



City of Santa Barbara Water Supply Management Report 2018 Water Year (October 1, 2017 – September 30, 2018)

Water Resources Division, Public Works Department
January 29, 2019

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, so 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 current Long-Term Water Supply Plan (LTWSP) was adopted by City Council on June 14, 2011.

This annual report summarizes the following information:

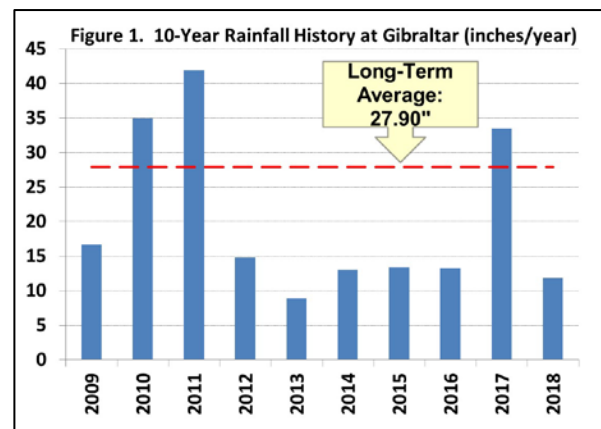
- The status of water supplies at the end of the water year (September 30, 2018)
- Drought outlook
- Water conservation and demand
- Major capital projects that affect the City's ability to provide safe clean water
- Significant issues that affect the security and reliability of the City's water supplies

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

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 and augmented as necessary by local groundwater, State Water, and desalination.

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 important for water supply management purposes. Figure 1 shows rainfall for the past ten years as compared to the 50-year average. Additional historic information is included in Appendix A. Runoff generated by average rainfall is generally enough to fill Gibraltar; however, it typically takes above-average rainfall to produce any significant inflow to Cachuma. Rainfall in the Santa Ynez



River watershed during 2018, as measured at Gibraltar, was 42% of average, with the majority of rain falling during a couple of storms in January and March. Even with prior above average rains in the winter of 2017, the past seven water years (Oct 2011-Sep 2018) have received the lowest cumulative rainfall in recorded history for a consecutive seven-year period. At the end of the 2018 water year, Lake Cachuma was at approximately 30% of its capacity. To enhance rainfall, the City has historically participated in the cloud seeding program administered by the County of Santa Barbara. However, cloud seeding only works when there are storm events. The cloud seeding program in the Santa Ynez River watershed was suspended in both 2017 and 2018 due to Rey, Whittier, and Thomas Fire impacts, given concerns that intensified rainfall would generate more soil erosion in the burn areas, and result in sediment accumulation in Lake Cachuma. Table 1, below, summarizes the status of the City's various water supplies at year-end.

Table 1. End of Year Status of City Water Supplies	
The Water Year runs from October 1 through September 30. All data is as of September 30, 2018.	
Lake Cachuma	Total Capacity: 184,121 AF (2014 survey for 750' elevation) End of Year Storage: 61,273 AF (33% of Total Capacity) The City's share of the Cachuma Project's normal annual entitlement is 8,277 AF. The City's WY 2018 allocation was 40%, or 3,311 AF. Actual City use in WY 2018 was 131 AF; Total remaining carryover for the City as of September 30, 2018 was 7,264 AF.
Gibraltar Reservoir	Total Capacity: 4,314 AF (August 2018 survey) End of Year Storage: 1,394 AF (32% of Total Capacity) Gibraltar Reservoir typically fills and spills two out of every three years. Gibraltar spilled for the first time since May 2011 in January 2017 and spilled again in March 2018. Total deliveries from Gibraltar in 2018 were 1,384 AF. The projected long-term average supply from Gibraltar is 4,330 AF under Pass Through Operations ¹ .
Mission Tunnel	Groundwater that seeps into Mission Tunnel is an important part of the City's water supply, providing 707 AF in 2018, about 37% below the long-term average of 1,125 AFY ² .
Groundwater	Groundwater levels continue to be relatively low due to drought conditions. The City conjunctively manages its groundwater with its surface water supplies, providing for groundwater replenishment during wetter years. The City pumped 2 out of 9 its potable groundwater wells from May to September 2018 during peak summer demands, providing 454 AF of supply in 2018.
State Water Project	The City has a 3,300 AF "Table A" allotment (with drought buffer), subject to availability. In 2018, the State's Table A allocation was 35%, or 1,155 AF for the City. The Coastal Branch and Santa Ynez Extension of the State Water Project (SWP) are in place to deliver the City's water into Lake Cachuma. The City used a total 4,937 AF of supply from the SWP in 2018, comprised of water conveyed via the SWP in 2018, as well as SWP water previously stored at Lake Cachuma. The City exchanged 243 AF with Santa Ynez River Water Conservation District, Improvement District No. 1 (ID#1) pursuant to the Exchange Agreement.
Desal	The desalination plant was reactivated in May 2017 and produced 2,389 AF of water to the City's distribution system in 2018.
Recycled Water	The City's recycled water system serves parks, schools, golf courses, other large landscaped areas, and some public restrooms. Demand from the system was 853 AF, or 7.9% of the total customer water demand, plus 234 AF of process water at El Estero Wastewater Treatment Plant (EEWTP). In 2018, the recycled system demands were supplied by 218 AF of potable blend water and 26 AF of non-potable groundwater. Construction of an upgraded tertiary filter system was completed in October 2015 to eliminate or significantly reduce the need for potable water blending.

