



May 17, 2019

TO: Commissioner Ann Moller Caen, President
 Commissioner Francesca Vietor, Vice President
 Commissioner Anson Moran
 Commissioner Sophie Maxwell
 Commissioner Tim Paulson

THROUGH: Harlan L. Kelly, Jr., General Manager

FROM: Steven R. Ritchie, Assistant General Manager, Water

RE: Water Supply Assessment for the Balboa Reservoir Project

1.0 Summary

1.1 Introduction

Under the Water Supply Assessment law (Sections 10910 through 10915 of the California Water Code), urban water suppliers like the San Francisco Public Utilities Commission (SFPUC) must furnish a Water Supply Assessment (WSA) to the city or county that has jurisdiction to approve the environmental documentation for certain qualifying projects (as defined in Water Code Section 10912 (a)) subject to the California Environmental Quality Act (CEQA). The WSA process typically relies on information contained in a water supplier's Urban Water Management Plan (UWMP), and involves answering specific questions related to the estimated water demand of the proposed project. This memo serves as the WSA for the proposed Balboa Reservoir Project ("proposed project"), for use in the preparation of an environmental impact report by the San Francisco Planning Department (case no. 2018-007883ENV, San Francisco Planning Department).

1.1.1 2015 Urban Water Management Plan

The SFPUC's most current UWMP is the UWMP update for 2015, which the Commission adopted in June 2016 (Resolution No. 16-0118). The water demand projections in the UWMP incorporated 2012 Land Use Allocation (LUA 2012) housing and employment growth projections from the San Francisco Planning Department. The water demand projections are presented in five-year increments through 2040, meeting Water Code requirements. Growth associated with the proposed project was encompassed within the LUA 2012, and water demand associated with the proposed project was encompassed within the 2015 UWMP water demand projections.

The WSA for a qualifying project within the SFPUC's retail service area¹ may use information from the UWMP. Therefore, ***the 2015 UWMP is incorporated via references throughout this WSA shown in bold, italicized text.*** The UWMP may be accessed at www.sfwater.org/uwmp.

¹ SFPUC's "retail service area" refers to water customers inside the City and County of San Francisco, as well as select areas outside of the City.

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1.1.2 2018 Bay-Delta Plan Amendment

In December 2018, the State Water Resources Control Board (SWRCB) adopted amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan Amendment) to establish water quality objectives to maintain the health of the Bay-Delta ecosystem. The SWRCB is required by law to regularly review this plan. The adopted Bay-Delta Plan Amendment was developed with the stated goal of increasing salmonid populations in three San Joaquin River tributaries (the Stanislaus, Merced, and Tuolumne Rivers) and the Bay-Delta. The Bay-Delta Plan Amendment requires the release of 40% of the “unimpaired flow”² on the three tributaries from February through June in every year type, whether wet, normal, dry, or critically dry.

If the Bay-Delta Plan Amendment is implemented, the SFPUC will be able to meet the projected water demands presented in the 2015 UWMP in normal years but would experience supply shortages in single dry years or multiple dry years. The 2015 UWMP already assumes limited rationing may be needed in multiple dry years to address an anticipated supply shortage by 2040, but implementation of the Bay-Delta Plan Amendment will require rationing in all single dry years and multiple dry years and to a greater degree to address supply shortages not accounted for in the 2015 UWMP.

The SWRCB has stated that it intends to implement the Bay-Delta Plan Amendment on the Tuolumne River by the year 2022, assuming all required approvals are obtained by that time. But implementation of the Plan Amendment is uncertain for several reasons. First, under the Clean Water Act, the United States Environmental Protection Agency (U.S. EPA) must approve the water quality standards identified in the Plan Amendment within 90 days from the date the approval request is received. It is uncertain whether the U.S. EPA will approve or disapprove the water quality standards. Furthermore, the determination could result in litigation.

Second, since adoption of the Bay-Delta Plan Amendment, over a dozen lawsuits have been filed in both state and federal court, challenging the SWRCB’s adoption of the Bay-Delta Plan Amendment, including a legal challenge filed by the federal government, at the request of the U.S. Department of Interior, Bureau of Reclamation. That litigation is in the early stage and there have been no dispositive court rulings as of this date.

Third, the Bay-Delta Plan Amendment is not self-implementing and does not allocate responsibility for meeting its new flow requirements to the SFPUC or any other water rights holders. Rather, the Plan Amendment merely provides a regulatory framework for flow allocation, which must be accomplished by other regulatory and/or adjudicatory proceedings, such as a comprehensive water rights adjudication or, in the case of the Tuolumne River, the 401 certification process in the Federal Energy Regulatory Commission’s relicensing proceeding for Don Pedro Dam. The license amendment process is currently expected to be completed in the 2022-23 timeframe. This process and the other regulatory and/or adjudicatory proceedings would likely face legal challenges and have lengthy timelines, and quite possibly could result in a different assignment of flow responsibility (and therefore a different water supply impact on the SFPUC).

Fourth, in recognition of the obstacles to implementation of the Bay-Delta Plan Amendment, SWRCB Resolution No. 2018-0059 adopting the Bay-Delta Plan Amendment directed staff to help complete a “Delta watershed-wide agreement, including potential flow measures for the Tuolumne River” by March 1, 2019, and to incorporate such agreements as an “alternative” for a future amendment to the Bay-Delta Plan to be presented to the SWRCB “as early as possible after December 1, 2019.” In accordance with the SWRCB’s instruction, on March 1, 2019, SFPUC, in

² Unimpaired flow represents the water production of a river basin, unaltered by upstream diversions, storage, or by export or import of water to or from other watersheds. Bay-Delta Plan Amendment, Introduction, p.1-8.

partnership with other key stakeholders, submitted a proposed project description for the Tuolumne River that could be the basis for a voluntary substitute agreement with the SWRCB ("March 1st Proposed Voluntary Agreement"). On March 26, 2019, the Commission adopted Resolution No. 19-0057 to support SFPUC's participation in the Voluntary Agreement negotiation process. To date, those negotiations are ongoing under the California Natural Resources Agency and the leadership of the Newsom administration.³ The negotiations for a voluntary agreement have made significant progress since an initial framework was presented to the SWRCB on December 12, 2018. The package submitted on March 1, 2019 is the product of renewed discussions since Governor Newsom took office. While significant work remains, the package represents an important step forward in bringing together diverse California water interests.

For all these reasons, whether and when the Bay-Delta Plan Amendment will be implemented, and how those amendments if implemented will affect the SFPUC's water supply is currently uncertain and possibly speculative. Given this uncertainty, this WSA analyzes water supply and demand through 2040 under three scenarios: (1) No implementation of the Bay-Delta Plan Amendment or the March 1st Proposed Voluntary Agreement ("Scenario 1"), (2) Implementation of the March 1st Proposed Voluntary Agreement ("Scenario 2"), and (3) Implementation of the Bay-Delta Plan Amendment ("Scenario 3").

1.1.3 Basis for Requiring a WSA for the Proposed Project

The proposed project has not been the subject of a previous WSA, nor has it been part of a larger project for which a WSA was completed.

The proposed project qualifies for preparation of a WSA under Water Code Section 10912(a) because it is a mixed-use development that includes more than 500 dwelling units. The proposed project is characterized further in Section 1.2.

1.1.4 Conclusion of this WSA

This WSA concludes that under Scenarios 1, 2, and 3, the SFPUC's total projected water supplies would meet the demands of the proposed project and cumulative retail water demands through 2040 in normal years. Based on historic records of hydrology and reservoir inflow from 1920 to 2017, current delivery and flow obligations, and fully-implemented infrastructure under the 2018 Phased Water System Improvement Program (WSIP) Variant, normal or wet years occurred 85 out of 97 years. This translates into roughly 9 normal or wet years out of every 10 years. Conversely, system-wide rationing is required roughly 1 out of every 10 years. This frequency is expected to increase as climate change intensifies.

Scenario 1 - No Implementation of the Bay-Delta Plan Amendment or the Voluntary Agreement: Under Scenario 1, SFPUC's total projected water supplies would meet the projected demands of the retail service area in normal years. During dry years, there would be a shortfall of 3.6-6.1 million gallons per day (mgd), or 5-7%. The SFPUC could manage this relatively small shortfall by prohibiting certain discretionary outdoor water uses and/or calling for voluntary rationing among all retail customers pursuant to its Retail Water Shortage Allocation Plan (***Appendix L of the UWMP***).

Scenario 2 - Implementation of the Voluntary Agreement: The March 1st Proposed Voluntary Agreement has yet to be accepted by SWRCB as an alternative to the Bay-Delta Plan Amendment and thus the shortages that would occur with its implementation are not known with certainty. An analysis of water supply impacts comparable to the one provided in this WSA for Scenarios 1 and 3 is not available for

³ California Natural Resources Agency. "Voluntary Agreements to Improve Habitat and Flow in the Delta and its Watersheds." <http://resources.ca.gov/voluntary-agreements/>. Accessed April 8, 2019.

Scenario 2. However, the flow releases under the Voluntary Agreement, unlike the Bay-Delta Plan Amendment, are not based on an unimpaired flow approach but on a combination of flow and non-flow measures that are designed to benefit fisheries at a lower water cost, particularly during multiple dry years when less flow is required, preserving more of the SFPUC's stored water supply from the Tuolumne River. The resulting RWS supply shortfalls during dry years under the Voluntary Agreement would be less than those under the Bay-Delta Plan Amendment, and therefore would require rationing of a lesser degree and closer in alignment to the SFPUC's adopted level of service (LOS) goal for the RWS of rationing of no more than 20% system-wide during dry years than that which would occur under Scenario 3. Indeed, in Resolution No. 19-0057, the Commission stated its intention that any final voluntary agreement "would allow the SFPUC to maintain the (1) Water Supply Level of Service Goal and Objectives and (2) Sustainability Level of Service Goal and Objectives adopted in Commission Resolution No. 08-0200." Under Scenario 2, if SFPUC's March 1st Proposed Voluntary Agreement were accepted by the SWRCB as an alternative to the Bay-Delta Plan Amendment, SFPUC would still face a shortfall in single dry and multiple dry years, thus requiring rationing across the retail service area, but of a much smaller magnitude. Rationing under Scenario 2, with implementation of the Voluntary Agreement, would be to a lesser degree than that under Scenario 3, with implementation of the Bay-Delta Plan Amendment.

Scenario 3 - Implementation of the Bay-Delta Plan Amendment: Under Scenario 3, during single dry and multiple dry years starting as soon as the year 2022, the estimated year of implementation of the Bay-Delta Plan Amendment, the SFPUC's total projected water supplies cannot meet the demands of the retail service area, including those of the proposed project, without gradually increasing higher levels of water rationing of up to 50% through 2040 across the retail service area. For the proposed project specifically, the SFPUC may impose a lower level of rationing that takes into account the installation of water-efficient plumbing fixtures and non-potable water systems associated with new construction.

