

FINAL
January 28, 2020

City of Santa Barbara
Water Supply Management Report
2018-2019 Water Year

Prepared by Water Resources Division, Public Works Department





City of Santa Barbara

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2019 Water Year (October 1, 2018 – September 30, 2019)

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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:

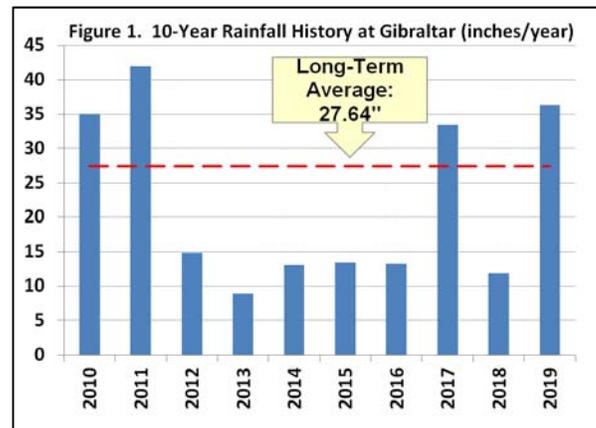
- The status of water supplies at the end of the water year (September 30, 2019)
- Drought outlook
- Water conservation and demand
- Major capital projects that affect the City's ability to provide safe clean water
- Significant issues that affect the security and reliability of the City's water supplies

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 2019, as measured at Gibraltar, was 132% of average, with the majority of rain falling during January and February. Even with above average rains in the



winter of 2019, the past eight water years (Oct 2011-Sep 2019) have received the lowest cumulative rainfall in recorded history for a consecutive eight-year period. At the end of the 2019 water year, Lake Cachuma was at approximately 78% 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 has been suspended since 2017 due to Rey, Whittier, and Thomas Fire impacts. There are 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, 2019. | |
| Lake Cachuma | Total Capacity: 184,121 AF (2013 survey for 750' elevation) End of Year Storage: 144,475 AF (78% of Total Capacity) The City's share of the Cachuma Project's normal annual entitlement is 8,277 AF. The City's WY 2019 allocation began at 20% and then raised to 100% after a mid-year allocation request. Total City allocation in WY 2019 was 8,277 AF. Actual City use in WY 2019 was 1,171 AF; Total remaining carryover for the City as of September 30, 2018 was 14,188 AF. |
| Gibraltar Reservoir | Total Capacity: 4,583 AF (May 2019 survey) End of Year Storage: 2,199 AF (48% of Total Capacity) Gibraltar Reservoir typically fills and spills two out of every three years. Gibraltar spilled three times since May 2011. The most recent spill was January 17, 2019. Total deliveries from Gibraltar in 2019 were 2,817 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. Mission Tunnel provided 1,091 AF in WY 2019, just under the long-term average of 1,125 AF ² . |
| Ground-water | The City conjunctively manages its groundwater with its surface water supplies, providing for groundwater replenishment during wetter years. Groundwater levels continue to be relatively low due to drought conditions in previous years. After heavy groundwater pumping during the drought, the City focused on resting its groundwater basins in WY 2019 to help them recover to pre-drought levels. The City pumped only 2 out of 9 potable groundwater wells from May to August 2019 during peak summer demands, providing 318 AF of supply in WY 2019. |
| State Water Project | The City has a 3,300 AF "Table A" allotment (with drought buffer), subject to availability. In 2019, the Table A allocation was 75%, or 2,475 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 1,039 AF of supply from the SWP in WY 2019. The City exchanged 327 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. It produced 2,993 AF of water to the City's distribution system in 2019. |
| 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 728 AF, or 7% of the total customer water demand, plus 324 AF of process water at El Estero Water Resource Center (EEWRC). In 2019, the recycled system demands were partially supplied by 60 AF of potable blend water. 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 2 shows a recent history of storage levels at Lake Cachuma, which reached historic lows, recovered to about 50% capacity in water year 2017, and then increased to about 85% capacity in the middle of water year 2019. Cachuma storage currently stands at about 78% of capacity at the end of water year 2019. 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 conditions continue. In 2019, the Cachuma allocation started at 20% of normal entitlement, and then raised to full entitlement in March 2019 after winter rains replenished the reservoir. The City's current entitlement for WY 2020 is 100% or 8,277 AF.

