AF

Projection of Supply Availability

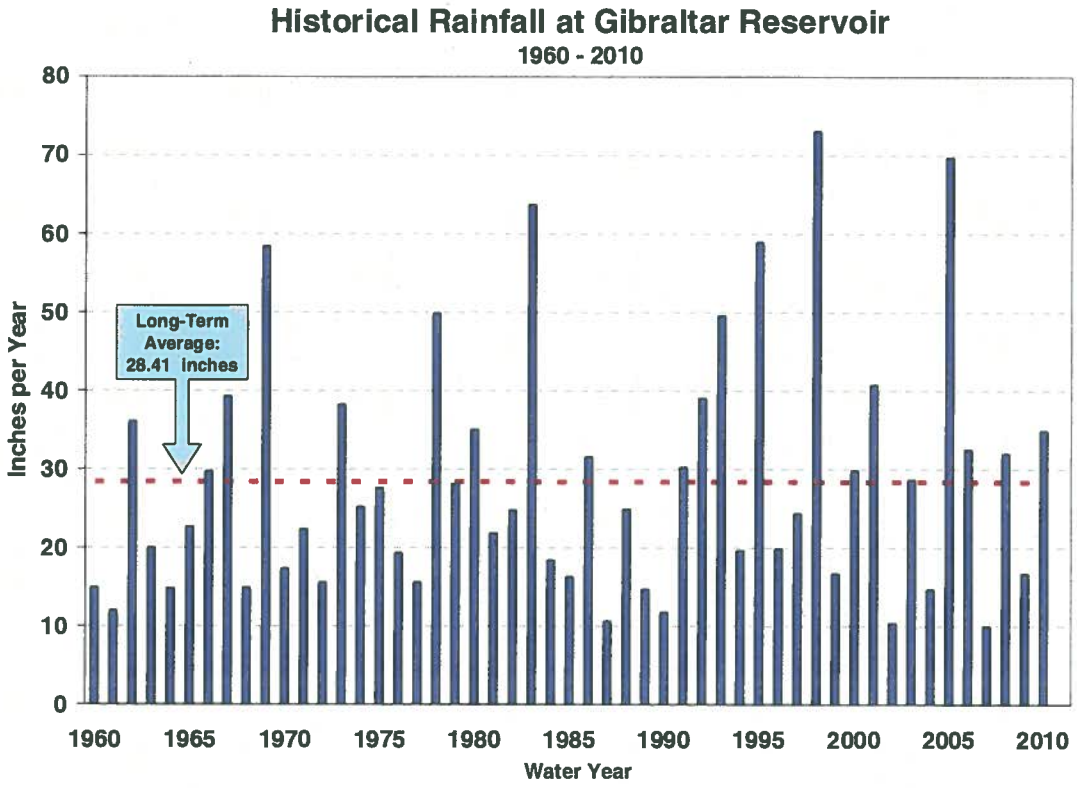
Table A-2 summarizes the City's water supply sources and fulfills a requirement of the project conditions for the SWP. The projected 2010-2011 Supply Plan reflects a projected total demand of 14,000 AF.

Table A-2. Sources of Supply (AF)

Source of Supply	WY 2010 Original Plan	WY 2010 Actual	WY 2011 Supply Plan Projected
Gibraltar Reservoir	3,600	3,331	3,413
Cachuma Project	6,940	6,803	6,732
Mission Tunnel	1,200	1,288	1,200
Devil's Canyon	(w/ Gibraltar)	0	(w/ Gibraltar)
Juncal Res. (300 AF from MWD)	(w/ Cachuma)	(w/ Cachuma)	(w/ Cachuma)
State Water Project	427	777	650
Groundwater	1,034	1,273	1,206
Desalination	0	0	0
Recycled Water	800	660	800
Net Other Supplies[1]	(na)	-791	(na)
Total Production:	14,000	13,341	14,000
Total Demand:	14,000	13,341	14,000
Percent Shortage:	0	0	0

[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).

Long-Term Rainfall Data



Per Capita Water Usage