The relatively small volume of water demand generated by the proposed project itself would not exacerbate the projected shortfalls resulting from implementation of the Bay-Delta Plan Amendment. Regardless of whether the proposed project is constructed, with implementation of the Bay-Delta Plan Amendment, the SFPUC's existing and planned water supplies will not meet the water demands of its retail service area in dry years without greater rationing than previously projected in the 2015 UWMP.

Refer to Section 4.0, Conclusion, for a tabulated comparison of projected retail water supplies and demands under Scenarios 1 and 3, the resulting shortfalls, and the implications of rationing to the proposed project.

1.2 Proposed Project Description

The project site is located in San Francisco's West of Twin Peaks area on Assessor's Block 3180, which is bounded by Archbishop Riordan High School to the north, City College of San Francisco Ocean Campus to the east, multi-family residential development along Ocean Avenue to the south, and Westwood Park neighborhood to the west. The site currently contains 1,007 surface vehicular parking spaces. The proposed project would develop the site with mixed-income housing, open space, childcare facilities, a community room available for public use, retail space, on- and off-street parking, and new streets, utilities, and other infrastructure.

The project includes two different sets of options for the site's residential density to capture the range of possible development on the project site. The first option is the Developer's Proposed Option (1,100 dwelling units), proposed by Reservoir Community Partners, LLC. The second option is the Additional Housing Option (1,550 dwelling units), developed by the City and County of San Francisco to fulfill the objectives of the San Francisco General Plan to maximize affordable housing and housing in transit-rich neighborhoods.

Overall, the proposed project would construct up to approximately 1.8 million gross square feet (gsf) of uses, including between approximately 1.3 and 1.6 million gsf of residential space (1,100 to 1,550 dwelling units plus residential amenities), approximately 10,000 gsf of community space (childcare and a community room for public use), approximately 7,500 gsf of retail, up to 550 residential parking spaces and 750 public parking spaces in the Developer's Proposed Option, and up to 650 residential parking spaces in the Additional Housing Option.

Overall construction is expected to begin in 2021 and be complete in 2027. Construction would occur in two phases, with phase 1 scheduled to be complete in 2024 and phase 2 scheduled to be complete in 2027.

For the purpose of the WSA, only the Additional Housing Option is assessed for water supply as it would result in a higher water demand estimate and would encompass the demands estimated for the Developer's Proposed Option. Refer to Attachment B for additional details on both options.

2.0 Water Supply

This section reviews San Francisco's existing and planned water supplies.

2.1 Regional Water System

See **Section 3.1 of the UWMP** for descriptions of the RWS and **Section 6.1 of the UWMP** for water rights held by City and County of San Francisco and the SFPUC Water System Improvement Program (WSIP).

2.2 Existing Retail Supplies

Retail water supplies from the RWS are described in **Section 6.1 of the UWMP**.

Local groundwater supplies, including the Westside Groundwater Basin, are described in **Section 6.2.1 of the UWMP**.

Local recycled water supplies, including the Harding Park Recycled Water Project and Pacifica Recycled Water Project, are described in **Section 6.2.1 of the UWMP**.

2.3 Planned Retail Water Supply Sources

The San Francisco Groundwater Supply Project is described in **Section 6.2.2 of the UWMP**. Since adoption of the UWMP, four wells have been completed and the start-up phase of the project has begun. Starting in April 2017, small amounts of groundwater have been blended with RWS supplies for drinking water. Two remaining wells are under construction as part of the next phase of the project.

The proposed Westside and Eastside Recycled Water Projects, as well as non-potable water supplies associated with onsite water systems implemented in compliance with San Francisco's Non-potable Water Ordinance (Health Code Chapter 12C), are also described in **Section 6.2.2 of the UWMP**.

2.4 Summary of Current and Future Retail Water Supplies

A breakdown of water supply sources for meeting SFPUC retail water demand through 2040 in normal years is provided in **Section 6.2.5 of the UWMP**. For dry years, see the next section.

Based on historic records of hydrology and reservoir inflow from 1920 to 2017, current delivery and flow obligations, and fully-implemented infrastructure under the 2018 Phased Water System Improvement Program (WSIP) Variant, normal or wet years occurred 85 out of 97 years. This translates into roughly 9 normal or wet years out of

every 10 years. Conversely, system-wide rationing is required roughly 1 out of every 10 years. This frequency is expected to increase as climate change intensifies.

2.5 Dry-Year Water Supplies

A description of dry-year supplies developed under WSIP is provided in **Section 7.2 of the UWMP**. Other water supply reliability projects and efforts that are currently underway or completed are described in **Section 7.4 of the UWMP**. Since adoption of the UWMP, the following milestones have occurred:

- Calaveras Dam Replacement Project – Construction of the new dam was completed in September 2018, while the remainder of the overall project will be completed in spring 2019.
- Regional Groundwater Storage and Recovery Project – Construction of this project is still underway. Phase 1 of the project, consisting of installation of 13 production wells, will be completed in 2019. Since May/June 2016, the project has been in a storage phase through periodic deliveries of RWS surface water in lieu of groundwater pumping by Daly City, San Bruno, and the California Water Service Company.

2.6 Additional Water Supplies

In light of the adoption of the Bay-Delta Plan Amendment and the resulting potential limitations to RWS supply during dry years, the SFPUC is increasing and accelerating its efforts to acquire additional water supplies and explore other projects that would increase overall water supply resilience. Developing these additional supplies would reduce water supply shortfalls and reduce rationing associated with such shortfalls. In addition to the Daly City Recycled Water Expansion project⁴, which was a potential project identified in the 2015 UWMP and had committed funding at that time, the SFPUC has taken action to fund the study of potential additional water supply projects. Capital projects under consideration to develop additional water supplies include surface water storage expansion, recycled water expansion, water transfers, desalination, and potable reuse. The SFPUC is also considering developing related policies and ordinances, such as funding for innovative water supply and efficiency technologies and requiring potable water offsets for new developments. A more detailed list and descriptions of these efforts are provided below.

The capital projects that are under consideration would be costly and are still in the early feasibility or conceptual planning stages. Because these water supply projects would take 10 to 30 or more years to implement, and because required environmental permitting negotiations may reduce the amount of water that can be developed, the yield from these projects are not currently incorporated into SFPUC's supply projections. Capital projects would be funded through rates from both Wholesale and Retail Customers based on mutual agreement, as the additional supplies would benefit all customers of the RWS, unless otherwise noted. State and federal grants and other financing opportunities would also be pursued for eligible projects, to the extent feasible, to offset costs borne by ratepayers.

1. Daly City Recycled Water Expansion (Regional, Normal- and Dry-Year Supply, 3 mgd)

Project Description: The SFPUC and North San Mateo County Sanitation District (NSMCSD, or Daly City) have been exploring ways to increase the recycled water treatment capacity in Daly City to serve additional customers and decrease irrigation water withdrawals from the Westside Groundwater Basin, both in San Francisco and further south of Daly City. The majority of the irrigation demand met by groundwater withdrawals, approximately 2 mgd, serves cemeteries in Colma.

⁴ While this potential project was identified in the 2015 UWMP, it has since been approved by Daly City following environmental review and has a higher likelihood of being implemented.

An initial feasibility study completed in 2010 identified the capital requirements that would be needed to produce additional capacity at the existing treatment plant location. The study demonstrated that a new tertiary treatment facility would be required onsite to produce additional capacity of up to 3.4 mgd. Currently, flows that exceed the capacity of the existing treatment plant are discharged into the Pacific Ocean. With this project, some of that discharge may be treated and used for irrigation. New facilities would include a treatment facility, pump station, distribution pipelines, and storage.

Estimated Costs and Financing: The capital cost is estimated to be \$85 million, which is budgeted for in the SFPUC's 10-year capital planning horizon. The annual operations and maintenance (O&M) cost is estimated to be \$3 million. This project may present regional benefits that would result in cost-sharing with Wholesale Customers because the replacement of groundwater used for irrigation with recycled water will result in a greater volume of groundwater storage that can be used in dry years as part of the SFPUC's existing Groundwater Storage and Recovery project, approved by the SFPUC in 2014 in Resolution no. 14-0127.

Permits and Approvals: Daly City adopted a Final Initial Study/Mitigated Negative Declaration (IS/MND) and Mitigation Monitoring and Reporting Program (MMRP) for the proposed project in September 2017. The SFPUC has not yet approved its participation in the project. Other permits and/or approvals that may be needed for this project include: BART, CAL/OSHA, San Francisco Bay RWQCB, and encroachment permits from Caltrans, Daly City, South San Francisco, SFPUC, San Mateo County, and Colma to construct distribution and storage facilities. Institutional agreements between the project partners for project construction and operation, as well as with the customers whose supplies will change from groundwater to recycled water, will also need to be developed.

Estimated Acquisition: Construction may occur as soon as 2023 with operation beginning in 2027.

2. Alameda County Water District Transfer Partnership (Regional, Normal- and Dry-Year Supply, 5 mgd)

Project Description: Water would be acquired from Contra Costa Water District (CCWD) for delivery to Alameda County Water District (ACWD) through the South Bay Aqueduct utilizing a planned expansion of the Los Vaqueros Reservoir.

Estimated Costs and Financing: The capital cost is estimated to be \$50-150 million, with an annual O&M cost of \$2.5 million.

Permits and Approvals: Planning and environmental review of the Los Vaqueros Reservoir Expansion is underway by CCWD, and has several objectives beyond water deliveries to the SFPUC. CCWD has identified over 15 permits, approvals and consultations that will be necessary such as Dredge and Fill, National Pollutant Discharge Elimination System (NPDES), Streambed Alteration, and Encroachment permits. These permits and approvals will be obtained by CCWD and/or its contractor. To enable a water supply transfer between ACWD and the SFPUC, water right modifications may be necessary and if additional infrastructure is needed, additional permits will be required. As this project is in the conceptual stage, permitting details have not yet been identified.

Estimated Acquisition: Construction may occur as soon as 2028 with operation beginning in 2032.

3. Brackish Water Desalination in Contra Costa County (Regional, Normal- and Dry-Year Supply, 9+ mgd)

Project Description: The Bay Area Brackish Water Treatment (Regional Desalination) Project is a partnership between CCWD, East Bay Municipal Utility District (EBMUD), SFPUC, Santa Clara Valley Water District (SCVWD) and Zone 7 to turn brackish water into a reliable, drought-proof drinking water supply, delivering a total of up to 10-20 mgd in drought and non-drought years (i.e., dry and normal years), throughout the region. A new brackish water treatment plant would be constructed in East Contra Costa and tie into the existing CCWD system for delivery through Los Vaqueros Reservoir and the South Bay Aqueduct, or delivery via a connection with EBMUD.