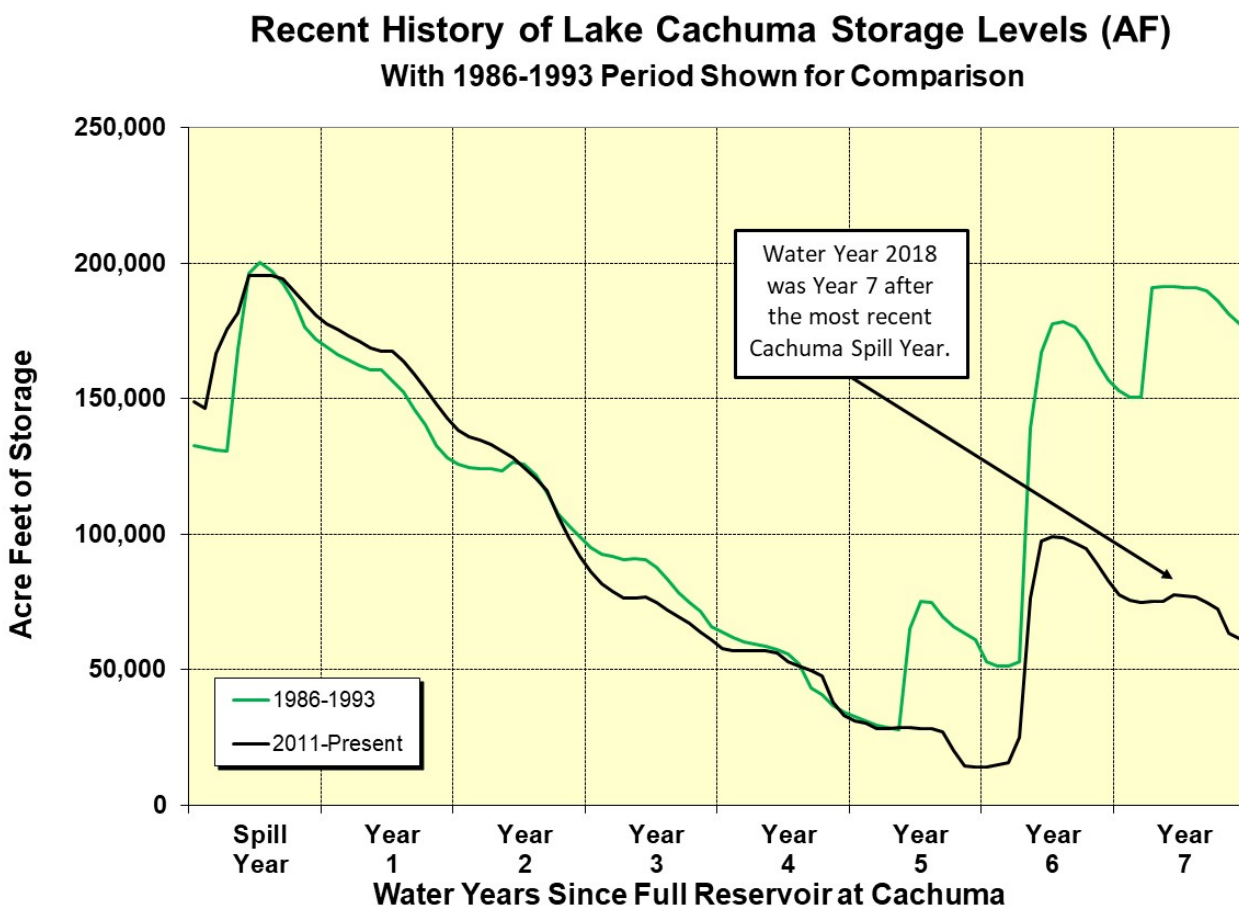
¹ Stetson, 2013. *Hydrologic Analysis of the Pass Through Operations at Gibraltar Reservoir*. Prepared for the city of Santa Barbara. July 2013.

² SWRCB et al., 2011. *Final Environmental Impact Report for the Cachuma Project Water Rights Hearings*. Prepared for the State Water Resources Control Board. December 2011.

DROUGHT OUTLOOK

Because the City depends heavily on local surface water, our water supply reliability is vulnerable to prolonged drought. Lake Cachuma is our primary source of surface water, and its storage level is the most important indicator of drought impacts. Figure 3 shows a recent history of storage levels at Lake Cachuma, which reached historic lows, recovered to about 50% capacity in water year 2017, and currently stands at about 30% capacity at the end of water year 2018. The severe drought period of 1986-1993 is also shown for comparison. 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. In 2018, the Cachuma allocation was 40% of normal entitlement. The City's current entitlement for WY 2019 is 20% or 1,655 AF.

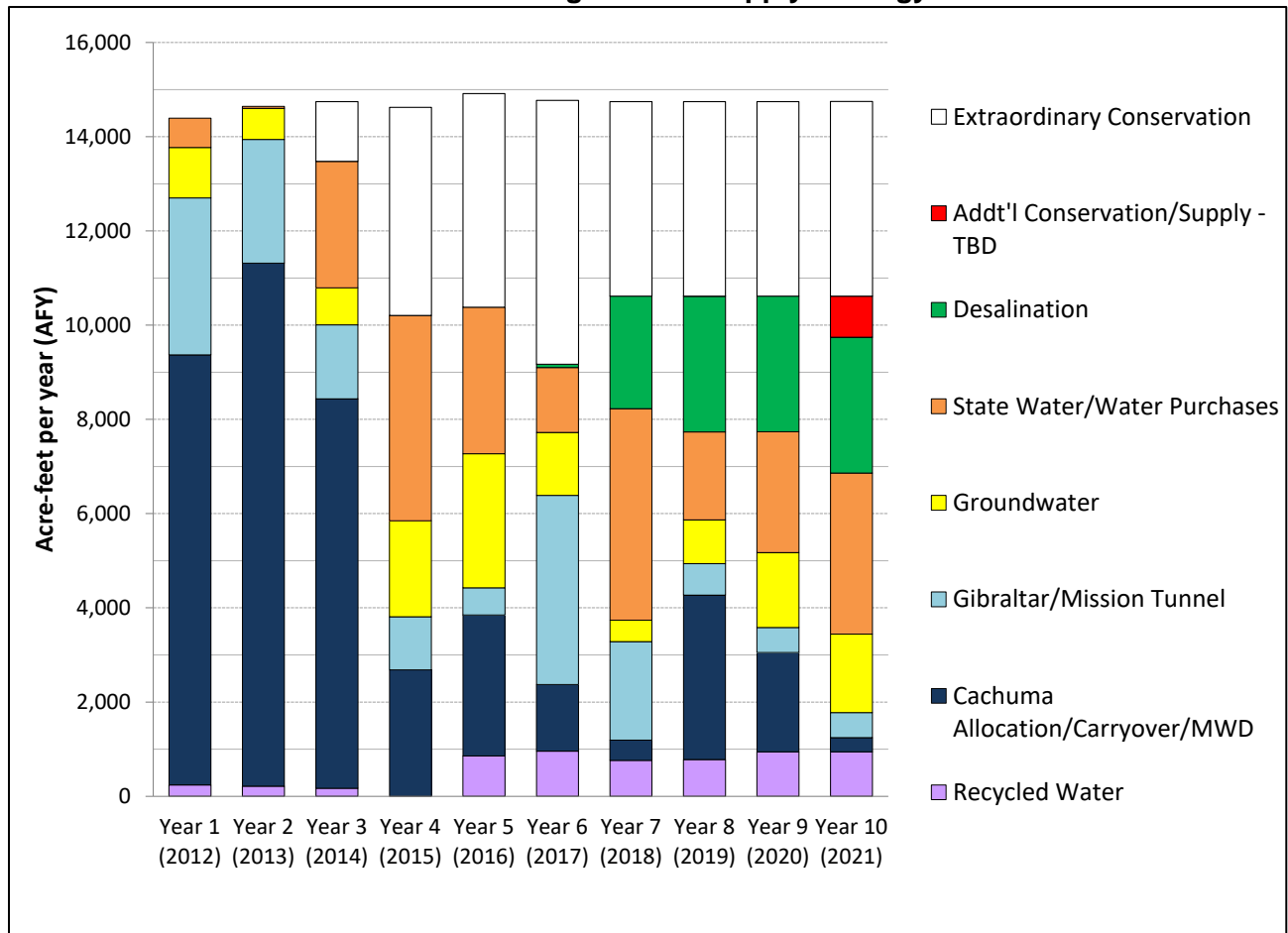
Figure 3.



Under the adopted 2011 LTWSP, the City's planned water supply meets 100% of unrestricted customer demand in most years and no less than 85% of demand during the latter portion of a 6-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. Our management plan assumes the first year after a spill at Cachuma may be the first year of a critical drought period. The planned 6-year water supply strategy was based on available supply during the 1947-52 critical drought period (and extended for an additional dry year). This was considered the "design drought" for planning purposes.