Figure 2.

Recent History of Lake Cachuma Storage Levels (AF) With 1986-1993 Period Shown for Comparison

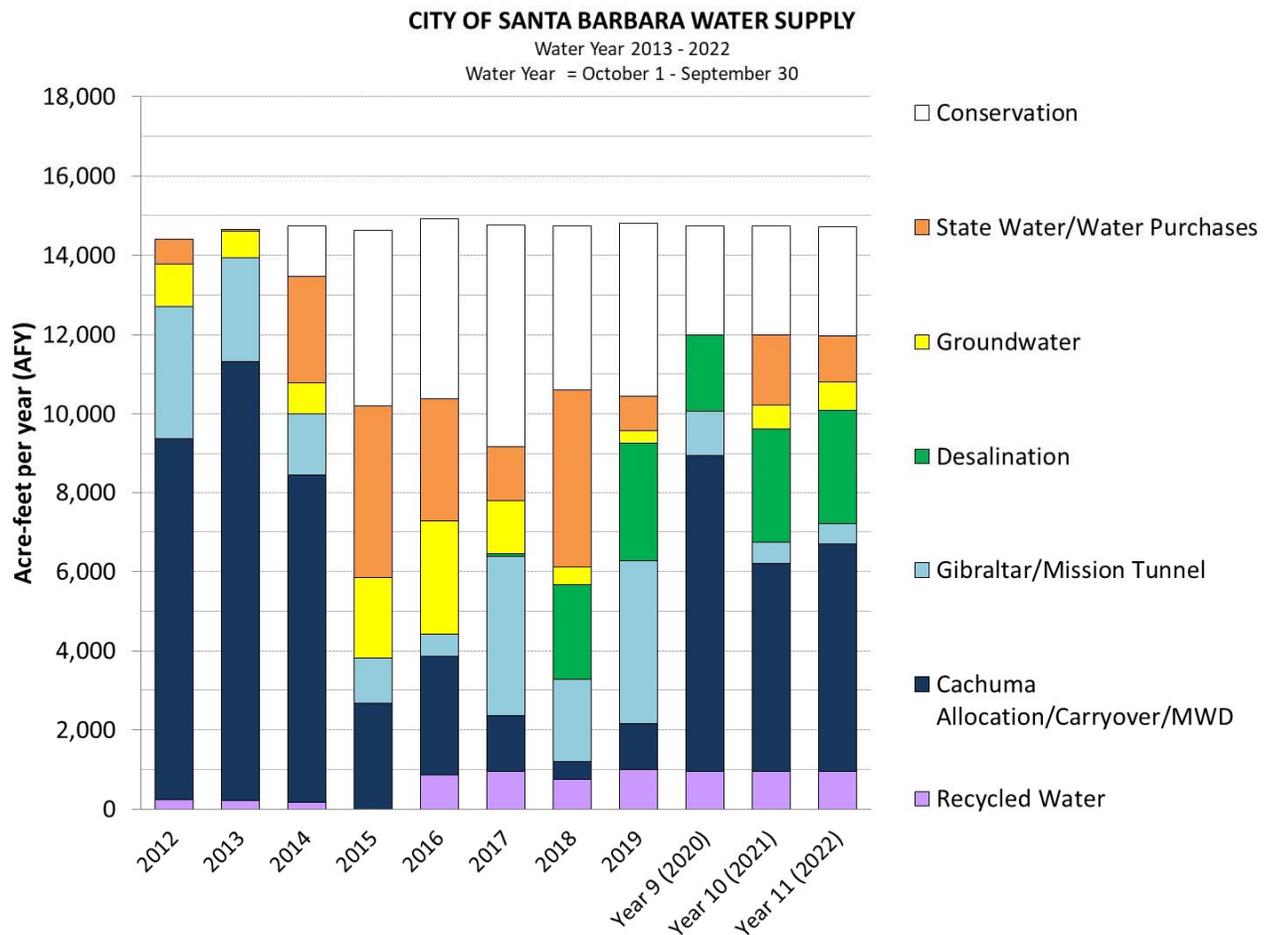


Under the adopted 2011 LTWSP, the City's planned water supply meets 100% of unrestricted customer demand in most years and no less than 85% of demand during the latter portion of a 6-year period of below average rainfall, which defines our "critical drought period." When rainfall is below average, there 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. As shown in Figure 2, WY 2019 was year 8 of the current drought period. Since the current drought condition has exceeded the 1947-52 drought of record, the LTWSP will need to be updated to reflect a new design drought in the future.