The SFPUC would rely on existing infrastructure and institutional agreements to receive water transfers from partner agencies. For planning and cost estimation purposes, it was assumed that the SFPUC's share of the regional water supply would be 9 mgd in all year types; however, if additional capacity is available, the SFPUC may secure additional water supply, based on negotiations with partner agencies.

Estimated Costs and Financing: The capital cost is estimated to be \$200-800 million, with an annual O&M cost of \$12-20 million.

Permits and Approvals: To proceed, this concept would require extensive institutional agreements, permitting, and environmental review. Construction of a new desalination plant will require construction and operating permits such as NPDES, Dredge and Fill, consultations with federal and state agencies, and others. In addition, water rights will need to be secured and/or modified. In California, permitting and regulatory approvals of desalination projects has typically taken 10-18 years. In addition, institutional agreements among partner agencies will be needed.

Estimated Acquisition: Construction may occur as soon as 2032 and be phased so that 5-9 mgd would be available to the region by 2035 and a total of 5-11 mgd would be available after 2040.

4. ACWD-USD Purified Water Partnership (Regional, Normal- and Dry-Year Supply, 5 mgd)

Project Description: This may be an indirect or direct potable reuse project that would inject highly-treated water from Union Sanitary District (USD) for groundwater recharge, then recover the water through the ACWD Brackish Groundwater Desalination Plant. How the water is transferred to the SFPUC remains to be determined.

Estimated Costs and Financing: The capital cost is estimated to be \$200-400 million, with an annual O&M cost of \$2.5 million.

Permits and Approvals: An initial assessment will be underway in 2019, which will identify potential project scenarios. Permitting and approvals for a project will depend on its design and nature, which have not yet been identified.

Estimated Acquisition: Construction may occur as soon as 2038 with operation beginning in 2045.

5. Crystal Springs Purified Water (Regional, Normal- and Dry-Year Supply, 6+ mgd)

Project Description: This is an indirect potable reuse project that would blend wastewater from Silicon Valley Clean Water and possibly San Mateo into Crystal Springs Reservoir and treat the blended water at Harry Tracy Water Treatment Plant for potable reuse.

Estimated Costs and Financing: The capital cost is estimated to be \$400-700 million, with an annual O&M cost of \$18-25 million.

Permits and Approvals: Construction and operating permits would be required for this project. They would likely include NPDES, Encroachment, consultations with state and federal agencies, and others. Surface water augmentation is regulated by the SWRCB, and consultations and public hearings would be required.

Estimated Acquisition: Construction may occur as soon as 2034 and be phased so that 3-5 mgd would be available to the region by 2035 and a total of 3-7 mgd would be available after 2040.

6. Eastside Purified Water (Retail, Normal- and Dry-Year Supply, 5 mgd)

Project Description: A purified water plant would be constructed at the Southeast Treatment Plant to blend wastewater with Regional Water System supplies for potable use.

Estimated Costs and Financing: The capital cost is estimated to be \$220-400 million, with an annual O&M cost of \$5-10 million.

Permits and Approvals: There is currently no regulatory framework in place to enable direct potable reuse. In California, no regulations are anticipated before 2025, but it is anticipated that extensive consultation will be required with the SWRCB. In addition, construction and operating permits and approvals will be required, as identified.

Estimated Acquisition: Construction may occur as soon as 2025 with operation beginning in 2030.

7. San Francisco Eastside Satellite Recycled Water Facility (Retail, Normal- and Dry-Year Supply, < 1 mgd)

Project Description: A centralized recycled water treatment facility would be constructed on the eastern side of San Francisco, along with pipelines and a storage reservoir, to meet demands not addressed by the Non-potable Water Ordinance and Auxiliary Water Supply System (AWSS).

Estimated Costs and Financing: The capital cost is estimated to be \$200 million, with an annual O&M cost of \$2.5 million.

Permits and Approvals: In addition to construction-related permits and approvals, this project would require a permit from the Regional Water Quality Control Board under its General Order for water reuse. Discharges from the recycled water treatment plant to the San Francisco Bay would also require NPDES permitting by the Regional Water Quality Control Board.

Estimated Acquisition: Construction may occur as soon as 2032 with operation beginning in 2037.

8. Additional Storage Capacity in Los Vaqueros Reservoir from Expansion (Regional)

Project Description: Expansion of storage capacity in Los Vaqueros is to allow the ACWD Transfer Partnership and Brackish Water Desalination in Contra Costa County to be optimized.

Estimated Costs and Financing: The capital cost is estimated to be \$20-50 million. SFPUC's portion of the project yield and cost share are not yet known. The annual O&M cost is yet to be estimated.

Permits and Approvals: Planning and review of the Los Vaqueros Reservoir Expansion is underway by CCWD, and has several objectives beyond water deliveries to the SFPUC. CCWD has identified over 15 permits, approvals and consultations that will be necessary such as Dredge and Fill, NPDES, Streambed Alteration, and Encroachment permits. These permits and approvals will be obtained by CCWD and/or its contractor. To enable a water supply transfer between ACWD and the SFPUC, water rights modifications may be necessary and if additional infrastructure is needed, additional permits will be required. As this project is in the conceptual stage, permitting details have not yet been identified.

Estimated Acquisition: Construction may occur as soon as 2021 with operation beginning in 2027.

9. Calaveras Reservoir Expansion (Regional)

Project Description: Calaveras Reservoir would be expanded to create 289,000 AF additional capacity to store excess Regional Water System supplies or other source water in wet and normal years. In addition to reservoir enlargement, the project would involve infrastructure to pump water to the reservoir, such as pump stations and transmission facilities.

Estimated Costs and Financing: The costs of this project is yet to be determined.

Permits and Approvals: Similar to Los Vaqueros Reservoir Expansion, this project would require numerous permits, approvals and consultations, such as Dredge and Fill, NPDES, Streambed Alteration, Encroachment, possible water right modifications, etc. These permits and approvals will be obtained by SFPUC and/or its contractor. As this project is in the conceptual stage, permitting details have not yet been identified.

Estimated Acquisition: Construction may occur as soon as the early 2040s with operation beginning around 2050.

Even if all the capital projects above are implemented, the total amount of water and storage yielded would not be enough to make up for the dry year shortfall that may result from implementation of the Bay-Delta Plan Amendment as adopted, and would occur years after such shortfalls begin. Thus, the SFPUC continues to proactively explore opportunities for reuse and innovation, such as the following policies and ordinances:

- **Evaluation of Recycled Water Throughout Service Area** (Regional and Retail)

Wastewater treatment plants throughout the SFPUC service area would be surveyed to identify potential non-potable, indirect potable, and direct potable projects.

- **Innovative Technology Project Funding (Retail)**

SFPUC would award grants for innovative demonstration projects that would increase water efficiency and availability (e.g., fog catchers, heat exchangers in non-potable water systems, rainwater for potable use, breweries treating process water for reuse).

- **New Development Potable Offset Ordinance (Retail)**

The Board of Supervisors could adopt an ordinance requiring certain large development projects, to offset the water demand impacts above historical water consumption averages for the corresponding parcel(s). Developments could be required to achieve a certain offset of potable demands.

3.0 Water Demand

This section reviews the climatic and demographic factors that may affect San Francisco's water use, projected retail water demands, and the demand associated with the proposed project.

3.1 Climate

San Francisco has a Mediterranean climate. Summers are cool and winters are mild with infrequent rainfall. Temperatures in the San Francisco area average 57 degrees Fahrenheit annually, ranging from the mid-40s in winter to the upper 60s in late summer. Strong onshore flow of wind in summer keeps the air cool, generating fog through September. The warmest temperatures generally occur in September and October. Rainfall in the San Francisco area averages about 22 inches per year and is generally confined to the "wet" season from late October to early May. Except for occasional light drizzles from thick marine stratus clouds, summers are nearly completely dry. A summary of the temperature and rainfall data for the City of San Francisco is included in Table 1.

Table 1: San Francisco Climate Summary

Month	Average Maximum Temperature (°F)	Average Minimum Temperature (°F)	Average Monthly Rainfall (inches)
January	58.0	45.7	4.36
February	60.3	47.3	4.41
March	61.4	48.1	2.98
April	62.3	49.1	1.38
May	63.2	50.9	0.68
June	64.8	52.7	0.18
July	65.6	54.3	0.02
August	66.6	55.3	0.06
September	68.1	55.0	0.19
October	67.8	53.3	1.04
November	61.2	48.1	2.85
December	58.3	45.9	4.33
Annual Average	63.3	50.6	22.45
Source: Western Regional Climate Center (www.wrcc.dri.edu), 1981-2010 data from two San Francisco monitoring stations (Mission Dolores/SF#047772 and Richmond/SF#047767).			

3.2 *Proposed Project Water Demand*

The project sponsor's consultants provided a memo describing the methods and assumptions used to estimate the water demand of the proposed project, along with the resulting demand (Attachment B).

Because the proposed project must comply with San Francisco's Non-potable Water Ordinance (Article 12C of the San Francisco Health Code), estimates for both potable and non-potable demands were submitted as part of the WSA request. The Non-potable Water Ordinance requires new commercial, mixed-use, and multi-family residential development projects with 250,000 square feet or more of gross floor area to install and operate an onsite non-potable water system. Such projects must meet their toilet and urinal flushing and irrigation demands through the collection, treatment, and use of available graywater, rainwater, and foundation drainage. While not required, projects may use treated blackwater or stormwater if desired. Furthermore, projects may choose to apply non-potable water to other non-potable water uses, such as cooling tower blowdown and industrial processes, but are not required to do so under the ordinance. As indicated in the water demand memo provided on behalf of the project sponsor in Attachment B, the proposed project would meet the minimum requirements of the Non-potable Water Ordinance by using graywater to meet toilet and urinal flushing and irrigation.

Both potable and non-potable demands for the proposed project were estimated using the SFPUC's Non-potable Water Calculator. The SFPUC reviewed the memo to ensure that the methodology is appropriate for the types of proposed water uses, the assumptions are valid and thoroughly documented along with verifiable data sources, and a professional standard of care was used. The SFPUC concluded that the demand estimates provided on behalf of the project sponsor are reasonable. Water demand associated with the proposed project over the 20-year planning horizon is shown in the following Table 2.

The non-potable demand estimates in Table 2 are based on building uses anticipated at the time the WSA was requested, i.e., during the planning and environmental review stage of the proposed project. It is understood that these estimates will likely change as the proposed project's design progresses, and information submitted for the WSA request is not part of the proposed project's compliance with the Non-potable Water Ordinance. City review and approval of a proposed onsite water system must be performed separately through the Non-potable Water Program. However, the intent of providing a breakdown of potable and non-potable demand estimates in this WSA is to demonstrate that the proposed project will incorporate water reuse per City requirements and the proposed project's sustainability goals, if any. As noted earlier, the total demand of the proposed project, regardless of non-potable use, is already encompassed in the 2015 UWMP water demand projections. Furthermore, total demand represents the most conservative estimate and accounts for back-up potable supplies that must be provided by the SFPUC in the event that non-potable supplies serving the proposed project are unavailable.