Figure 4 shows the current water supply strategy over a 10-year period. Since 2011 was the last spill at Lake Cachuma, 2018 was Year 7 of a critical drought period. The first 7 years reflect actual water supply, and the last 3 years reflect projected water supply assuming recent drought conditions continue. Because the current historic drought has been worse than the design drought, the last 3 years reflect a more conservative assumption of 1) no additional inflows to Gibraltar or Cachuma; and 2) a 35% Table A allocation of State Water.

Figure 4.
Current Drought Water Supply Strategy



The supply strategy reflects the management policies adopted in the 2011 LTWSP; however, the planned demand reduction was most recently set at 30% for WY18, meaning supplies are targeted to meet 70% of unrestricted customer demand. The 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. Since then, the Stage Three Drought condition has been amended with appropriate conservation targets and water use regulations in response to current and forecasted supply conditions. On December 6, 2016, the Stage Three Drought condition was amended to increase the City's water conservation target to a 40% reduction, based on local water supply conditions. Most recently, on March 21, 2017, the Stage Three Drought condition was amended to decrease the City's water conservation target to a 30% reduction in response to winter 2017 rains, which filled Gibraltar Reservoir and increased storage in Lake Cachuma.

The City's adopted 2011 Water Shortage Contingency Plan outlines the stages of drought and actions to achieve planned demand reductions. A Stage 3 Drought condition is the most critical

stage. Under the current Stage 3 Drought condition, the City Council adopted regulations for drought water use restrictions and adopted drought based water rates. In addition, public outreach and messaging has increased to communicate the status of drought conditions and need for extraordinary water conservation.

MONITORING OF WATER SUPPLY AND DEMAND

Water demand has historically been measured by total water supply production, which is the total amount of supply from all sources to serve demands on the potable and recycled distribution systems. State requirements for water conservation have established a “20% by 2020” target based on gallons per capita per day (GPCD) for potable water use. Since the supply production numbers provide historical context on our demand, and per capita water use is the new mandatory metric, both are being tracked. Figure 2.A illustrates the historical tracking of demands based on total water supply produced. Total water production was 10,500 AF for 2018 (excluding water produced for El Estero process demands). Figure 2B shows monthly potable water GPCD water use values, as well as a moving 12-month GPCD average. Usage for 2018 was 90 GPCD. In both charts, demands show a decline beginning 2014 in response to the Stage 2 and 3 drought conditions requiring mandatory reductions in water use. As part of the City’s ongoing meter replacement program, several production meters were replaced in March and April. Analysis conducted by staff indicates that while metered sales (a measurement of customer consumption) have remained consistent during the drought, the new production meters are registering greater production, reducing the City’s water conservation percentage and increasing the City’s GPCD compared with previous years.

Figure 2.A.

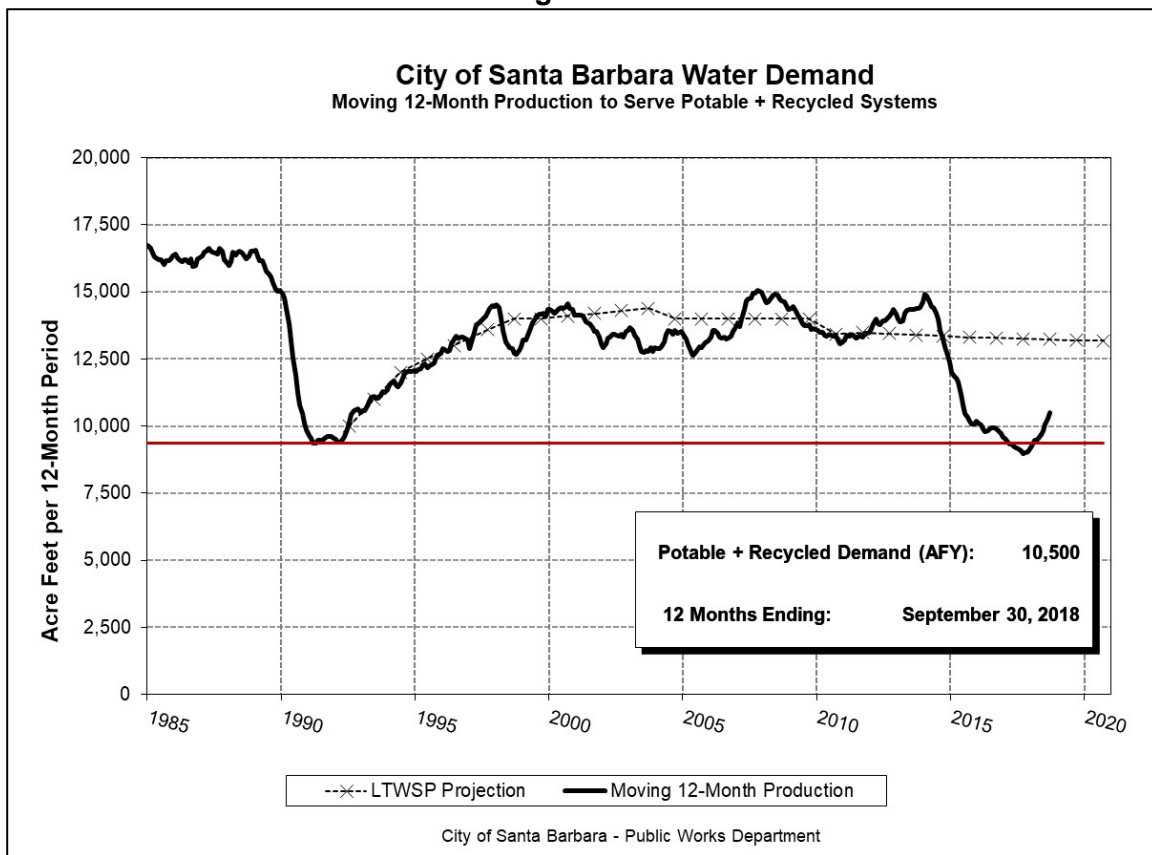
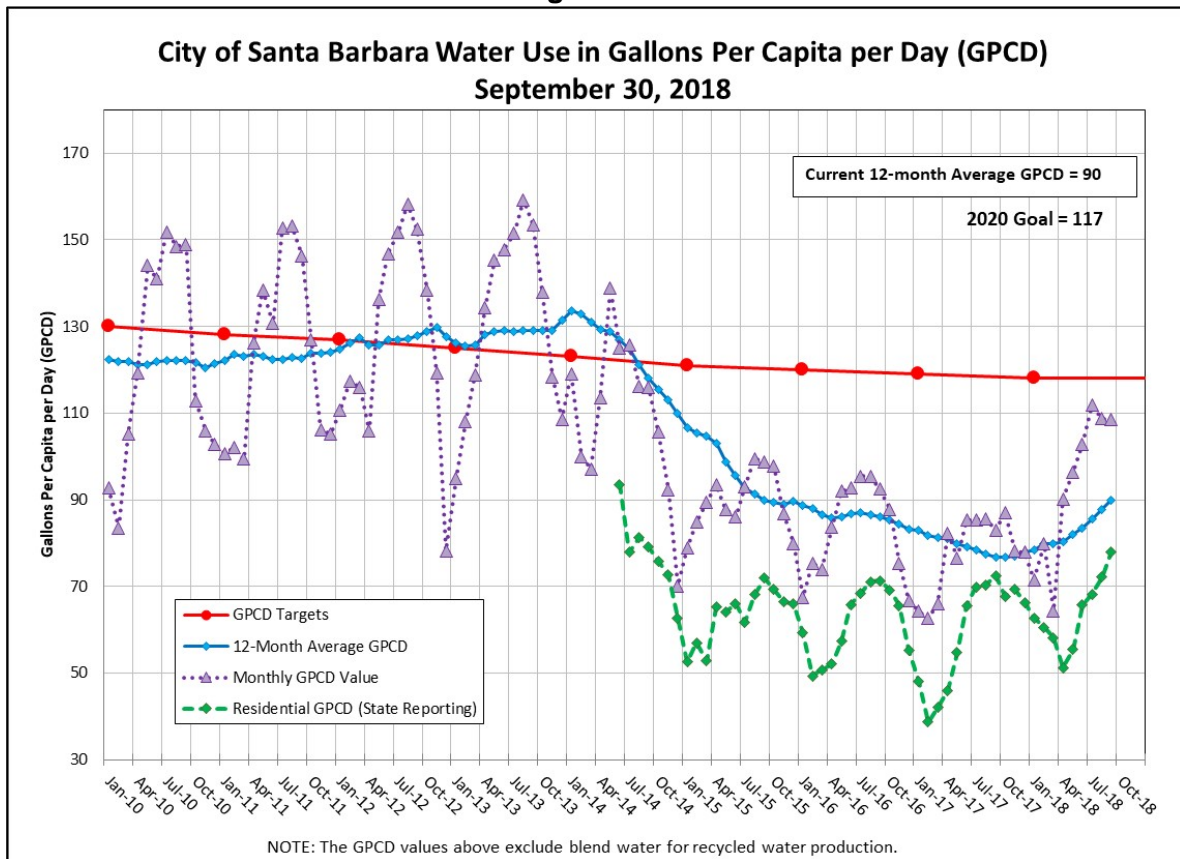