Figure 3 shows the current water supply strategy over a 10-year period. Since 2011 was the last spill at Lake Cachuma, 2019 was Year 8 of a critical drought period. The first 8 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 3.
Current Drought Water Supply Strategy



The supply strategy reflects the management policies adopted in the 2011 LTWSP. 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. 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. 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. Most recently, on April 9, 2019, City

Council rescinded the State Three Drought condition and adopted a Stage One Water Supply Condition in response to above average rainfall in winter 2019. Although the rains greatly improved water supply conditions, Cachuma did not spill, and peaked at approximately 85% of storage capacity.

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. While the City was in a Stage 3 Drought condition, the City Council adopted regulations for drought water use restrictions. Staff increased public outreach and messaging to communicate the status of drought conditions and need for extraordinary water conservation. City Council lifted all prior drought water use restrictions with the rescension of the Stage 3 Drought Condition in April. Although there are no mandatory drought restrictions under the current Stage 1 Water Supply Condition, the City continues to enforce its longstanding regulations prohibiting irrigation runoff and failure to repair leaks. Continuing conservation by the community to reduce water use is encouraged as the cumulative effects of the drought on the City's water supplies have been extreme, and it will take several years for some water sources, especially groundwater, to recover.

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 4.A illustrates the historical demands based on total water supply produced. Total water production was 10,136 AF for 2019 (excluding water produced for El Estero process demands). Figure 4.B shows monthly potable water GPCD water use values, as well as a moving 12-month GPCD average. Average usage for 2019 was 87 GPCD. In both charts, demands show a decline beginning in 2014 in response to the Stage 2 and 3 drought conditions that required mandatory reductions of water use. Several production meters were replaced in March and April of 2018, increasing the accuracy of the City's water supply production calculations. Because meters tend to under register as they age, the new production meters registered greater production than the old meters, which caused what looks like a spike in system production and GPCD in 2018 compared with previous years. GPCD and system production decreased slightly over the course of 2019 compared to 2018 despite the fact that Council lifted all drought water use restrictions.

Figure 4.A.

