



# 2020 Water Resources Status Report

For the Time Period October 1, 2019 through September 30, 2020



*Stenner Canyon Water Treatment Plant.*

The City's 2020 Water Resources Status Report was prepared in accordance with the *General Plan, Water and Wastewater Management Element*, Policy A5.3.1. The reporting period corresponds to the 2020 Water Year (October 1, 2019 through September 30, 2020), the twelve-month period for which precipitation totals are measured designated by the calendar year in which it ends. This report provides a summary of the following for the 2020 Water Year:

- I. Regulatory and Water Capital Projects Update
- II. Water Supply
- III. Water Demand
- IV. Water Resource Availability
- V. Water Supply Accounting

## I. CAPITAL PROJECTS AND REGULATORY UPDATE

The City completed two large water infrastructure projects during the 2020 Water Year and began the implementation of a third project with capital improvements totaling over \$18.7 million. These projects are summarized below along with key regulatory updates related to the Sustainable Groundwater Management Act and the upcoming update to the City's Urban Water Management Plan.

### Disinfection Byproduct Reduction & Water Treatment Plant Pipe Gallery Improvement Project

In August, the City completed the approximately \$2.6 million Disinfection Byproduct Reduction and Water Treatment Plant (WTP) Pipe Gallery Improvements Project. The Project included modifications at two potable water storage tanks (Clearwell #2 at the WTP and Edna Saddle Tank) for the installation of specialty equipment (mixers, aerators, and ventilators) to effectively reduce disinfection byproducts to improve water quality and meet regulatory requirements. The Project also included replacement of corroded pipe within the pipe gallery at the WTP, and the replacement of a sections of effluent line and additional valving to provide a means for improved maintenance flexibility within the pipe gallery.

### Water Energy Efficiency Project

In November 2019, the City Council approved the Water Energy Efficiency project that includes \$14.3 million of improvements to the City's Water Treatment Plant. The benefits of the project include:

1. Contribute to the City's sustainability goals and advancement toward Zero Net Energy.
2. Reduce energy consumption and greenhouse gas emissions.
3. Replace obsolete equipment and components.
4. Improve ability to perform maintenance.
5. Improve reliability of achieving permit compliance.
6. Increase operational reliability, flexibility, and redundancy.
7. Reduced staff requirements for manual operation.

It is estimated that implementation of the Water Energy Efficiency Project will result in a reduction of energy usage of over 33 percent annually from 2019 WTP operations. The project is approximately 50 percent complete, with Phase 1



*Installation of new Ozone Generators.*



*Installation of new Dilution Air Dryers.*

Commissioning planned for early 2021. The Project is scheduled to be complete in mid-2021.

### **Waterline Replacement Projects**

During the 2020 Water Year, the City completed replacement of over 3,000 lineal feet of waterline on Casa, Stenner, and Murray Streets surrounding Sierra Vista Hospital at a cost of approximately \$1.7 million. Replacement of water distribution pipes and related facilities is an ongoing program aimed to address aging, substandard, and deteriorating infrastructure, with the added benefit of reducing customer impacts associated with emergency repairs. Waterline breaks occur with more frequency with aging waterlines, and the resulting repairs are disruptive to the public and expensive to repair. The main objectives of this program are to ensure reliable water service, reduce the need for emergency repairs, and to enhance available fire flows.

### **Capital Improvements at Whale Rock Reservoir**

At the request of the California Department of Water Resources, Division of Safety of Dams, the City began preparing plans and specifications for a Spillway Underdrain Repair project at the Whale Rock dam, as well as the first draft of the Emergency Action Plan update, during the 2020 Water Year. The Plan is under review internally by staff. The City performs this work with its Whale Rock Commission partners, Cal Poly State University and the California Men's Colony.

Ongoing capital improvements aimed at maintaining infrastructure safety and reliability include replacement of pressure relief valves for Whale Rock Pump Station B, replacement of 2,000 feet of fence-line around Whale Rock Reservoir, and replacement of the Reservoir's boathouse structure.



*Sunset bike ride at Whale Rock Reservoir.*

### **Sustainable Groundwater Management Act**

The use of groundwater will increase resiliency in the City's water supply portfolio by offering a local water source to complement the City's three surface water supplies. The Sustainable Groundwater Management Act (SGMA) is a statewide law that requires Groundwater Sustainability Agencies (GSA) to adopt groundwater management plans that outline actions needed to return groundwater basins to sustainable levels of pumping and recharge.