Figure 2.B.



CITY WATER CONSERVATION PROGRAM

In accordance with the LTWSP, the Water Conservation Program is operated to minimize the use of potable water supplies, meet the requirements of the California Water Efficiency Partnership, and achieve compliance with the State's 20% x 2020 per capita water use reductions. Water conservation measures are evaluated for cost effectiveness based on the avoided cost of additional water supplies. Highlights of the City's Water Conservation Program include the following activities:

- **Free Water Checkups:** Checkups are requested by water customers to assist in evaluating indoor and outdoor water usage and to offer efficiency recommendations. 1,412 free water checkups were provided in Water Year 2018.
- **Landscape Training:** Lectures and workshops are geared toward homeowners and landscape professionals, many are offered in conjunction with horticultural organizations and local irrigation stores. Highlights from Water Year 2018 include: 3 Graywater 101 classes, 3 Rainwater Harvesting 101 classes, 3 Landscape Site Assessment 101 classes, 2 Water Wise Landscape Maintenance classes, 1 hands-on workshop for water wise landscape installations, and a hands-on drip irrigation class.
- **Smart Landscape Rebate Program:** 50% rebate on eligible, pre-approved material costs for landscape water efficiency. 80 pre-inspections were completed and 86 rebates were issued in Water Year 2018.

- Marketing and Outreach: Continued to implement the comprehensive South Coast Water Conservation Marketing Plan and the Drought Response Marketing Plan. Highlights from Water Year 2018 include: increased training for landscape professionals, countywide advertising about landscape transformations and irrigation repairs, frequently updated information on our drought webpage, and providing guest speakers to neighborhood and community organizations.
- Water Education Program: Free in-class presentations, tours, and school assemblies to highlight where our water comes from and how to conserve it. 2,324 students were reached in Water Year 2018.
- Additional Programs in Water Year 2018: 35 high efficiency washing machine rebates; 1,310 free sprinkler nozzles redeemed; and 297 free mulch delivery participants.

CAPITAL PROJECTS

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

- ***Cachuma Emergency Pump Project:*** Cachuma Operation and Maintenance Board (COMB) is the lead agency responsible for construction of the pumping project on behalf of the South Coast Cachuma Member Units. Due to severe drought conditions, the gravity fed conveyance system to receive water from Lake Cachuma is no longer operable, as the lake level falls below the intake portal to the South Coast Conduit. The Cachuma Emergency Pump Project (EPP) is necessary to allow for continued use of allocated Cachuma water and conveyance of State Water (via Cachuma). As previously constructed, this project consisted of a pumping system to convey water from low lake levels to the intake portal of the South Coast Conduit, including installation of 3,600 feet of pipeline and placement of seven pumps on a floating barge. Additionally, sediment blocking the lowest intake portal was dredged to allow for the intake of water at lower elevations. The Cachuma EPP became operational in August 2015. As a result of further lake level decline, COMB relocated the pumping barge to a deeper part of the lake in July 2016. When above average rainfall in Spring 2017 caused lake levels to increase, allowing gravity flow through the intake to resume, the EPP was demobilized and certain key components are now being leased should the temporary facility need to be re-deployed. COMB continues to monitor lake level projections and based on continued drought conditions, preliminary projections show a need for the pumping facility to be operational as early as Fall 2019. COMB is also working on a feasibility study for installation of secured EPP pipelines to decrease risk of water supply outages, reduce long-term operating costs, and eliminate potential damage to facilities.
- ***Recycled Water Treatment Plant Rehabilitation:*** On November 2, 2015 the newly rehabilitated recycled water treatment facility went online. This project rehabilitated the original treatment plant that was built in 1989. The goal of this project was to eliminate or significantly reduce the need to use potable water for blending to meet water quality regulations and to position the plant to meet more stringent water quality requirements in the future. In WY 2018, the plant was shut down periodically during the summer as a result of unexpected pipe failures. Staff responded quickly with temporary emergency repairs, allowing the plant to continue to operate while a more permanent fix is developed. Overall, 218 AF of potable water was used for blending in 2018 compared

with 673 AF in 2015, marking a continued and significant reduction in potable water use as a result of the project.

- **Groundwater Well Projects:** Groundwater is an important part of the City's water supply to meet peak demands, provide back-up for depleted surface supplies during drought, and provide an emergency water supply in the event of catastrophic supply interruptions, such as tunnel failure. Note that all wells in Storage Unit #1, except for Alameda and Ortega wells, are connected to Ortega groundwater treatment plant, (GWTP) which removes naturally occurring iron, manganese, and sulphur from the groundwater before supplying it to the distribution system. Design is currently underway for a pipeline that would connect Alameda well to the Ortega GWTP. The City maintains an on-call groundwater consulting services contract to respond quickly to well repair or maintenance projects that become necessary. Two of the City's nine total potable groundwater wells were turned on for seasonal use over the summer, producing 454 AF of supply from May to September 2018. The wells have been turned off for the winter. While groundwater storage remains relatively low due to impacts of the extended drought period, there is some sustainable groundwater yield remaining based on historical data and modeling studies. The estimated remaining groundwater yield is factored into the City's water supply projections.