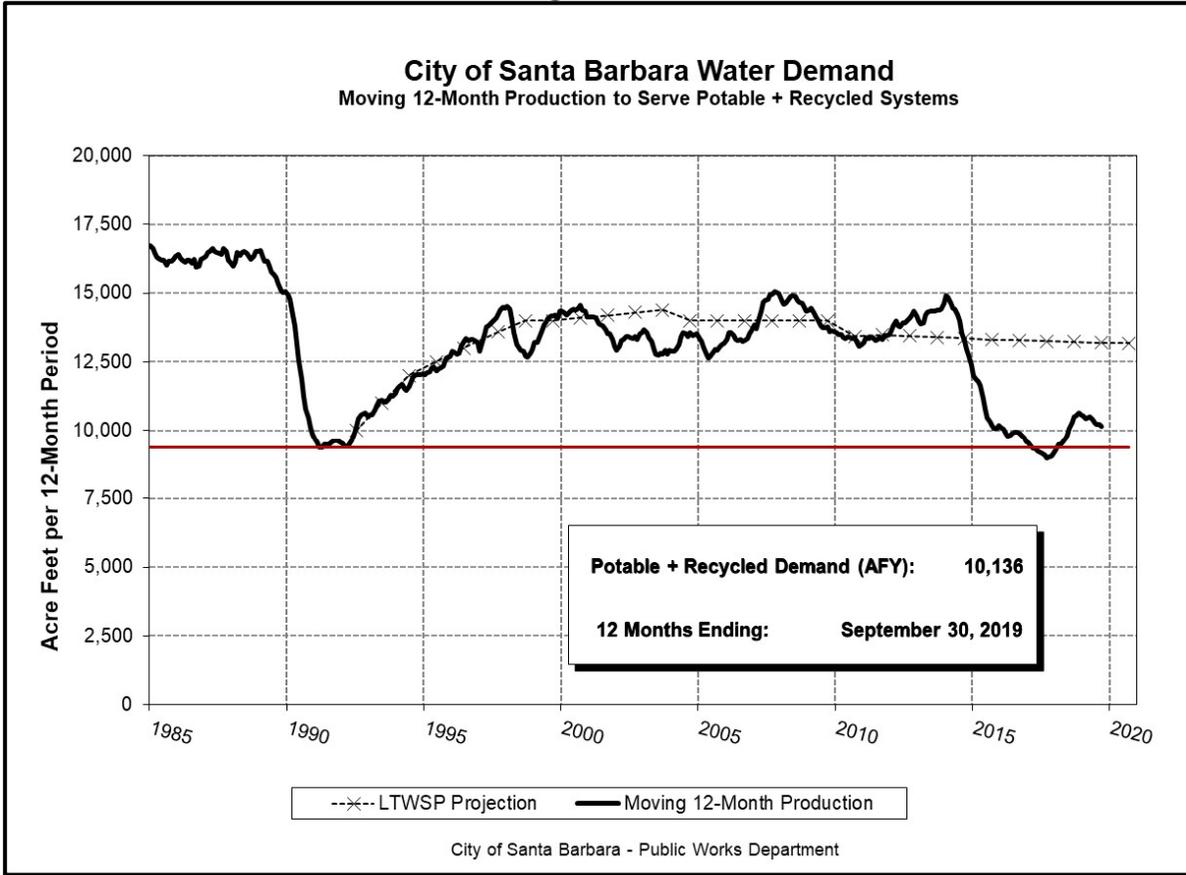
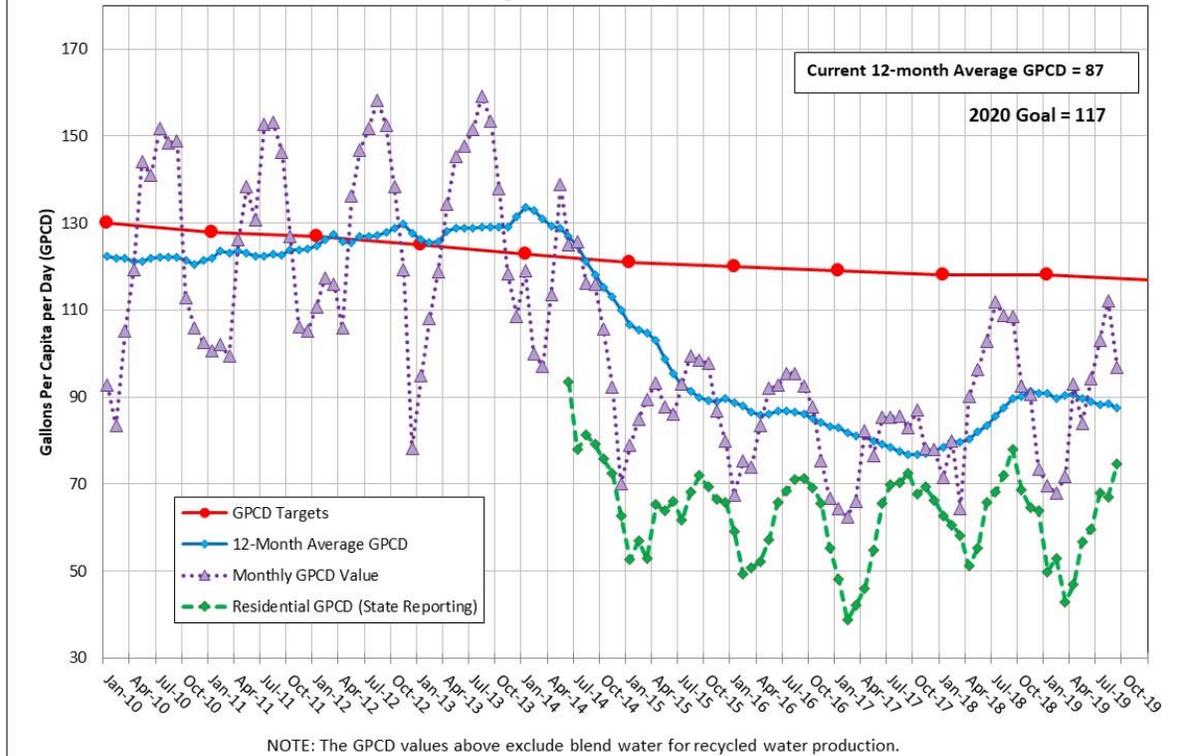


Figure 4.B.

