2025 Water Supply and Demand Assessment

For the Time Period July 1, 2024, through June 30, 2026

Whale Rock Reservoir.

I. INTRODUCTION

California Water Code (***CWC §10632.1.***)[1] directs urban water suppliers (Suppliers) to conduct an Annual Water Supply and Demand Assessment (Water Supply Assessment) for the purpose of (i) evaluating its water supply reliability for the current year and one subsequent dry year and (ii) generating and submitting an Annual Shortage Report by July 1 every year. The procedures for conducting a Water Supply Assessment shall include the following:

> *(A) The written decision-making process that an urban water supplier will use each year to determine its water supply reliability.*
> *(B) The key data inputs and assessment methodology used to evaluate the urban water supplier's water supply reliability for the current year and one dry year, including all of the following:*
> *(i) Current year unconstrained demand, considering weather, growth, and other influencing factors, such as policies to manage current supplies to meet demand objectives in future years, as applicable.*
> *(ii) Current year available supply, considering hydrological and regulatory conditions in the current year and one dry year. The annual supply and demand assessment may consider more than one dry year solely at the discretion of the urban water supplier.*
> *(iii) Existing infrastructure capabilities and plausible constraints.*
> *(iv) A defined set of locally applicable evaluation criteria that are consistently relied upon for each annual water supply and demand assessment.*
> *(v) A description and quantification of each source of water supply.*

The City's 2025 Water Supply Assessment was prepared in accordance with the *General Plan, Water and Wastewater Management Element*, Policy A5.3.1.[2] The methods for calculating water supply and water demand have been modified to match the reporting requirements of the Water Supply and Demand Assessment and are described below.

II. DECISION MAKING PROCESS

The CWC does not specify the type of year the Suppliers should use to do the Water Supply Assessment (Calendar or Fiscal). However, the California Department of Water Resources (DWR) recommends that the one Dry Year begins in July.[3] For this Water Supply Assessment, which will be submitted by July 1, 2025, the Dry Year will therefore cover the twelve months from July 2025 to June 2026. Each subsequent Water Supply Assessment will define the Dry Year period as July 1st of the Water Supply Assessment year

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[1] Cal. Water Code §10632.1. can be accessed at:
https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=WAT&sectionNum=10632
[2] The City's *General Plan, Water and Wastewater Element* is available at:
https://www.slocity.org/home/showdocument?id=6649
[3] The State of California's *Water Supply and Demand Assessment Draft Guidance* states *"Characteristic of a dry year is at the discretion of the Supplier, but it should be adequately defined and ideally align with one of the WSCP water shortage levels. The assumed Dry Year conditions are often based on a previous historic dry year, such as the driest year on record. Suppliers presented their defined historic Dry Year in their UWMP Table 7-1. For the purpose of this Guidance, the Dry Year data will be applied over the twelve-month period beginning July 1st (the due date of the current Annual Shortage Report)."*

through June of the next calendar year. The Current Year for this Water Supply Assessment will cover the twelve months from July 2024 through June 2025. The Current Year and Dry Year periods for this Water Supply Assessment are concurrent with the City's 2025 and 2026 Fiscal Year periods, respectively.

The City utilizes a Water Projection Model to test both hypothetical and actual water demand scenarios and to forecast how long water supplies will sustain the community under specific conditions. The Water Projection Model accounts for the storage in the City's surface water reservoirs, in conjunction with other available resources (i.e., groundwater and recycled water), needed to meet the City's water demand. The model uses historical hydrologic information (rainfall, evaporation, inflow) based on the average for the worst drought period (2012 to 2014). Other data included in the model are:

a. Water entitlement
b. Current reservoir levels/storage
c. Average gallons per capita per day community water demand
d. Rainfall
e. Temperature
f. Evaporation
g. Existing population
h. Estimated population growth

Utilizing the Water Projection Model as part of its water supply management strategy, the City can foresee whether a water supply shortage is anticipated in any given year and the severity of a shortage based on the availability of the City's different sources of supply and water demand trends. The City uses the Water Projection Model to study the potential impacts of various intensities of drought conditions, including increased air temperature and evaporation rates, along with decreased precipitation. Per the City's 2020 Water Shortage Contingency Plan, the Water Supply Assessment will utilize the Water Projection Model to determine current demand, future demand, and any associated water shortages.[4]

Water supply and demand are presented in the units of acre-feet (AF). Annual available supply is determined using existing methods (*General Plan Water and Wastewater Management Element (WWME),* Section 3).[5] Annual demand for the purposes of estimating Current Year and Dry Year demand is determined using a modification of the methods described in the City's method for determining Primary Water Supply (*WWME,* Section 5) as described below. Current Year monthly demand is determined using actual metered data when available; however, for the months when metered data have not been collected, demand is calculated using the methods described in this report.

III. WATER SUPPLY REALIABILITY EVALUATION

This section describes the City's various water supply sources. The City primarily utilizes water from three surface-water reservoirs for drinking water and irrigation, and recycled water for irrigation and construction. The effect of recent precipitation on reservoir volumes is described herein, as is the method by which the City accounts for loss of storage capacity due to siltation.