The City is working with the County of San Luis Obispo GSA to create a single Groundwater Sustainability Plan (GSP) that provides full coverage of the San Luis Valley Groundwater Basin. To-date, the first seven chapters of the GSP have been drafted and released to the public for review. To get additional information, to sign up for the interested stakeholder email list, or to see materials for past or upcoming meetings related to the GSP development, interested parties are encouraged to visit [www.slowaterbasin.com](http://www.slowaterbasin.com). The San Luis Valley GSP must be submitted to California Department of Water Resources (DWR) by January 31, 2022.

### 2020 Urban Water Management Plan Guidelines

California’s Department of Water Resources issued its draft 2020 Urban Water Management Plan Guidelines in August 2020. The State’s new requirements include:

1. Water loss audit results that characterize distribution system losses.
2. Procedures for conducting annual water supply and demand assessment.
3. Five-year drought risk assessment.
4. Energy analysis.
5. A six-phase water shortage contingency plan.

Many of these new State requirements are already part of the City’s water planning, including the preparation of this Water Resource Status Report annually. Staff will present more information to the City Council on the new requirements at a March 2021 Study Session, with consideration of the City’s 2020 Urban Water Management Plan in June of 2021.

## II. WATER SUPPLY

Per the *General Plan Water and Wastewater Management Element*, Policy A2.2.1, the City uses multiple water sources to meet its water supply needs. The City has four primary water supply sources including Whale Rock Reservoir, Salinas Reservoir, Nacimiento Reservoir, and recycled water. Groundwater serves as the City’s fifth supplemental water source. Substantial work efforts are being made to better understand the City’s groundwater supplies and how they may be fully utilized in the future. The quantity of water supplied by each water source for Water Year 2020 (from October 1, 2019 to September 30, 2020) is summarized in Table 1.

**Table 1: City Water Supply by Source during the 2020 Water Year**  
 (in acre-feet)

Nacimiento Reservoir	Whale Rock Reservoir <sup>2</sup>	Recycled Water	Salinas Reservoir	Groundwater <sup>3</sup>	Total City Water Demand
1,562	777	237	2,154	0	4,730
33%	16%	5%	46%	0%	100%

**Notes:**

1. Values are rounded.
2. Water delivered to Cal Poly State University is excluded from the City’s water demand.
3. Groundwater was not used for potable purposes during Water Year 2020.

During Water Year 2020, 33 percent of the City’s total water demand was met by Nacimiento Reservoir. San Luis Obispo County operates and maintains the water delivery system from Nacimiento Reservoir to participating agencies (currently the cities of Paso Robles and San Luis Obispo, Atascadero Mutual Water Company, Templeton Community Services District, County Service Area 10A [Cayucos], Santa Margarita Ranch, and Bella Vista Mobile Home Park). The Nacimiento Project Commission provides oversight to project operations, maintenance, and the project budget. The Commission is made up of representatives

from each of the four agencies' governing boards and a County Representative who is a member of the County Board of Supervisors who also sits on the Board of Directors for the Flood Control District.

During Water Year 2020, water demand totaled 4,730 acre-feet, below the ten-year average of 5,004 acre-feet (for 2011 to 2020), and the lowest total water demand since 2015. This is likely due to the impacts of COVID-19. The City utilized a total of 2,931 acre-feet from Salinas and Whale Rock reservoirs, meeting 62 percent of total City water demand. The City pays the County of San Luis Obispo Flood Control and Water Conservation District (County) to provide oversight, operations, and maintenance of Salinas Reservoir and related water delivery facilities. The City provides oversight, operations, and maintenance of the Whale Rock Reservoir for the benefit of the Whale Rock Commission, a joint powers agency made up of Cal Poly State University, California Men's Colony, and the City.

For Water Year 2020, the City delivered 237 acre-feet of recycled water for landscape irrigation and construction water. This equates to five percent of total City water demand. New recycled water customers during the 2020 Water Year include several properties in the Orcutt Specific Plan Area.