Table 2: Water Demand Based on Project Phasing

Demand of Proposed Project (mgd)	2020	2025	2030	2035	2040
Potable Demand	--	0.070	0.128	0.128	0.128
Non-potable Demand	--	0.013	0.023	0.023	0.023
Total Demand	--	0.083	0.151	0.151	0.151
Potential Potable Water Savings as Percentage of Total Demand	--	15.7%	15.2%	15.2%	15.2%
Notes: The estimates above reflect the Additional Housing Option. Water demand estimates for the Developer's Proposed Option are lower and are provided in Attachment B. Construction would occur in two phases, with completion of phase 1 in 2024 and completion of phase 2 in 2027.					

The San Francisco Planning Department has determined that the proposed project is encompassed within the projections presented in LUA 2012 as indicated in the letter from the Planning Department to the SFPUC (Attachment A). Therefore, the demand of the proposed project is also encompassed within the San Francisco retail water demands that are presented in **Section 4.1 of the UWMP**, which considers retail water demand based on the LUA 2012 projections. The following Table 3 shows the demand of the proposed project relative to total retail demand.

Table 3: Proposed Project Demand Relative to Total Retail Demand

	2020	2025	2030	2035	2040
Total Retail Demand (mgd) ¹	72.1	79.0	82.3	85.9	89.9
Potable Demand of Proposed Project (mgd)	--	0.070	0.128	0.128	0.128
Potable Demand of Proposed Project as Percentage of Total Retail Demand	--	0.09%	0.16%	0.15%	0.14%
Total Demand of Proposed Project (mgd)	--	0.083	0.151	0.151	0.151
Total Demand of Proposed Project as Percentage of Total Retail Demand ³	--	0.11%	0.18%	0.18%	0.17%
Notes: 1. Retail water demands per Table 4-1 of the UWMP , except for the 2020 demand projection, which was re-projected to take into account the lower demands being experienced due to the recent drought and the lag in occupancy of built units. 2. The proposed project is accounted for in the LUA 2012 projections, and subsequently, total demands associated with the proposed project are accounted for in the 2015 UWMP retail water demand projections.					

4.0 Conclusion

4.1 Comparison of Projected Supply and Demand

4.1.1 Scenario 1: No Implementation of the Bay-Delta Plan Amendment or the Voluntary Agreement

Table 4 below is adapted from **Section 7.5 of the UWMP** (Table 7-4) and compares the SFPUC's retail water supplies and demands through 2040 during normal year, single dry-, and multiple dry-year periods under Scenario 1.

Local supplies (i.e., supplies not from the RWS) correspond to those in **Table 6-7 of the UWMP**. Procedures for determining RWS supply availability per the SFPUC's WSAP, applicable to all three scenarios, are described in **Section 8.3 of the UWMP**.

The projections shown in Table 4 differ from those in the 2015 UWMP due to two reasons. First, the 2009 Water Supply Agreement between SFPUC and its Wholesale Customers was recently amended and approved by the Commission on December 11, 2018 by Resolution No. 18-0212. Table 4 incorporates the minimum level of 5% rationing during supply shortages as required by the amendment, and therefore, the resulting shortfalls are greater than those previously projected in the 2015 UWMP.

Second, the projections in Table 4 differ from those in the 2015 UWMP because Table 4 reflects SFPUC's full 8.5-year design drought sequence instead of the minimum 3-year sequence required to be provided in the 2015 UWMP. Under legislation adopted in 2018 (S.B. 606) future UWMPs will be required to project water supply availability during a minimum of 5 years of continuous drought (Water Code section 10631(b)(1)).

As explained previously in Section 3.2, water demands associated with the proposed project are already captured in the retail demand projections presented in the UWMP. The proposed project is expected to represent up to 0.18% of the total retail water demand. Total retail demands correspond to those in **Table 4-1 of the UWMP**, and reflect both passive and active conservation, as well as water loss.

As shown in Table 4, under Scenario 1 without implementation of the Bay-Delta Plan Amendment, existing and planned supplies would meet all projected RWS demands in all years except for an approximately 3.6-6.1 mgd, or 5-7%, shortfall during dry years through the year 2040. This relatively small shortfall is primarily due to implementation of the amended 2009 Water Supply Agreement. To manage a small shortfall such as this, the SFPUC may prohibit certain discretionary outdoor water uses and/or call for voluntary rationing by its retail customers pursuant to its Retail Water Shortage Allocation Plan (**Appendix L of the UWMP**). The required level of rationing is well below the SFPUC's RWS LOS goal of limiting rationing to no more than 20% on a system-wide basis (i.e., an average throughout the RWS).

**Table 4: Projected Supply and Demand Comparison Under Scenario 1
(No Implementation of the Bay-Delta Plan Amendment or the Voluntary Agreement) (mgd)**

		Normal Year	Single Dry Year ¹	Multiple Dry Years							
				Year 1 ¹	Year 2 ²	Year 3 ²	Year 4 ²	Year 5 ²	Year 6 ²	Year 7 ³	Year 8 ³
2020	Total Retail Demand ⁴	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1
	Total Retail Supply ⁵	72.1	68.5	68.5	68.5	68.5	68.5	68.5	68.5	68.5	68.5
	Shortfall	0.0	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
	Shortfall as % of Demand	0.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
2025	Total Retail Demand ⁴	79.0	79.0	79.0	79.0	79.0	79.0	79.0	79.0	79.0	79.0
	Total Retail Supply ⁵	79.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0
	Shortfall	0.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
	Shortfall as % of Demand	0.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
2030	Total Retail Demand ⁴	82.3	82.3	82.3	82.3	82.3	82.3	82.3	82.3	82.3	82.3
	Total Retail Supply ⁵	82.3	78.2	78.2	78.2	78.2	78.2	78.2	78.2	78.2	78.2
	Shortfall	0.0	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
	Shortfall as % of Demand	0.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
2035	Total Retail Demand ⁴	85.9	85.9	85.9	85.9	85.9	85.9	85.9	85.9	85.9	85.9
	Total Retail Supply ⁵	85.9	81.6	81.6	81.6	81.6	81.6	81.6	81.6	79.5	79.5
	Shortfall	0.0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	6.4	6.4
	Shortfall as % of Demand	0.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	7.4%	7.4%
2040	Total Retail Demand ⁴	89.9	89.9	89.9	89.9	89.9	89.9	89.9	89.9	89.9	89.9
	Total Retail Supply ⁵	89.9	85.4	85.4	84.4	84.4	84.4	84.4	84.4	83.8	83.8
	Shortfall	0.0	4.5	4.5	5.5	5.5	5.5	5.5	5.5	6.1	6.1
	Shortfall as % of Demand	0.0%	5.0%	5.0%	6.2%	6.2%	6.2%	6.2%	6.2%	6.8%	6.8%

Notes:

1. During a single dry year and multiple dry year 1 (year 2 of SFPUC's design drought sequence), the retail allocation under the WSA is 36.0% of available RWS supply, or 85.9 mgd. However, due to the Phased WSIP Variant, only 81 mgd of RWS supply can be delivered. RWS supply is capped at this amount.
2. During multiple dry years 2-6 (years 3-7 of SFPUC's design drought sequence), the retail allocation under the WSA is 37.5% of available RWS supply, or 79.5 mgd.
3. During multiple dry years 7 and 8 (years 8 and 8.5 of SFPUC's design drought sequence), the retail allocation under the WSA is 37.5% of available RWS supply, or 74.5 mgd.
4. Total retail demands correspond to those in **Table 4-1 of the UWMP**, except for the 2020 demand projection, which was re-projected to take into account the lower demands being experienced due to the recent drought and the lag in occupancy of built units.
5. Local supplies (i.e., supplies not from the RWS, including groundwater, recycled water, and non-potable water) correspond to those in **Table 6-7 of the UWMP**, with an additional 5% reduction in retail water use (incorporated as a reduction in total retail supply) per the amended Water Supply Agreement. Local supplies are assumed to be used before RWS supplies to meet retail demand.

4.1.2 Scenario 2: Implementation of the Voluntary Agreement

As stated earlier, the March 1st Proposed Voluntary Agreement has yet to be accepted by SWRCB as an alternative to the Bay-Delta Plan Amendment and thus the shortages that would occur with its implementation are not known with certainty. However, given that the objectives of the Voluntary Agreement are to provide fishery improvements while protecting water supply through flow and non-flow measures, the RWS supply shortfalls under the Voluntary Agreement would be less than those under the Bay-Delta Plan Amendment, and therefore would require rationing of a lesser degree than that which would occur under Scenario 3. The degree of rationing would also more closely align with the SFPUC's RWS LOS goal of limiting rationing to no more than 20% on a system-wide basis in drought years. This goal was adopted in 2008 by the Commission (Resolution No. 08-0200).

4.1.3 Scenario 3: Implementation of the Bay-Delta Plan Amendment

Table 5 below provides projected supplies and demands under Scenario 3. The RWS is projected to experience significant shortfalls in single dry and multiple dry years starting as soon as 2022 and through 2040, regardless of whether the proposed project is constructed. These significant shortfalls are a result of implementation of the Bay-Delta Plan Amendment and not attributed to the incremental retail demand associated with the proposed project. Shortfalls would range from about 12 to 45 mgd, corresponding to rationing in the retail service area ranging 16-50%, over the next 20 years.

If additional water supplies were not acquired before the Bay-Delta Plan Amendment were implemented, the SFPUC would impose customer rationing to help balance water supply deficits during dry years.

Given the severity of the reduction in RWS supply with implementation of the Bay-Delta Plan Amendment, existing and planned dry-year supplies would not be enough to meet projected retail demands without rationing above the SFPUC's RWS LOS goal of limiting rationing to 20% on a system-wide basis for all dry years starting as soon as 2022. Although the WSAP does not address implications to retail supply during system-wide shortages above 20%, the WSAP indicates that if system-wide shortage greater than 20% were to occur, RWS supply would be allocated between retail and Wholesale Customers per the rules corresponding to a 16-20% system-wide reduction, subject to consultation and negotiation between the SFPUC and its Wholesale Customers to modify the allocation rules. The allocation rules corresponding to the 16-20% system-wide reduction are reflected in Table 5 above for Scenario 3. These allocation rules result in shortfalls of 16-50% across the retail service area as a whole under Scenario 3.