[4] The City's *Water Shortage Contingency Plan* is available at:
https://www.slocity.org/home/showpublisheddocument/30334/637575513697770000
[5] The City's *General Plan, Water and Wastewater Element* is available at:
https://www.slocity.org/home/showdocument?id=6649

Description and Quantification of Each Water Supply Source

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.[6] The City has four primary water supply sources: Nacimiento Reservoir, Whale Rock Reservoir, Salinas Reservoir, and recycled water. The City prioritizes using contractual water supply from Nacimiento Reservoir first, with Whale Rock Reservoir and Salinas Reservoir used as needed to meet the City's overall potable water demand, while recycled water is used as a non-potable source for irrigation and construction purposes within City limits. A comprehensive upgrade to the City's Water Resource Recovery Facility (WRRF) is currently underway and will increase the volume of recycled water available for use in the future. Additionally, 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.

Nacimiento Reservoir

In 1959, the San Luis Obispo Flood Control and Watershed Protection District (San Luis Obispo District) entered into an agreement with Monterey County Flood Control and Water Conservation District (now Monterey County Water Resources Agency) to secure rights to 17,500 AF of water per year (AFY) from Nacimiento Reservoir. Nacimiento Reservoir is located entirely within San Luis Obispo County, California (County), and was built by Monterey County Flood Control and Water Conservation District who continues to control reservoir ownership and operations. Nacimiento Reservoir has a storage capacity of 377,900 AF and serves the purpose of abating seawater intrusion in the groundwater aquifers of the Salinas River Valley, while also providing flood protection and groundwater recharge for the Salinas Valley. Of the San Luis Obispo District's entitlement, 1,750 AFY have been designated for uses around the lake, leaving 15,750 AFY for allocation to other areas within the County of San Luis Obispo. Water is delivered via a 45-mile pipeline from Nacimiento Reservoir to participating agencies and cities.

The "dependable yield" from Nacimiento Reservoir is the contractual amount of water that the City has rights to from Nacimiento Reservoir. The City's original amount contracted for was 3,380 AFY. Engineering studies, environmental impact reports, dependable yield analyses, and preliminary design reports were completed to ensure water needs within the County were met. In 2004, the County requested interested agencies to approve the contractual agreements for participation in the Nacimiento Project. The four initial project participants included the cities of San Luis Obispo and Paso Robles, the Atascadero Mutual Water Company, and the Templeton Community Services District. These agencies executed participation agreements with San Luis Obispo County for entitlements of water which totaled 9,630 AF. In 2004, the County Service Area 10A in Cayucos became a project participant securing 25 AFY. On June 29, 2004, the San Luis Obispo City Council authorized participation in the Nacimiento Water Project for the delivery of the original 3,380 AF of water. In 2004, the County Service Area 10A in Cayucos became a project participant (25 AFY).

In March 2016, the City Council approved the addition of 2,102 AFY from Nacimiento Reservoir to the City's water supply. This addition brought the City's total Nacimiento Reservoir allocation to 5,482 AFY. With uncertainty of future climatic conditions, regulation, and aging infrastructure, the additional supply of Nacimiento water to the City's portfolio reduces pressure on the use of water supplies in the Whale Rock and Salinas reservoirs, extending these stored supplies during future critical water shortages.

[6] General Plan, Water and Wastewater Management Element, Program A 2.2.1, states *"The City shall utilize multiple water resources to meet its water supply needs."*

During the worst-case drought on record in the region (2012 to 2014), Nacimiento Reservoir remained a resilient water supply capable of providing a consistent and reliable source of water for San Luis Obispo County. To confirm the prior analysis with more recent data, the City reviewed rainfall and inflow data from 2013 which was the driest year on record. Over that year, Nacimiento Reservoir received 35,000 acre-feet of inflow. Though this is significantly below the average inflow into the reservoir, the San Luis Obispo District's entitlement could still be met if inflow remained at this level due to the District's primary rights.

High streamflow in the Salinas River corresponding to a large precipitation event on January 9, 2023, exposed and damaged the pipeline that delivers water from Nacimiento Reservoir to the City, disrupting delivery of water to the City. At the date that this report was published, deliveries of water from Nacimiento Reservoir to the City were expected to resume in July 2025 through a temporary bypass. This disruption in delivery of water from Nacimiento Reservoir is accounted for later in this report and points to the importance of the City having a multi-source supply portfolio.

Whale Rock Reservoir

Whale Rock Reservoir is located on Old Creek Road approximately one-half mile east of the community of Cayucos, California. The project was planned, designed, and constructed under the supervision of the California State Department of Water Resources (DWR). Construction took place between October 1958 and April 1961. The reservoir is jointly owned by the City of San Luis Obispo, the California Men's Colony, and the California Polytechnic State University at San Luis Obispo (Cal Poly). These three agencies form the Whale Rock Commission which is responsible for operation and administration of the reservoir and associated water deliveries. Day-to-day operation is provided by the City.

Whale Rock Reservoir is formed by an earthen dam and had capacity to store an estimated 40,662 AF of water at the time of construction. The dam is 266 feet tall with a crest length of 850 feet and crest width of 30 feet. The top of dam elevation is 232.2 feet. The Reservoir covers an area close to 600 acres. In 2022, the maximum storage capacity is 38,967 AF. The City owns 55.05 percent of the water storage rights at the reservoir (22,364 AF). The remaining water storage rights are apportioned between the two State agencies with Cal Poly owning 33.71 percent and the California Men's Colony owning 11.24 percent. Over the life of the Whale Rock Reservoir and dam, the lake has filled to capacity and the spillway has been used 14 times, most recently spilling in February 2024.