The following is a summary of well status:

Storage Unit #1 Basin:

- *Corporation Yard:* Standby.
- *Alameda:* Standby. Design underway for connection to Ortega groundwater treatment plant.
- *High School:* Standby.
- *Vera Cruz:* Standby.
- *City Hall:* Standby.
- *Ortega:* Offline due to need for major rehabilitation or replacement.

Foothill Basin:

- *San Roque:* Standby.
- *Hope:* Standby.
- *Los Robles:* Standby.

Storage Unit #3:

- *Valle Verde Well:* Standby. Non-potable well utilized to augment supply to the recycled water system.

- **Charles E. Meyer Desalination Facility:** Due to the severity of the present drought, the City reactivated the Charles E. Meyer desalination facility. In July 2015, City Council authorized execution of a contract for design, construction, and operation and maintenance services for reactivating the desalination facility. Major construction is complete. The desalination plant has been operating in full production mode with a treatment design capacity of 3,125 AFY. While the facility is finished and operating, there are still punch-list items that the contractor must complete before full acceptance. Temporary repairs to the intake pipeline have shown no signs of leaking, but staff continues to work with the contractor to identify a long-term repair solution. Per the adopted 2011 LTWSP, the primary role of the desalination facility is a drought relief measure. With the investment now being made to reactivate this facility, the long-term role of this supply will need to be revisited as part of a future update to the LTWSP.

WATER SUPPLY ISSUES

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

Long-Term Water Supply Plan: The City's 2011 Long-Term Water Supply Plan (LTWSP) was the product of numerous technical studies and over a year-long collaboration between staff and the Water Commission to appropriately quantify our water supplies and develop policies to guide our water supply management over the next twenty years. The plan is available to the public on the City's website at the following address: www.SantaBarbaraCA.gov/Drought.

The LTWSP is the basis for the City's State-mandated Urban Water Management Plan (UWMP), which is required to be updated every five years. Compliance with the State's Urban Water Management Planning Act maintains the City's eligibility for State grants and loans. The most recent UWMP Update was adopted by City Council on June 28, 2016 and submitted to the State by the July 2016 deadline. At this time, the policies outlined in the City's 2011 LTWSP remain the basis for the 2016 UWMP Update. A future LTWSP Update would be incorporated into the next round of UWMP updates (occurring every 5 years).

The next LTWSP Update is anticipated to be initiated once we know more information about the duration of the current historic drought and its basis for a new "design drought", as well as more information on potential water supply impacts to the Cachuma Project resulting from pending state and federal environmental decisions (discussed later in this report).

Potable Reuse Feasibility Study: As directed by Council and required by the City's amended National Pollutant Discharge Elimination System (NPDES) permit, staff and consultants evaluated the feasibility of alternatives to the screened ocean intake for the desalination facility, including subsurface intakes and potable reuse. Information regarding the study can be found at the following website: <http://www.nwri-usa.org/santa-barbara-panel.htm> The findings and intended implementation actions were presented to the Regional Water Quality Control Board on May 11, 2017.

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 or a large surface water reservoir, 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 the State does not currently have uniform recycling criteria (regulations) for DPR, the concept proposes to use an engineered buffer in lieu of an environmental buffer. In some but not all cases, DPR has the potential to increase supply yield and/or reduce facility costs.

In September 2016, the State Water Resources Control Board released a draft report on its investigation of the feasibility of developing regulations for DPR. The findings of the draft report are generally that regulations are feasible, but data gaps exist and additional research is needed before adopting regulations. Comments on the draft report were submitted by City staff, urging the State to develop a timeline for completing necessary research and developing future regulations. Understanding this timeline will be critical for evaluating potable reuse as an option in the City next LTWSP update.

Additionally, staff are participating in a DPR coalition led by the National Water Research Institute, in order to develop a white paper entitled “Implementation of Direct Potable Reuse: An Analysis for California Water Utilities”. The purpose is to provide a framework for implementing of a range of direct potable reuse applications in California, including those analyzed in the City’s Potable Reuse Feasibility Study, and provide guidance on defining future state regulations. The agencies jointly participating in the white paper include City of Santa Barbara, Los Angeles Department of Water and Power, San Francisco Public Utilities Commission, Santa Clara Valley Water District, and City of Ventura.

Cachuma Project State Water Rights Order: In September 2016, the State Water Resources Control Board (SWRCB) released a long-awaited draft order amending the Bureau of Reclamation’s Water Rights for the Cachuma Project. The draft order finds that the Santa Ynez River steelhead population is “unlikely to reach good condition without additional flows and habitat for spawning and rearing fish”. Most notable of the draft order requirements is the release of additional flows downstream of Bradbury Dam, in addition to those required by the National Marine Fisheries Service’s 2000 Biological Opinion mandating minimum flow rates and other measures to prevent extinction of steelhead below Bradbury Dam. City staff worked with the Cachuma Conservation Release Board to prepare comments on the draft order, which were submitted on December 9, 2016. The SWRCB has not yet scheduled the release of the final order. The SWRCB decision is important to the City because it could affect the amount of water available from Lake Cachuma for water supply purposes.

Cachuma Project Biological Opinion: In 2000, a Biological Opinion (BO) was issued by the National Marine Fisheries Service (NMFS) for Reclamation's operation and maintenance of Bradbury Dam (the Cachuma Project). NMFS is the agency that oversees protection of Southern California steelhead. The BO addresses the effects of the proposed Cachuma Project operations on steelhead and its designated critical habitat in accordance with Section 7 of the Endangered Species Act of 1973. Reclamation and the Cachuma Project Water Agencies have developed proposed revisions to the Project operations since 1993 to improve habitat conditions for steelhead trout while still maintaining water supplies. In 2014, the NMFS formally initiated a reconsultation of the Biological Opinion. A draft BO revision is anticipated in the near future, potentially in 2019. Similar to the State water rights decision, the revised BO is important because it could affect Cachuma Project operations and the amount of water available for water supply purposes.

Cachuma Contract 2020: Since the construction of the Cachuma Project, the Santa Barbara County Water Agency (SBCWA) has been the nominal contractor with Reclamation. The SBCWA was formed in 1945 by the State Legislature to facilitate development of the Cachuma Project and to provide a water supply to the City of Santa Barbara, Carpinteria Valley Water District, Goleta Water District, Montecito Water District, Summerland Water District 3, and Santa Ynez Water Conservation District Improvement District No. 1. The City and these districts are collectively known as the “Cachuma Member Units.” The SBCWA Act (Act), which created the SBCWA and specifies its powers, designates the County Board of Supervisors as the legislative body of the agency. The SBCWA’s authority is limited by the Act to supplying water to the Cachuma Member Units.