**Table 5: Projected Supply and Demand Comparison Under Scenario 3
(Implementation of the Bay-Delta Plan Amendment) (mgd)**

		Normal Year	Single Dry Year ¹	Multiple Dry Years							
				Year 1 ¹	Year 2 ²	Year 3 ²	Year 4 ²	Year 5 ²	Year 6 ²	Year 7 ³	Year 8 ³
2020	Total Retail Demand ⁴	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1
	Total Retail Supply ⁵	72.1	68.5	68.5	68.5	68.5	68.5	68.5	68.5	68.5	68.5
	Shortfall	0.0	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
	Shortfall as % of Demand	0.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
2025	Total Retail Demand ⁴	79.0	79.0	79.0	79.0	79.0	79.0	79.0	79.0	79.0	79.0
	Total Retail Supply ⁵	79.0	66.7	66.7	52.8	52.8	52.8	52.8	52.8	42.9	42.9
	Shortfall	0.0	12.3	12.3	26.2	26.2	26.2	26.2	26.2	36.1	36.1
	Shortfall as % of Demand	0.0%	15.6%	15.6%	33.2%	33.2%	33.2%	33.2%	33.2%	45.7%	45.7%
2030	Total Retail Demand ⁴	82.3	82.3	82.3	82.3	82.3	82.3	82.3	82.3	82.3	82.3
	Total Retail Supply ⁵	82.3	68.7	68.7	54.8	54.8	54.8	54.8	54.8	44.9	44.9
	Shortfall	0.0	13.6	13.6	27.5	27.5	27.5	27.5	27.5	37.4	37.4
	Shortfall as % of Demand	0.0%	16.5%	16.5%	33.4%	33.4%	33.4%	33.4%	33.4%	45.4%	45.4%
2035	Total Retail Demand ⁴	85.9	85.9	85.9	85.9	85.9	85.9	85.9	85.9	85.9	85.9
	Total Retail Supply ⁵	85.9	68.8	68.8	54.9	54.9	54.9	54.9	54.9	45.0	45.0
	Shortfall	0.0	17.1	17.1	31.0	31.0	31.0	31.0	31.0	40.9	40.9
	Shortfall as % of Demand	0.0%	19.9%	19.9%	36.1%	36.1%	36.1%	36.1%	36.1%	47.6%	47.6%
2040	Total Retail Demand ⁴	89.9	89.9	89.9	89.9	89.9	89.9	89.9	89.9	89.9	89.9
	Total Retail Supply ⁵	89.9	68.9	68.9	55.0	55.0	55.0	55.0	55.0	45.1	45.1
	Shortfall	0.0	21.0	21.0	34.9	34.9	34.9	34.9	34.9	44.8	44.8
	Shortfall as % of Demand	0.0%	23.4%	23.4%	38.8%	38.8%	38.8%	38.8%	38.8%	49.8%	49.8%

Notes:

1. During a single dry year and multiple dry year 1 (year 2 of SFPUC's design drought sequence), the retail allocation under the WSA is 37.5% of available RWS supply, or 59.6 mgd.
2. During multiple dry years 2-6 (years 3-7 of SFPUC's design drought sequence), the retail allocation under the WSA is 37.5% of available RWS supply, or 45.7 mgd.
3. During multiple dry years 7 and 8 (years 8 and 8.5 of SFPUC's design drought sequence), the retail allocation under the WSA is 37.5% of available RWS supply, or 35.8 mgd.
4. Total retail demands correspond to those in **Table 4-1 of the UWMP**, except for the 2020 demand projection, which was re-projected to take into account the lower demands being experienced due to the recent drought and the lag in occupancy of built units.
5. Local supplies (i.e., supplies not from the RWS, including groundwater, recycled water, and non-potable water) correspond to those in **Table 6-7 of the UWMP**. Local supplies are assumed to be used before RWS supplies to meet retail demand.

4.2 Rationing Implications to the Proposed Project

While the levels of rationing described above apply to the retail service area as a whole (i.e., 5-7% under Scenario 1, 16-50% under Scenario 3), the SFPUC may allocate different levels of rationing to individual retail customers based on customer type (e.g., dedicated irrigation, single family residential, multi-family residential, commercial, etc.) to achieve the required level of retail system-wide rationing. Allocation methods and processes that have been considered in the past and may be used in future droughts are described in the SFPUC's current Retail Water Shortage Allocation Plan (**Appendix L of the UWMP**). However, additional allocation methods that reflect existing drought-related rules and regulations adopted by the Commission during the recent drought (2015-2016 Drought Program adopted by Resolution 15-0119) are more pertinent to current and foreseeable development and water use in San Francisco and may be included in the SFPUC's update to its Retail Water Shortage Allocation Plan. The updated Retail Water Shortage Allocation Plan will be brought forward to the Commission along with the 2020 Urban Water Management Plan for consideration and adoption through a public hearing process in 2021. It is anticipated that the updated Retail Water Shortage Allocation Plan would include a tiered allocation approach that imposes lower levels of rationing on customers who use less water than similar customers in the same customer class, and would require higher levels of rationing by customers who use more water. This approach aligns with the SWRCB's statewide emergency conservation mandate imposed during the recent drought, in which urban water suppliers who used less water were subject to lower reductions than those who used more water. Imposing lower rationing requirements on customers who already conserve more water is also consistent with the implementation of prior rationing programs based on past water use, in which more efficient customers were allocated more water through an appeal process administered by the General Manager. Staff expects that under a future Retail Water Shortage Allocation Plan adopted by the Commission, the allocation method or combination of methods that would be applied during water shortages caused by drought would similarly be subject to the discretion of the General Manager.

The SFPUC anticipates that, as a worst-case scenario under Scenario 3, a mixed-use residential customer such as the proposed project could be subject to up to 38% rationing during a severe drought.⁵ In accordance with the Retail Water Shortage Allocation Plan, the level of rationing that would be imposed on the proposed project would be determined at the time of a drought or other water shortage and cannot be established with certainty prior to the shortage event. However, newly-constructed buildings, such as the proposed project, have water-efficient fixtures and non-potable water systems that comply with the latest regulations. Thus, if these buildings can demonstrate below-average water use, they would likely be subject to a lower level of rationing than other retail customers that meet or exceed the average water use for the same customer class.

⁵ This worst-case rationing level for San Francisco multi-family residential was estimated for the purpose of preparing comments on behalf of the City and County of San Francisco on the SWRCB's Draft Substitute Environmental Document in Support of Potential Changes to the Bay-Delta Plan, dated March 16, 2017. See comment letter Attachment 1, Appendix 3, Page 5, Table 3. The comment letter and attachments are available on the SWRCB website: https://www.waterboards.ca.gov/public_notices/comments/2016_baydelta_plan_amendment/docs/dennis_herrera.pdf. The rationing estimates prepared for the comment letter apply to the first 6 years of the SFPUC's 8.5-year design drought as they reflect the 1987-92 drought. For the last 2.5 years of the design drought, a corresponding worst-case rationing level for San Francisco multi-family residential customers was not estimated. While the level of rationing imposed on the retail system will be higher for the outer years of the design drought compared to the first 6 years, it is reasonable to assume that multi-family residential customers such as the proposed project would not have to conserve more than 38%.

4.3 Findings

Regarding the availability of water supplies to serve the proposed project beginning in 2024, the SFPUC finds, based on the entire record before it, as follows:

- During normal years, the SFPUC's total projected water supplies will meet the projected demands of its retail customers, including those of the proposed project, existing customers, and foreseeable future development under Scenario 1, Scenario 2, and Scenario 3.
- During single dry years and multiple dry years under Scenario 1—No implementation of the Bay-Delta Plan Amendment or the March 1st Proposed Voluntary Agreement—the SFPUC can meet the projected demands of its retail customers, including those of the proposed project, existing customers, and foreseeable future development without the need for rationing beyond the LOS goal of 20% system-wide rationing. Based on past hydrology, statistically speaking dry years occur roughly once out of every 10 years.
- During single dry years and multiple dry years under Scenario 2—Implementation of the March 1st Proposed Voluntary Agreement—the SFPUC would still face a shortfall in single dry and multiple dry years, thus requiring rationing, but to a lesser degree and in closer alignment to the LOS goal of no more than 20% system-wide rationing compared to that which would occur under Scenario 3.
- During single dry years and multiple dry years under Scenario 3—Implementation of the Bay-Delta Plan Amendment—the SFPUC cannot reliably meet the projected demands of its retail customers, including the proposed project, existing customers, and foreseeable future development, without rationing at a level greater than that required to achieve the LOS goal of a maximum of 20% system-wide average rationing starting as soon as 2022. The SFPUC estimates it would impose up to 50% rationing across the retail service area and up to 38% rationing for mixed-use residential customers such as the proposed project.

Approval of this WSA by the Commission is not equivalent to approval of the development project for which the WSA is prepared. A WSA is an informational document required to be prepared for use in the City's environmental review of a project under CEQA. It assesses the adequacy of water supplies to serve the proposed project and cumulative demand.

Furthermore, this WSA is not a "will serve" letter and does not verify the adequacy of existing distribution system capacity to serve the proposed project. A "will serve" letter and/or hydraulic analysis must be requested separately from the SFPUC City Distribution Division to verify hydraulic capacity.

While this WSA contains information provided by or on behalf of the project sponsor regarding the proposed project's plans for onsite water reuse and demand estimates using the SFPUC's Non-potable Water Calculator, any information submitted to the SFPUC for preparation of this WSA does not fulfill the requirements of the Non-potable Water Ordinance. City review and approval of a proposed onsite water system must be performed separately through the Non-potable Water Program.

If there are any questions or concerns, please contact Steve Ritchie at (415) 934-5736 or SRitchie@sfwater.org.

Attachments: Attachment A, Communications from San Francisco Planning
Department
Attachment B, Balboa Reservoir Project Demand Memo

Attachment A –

Communications from San Francisco Planning Department



SAN FRANCISCO PLANNING DEPARTMENT

MEMO

DATE: June 13, 2013

TO: SF Planning EP Planners & SFPUC Planners

FROM: Scott T. Edmondson, AICP; Aksel Olsen

RE: Project Types Represented in the Land Use Allocation

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This Memorandum explains the Planning Department's Land Use Allocation (LUA) and the types of projects included in the LUA. The 2012 LUA is the most recent update and uses the Association of Bay Area Governments' (ABAG) May 2012 Jobs-Housing Connection Scenario. As this memorandum explains, the Planning Department expects that the LUA will encompass the vast majority of development proposals that project sponsors will present to the Planning Department. This memorandum also identifies possible unusual circumstances under which EP Planners and the SF PUC Planners may want to consult further with the Planning Department's Information and Analysis Group to determine whether a project is encompassed within the LUA.

ABAG's Projections of San Francisco's Economic Growth and the LUA

The LUA takes ABAG's 30-year projections of citywide household and job growth and allocates them to smaller geographic units, in this case, the traffic analysis zones of the SF Transportation Authority's Countywide Transportation Model. Thus, the LUA does not project growth but simply allocates ABAG's growth projections to subarea locations within the city. The current 2012 LUA uses ABAG's Jobs-Housing Connection Scenario projections for San Francisco and covers the period from 2010 to 2040; these projections were released in May 2012 and are represented in five-year increments.