The Whale Rock pipeline is approximately 17 miles long, connecting the reservoir to the member agencies, and terminating at the City's Water Treatment Plant. The design capacity of the pipeline is 18.94 cubic feet per second (approximately 8,500 gallons per minute). The line consists of modified pre-stressed concrete cylinder pipe at most locations. Cement mortar lined steel pipe is used at creek crossings and junctions.

Salinas Reservoir

The Salinas Reservoir (also known as Santa Margarita Lake) is located on the upper Salinas River, approximately nine miles southeast of the community of Santa Margarita. The project was originally built by the War Department to ensure an adequate water supply for Camp San Luis Obispo, as well as the City of San Luis Obispo. The dam and appurtenances were declared surplus by the War Department on April 14, 1947, and the U.S. Army Corps of Engineers assumed responsibility for the facilities. On July 11, 1947, the Corps entered into an agreement with the San Luis Obispo District for the operation and maintenance of the dam and related facilities. The City has an agreement with the Corps for use of the reservoir, as well as a water right permit to divert water from the Salinas River for storage within the reservoir. Salinas Reservoir is formed by a concrete arched dam. Immediately following construction, the

reservoir had an estimated storage capacity of 24,000 AF with a surface area of 793 acres, and a drainage area of 112 square miles. A model of the reservoir was updated in 1991 using computer calculations and aerial photogrammetry. The San Luis Obispo County Flood Control and Water Conservation District (District) have used the 1991 model to calculate capacity and surface area using measurements of reservoir elevation until recently. In 2023 the District updated the model of the reservoir using a bathymetric survey and LiDAR data to create a full coverage model of the reservoir. The 2023 updated model resulted in a total capacity at the spillway elevation of 22,507.75 AF, a reduction of 1,522.56 AF. The decrease in capacity can be attributed to improved data, and to siltation of the reservoir, which is estimated at 46.14 AF/yr (mean siltation rate over 33 years).

Water is conveyed from Salinas Reservoir through 48,700 feet (9.2 miles) of 24-inch diameter reinforced concrete pipe to a three million gallon regulating reservoir at the Santa Margarita booster pump station near the northerly base of Cuesta Grade adjacent to Highway 101. The pipeline is designed to flow by gravity from the Reservoir to the regulating reservoir when the lake level is above the elevation of 1,267 feet. A booster pump station at the base of the dam, consisting of two horizontal centrifugal pumps, is capable of maintaining the rated flow of 12.4 cubic feet per second (approximately 5,565 gallons per minute) when the water surface elevation falls below 1,267 feet.

Safe Annual Yield

Safe Annual Yield, or the maximum amount that could be withdrawn each year without drawing the reservoir below its minimum pool constraint, for Whale Rock and Salinas reservoirs is 4,910 AFY. This value was updated in 2018 following the addition of data from the most recent drought that ended in 2016 and analysis of three independent climate change models by the U.S. Environmental Protection Agency (EPA), San Luis Obispo Council of Governments (SLOCOG) as part of the 2014 Regional Transportation Plan, and Nature Communications. As a result of siltation since the original construction, the reservoir capacity has been reduced and accounted for in the Safe Annual Yield for Whale Rock and Salinas reservoirs.

Accounting for Siltation

Siltation at reservoirs is a natural occurrence that can reduce the storage capacity over long periods. The reduction of available storage reduces the safe annual yield of the reservoirs. Siltation at reservoirs varies depending on factors such as rainfall intensity and watershed management practices. Climate change could have an impact on future water availability in the form of increased siltation in reservoirs resulting from wildland fires which could affect the safe annual yield of the City's reservoirs. Numerous studies and reports addressing siltation at Salinas Reservoir have been completed. As mentioned previously, the latest study conducted by the District in 2023, indicated that the siltation rate in Salinas Reservoir is about 46.14 AF/yr, resulting in a decrease in reservoir capacity of 1,522.56 AF since 1991.

The Whale Rock Reservoir Bathymetric Survey and Volumetric Study was completed in May 2013. The study concluded that sedimentation has reduced reservoir capacity by 4.2% in 52 years, but this impact, considering 52 years of sedimentation is relatively minimal. The City has policies and programs in the WWME to anticipate the loss of storage at Whale Rock and Salinas Reservoirs. WWME Policy A 4.2.2 relates to Accounting for Future Siltation.[7] The policy states *"The City will account for estimated safe annual yield losses at Salinas and Whale Rock Reservoirs through 2060 by deducting 500 acre-feet of available water supplies to account for these future losses.*" The siltation rate will be updated as information becomes available from subsequent siltation analyses. The siltation rate calculated by the

[7] The City's *General Plan, Water and Wastewater Element* is available at: https://www.slocity.org/home/showdocument?id=6649

District as part of the 2023 study is similar to previous estimates; therefore, the City's policy for accounting for safe annual yield losses remains unchanged. Accounting for siltation of reservoirs contributes to the overall reliability of the City's water supply portfolio as it ensures that the City is planning for this occurrence. Siltation at Nacimiento Reservoir does not need to be accounted for in The City's water supply portfolio calculations because the contractual right for San Luis Obispo County agencies is not dependent on reservoir capacity.