**City of Santa Barbara Water Use in Gallons Per Capita per Day (GPCD)
September 30, 2019**



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. 1,203 free water checkups were provided in Water Year 2019.
- **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 2019 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 rain tank installation workshop, 1 hands-on graywater installation workshop, and one hands-on drip irrigation class.
- **Smart Landscape Rebate Program:** 50% rebate on eligible, pre-approved material costs for landscape water efficiency. 89 pre-inspections were completed and 67 rebates were issued in Water Year 2019.

- **Marketing and Outreach:** Continued to implement the comprehensive South Coast Water Conservation Marketing Plan and the Drought Response Marketing Plan. Highlights from Water Year 2019 include: increased training for landscape professionals, countywide advertising about landscape transformations and irrigation repairs, created new episodes of Garden Wise TV (water wise landscaping TV show), displayed water wise landscaping information at City Hall and the Eastside Library, 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. 1,550 students were reached in Water Year 2019.
- **Additional Programs in Water Year 2019:** 55 high efficiency washing machine rebates, 36 free rain shut-off sensors distributed, and 277 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:*** With winter rains filling Lake Cachuma to over 80%, the Emergency Pump Project (EPP) was decommissioned. However, Cachuma Operations Maintenance Board (COMB) is continuing to fund a month-to-month storage contract for \$3,500/month to store major components of the project. Additionally, COMB has received a drought resiliency grant in the amount of \$750,000 from the US Bureau of Reclamation to construct a secured pipeline on the lake bottom from the Intake Tower to the EPP's original Site 1 location in the lake. The permanent pipeline will replace a floating pipeline suspended from temporary pilings that had to be erected to convey water from the EPP to the Intake Tower. The permanent pipeline will enhance the project's overall robustness and will make activating the EPP less time consuming and more cost effective.
- ***System-wide Infrastructure Assessment:*** The City is currently performing a system-wide water infrastructure assessment. The scope of work includes evaluating current and future system water demands in order to assess the water distribution transmission system and storage capacity to optimally supply those customer demands. The project also prioritizes capital improvements for future years.
- ***Gibraltar Dam Spillway Repair:*** The City's Gibraltar Dam Spillway was damaged by the 2017 winter storms. An engineering design firm performed an evaluation of the entire dam, including the damaged spillway. The firm then designed necessary improvements. The dam improvements have been constructed in advance of the 2020 winter season.
- ***Gibraltar Meter Replacement Project:*** The City replaced the existing sharp-crested weir which was used to measure Gibraltar diversions with a modern H-flume, and located it in a new building to more accurately measure the volume of water conveyed from Gibraltar Reservoir to the City of Santa Barbara for treatment as drinking water.
- ***Recycled Water Treatment Plant Pump Station Rehabilitation:*** The pump station conveys recycled water to the City's recycled water distribution system for use by

customers on landscape, recreational fields, and planted highway medians. Additionally, the pump station conveys recycled water to the El Estero Water Resource Center where it is used as plant process water for cooling mechanical equipment. The existing pump station has outlived its useful service life. An engineering design firm is currently under contract to prepare engineering design documents to rehabilitate the pump station. Construction is anticipated for Fiscal Year 2021.

- **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 Tecolote Tunnel failure. All wells in the Storage Unit 1 groundwater basin, 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 complete for a pipeline to connect Alameda well to the Ortega GWTP. The City's groundwater wells have remained out of service this past year to rest the groundwater basin after being pumped hard during the recent prolonged drought.
- **Charles E. Meyer Desalination Facility:** As a result of the recent prolonged and severe 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 and the plant is currently operational, producing up to 3,125 AFY, which represents approximately one-third of the City's annual water demand. Per the adopted 2011 LTWSP, the primary role of the desalination facility is to serve as a drought relief measure. Considering the \$72M invested to reactivate the facility, the long-term role of this water supply will need to be revisited as part the update to the LTWSP.

The following is a summary of groundwater well status, grouped by basin:

Storage Unit 1 Basin: Unless otherwise noted, all basin wells are currently in standby mode.