ABAG derives its demographic and economic growth projections from assumptions about long-term demographic and economic growth.¹ ABAG maintains its own set of regional models and develops each forecast with its in-house experts and private economic consultants.² The forecasting is informed by the best information and assumptions available through federal and State agencies, such as the State Department of Finance, and private sources. However, ABAG develops its forecast based on local knowledge from over 50 years of forecasting and develops the forecast to reflect local conditions in contrast to more general forecasting assumptions of State or federal sources. ABAG's estimate of total citywide growth for the 30-year period is expected to best represent actual growth at the end of the 30-year period. However, projected growth for any portion of the projection period, such as growth in a one-year or a five-year period, would be expected to vary from actual growth in such periods. Within the 30-year growth projection period, higher than average growth periods could be followed by lower than average growth periods such that growth over the period would ultimately equal the projected 30-year

total. All projection methodologies make assumptions based on the best available information at the time. To minimize the effects of imprecision intrinsic to any projections methodology when used in for planning decisions, ABAG follows professional best practices and updates its projections every two years. Accordingly, the Planning Department updates its LUA every two years. The planning practice of frequently updating projections and plans allows the incorporation of new information over time to provide for the most up-to-date projections.

The SFPUC updates its Urban Water Management Plan (UWMP) every five years. The UWMP typically relies on LUA projections or similar information. But, because the LUA is updated every two years, the SFPUC may want to review the LUA issued within SFPUC's 5-year UWMP cycle; and if it varies in a significant way from the SFPUC's projections used in its UWMP, discuss with Planning whether it should make any changes in its own water supply needs assessment during an UWMP cycle.

Types of Projects Included in the LUA

The LUA translates ABAG's projected household and job growth into total expected development in San Francisco over a 30-year period. The LUA translates ABAG's household growth into residential housing units and ABAG's job growth into commercial space.³ Thus, the LUA projections of housing units and commercial space include all project types expected from San Francisco growth, such as housing, office, retail, production-distribution-repair (PDR), visitor, and cultural-institutional-educational (CIE). The LUA does not exclude any project type or potential growth. As such, the LUA and the ABAG economic projections upon which it is based contain the best estimates available of reasonably foreseeable growth and development in San Francisco over a 30-year period.

Unusual Circumstances

The LUA can be considered to include all reasonably expected growth and development and it is frequently updated to correct for expected variations. Nevertheless, there are possible unusual circumstances under which the EP Planners or SFPUC Planners may want to request further Planning Department consultation with the Information and Analysis Group to determine if a particular project falls within the LUA. ABAG's projections and the Department's LUA take into account urban economic trends and based on that information capture all reasonably foreseeable growth in San Francisco. Limited capital and aggregate demand of any urban economy constrains growth. However, occasionally the reality or perception may arise that a project lies outside the normal growth constraints of the San Francisco economy for some reason, and therefore lies outside ABAG's projection's and the Department's current spatial allocation in its LUA.

One can envision the rare case of a project arising outside the City's economy (demand and capital) from an organization not located in San Francisco using nonprofit foundation funds or private donations to construct a large institutional project in San Francisco, such as a major hospital, a university, or an office complex. These projects would represent spending and demand beyond that normally active in the San Francisco economy, and therefore represent net additions to projected growth beyond that captured by ABAG's projections and reflected in the Department's LUA. Indicative characteristics of such projects

would include those with non-local sponsors, of large size, and for an institutional land use. Alternatively, very large project proposals from local project sponsors active in the SF economy involving a large site, land assembly, a planned unit development (PUDs), master plans, or area plan and rezoning proposals may warrant individual assessment for a range of reasons even though they are likely captured in ABAG's projections and the LUA. Such projects would be similar to recent projects such as Hunters Point/Candlestick, Park Merced, Treasure Island, Pier 70 Master Plan, Eastern Neighborhoods, or the Transit Center District Plan.

The bi-annual update of ABAG's projections and the LUA would be able to capture development associated with such projects. However, should such a project be proposed between updates, the EP Planners and SFPUC could treat its appearance as sufficient cause to request the Planning Department's assistance in determining whether to consider the project outside the latest LUA projections.

¹ Please see ABAG's summary of its research and forecasting on its website: <http://www.abag.ca.gov/planning/research/index.html>

² ABAG describes its current Jobs-Housing Scenario policy-based forecast here: http://onebayarea.org/pdf/IHCS/May_2012_Jobs_Housing_Connection_Strategy_Appendices_Low_Res.pdf.

³ The LUA citywide totals only differ slightly, up to within one percent of ABAG totals (+/-). The difference is produced by LUA's complex method of translating ABAG projections into development (residential units and commercial space) and allocating total citywide growth to subarea locations. The minor difference between the LUA and ABAG citywide totals is real in absolute terms, but not in the sense that they are different projections. The one percent difference does not constitute a difference of projections. ABAG and MTC consider variation of one percent in citywide totals, plus or minus, as sufficiently representing ABAG's projections for consistency with the MTC regional projections and modeling purposes (congestion management, etc.). Even if a few versions of the LUA must be done to make minor subarea spatial allocation corrections, as long as the LUA's citywide totals are within one percent of ABAG's projections, and ABAG's projections have not changed, the LUA citywide totals have not effectively changed either. Any of those LUA versions' citywide totals fully represent the same unchanged ABAG projection totals.

Attachment B –

Balboa Reservoir Project Demand Memo



SAN FRANCISCO PLANNING DEPARTMENT

MEMO

DATE: April 29, 2019
TO: Fan Lau, SFPUC
FROM: Chris Thomas, Environmental Planning
CC: Jeanie Poling, Environmental Planning
RE: Balboa Reservoir Project Water Supply Assessment Request
(Planning Department Case No. 2018-007883ENV)

1650 Mission St.
Suite 400
San Francisco,
CA 94103-2479

Reception:
415.558.6378

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415.558.6409

Planning
Information:
415.558.6377

On February 5, 2019, the Planning Department submitted a request for a water supply assessment for the proposed Balboa Reservoir project. This request did not make note of the State Water Resources Control Board's adoption of an amendment to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan) on December 12, 2018 and did not use the most current single-site non-potable water calculator provided by the SFPUC (Version 6). The Bay-Delta Plan Amendment establishes water quality objectives to maintain the health of certain rivers and the Bay-Delta ecosystem. Specific requirements for unimpaired flow on the Tuolumne River under the Bay-Delta Plan Amendment, as currently adopted, would have a significant impact to the regional water system supply delivered by the SFPUC.

Accordingly, the purpose of this revised memorandum is to request that the San Francisco Public Utilities Commission (SFPUC) prepare a Water Supply Assessment (WSA) for the Balboa Reservoir project, in compliance with CEQA Guidelines Section 15155 and Sections 10910 through 10915 of the California Water Code. The project description for the Balboa Reservoir project has not changed from the previous submittal. Thus, the same information provided by the project sponsor, intended to meet the requirements outlined in the SFPUC guidance memo dated September 6, 2016, is provided with this request.

As indicated in the attached memorandum, the proposed Balboa Reservoir project involves two options for the site's residential density: the Developer's Proposed Option (1,100 dwelling units) and the Additional Housing Option (1,550 dwelling units). Also included for either option would be 7,500 gsf of retail and about 7,500 gsf of childcare and a community room for public use. Both options are proposed to be constructed in two phases: phase 1 is scheduled to be complete in 2024 and phase 2 is scheduled to be complete in 2027. The attached memorandum provides phased estimates of water demand for both options.

The project sponsor has provided project information intended to meet the requirements outlined in the SFPUC guidance memo dated September 6, 2016. A summary of the project description, proposed average daily water demands, and supporting tables prepared by the project sponsor's consultant, are attached. Four Non-Potable Water Calculator spreadsheets are attached providing water demand calculations for phase 1 and phases 1 and 2 of the Developer's option and the Additional Housing option, respectively.

Should you have questions or need additional information from the Planning Department or the project sponsor, please contact me at 415-575-9036 or christopher.thomas@sfgov.org.

Exhibits

April 29, 2019 Memorandum

Copy of NP Single Site Calc_V6_Additional Housing Option_Phase 1_rev.xlsx

Copy of NP Single Site Calc_V6_Additional Housing Option_Phase 1+2_rev.xlsx

Copy of NP Single Site Calc_V6_Developers Option__Phase 1_rev.xlsx

Copy of NP Single Site Calc_V6_Developers Option_Phase 1+2.xlsx



550 Kearny Street
Suite 800
San Francisco, CA 94108
415.896.5900 **phone**
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memorandum

date April 29, 2019

to Chris Thomas, San Francisco Planning Department, Environmental Planning
Jeanie Poling, San Francisco Planning Department, Environmental Planning

from Susan Yogi, Karl Heisler, Jill Feyk-Miney, ESA

subject Balboa Reservoir Project: Water Supply Assessment Request

The purpose of the memorandum is to provide the specific project information necessary for the San Francisco Public Utilities Commission (SFPUC) to prepare a Water Supply Assessment (WSA) for the proposed Balboa Reservoir Project (proposed project). This memo provides a brief project description and estimated project water and wastewater demands for the proposed project, based on the calculations developed in the SFPUC Non-Potable Water Calculator, Version 6.

Project Description

The project site is located in San Francisco's West of Twin Peaks area on Assessor's Block 3180, which is bounded by Archbishop Riordan High School to the north, City College of San Francisco Ocean Campus to the east, multi-family residential development along Ocean Avenue to the south, and Westwood Park neighborhood to the west. The site currently contains 1,007 surface vehicular parking spaces. The proposed project would develop the site with mixed-income housing, open space, childcare facilities, a community room available for public use, retail space, on- and off-street parking, and new streets, utilities, and other infrastructure. **Table 1** provides a summary of the relevant project information.

TABLE 1 – PROJECT INFORMATION

Project Name	Balboa Reservoir Project
Case No.	2018-007883ENV
Estimated Construction Completion	2027
Project Contact	Jeanie Poling – (415) 575-9072, Jeanie.Poling@sfgov.org
Project Address	11 Frida Kahlo Way
Block/Lot	3180 / Lot 190
Project Site Size	767,000 square feet (17.6 acres)
Days In Operation Per Year	365 residential days; 365 retail days; 260 childcare days

The project includes two different sets of options for the site's residential density to capture the range of possible development on the project site: The first is the Developer's Proposed Option (1,100 dwelling units), proposed by Reservoir Community Partners, LLC. The second is the Additional Housing Option (1,550 dwelling units),

developed by the City to fulfill the objectives of the San Francisco General Plan (the general plan) to maximize affordable housing and housing in transit-rich neighborhoods.

Overall, the proposed project would construct up to approximately 1.8 million gross square feet of uses, including between approximately 1.3 and 1.6 million gross square feet of residential space (1,100 to 1,550 dwelling units plus residential amenities), approximately 10,000 gross square feet of community space (childcare and a community room for public use), approximately 7,500 gross square feet of retail, up to 550 residential parking spaces and 750 public parking spaces in the Developer's Proposed Option, and up to 650 residential parking spaces in the Additional Housing Option. The Developer's Proposed Option and Additional Housing Option are shown in **Table 2**. Construction is expected to begin in 2021 and be complete in 2027.