Recycled Water

The City's Water Resource Recovery Facility (WRRF) produces over 3,200 AF of disinfected tertiary-treated effluent per year. A minimum of 1,810 AF is discharged to San Luis Obispo Creek annually to provide satisfactory habitat and flow volume for fish species (steelhead trout) within the Creek environment. The balance makes up the City's available recycled water resource which is available for approved uses. A consistent flow of wastewater to the WRRF enables the City to produce a volume of recycled water that exceeds current seasonal demand for landscape irrigation. The distribution and delivery of recycled water is via a pump station located within the WRRF. The pump station does not have backup power during a power outage. However, because power outage events have been infrequent, the City's recycled water supply is considered a reliable, non-potable water supply.

The primary use of recycled water in the City is for landscape irrigation with about 75 percent of the City's recycled water demand occurring from May through October. The City began issuing annual construction water permits in July 2009. Permit holders have access to recycled water for dust control and compaction on construction sites in the City. The City has four metered wharf head hydrant filling stations located throughout city limits. During calendar year 2024, 354 AF of recycled water was used for landscape irrigation and construction water. The City has identified a "seasonal surplus" of recycled water available in excess of required discharge to San Luis Obispo Creek (4.96 AF per day as required by the National Oceanic and Atmospheric Association, National Marine Fisheries Service in 2005). As only a limited amount of landscape irrigation takes place from November to April (seasonal off-peak period), more than 4 AF per day of recycled water is available during the seasonal off-peak period. An upgrade of the WRRF is underway, which will accommodate the City's buildout and maximize recycled water production. These upgrades will enable the City to maximize beneficial use of recycled water, including consideration of either direct or indirect potable reuse in the future. Until potable reuse is implemented, the City is focused on expanding the use of recycled water within City limits to help offset potable water use. Per the City's 2017 Recycled Water Master Plan, recycled water use is projected to increase by 10 AF per year.

Groundwater

Although the City suspended using groundwater for potable purposes in April 2015, the City is completing a project to build two new groundwater supply wells, with hopes of utilizing groundwater as a supplementary drinking water source by late 2026. 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. This study was completed in April 2023 and provided a more detailed understanding of the extent of PCE contamination and identified potential remediation options for the City to fully utilize its groundwater pumping opportunities. An additional implementation-phase grant was awarded in March 2023; current grant funding through Proposition 1 for the implementation-phase is $7,782,800. The implementation phase will result in the construction or outfitting of two new production wells with treatment systems to provide the City with an additional source of potable water, while simultaneously removing contaminated groundwater from the groundwater basin. Several new monitoring wells planned for installation in the implementation phase

will provide an understanding of changing groundwater conditions resulting from renewed groundwater pumping.

In January 2022, the City and the County of San Luis Obispo, acting as Groundwater Sustainability Agencies, submitted a draft of the Groundwater Sustainability Plan (GSP) for the San Luis Obispo Valley Groundwater Basin to the California Department of Water Resources (DWR).[8] The GSP was approved by DWR in April 2023. The GSP was a result of several years of work conducted to better understand the hydrology of the basin and will be instrumental in guiding sustainable use of groundwater in the basin, including the City's utilization of groundwater as a source of supply. The GSP estimates a groundwater surplus (recharge minus withdraws) of approximately 700 AFY for the portion of the groundwater basin underlying the City.

Current Year Precipitation and Reservoir Storage

Current Year precipitation in the City is slightly below the median for Water Years 2012-2024 (Table 2); however, reservoir levels have held steady from last year, at or near capacity. Precipitation is generally greatest in the winter months, November through April, and can be absent in the summer months, May-September. As of February 28, 2025, the Current Year precipitation is 10.91 inches, with 6.80 inches falling in the month of February alone, resulting in increases in reservoir storage volumes of 54,945 AF in Nacimiento Reservoir, 3,033 AF in Salinas Reservoir, and 513 AF in Whale Rock Reservoir[9].

Table 2: Precipitation Measured at the SLO Reservoir Station[1]
(in inches)

Water Year	Accumulation (in inches)
2012	12.36
2013	8.50
2014	10.51
2015	11.70
2016	17.76
2017	35.34
2018	12.88
2019	27.10
2020	15.60
2021	11.62
2022	14.82
2023	51.99
2024	24.21
2012-2024 Median	16.68
2025 (October-February)	10.91

Notes:
1. Precipitation data measured at the SLO Reservoir – P (749) station can be found at: https://wr.slocountywater.org/site/?site_id=27&view=51a30d03-3991-46af-9d23-7bc0f56a118f.

[8] The San Luis Obispo Valley Basin Groundwater Sustainability Plan is available at: https://opengov.slocity.org/WebLink/DocView.aspx?id=151703&dbid=0&repo=CityClerk&searchid=bd6f22bb-d951-472c-848d-2d187628a2d2&cr=1

IV. SUPPLY AND DEMAND ANALYSIS

Using the Water Projection Model described above, the City has more than ten years of water available under a drought scenario with current water supply and demand conditions. Analysis of supply and demand data at a monthly timescale shows that the City has the supply needed to meet monthly demands for the Current Year and a subsequent Dry Year. This is why the City does not expect to enter a water shortage emergency in any month during the Current Year and following hypothetical Dry Year.

This analysis provides valuable insight on the primary uses of water in the City and also highlights periods when disruptions in delivery of water from one or more of the City's reservoirs would be most impactful to the City's ability to meet demand. Monthly demands show that water supply is used primarily to meet residential demands. Additionally, monthly demands show the seasonal variation associated with the need for more water in the hot, dry summer months and the need for less water during the cool, wet winter months. Ultimately, the data show that water use within the City is driven by residential use during the dry, summer months, likely in response to outdoor irrigation needs. Because of this, water conservation programs that target reduction in outdoor irrigation may provide the greatest water savings.