- **Corporation Yard:** The well was recently rehabilitated. The project scope included removing and replacing the existing pump assembly to inspect and assess the pumping equipment; brushing the entire length of the well, including the well screens; chemically treating, then pumping, surging and disinfecting the well. As a result of the rehabilitation work, Corp Yard Well is currently offline, but is ready to be put into service as needed.
- **Alameda:** Pipeline design is underway to convey Alameda well water to the OGWTP for treatment.
- **Ortega:** Currently offline due to need for major rehabilitation or replacement.
- **High School**
- **Vera Cruz**
- **City Hall**

Foothill Basin: All wells are currently in standby mode

- **San Roque**

- Hope
- Los Robles

Storage Unit 3 Basin:

- *Valle Verde Well:* Currently in standby mode. This non-potable water well is used to augment water supplies to the recycled water system.

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/Enhanced Urban Water Management 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. The policies outlined in the City's 2011 LTWSP were the basis for the 2016 UWMP Update.

Since 2011, the City has experienced the most severe and long lasting drought on record, exceeding the "design drought" used in the 2011 LTWSP analysis. Additionally, several issues have the potential to affect the availability of the City's current water supplies moving forward (discussed later in this report).

The City has begun to reassess the adequacy, reliability, and cost of its water supplies with respect to these issues and integrate the LTWSP into its 2020 UWMP update. Over time, UWMP requirements have increased, and the City sees the value of having one water supply planning tool to reference for City-wide planning efforts. Therefore, the City plans to meld the supply planning efforts of the LTWSP into the development of its 2020 UWMP so it can have one comprehensive water supply planning report (Enhanced UWMP) moving forward. Staff released a RFP for assistance developing the Enhanced UWMP in October 2019.

Cachuma Project State Water Rights Order: The Bureau of Reclamation operates the Cachuma Project pursuant to a water rights permit issued by the State Water Resources Control Board (SWRCB). The project provides water to the City of Santa Barbara, Carpinteria Valley Water District, Goleta Water District, Montecito Water District, and Santa Ynez River Water Conservation District, Improvement District No. 1 (often referred to collectively as the Cachuma Member Units). The first water right permit for the Cachuma Project was issued in 1958. On September 17, 2019, the SWRCB adopted an order for a new water rights permit for the Cachuma Project. The current permit is the culmination of nearly 20 years of legal proceedings to protect water rights holders and address long-term declines in native Southern California steelhead populations in the Lower Santa Ynez River (downstream of Bradbury Dam). The new order will result in higher downstream flows during

wet years, which will reduce available storage in Cachuma Reservoir going into normal and dry years, and a reduction in supplies available to Cachuma Member Units, including the City.

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, in cooperation with the Cachuma Project Water Agencies, has developed a Biological Assessment (BA), which included 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 BO, for which the BA served as a basis document. NMFS failed to complete the BO within the allotted time, and has had to start over. 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 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

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

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 Resources Manager, Joshua Haggmark, and the Public Works Director, Rebecca Bjork, 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 is anticipated 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. A bathymetric survey performed May 2019 showed the reservoir gained 269 AF of storage when a few of the winter's large storms flushed sediment out of the reservoir, resulting in a current maximum storage capacity of 4,583 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 worked with Reclamation in 2019 to review and negotiate 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 currently 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 Conveyance:** 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 reflected proposals by Governor Jerry Brown and the California Department of Water Resources 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 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 California WaterFix included two large, four-story tall tunnels to carry fresh water from the Sacramento River under the Sacramento-San Joaquin Delta toward the intake stations for the SWP. The certification was a major milestone that came after more than a decade of analysis, review, and public comment.

In May 2019 the DWR began taking formal steps to withdraw proposed permits for the WaterFix project and begin a renewed environmental review and planning process for a smaller, single tunnel conveyance project. This action followed Governor Gavin Newsome's executive order directing state agencies to develop a comprehensive statewide strategy to build a climate-resilient water system. Governor Newsome envisions a smaller, single tunnel through the Sacramento-San Joaquin Delta that would protect water supplies from sea-level rise and saltwater intrusion into the Delta, as well as earthquake risk. It will be designed to protect water supply reliability while limiting impacts on local Delta communities and fish.

DWR and the SWP Contractors have begun the public process of negotiating proposed amendments to the SWP water supply contracts for a new Delta Conveyance project. Amendments to the water supply contracts will add terms and

conditions that are applicable to the construction, operation, and maintenance of the new Delta Conveyance project. The public negotiation process is expected to result in an Agreement in Principle (AIP) among DWR and the public water agencies that describes a conceptual approach to cost allocation and related financial and water management matters. The AIP will be incorporated into a Notice of Preparation of an Environmental Impact Report examining Delta conveyance alternatives and the proposed contract amendment in accordance with the requirements of the California Environmental Quality Act (CEQA). Actual water supply contract amendment language would also be developed following the approval of the AIP.