In 1949, the SBCWA entered into a long-term agreement with the Federal Bureau of Reclamation (Reclamation) for the development of the Cachuma Project and supplying

³ Summerland Water District was subsequently merged into the Montecito Water District.

water to the Member Units (the Original Master Contract). Concurrently with the execution of the Original Master Contract, the SBCWA executed essentially identical water supply agreements with each of the Cachuma Member Units.

In the mid-1990s, the SBCWA, “on behalf of the Member Units,” and the Cachuma Member Units requested renewal of the Original Master Contract. The renewed Master Contract was entered into by the SBCWA “acting as agent of the Cachuma Member Units” in 1996 and is set to expire on September 30, 2020. The Cachuma Member Units are the beneficiaries of the water supplied by the Cachuma Project and are responsible for paying all Project costs. The Cachuma Member Units paid off the capital component of the Cachuma Project in 2015.

On May 2, 2017, the Santa Barbara County Board of Supervisors authorized its staff to initiate renewal of the Cachuma Contract with Reclamation. Reclamation has stated that they generally conduct the contract renewal process only with the direct contractor (SBCWA). However, given the unique connection that the Master Contract has with the Cachuma Member Units (e.g. Member Units are the recipients of the water and are responsible for the associated payments to Reclamation), Reclamation determined that is appropriate for Cachuma Member Units to participate alongside the SBCWA in Technical and Negotiation sessions. At its February 27, 2018 meeting, Council designated the Assistant City Attorney, Daniel Hentschke, and the Water Supply Manager, Kelley Dyer, as its primary representatives for the Technical and Negotiation Sessions. To date, there have been three Technical Sessions with Reclamation. The SBCWA staff participated in all three; the Cachuma Member Unit staff participated in two held on June 29, 2017 (in Fresno, CA) and August 18, 2017 (in Santa Barbara, CA). No additional Technical Sessions nor any Negotiation Sessions have been scheduled at this time. Reclamation’s internal authorization processes are currently underway, which must be completed before a draft contract can be provided to the SBCWA and Cachuma Member Units.

The process for the contract renewal will take several years to complete, and will include environmental review per the National Environmental Policy Act and California Environmental Quality Act.

Gibraltar Pass Through Operations: The 2007 Zaca Fire burned approximately 60% of the Gibraltar Reservoir watershed, which normally contributes up to 35% of the City’s water supply. On top of historical siltation, the additional sediment load resulting from the fire reduced the reservoir’s storage capacity by 1,535 AF. The recent Rey Fire in Fall 2016, also within a portion of the Gibraltar watershed, resulted in an additional loss of 303 AF. The full extent of reservoir capacity loss from the Thomas fire is not yet known, as sediment will continue to make its way through the watershed and into the reservoir for several years. However, a bathymetric survey of the reservoir performed in August 2018 showed a 654 AF loss of capacity since August 2017, resulting in a current maximum storage capacity of 4,314 AF. In 1989, the City entered into the Upper Santa Ynez River Operations Agreement (the “Pass Through Agreement”) with other Santa Ynez River water agencies. 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 storage and delivery through Cachuma Project facilities. Due to the Zaca Fire effects, the City elected to commence this phase of operations and is working with the Reclamation to negotiate a “Warren Act” contract as the preferred approach of accounting for the City’s Pass Through water. In order to execute any Warren Act contract, Reclamation must prepare an environmental assessment under the National Environmental Policy Act (NEPA). Reclamation released a draft environmental assessment that has gone through public

review, and the final has yet to be released by Reclamation. Staff is concurrently reviewing and negotiating a draft Warren Act Contract. The Pass Through operations will allow the City to stabilize its Gibraltar deliveries as the reservoir continues to fill with sediment.

Lake Cachuma Water Quality and Sediment Management Study: The Zaca Fire (2007), White Fire (2013), Rey Fire (2016), Whittier Fire (2017), and Thomas Fire (2017) have collectively burned approximately 180,000 acres (two-thirds) of the Cachuma watershed. The long-term impacts of the fires can potentially impact surface water quality and also accelerate ongoing sedimentation in the reservoirs, which can reduce storage capacity. The Cachuma Operation and Maintenance Board is developing a Lake Cachuma Water Quality and Sediment Management Study to evaluate management actions which may include, but not be limited to, sampling and data collection, in-lake treatment, erosion control, and watershed management. COMB is developing the Study in coordination with agencies that manage, operate, and use the lake and its watershed for drinking water purposes.

City staff have previously responded to water quality impacts resulting from the Zaca fire, which burned approximately 60% of the Gibraltar watershed. The study conducted by COMB will verify if there are any additional actions that could be taken at Gibraltar Reservoir, which is part of the Lake Cachuma watershed; and is consistent with the City's adopted policy to support the development of a long-term strategy to minimize sedimentation, in conjunction with other appropriate agencies.

State Water Project/Delta Issues: Significant issues include:

- **Delta Issues:** The Sacramento-San Joaquin Delta is a critical conveyance link for all water moved to the south by the State Water Project (SWP). However, the reliability of State Water supply is at risk due to drought, environmental restrictions, and seismic events. The Bay Delta Conservation Plan (BDCP) proposed a solution to balance coequal goals of water supply and environmental benefits. A Draft Environmental Impact Report (EIR) and Draft Environmental Impact Statement (EIS) for the BDCP were made available for public review from December 2013 to July 2014.

In April 2015, State and Federal agencies announced a new alternative which would replace the BDCP as the State's proposed project. The new alternative reflects the state's proposal to separate the conveyance facility and habitat restoration measures into two separate efforts: California WaterFix and California EcoRestore. These two efforts are a direct reflection of public comments on the BDCP EIR/EIS and fulfill the requirement of the 2009 Delta Reform Act to meet co-equal goals.

On July 21, 2017, the California Department of Water Resources (DWR) certified the Final EIR/EIS for the project, approved the California WaterFix (Alternative 4a), and filed a Notice of Determination with the Governor's office. The certification was a major milestone that came after more than a decade of analysis, review, and public comment. State and federal water and wildlife agencies have been working since 2006 to find the best way to improve how the State Water Project and Central Valley Project obtain water from the channels of the Sacramento-San Joaquin Delta.

In addition to the certification, DWR also filed a validation action on July 21, 2017 with the Sacramento County Superior Court to affirm the DWR's authority to issue revenue bonds to finance the planning, design, construction and other capital costs

of California WaterFix. However, judicial challenges have been filed which could affect the marketability of California WaterFix Revenue Bonds to private investors. As a result, the issuance of revenue bonds to private investors may be delayed until such legal challenges are resolved.

In order to advance the project, the DWR is proposing the formation of a new Joint Powers Authority (JPA), made up of participating public water agencies that are State Water Contractors and Central Valley Contractors. The JPA would take on the responsibility of funding, designing, and constructing the WaterFix project under the supervision of DWR.

Any water agency participating in the JPA is essentially pre-funding the project until such time that DWR revenue bonds are sold to private investors. The DWR is currently taking the position that once revenue bonds are issued, the costs of the project would then be paid by the SWP Contractors in accordance with existing long-term DWR State Water Contracts. In other words, all State Water Contractors benefitting from the project would ultimately have to pay for it, including those that did not participate in the JPA. Any contractor participating in the JPA would receive credit for funds already paid through the JPA or gap funding agreements.