Although the City suspended using groundwater for potable purposes in April 2015, groundwater wells remain in an operable, stand-by position should the use of groundwater be needed. In July of 2020, the City received a nearly \$2 million planning-phase grant, funded through Proposition 1, to study Tetrachloroethylene (PCE) contamination of the groundwater basin. A detailed understanding of the extent of PCE contamination and remediation options are necessary steps in fully utilizing the City's groundwater pumping opportunities. The planning phase will continue through 2021 with implementation planned for 2022.

### III. WATER DEMAND

During Water Year 2020, the breakdown of water use in the City by sector is as follows:

- 65.8 percent of water use supported single and multi-family residential uses, or 3,112 acre-feet,
- 20.8 percent of water use supported commercial and other non-residential uses, or 984 acre-feet,
- 8.3 percent of water use supported separately metered landscape irrigation (potable water), or 393 acre-feet,
- 4.4 percent of water use supported separately metered landscape irrigation (recycled water), or 208 acre-feet, and
- 0.7 percent of water use supported construction (recycled water), or 33 acre-feet.

Compared to the prior water year, total City water demand for single and multi-family residential uses increased from 60.5 percent in Water Year 2019 to 65.8 percent in Water Year 2020, likely due to both remote work and remote learning during COVID-19. During the same timeframe, water demand for commercial uses decreased from 28.4 percent in Water Year 2019 to 20.8 percent in Water Year 2020.

Historical water use is summarized in Table 2, as well as corresponding population, per capita use rate, and rainfall. The 2020 per capita water use was 92 gallons per capita per day (gpcd). Per capita water use is calculated by dividing total water use (including recycled water) in the City by the City's population. Total water use includes residential and daytime population needs for all uses such as restaurants, hotels, industrial/manufacturing, government/schools, and irrigation. Based on the City's *General Plan Water*

and Wastewater Management Element policies, the City uses a factor of 117 gpcd to project water required to serve the General Plan’s estimated population in 2035.

The City’s water supply reservoirs are in different watersheds, therefore rainfall at various locations within San Luis Obispo County benefits the City. As shown in Table 3, during Water Year 2020, two reservoir locations (Rocky Butte and Salinas Dam) received more than the annual average. The remaining location, Hwy 46 and W 7 Mile Road, Cambria, CA, received less than average rainfall.

**Table 2: Population, Water Use, and Rainfall, 2011-2020**

Year	Population <sup>3</sup>	Total Water Use (acre-feet)	Per Capita Water Use (gpcd)	Rainfall <sup>1,2</sup> (inches)
2011	45,418	5,285	104	18.9
2012	45,308	5,541	109	21.5
2013	45,541	5,892	116	3.8
2014	45,473	5,524	109	14.2
2015	45,802	4,990	97	11.8
2016	46,117	4,731	92	17.8
2017	46,424	4,975	95	35.1
2018	46,548	5,225	100	12.9
2019	45,937 <sup>4</sup>	4,762	93	27.1
<b>2020</b>	<b>45,920</b>	<b>4,730</b>	<b>92</b>	<b>21.59</b>