The Central Coast Water Authority (CCWA) is one of the 29 SWP contractors. CCWA represents the Cachuma Member Agencies on SWP matters. Considering the scope of the proposed new Delta Conveyance project is currently undefined, as is the overall project budget, CCWA and its members have chosen not to participate in the new Delta Conveyance facility at this time. This does not preclude individual agencies from possibly purchasing SWP water from a participating SWP agency in the future. However, there are concerns that by not participating in the new Delta conveyance project, CCWA members will have less secure water banking opportunities in the state's San Luis Reservoir. This is a result of the new Delta Conveyance project, which is anticipated to cause the San Luis Reservoir to spill more frequently (every other year versus historically where it spilled every ten years), resulting in a loss available storage to CCWA.

- **State Water Contract Assignment:** The City of Santa Barbara receives imported water from the SWP through the 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. The County Board of Supervisors (BOS) is tentatively expected to continue the discussion on contract reassignment in February 2020, and the County anticipates requesting a decision from the BOS following the February meeting.
- **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's groundwater basins are relatively small, but groundwater plays an important role 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 or both tunnels that carry water supplies through the Santa Ynez Mountains, such as in a seismic event.

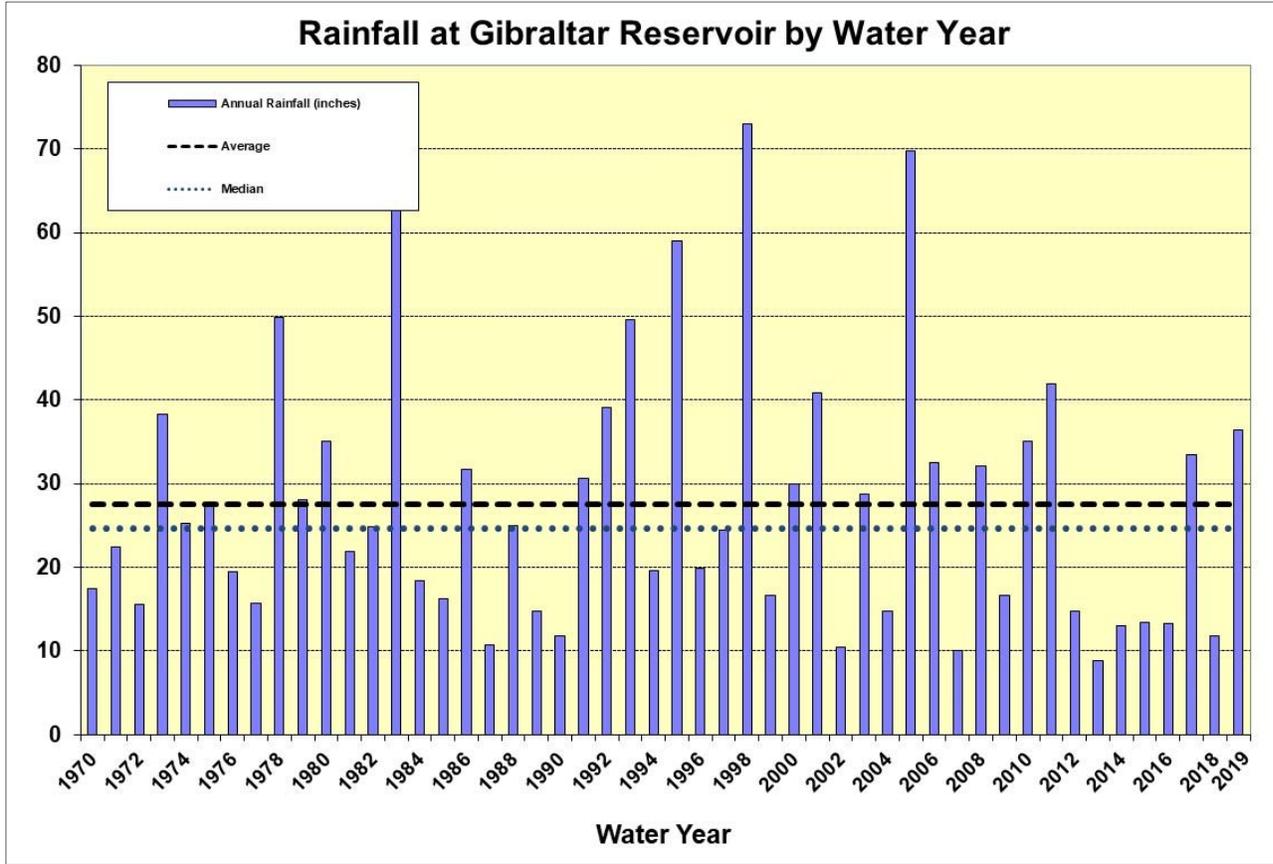
There are two main groundwater basins the City relies on for water supply: Foothill Basin and Santa Barbara Basin (Storage Units I and III). For decades, the City has been working with the United States Geological Survey to monitor water levels and water quality of the groundwater basins and develop 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 plan to form 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 unprecedented drought, groundwater pumping increased in Water Years 2015 through 2018, providing a critical water supply. In Water Year 2019 the City pumped two groundwater wells to help meet peak summer demand from May through August, producing 318 AF. Because the above average rainfall in winter of 2019 significantly improved water supply conditions, the City does not anticipate using groundwater in WY 2020. The wells have been turned off to rest the basins and allow them time to recover after experiencing heavy pumping during the height of the drought.