The supply and demand analysis assumes reliable delivery of available water supplies during drought conditions similar to those experienced in recent history. More extreme drought conditions may present issues that decrease the volume of available water in storage or degrade the quality of water in storage. Available water supply may also be less than estimated because of disruptions in the delivery of available water supplies, whether temporarily caused by minor issues or prolonged disruptions caused by catastrophic events.

Assessment Methodology: Locally Applicable Evaluation Criteria

Water supply reliability is the City's ability to meet the water needs of its customers under varying conditions. The City estimates annual Water Supply based on *Water and Wastewater Management Element,* Section 3. The City's fiscal year 2023-2024 water supply that was estimated using this method is shown in Table 1. This method incorporates Safe Annual Yield from Salinas and Whale Rock Reservoirs as determined through the City's Safe Annual Yield Model, the City's contractual amount of water from Nacimiento Reservoir (Dependable Yield), the prior Calendar Year volume of Recycled Water utilized by the City, and reduction in reservoir storage caused by siltation as directed in WWME Policy A 4.2.2. The values shown in Table 1 are preliminary estimates that can change with regulatory variability, climate conditions, and other factors that may affect the City's water supplies and customer water uses. As described in Chapter 6 of the City's 2020 Urban Water Management Plan (UWMP)[10], the City assesses long-term water supply reliability by analyzing the hydrological variability of the City surface water reservoirs (Salinas, Whale Rock, and Nacimiento). This analysis is done using the City's Water Projection model and applies worst-case drought conditions according to guidelines set forth in the UWMP plan documentation.

[10] The City's *2020 Urban Water Management Plan* can be accessed from the California Department of Water Resources, WUEdata Portal at: https://wuedata.water.ca.gov/uwmp_plans.asp?cmd=2020

Table 1: Estimated Fiscal Year 2024-2025 Annual Water Supply

Water Resource	Acre-Feet	Description
Nacimiento Reservoir	5,482	Dependable Yield [1]
Salinas & Whale Rock Reservoirs	4,910	Safe Annual Yield [2]
Recycled Water	354	2024 Annual Usage [3]
Siltation from 2010 to 2060	(500)	WWME Policy A 4.2.2 [4]
	10,246	**Total Availability[5]**

NOTES:

1. Dependable Yield is the contractual amount of water the City has rights to from Nacimiento Reservoir.
2. The City's Safe Annual Yield model was updated in 2018.
3. The quantity of recycled water included (354 AF) is the actual prior year's usage (calendar year 2024) 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.
5. Preliminary estimate that can change with regulatory variability, climate conditions, and other factors that may affect the City's water supplies and customer water uses.

Generally, the City accounts for annual demand, or the water supplies necessary to meet community needs, using the methods detailed in the *General Plan Water and Wastewater Management Element (WWME),* Section 5.[11] The amount of water needed to serve the City's future residential and non-residential water demand is termed the primary water supply. The primary water supply is calculated using the build-out population identified in the General Plan, Land Use Element (2014) and the maximum allowed per capita water use under Senate Bill X7-7, which is 117 gallons per capita per day (GPCD).[12] Previous Water Supply and Demand Assessments utilized this method to estimate future demand; however, this resulted in large overestimations when compared to actual demand. These overestimations of water demand did not reflect the recent historical demand, presenting difficulties in assessing the City's short-term water supply and demand scenario.

For this Water Supply and Demand Assessment, Current Year and Dry Year water supplies were calculated using the estimated supply available from Nacimiento Reservoir (see proceeding text regarding supply disruptions), the full safe annual yield from Salinas and Whale Rock reservoirs, recycled water use from the previous calendar year plus 10 AFY, and a reduction in 500 AFY to account for siltation. To accurately assess the City's short-term potable water demand, Current Year and Dry Year demands were calculated by multiplying the previous fiscal year's potable water GPCD by the estimated population for fiscal years 2025 and 2026, respectively.[13] The annual water supply and demand volumes calculated using the methods described above are converted to monthly volumes for the purposes of this Water Supply Assessment so that potential seasonal water shortages are highlighted.

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[11] The City's *General Plan, Water and Wastewater Element* is available at: https://www.slocity.org/home/showdocument?id=6649

[12] *Senate Bill No. 7 – Water conservation*, is available at: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=200920107SB7

[13] The potable water demand for fiscal year 2024 was 79. Per the City's General Plan, population growth is estimated to be 1% per year.

When utilizing the Water Projection Model to estimate long-term water supply and demand, GPCD decreases in accordance with the 2020 Water Shortage Contingency Plan (WSCP). For example, water demand is calculated using an initial value of 117 GPCD and decreases by ten percent (corresponding to a ten-percent decrease in water use) to 105 GPCD when available supply is less than 5-years of estimated annual demand. This ten percent reduction is in alignment with the demand reduction that the City projects it would achieve from conservation measures outlined in the WSCP.