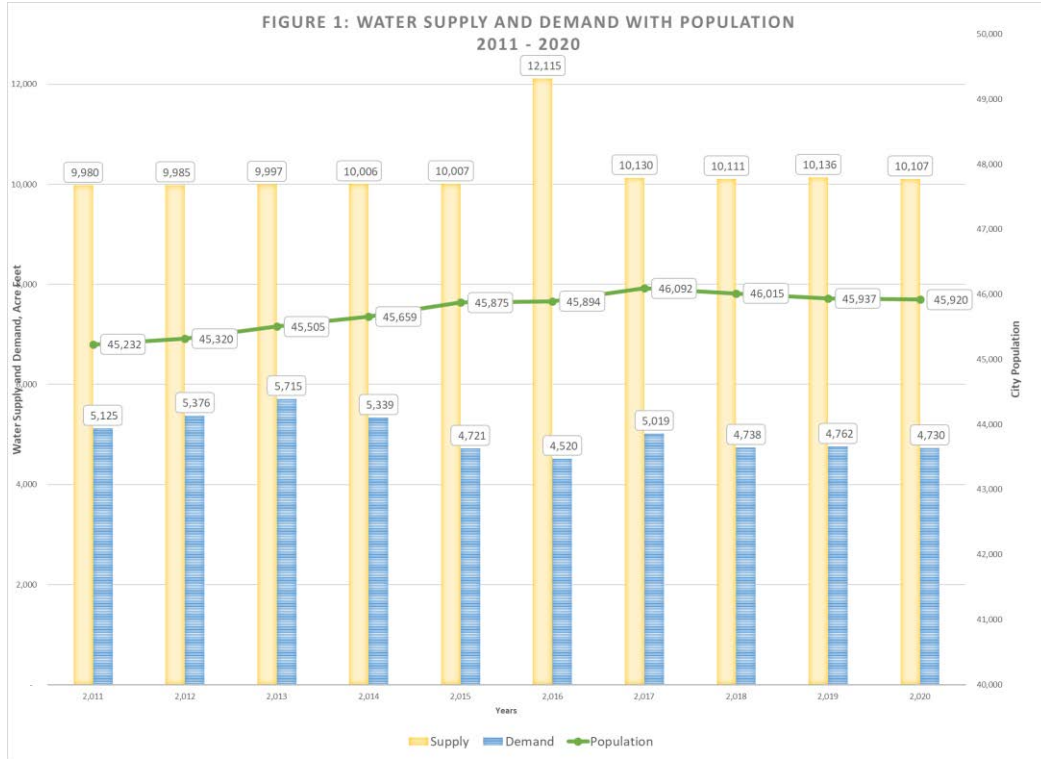
**NOTES:**

- Rainfall for 2011 through 2012 calendar year source was from the Cal Poly CIMIS Weather Station. Rainfall for calendar year 2013 through 2020 was from data for SLO Reservoir available from SLO County at: [https://wr.slocountywater.org/list/?sensor\\_class=11&mode=sensor&cache=1&refresh=off](https://wr.slocountywater.org/list/?sensor_class=11&mode=sensor&cache=1&refresh=off)
- Rainfall data for 20011-2014 is for the calendar year; 2015-2020 data covers the Water Year (October 1 to September 30).
- City population data is available at the CA Department of Finance website at: <http://www.dof.ca.gov/Forecasting/Demographics/Estimates/e-1/>
- The City’s 2019 population figure reflects the **revised estimate** available from the CA Department of Finance in 2020 since the 2019 Water Resource Status Report.

**Table 3: Water Year 2020 Rainfall Totals**

Rainfall Measurement Location	Watershed	Annual Average Rainfall (in inches)	Water Year 2020 Total Rainfall (in inches)	Water Year 2020 Percent of Average
Rocky Butte	Nacimiento Reservoir	40	43.38	108%
Hwy 46 and W 7 Mile Road, Cambria, CA	Whale Rock Reservoir	30	17.49	58%
SLO Reservoir	San Luis Obispo Creek	24	21.59	90%
Salinas Dam	Salinas Reservoir	22	23.71	107%

Source: [https://wr.slocountywater.org/list/?sensor\\_class=11&mode=sensor&cache=1&refresh=off](https://wr.slocountywater.org/list/?sensor_class=11&mode=sensor&cache=1&refresh=off)



NOTE: In 2016, the City recognized the full allocation of Nacimiento Reservoir increasing the City’s contractual water supply from 3,380 acre-feet to 5,482 acre-feet annually (+2,102 acre-feet). Following the end of the drought in 2016, the City updated the Safe Annual Yield model for Whale Rock and Salinas Reservoirs incorporating rainfall data and three climate change scenarios. In 2018, the City recognized the reduction from 6,940 acre-feet to 4,910 acre-feet in Safe Annual Yield (-2,030 acre-feet).

#### IV. WATER RESOURCE AVAILABILITY

The following table summarizes the Water Resource Availability based on *Water and Wastewater Management Element*, Section 3. Water availability for Water Year 2020 is 10,107 acre-feet.