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 the 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 8 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 of Storage Unit I and the Foothill Basin to be equal or less than the City’s share of the perennial yield of the basins (assumed to be 800 AFY and 450 AFY, respectively). 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 8 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 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. Due to improved water supply conditions, the City does not plan on using any groundwater in 2020. However, 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 8 years (October 2011 – September 2019): | 5,810 AF |
| Previous City Use of Groundwater Storage (October 2005 – September 2011) ² : | 0 AF |
| Remaining 10-Year Drought Storage Yield for City Use: | 10,280 AF |
| Projected City Groundwater Production for 2020: | 0 AF |
| Foothill Basin | |
| Estimated 10-Year Drought Storage Yield for City Use ¹ : | 8,130 AF |
| City Groundwater Production last 8 years (October 2011 – September 2019): | 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 2020: | 0 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 WYs 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 uses non-potable groundwater from Valle Verde well located in Storage Unit III to augment supply to the recycled system as needed. The historical maximum annual pumping by the City from Storage Unit III is 216 AF, which occurred in 1990. The estimated average annual Storage Unit III yield available for use by the City is approximately 201 AFY. The City did not extract any water from Storage Unit III in WY 2019. Although the City does not plan on using any water from Valle Verde in WY 2020, the City may use Valle Verde as needed during short periods should the recycled water plant go 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) 2019-2020 Supply Plan reflects a projected total demand of 11,992 AF including ~180 AF for El Estero process water.

Table A-2. Sources of Supply (AF)

| Source of Supply | WY 2019 Original Supply Plan | WY 2019 Actual | WY 2020 Supply Plan (Projected) |
|--|------------------------------------|---------------------|---------------------------------------|
| Gibraltar Reservoir | 135 | 2,817 | 585 |
| Cachuma Project | 3,014 | 1,171 | 8,016 |
| Mission Tunnel | 533 | 1,091 | 528 |
| Devil's Canyon | 0 | 193 | 0 |
| Juncal Res. (300 AF from MWD) | (w/ Cachuma) | (w/ Cachuma) | (w/ Cachuma) |
| State Water/Water Purchases | 2,347 | 1,039 | 0 |
| Groundwater (potable) ^A | 931 | 318 | 0 |
| Desalination | 2,880 | 2,993 | 1,920 |
| Recycled Water ^C | 779 | 992 | 944 |
| Groundwater (non-potable) ^A | 0 | 0 | 0 |
| Net Other Supplies ^B | (na) | -154 | (na) |
| Total Production: | 10,616 | 10,460 | 11,993 |
| Total Demand: | 10,616 | 10,460 ^D | 11,993 |

^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 (negative values).

^C Planned and actual recycled water demands include ~180 AFY for El Estero process water. Blend water is subtracted from recycled system production.

^D Actual 2019 demand includes 9,408 AFY potable demand, 728 AFY recycled demand, and 324 AFY El Estero process demand.