TABLE 2 – PROJECT CHARACTERISTICS

Proposed Use	Developer's Proposed Option	Additional Housing Option
Residential	1,100 units / 1,283,000 gsf	1,550 units / 1,588,000 gsf
Retail	7,500 gsf	7,500 gsf
Community Facilities/Childcare	10,000 gsf	10,000 gsf
Parking	1,300 spaces / 339,900 gsf	650 spaces / 231,000 gsf
TOTAL	1,640,400 gsf	1,836,500 gsf
Total Site Area	556,140 sf	556,140 sf
Above Ground Impervious Area ^a	207,194 sf	207,194 sf
Other Impervious Area ^b	152,121 sf	152,121 sf
Landscaped Area ^c	196,825 sf	196,825 sf
Height of Buildings	25 to 78 feet	25 to 88 feet

Notes:

a. Excludes green roof features (factored under open space)

b. Includes sidewalks and hardscape areas

c. Includes publicly accessible open spaces

SOURCES: BKF Engineers and ESA, November 2018.

Tables 3, 4 and 5 show information pertinent to the estimate of water demand for the proposed project; this includes the proposed uses, square footages, as well as the site coverage data. The land uses and site coverage data are based on the total square footage of the proposed project, as well as total employment and square footage of impervious or landscaped area. Consistent with the City's Non-potable Water Ordinance and Water Efficient Irrigation Ordinance, it is likely that actual project water demand will be lower, after incorporation of the use of low-flow fixtures and other water saving measures (including water reuse and minimizing water use for irrigation), that are not yet fully defined at this time. The water demand supply calculations account for the capture, treatment as required, and reuse of graywater in the proposed project under both options.

Both project options would include 7,500 sf of retail and 10,000 sf of childcare and community space. As shown in Table 3, between the retail and childcare uses on site, it is anticipated that the proposed project would employ approximately 30 full-time employees (FTEs) and 153 transient FTEs at buildout.

"Project coverage" refers to the permeability of materials used onsite. Both project options would have similar site plans and building footprints. Therefore, as shown in Table 4, the impervious and pervious areas are assumed to be the same for both project options. Approximately half of the project site would be covered in impervious

surfaces, which would include the building roofs and sidewalk/hardscape areas. Less than one-quarter of the site area would consist of open spaces, which would be a mix of paving and landscaped areas.

TABLE 3 – PROPOSED PROJECT, BUILDING INPUTS FOR BOTH PROJECT OPTIONS

Proposed Use	Total Proposed (sf)	Days in Use	SF Per Land Use		Commercial Use Occupancy	
			FTE	Transient FTE	Estimated FTE	Estimated Transient FTE
Retail	7,500	365	550	130	14	58
Community Facilities/Childcare	10,000	260	630	105	16	95
TOTAL	17,500	-	-	-	30	153

TABLE 4 – PROPOSED PROJECT, RESIDENTIAL INPUTS

Data Inputs	Developer's Proposed Option	Additional Housing Option	Unit
Residential Type	multi-family		
Occupancy	2.01	2.01	persons per household unit
Number of Residential Units	1,100	1,550	units
Residential Gross Area	1,283,000	1,588,000	gsf
Number of Residential Occupants	2,211	3,116	people
Days in Operation	365	365	days

TABLE 5 – PROPOSED PROJECT, COVERAGE FOR BOTH PROJECT OPTIONS

Surface	Area
Impervious Area	359,315 sf
<i>Roof</i>	207,194 sf
<i>Sidewalks/Open Space</i>	152,121 sf
Pervious Area	196,825 sf
<i>Landscaped Area</i>	135,425 sf
<i>Green Roof</i>	61,400 sf

Proposed Project Options – Demand

Table 6 shows the estimated daily and annual water demand for the proposed project by land use category. As shown, the total water use for the project options would range between 104,467 to 147,115 gallons per day (gpd), or 39.54 to 55.11 million gallons per year (gpy). Of the total water demand, 38.12 to 53.68 million gpy would be for indoor water use and 1.43 gpy would be for irrigation purposes. In addition, SFPUC estimates that approximately 90 percent of water supplied is discharged as wastewater into the sewer system; therefore, the project would discharge around 93,020 to 132,404 gpd, or 35.9 to 49.6 million gpy, of wastewater. Lastly, because the proposed project would comply with the City's Non-potable Water Ordinance and Reclaimed Water Use Ordinance, other water saving measures not yet fully determined, but which could involve water efficient fixtures and onsite reuse, could result in the availability of up to 52,843 to 74,455 gpy of graywater to offset projected water demand.

TABLE 6 - PROPOSED PROJECT, ESTIMATED DEMAND

Proposed Use	Estimated Daily Water Demand (gpd)	Estimated Annual Water Demand (gpy)
Developer's Proposed Option		
Commercial water demand	216	65,319
Multi-Family water demand	104,251	38,051,564
Irrigation	N/A	1,426,668
TOTAL^a	104,467	39,543,551
Wastewater Discharge (at 90% non-landscape water supplied)	41,175	34,305,195
Additional Housing Option		
Commercial water demand	216	65,319
Multi-Family water demand	146,899	53,618,113
Irrigation	N/A	1,426,668
TOTAL^a	147,115	55,110,100
Wastewater Discharge (at 90% non-landscape water supplied)	57,946	48,315,089

a. Does not reflect offset of potable demands with graywater sources

Project Phasing

Construction of the proposed project (both options) would occur in three main phases over the course of six years.. Phase 0 would include grading and construction of site infrastructure, followed by two phases (Phase 1 and 2) of vertical construction for both project options. The construction phasing and durations would be similar for both project options, except that the number of units developed would be different. Phase 1 of the Developer's Proposed Option would construct 645 units on Blocks C, D, E, F, TH1, and TH2, with construction completed in 2024. Phase 2 would develop 455 units on Blocks A, B, G, and H with construction completed by 2027. The Additional Housing Option would be developed in similar phases. Phase 1 would develop 850 units on Blocks C, D, E, F, I, TH1, and TH2, finishing construction in 2024. Phase 2 would develop 700 units on blocks A, B, G, and H with construction completed by 2027. It is assumed that retail space would be developed on Block C, D, E, or F in Phase 1 under both project options. The community facilities/childcare space would be developed on block B in Phase 2 under both project options. **Table 7** shows the water demand for each project option based on project phasing for the years 2015-2040.^{1,2}

¹ Phase 2 data was derived by subtracting Phase 1 calculations from the total project water demand.

² Impervious area between phases was assumed to be proportional to the housing units (i.e. 59 percent in Phase 1 and 41 percent in Phase 2 for the Developer's Proposed Option and 55 percent in Phase 1 and 45 percent in Phase 2 for the Additional Housing Option).

TABLE 7 – WATER DEMAND BASED ON PROJECT PHASING (mgd)

Data Inputs	2015	2020	2025	2030	2035	2040
Developer's Proposed Option						
Phase 1 (645 Units) Potable	0	0	0.053254	0.053254	0.053254	0.053254
Phase 1 (645 Units) Non-Potable	0	0	0.010639	0.010639	0.010639	0.010639
Phase 2 (455 Units) Potable	0	0	0	0.037573	0.037573	0.037573
Phase 2 (455 Units) Non-Potable	0	0	0	0.006872	0.006872	0.006872
Total Potable	0	0	0.053254	0.090827	0.090827	0.090827
Total Non-Potable	0	0	0.010639	0.017511	0.017511	0.017511
Total ^a	0	0	0.063893	0.108338	0.108338	0.108338
Additional Housing Option						
Phase 1 (850 Units) Potable	0	0	0.070177	0.070177	0.070177	0.070177
Phase 1 (850 Units) Non-Potable	0	0	0.013025	0.013025	0.013025	0.013025
Phase 2 (700 Units) Potable	0	0	0	0.057800	0.057800	0.057800
Phase 2 (700 Units) Non-Potable	0	0	0	0.009985	0.009985	0.009985
Total Potable	0	0	0.070177	0.127977	0.127977	0.127977
Total Non-Potable	0	0	0.013025	0.023010	0.023010	0.023010
Total ^a	0	0	0.083202	0.150987	0.150987	0.150987

a. Does not reflect offset of potable demands with graywater sources

Compliance with Ordinances Related to Water Conservation and Resources

The proposed project (both options) would be subject to and would comply with Tier 2 requirements of the San Francisco Water Efficient Irrigation Ordinance (San Francisco Administrative Code, chapter 63) because it includes 500 square feet or more of new landscaped areas. The proposed project (both options) would comply with all standards in the Residential Water Conservation Ordinance (San Francisco Housing Code, chapter 12A) by meeting at least the minimum standards specified in the Ordinance as applicable.

The proposed project (both options) would comply with the Residential Water Conservation Ordinance (San Francisco Housing Code, chapter 12A). To reduce potable water demand, high-efficiency fixtures and appliances would be installed in the new buildings. The proposed project includes no alterations to existing commercial properties. Therefore, the Commercial Water Conservation Ordinance (San Francisco Building Code, chapter 13A) is not applicable.

The proposed project (both options) would be required by law comply with the Non-potable Water Ordinance (San Francisco Health Code, article 12C) which requires large development projects (a single building, or multiple buildings on one or more parcels of 250,000 square feet or more of gross floor area) to be constructed, operated, and maintained using available alternate water sources for toilet and urinal flushing and irrigation. The San Francisco Recycled Water Use Ordinance (San Francisco Public Works Code, Article 22) would not be applicable to the proposed project as it is not within a designated recycled water use area.

NON-POTABLE WATER CALCULATOR

Project Summary Sheet

Project Contact: Brian Scott, BKF Engineers
(650) 482-6335
bscott@bkf.com

Estimated Site/Building Permit Issuance Date: TBD



1. Demands and Supplies Summary

Grant Criteria Status: This building is 250,000 sq.ft. or greater in size and is not eligible for a grant

Demands Met by Non-Potable Supply for Project (gpy): 3,883,400 **Meets grant criteria of offsetting a minimum of 1,000,000 gal/yr of potable water use**

Demands Met by Non-Potable Supply for Project *: 17%

Project Total Annual Water Demand (gpy) *: 23,321,060

Project Total Annual Toilet + Irrigation Water Demand (gpy) *: 3,883,380

Toilet + Irrigation Demands Met by Non-Potable Supply *: 100.0%

Potable Water Allocation (gpy): 21,381,448

Daily Wet Weather Potable Allocation (gpd): 58,823

Daily Dry Weather Potable Allocation (gpd): 58,435

Potable supplies are allocated to this project to meet remaining demands. Projects are allocated an additional 10% in potable supplies that are available as a buffer.
Projects are allocated these potable supplies during wet weather months (October - March)
Projects are allocated these potable supplies during dry weather months (April - September)

*Note: Estimates for Demands Met by Non-Potable Supply for Project and Project Total Annual Water Demand based on Tab 6 - Building Potential Summary total water demand values. Manually entered non-potable demands that exceed auto-calculated non-potable demands from Tab 6 may result in Total Annual Water demands greater than the value used in this analysis.
Project Total Annual Toilet Water Demand and Toilet Demands Met by Non-Potable Supply based on Tab 6 - Building Potential Summary toilet demands.