Existing Infrastructure Capabilities and Plausible Constraints

The utilization of water from three separate reservoirs provides the City with operational flexibility to meet water demands while maintaining optimal storage volumes in each reservoir; however environmental factors can inhibit reservoir storage or prevent utilization of stored water by degrading water quality. While inflow to Nacimiento has proven to be sufficient during the worst drought in recent history, it is conceivable that in the most extreme drought, when precipitation is near zero, that inflow is less than the City's contractual amount. The City has not typically experienced significant water quality issues with water stored in its reservoirs, but extreme heat and low reservoir levels associated with drought conditions are ideal conditions for biological processes that can impair water quality, including growth of algae, which can lead to secondary water quality complaints related to taste and odor. The City's water treatment plant is capable of producing water that meets all state and federal standards, even as water quality is deteriorated by ongoing drought.

Generally, the City satisfies demand without utilizing the full dependable yield from Nacimiento Reservoir because pipeline capacity constraints and treatment operation only allow for the delivery and treatment of approximately 4,500 AFY. Projects are being developed to allow for the full utilization of dependable yield from Nacimiento Reservoir in preparation for future periods when demands require the full available water supply. Should the City need to utilize its full entitlement to Nacimiento for any reason, it could modify plant operation to accommodate this need. Because the City relies primarily on water supplied by its reservoirs, disruptions in delivery of water from a reservoir could be caused by damage to existing infrastructure. While temporary disruptions in water supply availability can be mitigated through utilization of water from the other available reservoirs, prolonged disruptions could result in water shortages.

The City is expanding its groundwater program and considering potable reuse of recycled water to provide water supply redundancy and increased operational flexibility in extreme drought scenarios and during disruptions in delivery of water from reservoirs. Additionally, the City produces recycled water that can be used to offset potable demand and during disruptions of water supply. Ultimately the City proactively pursues projects that help gain a better understanding of potential issues that may threaten its water supply and how to mitigate them.

Current Year Water Supply and Demand Assessment

Analysis of the supply and demand data from the previous year allows for a better understanding of how annual demand is met with the available water supplies. As shown in Table 3, the City's 2023-2024 Fiscal Year demand was 4,713 AF. The per-capita demand, including recycled water, during this period was 86 GPCD. Ninety-three percent (93%) of this demand was supplied by Whale Rock and Salinas Reservoirs, and 7% was supplied by recycled water; water deliveries from Nacimiento Reservoir were unavailable due to pipeline repairs.

Table 3: City Water Supply by Source during the 2023-2024 Fiscal Year[1]

(in acre-feet)

Nacimiento Reservoir	Whale Rock Reservoir [2]	Salinas Reservoir	Recycled Water	Groundwater [3]	Total City Water Demand
-	4,027	377	309	0	4,713
0%	85%	8%	7%	0%	100%

Notes:

1. Values are rounded.
2. Water delivered to Cal Poly State University at San Luis Obispo (Cal Poly) is excluded from the City's water demand, as Cal Poly has its own water storage and water diversion rights in Whale Rock Reservoir.
3. Groundwater was not used for potable purposes during Fiscal Year 2023-2024.

Current Year available water supply is 6,875 AF; 4,742 AF potable water and 2,133 AF non-potable water (Table 4). In the Current Year the City planned to utilize its water sources similarly to Fiscal Year 2021-2022 by prioritizing water from Nacimiento Reservoir to preserve or increase storage volumes in Whale Rock and Salinas Reservoirs. However, the damage to the Nacimiento pipeline, previously detailed in this report, is estimated to prevent the City from using water from Nacimiento for the remainder of the fiscal year. The City's Current Year water supply (Table 4) summarizes actual supply volumes delivered to the City's distribution system for the period July 2024 through February 2025 and estimated supply volumes for March through June 2025. The water supply volumes reflect the absence of Nacimiento Reservoir and the increased utilization of water from Whale Rock and Salinas Reservoirs and the associated safe annual yield. Utilizing a volume less than or equal to the safe annual yield helps to ensure that the reservoirs remain a reliable long-term water supply; however, short-term exceedance of the safe annual yield should not negatively impact long-term water supply – especially at times when the reservoirs are at storage capacity. The subtraction of 42 AF for March through June 2025 represents the City's methods to account for siltation in the reservoirs (500 AFY divided among twelve months) and ensures that the volume of water used from Whale Rock and Salinas Reservoirs is in alignment with the *General Plan Water and Wastewater Management Element (WWME),* Section 5.

The Current Year estimated potable demand is 4,742 AF (Table 5). Using actual data for the period July 2024 through February 2025, the potable water GPCD is 92. Thanks to a history of collaboration between the City and its community members, community-wide water conservation has resulted in more efficient water use over the last 15 years. This water conservation ethic is supported by City programs such as the water conservation rebate program, school education program, community outreach program, customer water audits, and the retrofit upon sale program. Additionally, the City is improving the water efficiency of its operations by identifying and repairing leaking infrastructure, annually testing and upgrading water meters, and supplying parks with non-potable recycled water for irrigation. The City will conduct regular assessments of the water conservation program to ensure the most effective use of City resources to provide the greatest water savings.

Current Year water supply and demand data are shown on a monthly time-step in Table 5. The values demonstrate the seasonal differences in demand and the supplies needed to meet those demands. The City is not anticipating entering into a water shortage emergency at any point in the Current Year. The Current Year non-potable demand is 304 AF. This represents recycled water used for irrigation and construction purposes and acts to offset potable water use. The Current Year non-potable supply and demand assessment shows large surpluses for every month and a total annual surplus of about 1,829 AF. The total non-potable supply includes the total volume of water treated at the City's WRRF minus 4.9 AF per day creek discharge requirement. The non-potable supply and demand assessment provides insight on seasonal fluctuations in non-potable water supply and will assist the City in determining the ability to

meet increases in future demands for irrigation and the volume of water available for potable reuse projects.