Recently, DWR released a Draft Supplemental EIR/EIS in July 2018 in compliance with CEQA. Reclamation also released a Draft Supplemental EIR/EIS in September 2018 in compliance with NEPA. The supplemental draft EIR/EIS analyze proposed changes designed to reduce the project's footprint and costs, and minimize impacts on environmental resources in the Sacramento-San Joaquin Delta. The modifications include changing locations of material storage sites, relocating machinery launch and landing locations, creating a new Byron Tract Forebay, relocating a consolidated pumping plant, and slightly realigning the two 40-foot diameter tunnels.

To date, a handful of larger State Water Contractors have expressed either full or partial support, and no federal Central Valley Project contractors have expressed support. The DWR is considering downscaling the size of the WaterFix project based on the level of interest. However, the concept of a downscaled project, as well as how costs and benefits would be allocated, needs further evaluation. Staff continues to track the State's progress on this issue.

- **State Water Contract Water Management Amendments:** The CCWA, in conjunction with other State Water Contractors, negotiated with DWR on amendments to the SWP Contract for California WaterFix cost allocation and other amendments to improve water management provisions in the contract. The negotiations concluded in June 2018. Major points include outright transfers of water to a contractor in exchange for compensation (eliminating the current requirement for water exchanges, which create accumulation of water debt), and allowing contractors to set the terms for return water if an exchange is desired. These amendments would allow much greater flexibility in the ability to buy and sell water among State Water Contractors. DWR is currently working on the CEQA process underway.
- **State Water Contract Financial Amendment and Extension:** The current contract for State Water is set to expire in 2035. The CCWA, in conjunction with State Water

Contractors, negotiated a contract extension as well as other contract amendments with DWR, and the negotiations concluded a few years ago. A major point is that the contract extension is 50 years, which provides financial benefit due to current concerns that major costs (e.g. Oroville dam failure) have a compressed payment period ending in 2035. A longer contract term would provide for DWR to issue 30 year bonds. DWR has recently filed CEQA documents for the contract extension, and a hearing was held with the State Legislative Joint Budget Committee in August 2018. DWR is eligible to execute the amendments after 60 days following the hearings.

- **State Water Contract Assignment:** The City of Santa Barbara receives imported water from the SWP through the Central Coast Water Authority (CCWA). The CCWA is a JPA formed in 1991 to finance, construct, manage and operate regional treatment and conveyance facilities that deliver State Water to its member agencies, including the City of Santa Barbara. While the CCWA is responsible for financial and operational management of regional SWP facilities, the CCWA does not hold the current State Water Contract with DWR. The State Water Contract with DWR was first executed in 1963 and is currently held by Santa Barbara County. On October 31, 2017, the Santa Barbara City Council authorized amending existing agreements with CCWA in order to effectuate the assignment of the State Water Contract from the County to CCWA. All of the CCWA member agencies have also provided such authorization. CCWA has also received written confirmation of DWR's willingness to accept assignment of the contract to CCWA. CCWA is now working with Santa Barbara County for the remaining approval to assign the contract to CCWA.
- **State Water Storage Programs:** The City relies on State Water to a limited extent, but it is an important source of water during droughts, and groundwater banking is a way of increasing the reliability of State Water supply. Through CCWA, the City has previously stored State Water in groundwater banking programs in the western San Joaquin Valley. The City will continue to work with CCWA to look for cost-effective storage exchange and groundwater banking opportunities that improve reliability and avoid loss of State Water during San Luis Reservoir spill events.

Groundwater Management Plan: The City has relatively small groundwater storage, but it plays an important part in meeting demand during drought and emergency periods. Located on the southern side of the Santa Ynez Mountains, groundwater and desalination are the City's only existing potable water supplies that are truly local. This is important in case of a potential catastrophic interruption of water supplies from one or both tunnels through the Santa Ynez Mountains, which is conceivable in a seismic event.

There are two main groundwater basins the City relies on for water supply: Foothill Basin and Santa Barbara Basin (Storage Units I and III). For decades, the City has been working with the United States Geological Survey to monitor water levels and water quality of the groundwater basins and develop a detailed model to estimate the sustainable groundwater yield for use in the City's water supply planning. The City has also adopted local ordinances regarding groundwater wells in order to protect the groundwater resource.

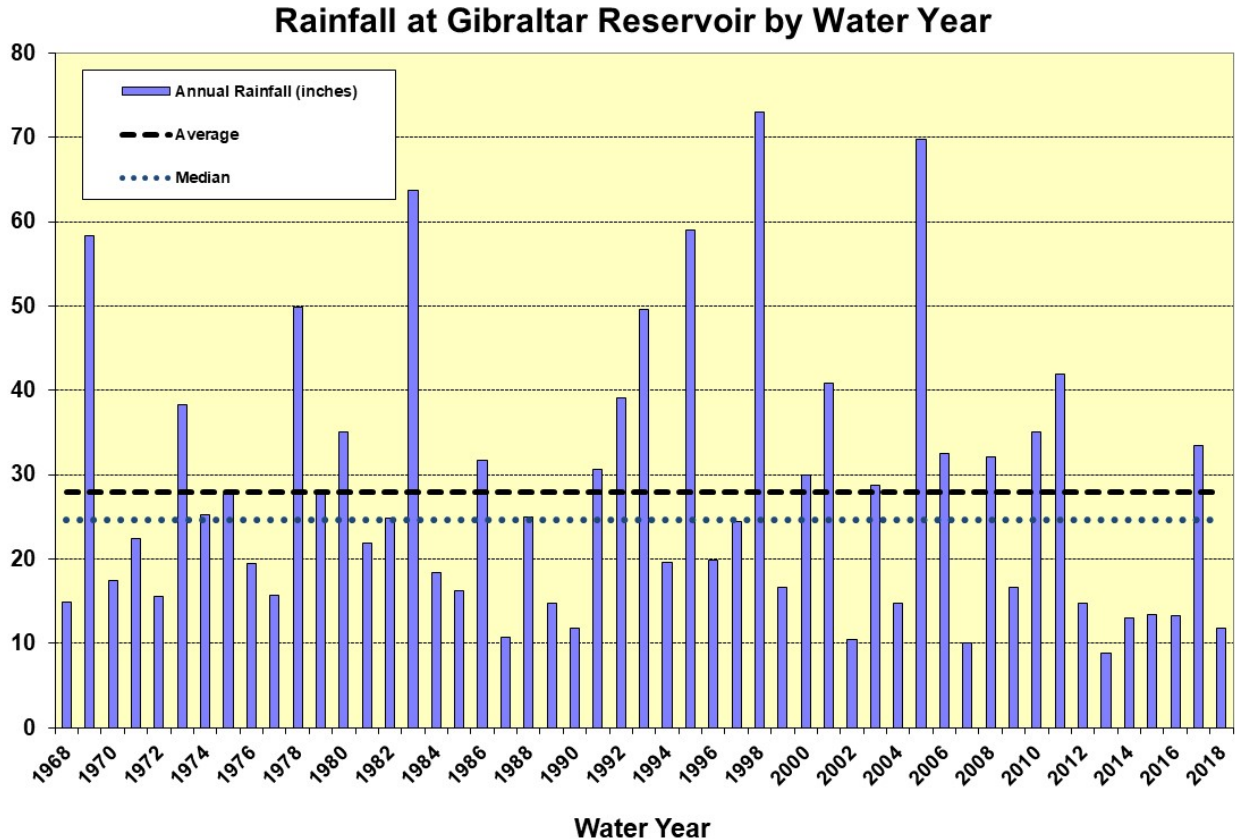
In 2014, the State of California adopted the Sustainable Groundwater Management Act. In addition, the State developed rankings of recognized groundwater basins based on their condition. For State-ranked "high" or "medium" priority basins, the act requires the formation of a local groundwater sustainability agency (GSA) and adoption of locally-based