**Table 4: Water Year 2020 Water Resource Availability**

Water Resource	Acre-Feet	Description
Salinas & Whale Rock Reservoirs	4,910	Safe Annual Yield <sup>1</sup>
Nacimiento Reservoir	5,482	Dependable Yield <sup>2</sup>
Recycled Water	215	2019 Annual Usage <sup>3</sup>
Siltation from 2010 to 2060	(500)	WWME Policy A 4.2.2 <sup>4</sup>
	<b>10,107</b>	<b>2020 Availability</b>

**NOTES:**

1. The City’s Safe Annual Yield model was updated in 2018.
2. Dependable Yield is the contractual amount of water the City has rights to from Nacimiento Reservoir.
3. The quantity of recycled water included (215 acre-feet) is the actual prior year’s usage (calendar year 2019) per *General Plan Water and Wastewater Management Element Policy A 7.2.2*.
4. Reservoir siltation is a natural occurrence that reduces storage capacity over long periods, resulting in the reduction of safe annual yield.

## V. WATER SUPPLY ACCOUNTING

Per *General Plan Water and Wastewater Management Element (WWME)*, Section 5, the City accounts for water supplies necessary to meet three specific community needs:

- Primary water supply
- Reliability reserve
- Secondary water supply

Primary water supply is defined as the amount of water needed to serve the City's future residential and non-residential water demand, based on the population identified in the *General Plan, Land Use Element (2014)*. Table 3 in the *Land Use Element* identifies an urban reserve capacity of 57,200 people<sup>1</sup>. The quantity of water needed for the primary water supply is calculated per WWME Policy A 5.2.2, using 117 gallons per capita per day (gpcd).

The City's reliability reserve is defined as the buffer for future unforeseen or unpredictable long-term water supply impacts. The quantity of water for the reliability reserve is defined in WWME Policy A 5.2.3, using 20 percent of the existing City population (45,920, 2020 population) at 117 gpcd. Based on this policy, the reliability reserve will change over time as the City's actual population changes. The reliability reserve concept is included in the City's Charter (Section 909) which identifies that the water may not be used to serve future development.

The City's secondary water supply is defined as the amount of water remaining from available water resources above those needed to meet the primary water supply and reliability reserve. The secondary supply is identified to meet peak water demand periods or short-term loss of City water supply sources, per WWME Policy A 5.2.4.

### 2020 Water Supply Accounting

**Primary Water Supply** = 117 gpcd x City Build-out Population, in acre-feet per year  
 $117 \text{ gpcd} \times 57,200 \times 365 \text{ day/year} \times \text{acre-ft}/325,851 \text{ gallons} = \mathbf{7,496 \text{ acre-ft per year}}$

**Reliability Reserve** = 117 gpcd x 2020 City Population x 20 percent, in acre-feet per year  
 $117 \text{ gpcd} \times 45,920 \times 365 \text{ day/year} \times \text{acre-ft}/325,851 \text{ gallons} \times 20 \text{ percent} = \mathbf{1,204 \text{ acre-ft per year}}$

**Secondary Water Supply** = Current Annual Availability – Primary Water Supply – Reliability Reserve  
 $10,107 \text{ acre-ft/year}^{\text{A}} - 7,496 \text{ acre-ft/year} - 1,204 \text{ Acre-Ft/year} = \mathbf{1,407 \text{ acre-ft per year}}$

<sup>A</sup> 2020 Annual Water Resource Availability from table above.

Water supply accounting for the 2020 Water Year is summarized in the table below and shown in Appendix A.

---

<sup>1</sup> The City's population projection of 57,200 persons, from the General Plan Land Use Element, is based one percent growth annually between 2014 and 2035. By policy, certain housing types and areas are excluded from this growth rate and projection (affordable housing, etc.). The City's estimated Primary Water Supply need is based on projected population but encompasses all water demand in the City (residential, non-residential, and irrigation). In WY 2020, single-family and multi-family residential water demand was 65.8 percent of total City water demand.



**Table 5: 2020 Water Supply Accounting (in acre-feet)**

Primary Water Supply	Reliability Reserve	Secondary Water Supply	Total
7,496	1,204	1,407	10,107

**SOURCE:** Policies related to Water Supply Accounting are found in the City’s General Plan Water and Wastewater Management Element (Policies A 5.2.2 through A 5.2.4).

In summary, the City maintains a robust water supply portfolio with greater than five years of water available. Per capita water use (obtained from adding up all water used by visitors, residents, commercial uses, etc.) decreased during the 2020 Water Year to 92 gallons per capita per day (gpcd) from 93 gpcd during the 2019 Water Year. City population figures, and associated gallons per capita per day, reported in the 2019 Water Resource Status Report were updated from Department of Finance data.

## Appendix A.