Dry Year Water Supply

The City's estimated Dry Year water supply is 9,034 AF (potable supply plus recycled water for non-potable reuse in Table 6). The Dry Year water supply is equivalent to the Fiscal Year 2025-2026 supply and reflects a restricted supply from Nacimiento Reservoir once temporary repairs are completed in July 2025. The City's potable and non-potable water supplies are shown on a monthly time-step in Table 6.

Dry Year Unconstrained Demand

The Dry Year estimated potable demand is 4,737 AF (Table 7). Actual Dry Year demand be lower or greater than the estimated demand because of more efficient water use and variations in water needs caused by annual climate variations. Most of the City's potable demand is for single-family residential use (42%), followed by muti-family residential (19%), and commercial (19%). Demands for industrial, institutional, and dedicated landscape meters are each below ten percent of the total annual demand. Single-family and multi-family residential demands are greatest during the period May through October when precipitation is generally low. This suggests that residential demand is driven by outdoor irrigation and the increased demand for irrigation during dry periods. Non-potable water is estimated to offset about 329 AF of potable demand during the Dry Year (Table 7).

Table 4: Current Year 2024-25 Water Supply, in acre-feet

Potable Water	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
Nacimiento Reservoir	0	0	0	0	0	0	0	0	0	0	0	0	0
Salinas and Whale Rock Reservoirs[3]	484	471	461	476	388	351	384	340	328*	349*	430*	448*	4,910*
Groundwater	0	0	0	0	0	0	0	0	0	0	0	0	0
Siltation from 2010 to 2060	-	-	-	-	-	-	-	-	(42)	(42)	(42)	(42)	(168)
Total by Month (Potable)	**484**	**471**	**461**	**476**	**388**	**351**	**384**	**340**	**286***	**307***	**388***	**406***	**4,742***

Non-Potable	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
Recycled Water for non-potable use[4]	41	42	33	30	17	8	10	8	11*	24*	33*	37*	294*
Recycled Water available for use	68	58	86	85	149	154	185	260	289*	204*	168*	133*	1,839*
Total by Month (non-potable)	**109**	**100**	**119**	**115**	**166**	**162**	**195**	**268**	**300***	**228***	**201***	**170***	**2,133***

Notes:

1. Values are rounded to the nearest whole number.
2. * Denotes estimated values.

Table 5: Current Year 2024-25 Water Supply and Demand, in acre-feet

Potable Water	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar*	Apr*	May*	Jun*	Total*
Unconstrained Demand	484	471	461	476	388	351	384	340	286	307	388	406	4,742
Total Water Supply[2]	484	471	461	476	388	351	384	340	286	307	388	406	4,742
Surplus/Shortage	0	0	0	0	0	0	0	0	0	0	0	0	0
% Surplus/Shortage	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
State Standard Shortage Level	0	0	0	0	0	0	0	0	0	0	0	0	0

Non-Potable	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar*	Apr*	May*	Jun*	Total*
Unconstrained Demand	41	42	33	30	17	8	10	8	11	24	37	43	304
Total Water Supply[3]	109	100	119	115	166	162	195	268	300	228	201	170	2,133
Surplus/Shortage	68	58	86	85	149	154	185	260	289	204	164	127	1,829
% Surplus/Shortage	62%	58%	72%	74%	90%	95%	95%	97%	96%	89%	82%	75%	86%

Notes:

1. * Denotes estimated values.
2. Values are rounded to the nearest whole number.

Table 6: Estimated Dry Year 2024-25 Water Supply, in acre-feet

Water Supply Source	Additional Detail on Water Supply	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total Annual Water Supply
Nacimiento Reservoir	From dependable yield[1]	249	234	218	234	207	184	161	164	179	190	235	245	2,500
Salinas and Whale Rock Reservoirs	From safe annual yield	488	459	428	459	406	361	318	322	352	374	462	481	4,910
Groundwater	Supplier-produced	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	Decrease in available supply from siltation in reservoirs	(41)	(41)	(41)	(41)	(42)	(42)	(42)	(42)	(42)	(42)	(42)	(42)	(500)
Total Potable		**696**	**652**	**605**	**652**	**571**	**503**	**437**	**444**	**489**	**522**	**655**	**684**	**6,910**
Recycled Water for non-potable reuse	For irrigation and construction uses	41	42	36	42	34	17	5	5	11	24	34	38	329
Recycled Water available for use	Produced by the WRRF that is not allocated for non-potable reuse or creek discharge requirements	65	60	89	115	91	117	240	224	289	204	168	133	1,795
Total Non-Potable		**106**	**102**	**125**	**157**	**125**	**134**	**245**	**229**	**300**	**228**	**202**	**171**	**2,124**

1. Restricted supply from Nacimiento due to service through temporary connection.

I. PLANNED SHORTAGE RESPONSE ACTIONS

The City does not plan to implement a water shortage response in the Current Year or following Dry Year; however, the City's Water Shortage Contingency Plan (WSCP) provides a framework for responding to water shortages when necessary.[14] The City's water shortage response is dependent on the ability to temporarily augment supply and/or reduce water demand. The goals of the WSCP are to extend the City's available water resources long enough to gain another winter rainfall period which could serve to add to reservoir storage. Extending available water resources through water demand reductions provides time for the City to bring on supplemental water supplies to meet demand. The City's water shortage response would combine a variety of strategies including outreach, indoor water efficiency regulations, and outdoor irrigation restrictions, each increasing in intensity as the shortage persists and the City's water supplies are further restricted. If necessary, implementation of these restrictions is critical to conserve the City's water supply for the greatest public benefit regarding domestic use, sanitation, and fire protection.