management plans. The Sustainable Groundwater Management Act provides local GSAs with tools and authority to 1) require registration of groundwater wells, 2) measure and manage extractions, 3) require reports and assess fees, and 4) request revisions of basin boundaries.

The City's groundwater basins are currently ranked by the State as "very low" priority. As a result, there is no current requirement to form a GSA or develop a groundwater management plan in order to be in compliance with the Sustainable Groundwater Act. However, the City's adopted 2011 Long Term Water Supply Plan does include development of a formalized Groundwater Management Plan. As such, staff are evaluating formation of a GSA in the future, in order to establish the City's formal management authority over the groundwater basins, including those areas outside of City limits. Currently, staff is tracking GSA formation and management plans developed by other agencies. The intent is to use lessons learned by other agencies to guide the City's future GSA formation.

Appendix A – Supplemental Water Supply Information

Long-Term Rainfall Data



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. In response to the current unprecedented drought, groundwater pumping increased in Water Years 2015 through 2018, providing a critical water supply. In Water Year 2018 two groundwater wells were pumped to help meet peak summer demand from May through September, producing 454 AF. The wells have been turned off for the winter.

The estimated groundwater yield available to the City over a 5-year drought period, assuming no seawater intrusion, was originally based on numerical groundwater modeling performed by the United States Geological Survey (USGS) in 1998. In 2018 USGS updated their modeling efforts of the Santa Barbara (Storage Unit I) and Foothill Basins using a 10-year drought period and assuming some level of acceptable seawater intrusion. Groundwater yield estimates in this report have been updated based on that recent effort. As summarized in Table A-1, the estimated 10-year yield for City use is 16,090 AF in Storage Unit I and 8,130 AF in Foothill Basin. In the City's planning, the current drought cycle began when Cachuma last spilled in 2011. Therefore, the City's pumping over the last 7 years is shown for comparison. In addition, any significant City pumping from storage that occurred prior to the drought is shown. In normal conditions, the City limits pumping to be equal or less than its share of the perennial yield. However, in 2005-2011, some additional pumping

from Foothill Basin storage reserves was necessary in order to meet drinking water quality regulations prior to completion of the Cater Ozone project. To estimate the remaining groundwater storage available, the City's actual pumping over the last 7 years was accounted for, as well as previous City pumping from storage (or pumping that exceeded its estimated share of the perennial yield). Based on the remaining yield, the City's primary groundwater basins are in long-term balance with no overdraft projected in the next year. However, it is anticipated the basin storage will remain at low levels should the extreme drought condition continue. The City has factored this into its water supply planning such that the City does not plan to use groundwater beyond the estimated remaining storage yield in order to prevent overdraft conditions. Groundwater remains a critical backup supply should surface water sources become interrupted.

Table A-1. Groundwater Balance

Storage Unit 1 Basin	
Estimated 10-Year Drought Storage Yield for City Use ¹ :	16,090 AF
City Groundwater Production last 7 years (October 2011 – September 2018):	5,617 AF
Previous City Use of Groundwater Storage (October 2005 – September 2011) ² :	0 AF
Remaining 10-Year Drought Storage Yield for City Use:	10,473 AF
Projected City Groundwater Production for 2019:	615 AF
Foothill Basin	
Estimated 10-Year Drought Storage Yield for City Use ¹ :	8,130 AF
City Groundwater Production last 7 years (October 2011 – September 2018):	3,574 AF
Previous City Use of Groundwater Storage (October 2005-September 2011) ² :	740 AF
Remaining 10-Year Drought Storage Yield for City Use:	3,816 AF
Projected City Groundwater Production for 2019:	315 AF
¹ Nishikawa, Tracy, ed., 2018, Santa Barbara and Foothill groundwater basins geohydrology and optimal water resources management - developed using density dependent solute transport and optimization models: U.S. Geological Survey Scientific Investigations Report 2018-5059, 4 chap. (A-D), variously paged, https://doi.org/10.3133/sir20185059 ² This represents City pumping exceeding the assumed perennial yield available to the City, thereby drawing from stored groundwater reserves. The assumed perennial yield available to the City is 450 AFY from Foothill and 800 AFY from Storage Unit I (source: City of Santa Barbara 2015 Urban Water Management Plan). Note that in WY 2008-2010, the City increased pumping from Foothill Basin to meet water quality regulations as required prior to completion of the Cater Ozone project.	

The City used non-potable groundwater from Valle Verde well located in Storage Unit III to augment supply to the recycled system as needed. The City pumped a total of 26 AF from Valle Verde well during the 2018 water year, 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 201 AFY. Valle Verde will continue to be used as needed during short periods when the recycled water plant is offline for repair or maintenance.

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 Water Year (WY) 2018-2019 Supply Plan reflects a projected total demand of 10,616 AF including ~180 AF for El Estero process water, which reflects a 30% potable water reduction through the water year, based on the current Stage Three Drought condition.

Table A-2. Sources of Supply (AF)

Source of Supply	WY 2018 Original Supply Plan	WY 2018 Actual	WY 2019 Supply Plan (Projected)
Gibraltar Reservoir	918	1,384	135
Cachuma Project	2,635	131	3,489
Mission Tunnel	533	707	533
Devil's Canyon	0	0	0
Juncal Res. (300 AF from MWD)	(w/ Cachuma)	(w/ Cachuma)	(w/ Cachuma)
State Water /Water Purchases	2,986	4,937	1,870
Groundwater (potable) ^A	0	454	930
Desalination	2,860	2,389	2,880
Recycled Water ^C	680	842	779
Groundwater (non-potable) ^A	0	26	0
Net Other Supplies ^B	(na)	-137	(na)
Total Production:	10,612	10,733	10,616
Total Demand:	10,612	10,733 ^D	10,616

^A The City uses potable groundwater supply from Storage Unit I and Foothill, and non-potable groundwater supply from Storage Unit III.

^B Represents miscellaneous production sources (positive values) and water used from the distribution system for purposes such as transfers to adjacent water purveyors or groundwater recharge.

^C Planned demands include ~180 AFY for El Estero process water.

^D Actual 2018 demand includes 9,646 AFY potable demand, 853 AFY recycled demand, and 234 AFY El Estero process demand.