The City reads water meters monthly to ensure water consumption data is collected for tracking and analysis, as well as meeting state reporting requirements. Monitoring and reporting water use metrics are fundamental to water supply planning and management. Monitoring is essential in evaluating the effectiveness of expected response actions and identifying the need for new actions. While compliance tracking helps to ensure the effectiveness of enforcement programs. To monitor the functionality of the WSCP and ensure effectiveness, staff will track community response to water demand reduction measures, public outreach, enforcement, and other administrative actions at each water shortage response stage. This will include a review of monthly water consumption data for each customer class and evaluation of associated revenue and expenditure impacts. Based on these analyses, staff will recommend program refinements to the City Council as water shortage stages progress.

[14] The City's *Water Shortage Contingency Plan* is available at:
https://www.slocity.org/home/showpublisheddocument/30334/637575513697770000

Table 7: Dry Year 2024-25 Unconstrained Demand, in acre-feet

Water Use	Projected Monthly Water Demand[1]												Total Annual Demand
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
Demands Served by Potable Supplies													
Single Family	175	183	177	176	154	126	121	129	131	153	168	174	1,867
Multi-Family	85	89	96	98	90	82	81	83	82	91	89	86	1,052
Commercial	80	82	77	79	73	68	59	65	66	68	70	77	864
Industrial	15	15	14	13	9	7	6	7	7	10	12	13	128
Institutional/Government	3	3	3	4	3	3	3	2	3	3	3	3	36
Landscape	47	48	44	38	25	11	9	14	15	26	38	44	359
Water Loss	41	42	41	41	35	30	28	30	30	35	38	40	431
Total by Month (Potable)	446	462	452	449	389	327	307	330	334	386	418	437	4,737
Demands Served by Non-Potable Supplies[2]													
Landscape	36	37	30	26	16	6	6	9	10	19	32	36	263
Golf Course Irrigation	5	5	3	3	2	0	1	1	1	3	4	5	33
Construction	4	5	4	4	2	0	1	2	1	2	3	4	32
Utilities	0	0	0	0	1	0	0	0	0	0	0	0	1
Total by Month (Non-Potable)	45	47	37	33	21	6	8	12	12	24	39	45	329

Notes:

1. Estimated values.
2. Non-potable water treated to tertiary level.

Table 8: Dry Year 2023-24 Water Supply and Demand, in acre-feet

Potable Water	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
Anticipated Unconstrained Demand	446	462	452	449	389	327	307	330	334	386	418	437	4,737
Anticipated Total Water Supply	696	652	605	652	571	503	437	444	489	522	655	684	6,910
Surplus/Shortage	250	190	153	203	182	176	130	114	155	136	237	247	2,173
% Surplus/Shortage	36%	29%	25%	31%	32%	35%	30%	26%	32%	26%	36%	36%	31%
State Standard Shortage Level	0	0	0	0	0	0	0	0	0	0	0	0	0

Non-Potable Water	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
Anticipated Unconstrained Demand	45	47	37	33	21	6	8	12	12	24	39	45	329
Anticipated Total Water Supply	106	102	125	157	125	134	245	229	300	228	202	171	2,124
Surplus/Shortage	61	55	88	124	104	128	237	217	288	204	163	126	1,795
% Surplus/Shortage	58%	54%	70%	79%	83%	96%	97%	95%	96%	89%	81%	74%	85%

II. SUMMARY

Based on the findings from this Water Supply Assessment, the City does not expect to enter a water shortage emergency and will not need to implement water shortage response actions. In fact, the Water Supply Assessment shows that the Dry Year the City will have a water supply surplus on an annual and monthly timestep. The City will continue to monitor its supply and demand using its Water Projection Model to ensure that any water shortage emergencies may be identified well in advance so that programmatic and operational changes can be made to mitigate their effects. Finally, this Water Supply Assessment assumes reliable delivery of available water supplies during drought conditions similar to those experienced in recent history. Decreases in water availability caused by extreme drought conditions or disruptions in the delivery of available water supplies may create unexpected water shortage emergencies. If such water shortage emergencies arise, the City is prepared to implement its WSCP to extend the City's available water resources long enough to gain additional winter rainfall periods which could serve to add to reservoir storage or to bring on supplemental water supplies to meet demand.

In summary, the City maintains a robust water supply portfolio that can meet current and future demands, including during dry periods. To plan for potential future dry years, the City has secured a multi-source supply that provides reliability and operational flexibility. The City's estimates of water supply and demand account for both current and future build-out demands to ensure adequate water supply, and the use of conservative estimates provides a buffer that reduces the potential for water shortages even during unexpected disruptions in water supply or greater than expected increases in demand. This buffer is in part to the long-standing history of water conservation by the City and its community members, making water conservation a reliable component of the City's water shortage mitigation strategy. Additionally, the City is working to expand the use of recycled water within its limits to offset additional potable water use and to develop groundwater and potable reuse programs to provide supplementary sources of potable water supply that provide further operational flexibility during disruptions in water deliveries from reservoirs.