2. Building Information Summary

Project / Building Name:	Balboa Reservoir - Developer's Proposed Option (Phase 1)	Building Type:	Mixres
Project Address:	11 Frida Kahlo Way	(gross square footage or GSF):	965,011
		Total Lot Size (ft²):	767,000
		Number of Residential Units:	645
Assessor's Block & Lot No. / APN:	3180190	Impervious Surface Above Grade (ft²):	149,634
Year Online:	2024	Impervious Surface Below Grade (ft²):	115,865
		Landscaped Area (ft²):	138,075
		Site Location (Zone):	Western SF

3. Summary of Non-Potable Demands and Supplies for the Project

Non-Potable Water Supply Estimates

On-site Alternate Water Source Supplies	Water Quantity (gpy)
Rainwater:	0
Stormwater:	0
Graywater:	11,309,227
Blackwater:	0
Foundation Drainage:	0
Cooling & Other Supplies:	0
TOTAL:	11,309,227

Non-Potable Water Demand Estimates

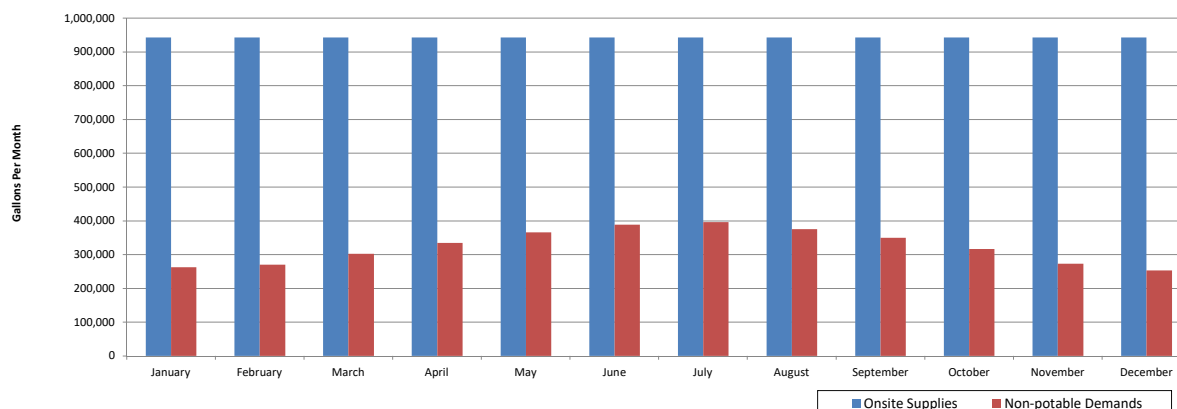
Project Specific Non-Potable Application Demands	Quantity (gpy)
Toilets/Urinals:	2,905,915
Irrigation:	977,465
Toilets/Urinals + Irrigation:	3,883,380
Cooling Tower:	0
Commercial Laundry & Other:	0
Total:	3,883,380

4. Project Summary

Demands Met by Non-Potable Supply for Projects (gpy):	3,883,400	
Total Water Demand (gpy):	23,321,060	Based on Tab 6 - Building Potential Summary tab
Total Water Demand Offset:	17%	
Potable Water Allocation (gpy):	21,381,448	Amount of Potable Water Allocated to Project to Meet Total Demands
Daily Wet Weather Potable Allocation (gpd):	58,823	Amount of Potable Water Allocated Daily during Wet Weather Months
Daily Dry Weather Potable Allocation (gpd):	58,435	Amount of Potable Water Allocated Daily during Dry Weather Months
Total Toilet + Irrigation Water Demand (gpy):	3,883,380	Based on Tab 6 - Building Potential Summary tab
Total Toilet + Irrigation Water Demand Offset:	100%	Based on Tab 6 - Building Potential Summary tab
Selected Toilet + Irrigation Water Demand (gpy):	3,883,380	Based on selections on Tab 7 - Project Definition
Selected Toilet + Irrigation Water Demand:	100%	Based on selections on Tab 7 - Project Definition

This offset analysis assumes the full year of supplies is available to offset non-potable demands. Some scenarios may require storage to store excess supplies from one month in order to use those supplies in another month with unmet demands.

Monthly Summary of Selected Onsite Supply vs. Selected Non-Potable Demand



NON-POTABLE WATER CALCULATOR

Project Summary Sheet

Project Contact: Brian Scott, BKF Engineers
(650) 482-6335
bscott@bkf.com

Estimated Site/Building Permit Issuance Date: TBD



1. Demands and Supplies Summary

Grant Criteria Status: This building is 250,000 sq.ft. or greater in size and is not eligible for a grant

Demands Met by Non-Potable Supply for Project (gpy): 6,391,500 **Meets grant criteria of offsetting a minimum of 1,000,000 gal/yr of potable water use**

Demands Met by Non-Potable Supply for Project %: 16%

Project Total Annual Water Demand (gpy) *: 39,543,551

Project Total Annual Toilet + Irrigation Water Demand (gpy) *: 6,391,463

Toilet + Irrigation Demands met by non-potable supply %: 100.0%

Potable Water Allocation (gpy): 36,467,297 **Potable supplies are allocated to this project to meet remaining demands. Projects are allocated an additional 10% in potable supplies that are available as a buffer.**

Daily Wet Weather Potable Allocation (gpd): 100,326 **Projects are allocated these potable supplies during wet weather months (October - March)**

Daily Dry Weather Potable Allocation (gpd): 99,664 **Projects are allocated these potable supplies during dry weather months (April - September)**

*Note: Estimates for Demands Met by Non-Potable Supply for Project and Project Total Annual Water Demand based on Tab 6 - Building Potential Summary total water demand values. Manually entered non-potable demands that exceed auto-calculated non-potable demands from Tab 6 may result in Total Annual Water demands greater than the value used in this analysis.
Project Total Annual Toilet Water Demand and Toilet Demands Met by Non-Potable Supply based on Tab 6 - Building Potential Summary toilet demands.

2. Building Information Summary

Project / Building Name:	Balboa Reservoir - Developer's Proposed Option (Phase 1+2)	Building Type:	Mixres
Project Address:	11 Frida Kahlo Way	(gross square footage or GSF):	1,640,400
		Total Lot Size (ft²):	767,000
		Number of Residential Units:	1,100
Assessor's Block & Lot No. / APN:	3180190	Impervious Surface Above Grade (ft²):	207,194
Year Online:	#VALUE!	Impervious Surface Below Grade (ft²):	152,121
		Landscaped Area (ft²):	196,825
		Site Location (Zone):	Western SF

3. Summary of Non-Potable Demands and Supplies for the Project

Non-Potable Water Supply Estimates

On-site Alternate Water Source Supplies	Water Quantity (gpy)
Rainwater:	0
Stormwater:	0
Graywater:	19,287,683
Blackwater:	0
Foundation Drainage:	0
Cooling & Other Supplies:	0
TOTAL:	19,287,683

Non-Potable Water Demand Estimates

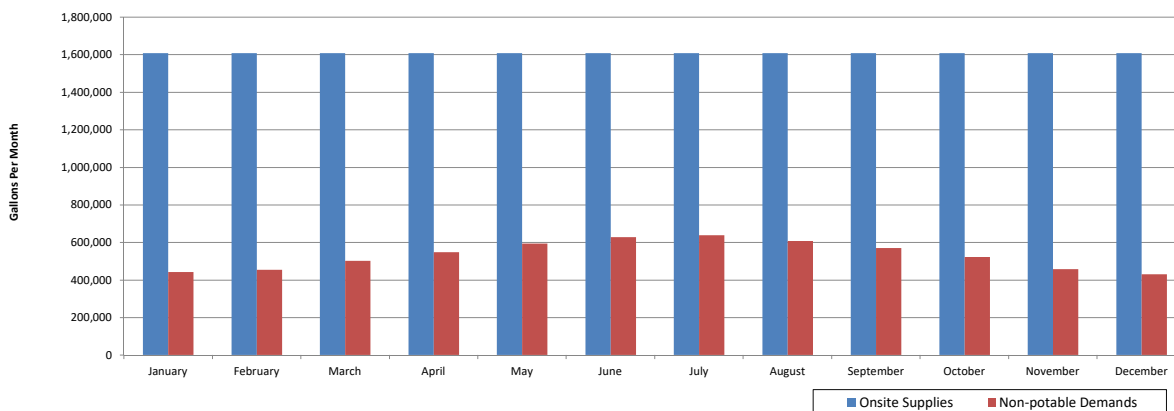
Project Specific Non-Potable Application Demands	Quantity (gpy)
Toilets/Urinals:	4,964,795
Irrigation:	1,426,668
Toilets/Urinals + Irrigation	6,391,463
Cooling Tower:	0
Commercial Laundry & Other:	0
Total:	6,391,463

4. Project Summary

Demands Met by Non-Potable Supply for Projects (gpy):	6,391,500	
Total Water Demand (gpy):	39,543,551	Based on Tab 6 - Building Potential Summary tab
Total Water Demand Offset:	16%	
Potable Water Allocation (gpy):	36,467,297	Amount of Potable Water Allocated to Project to Meet Total Demands
Daily Wet Weather Potable Allocation (gpd):	100,326	Amount of Potable Water Allocated Daily during Wet Weather Months
Daily Dry Weather Potable Allocation (gpd):	99,664	Amount of Potable Water Allocated Daily during Dry Weather Months
Total Toilet + Irrigation Water Demand (gpy):	6,391,463	Based on Tab 6 - Building Potential Summary tab
Total Toilet + Irrigation Water Demand Offset:	100%	Based on Tab 6 - Building Potential Summary tab
Selected Toilet + Irrigation Water Demand (gpy):	6,391,463	Based on selections on Tab 7 - Project Definition
Selected Toilet + Irrigation Water Demand:	100%	Based on selections on Tab 7 - Project Definition

This offset analysis assumes the full year of supplies is available to offset non-potable demands. Some scenarios may require storage to store excess supplies from one month in order to use those supplies in another month with unmet demands.

Monthly Summary of Selected Onsite Supply vs. Selected Non-Potable Demand



NON-POTABLE WATER CALCULATOR

Project Summary Sheet

Project Contact: Susan Yogi
(415) 962-8447
syogi@esassoc.com

Estimated Site/Building Permit Issuance Date: TBD



1. Demands and Supplies Summary

Grant Criteria Status: This building is 250,000 sq.ft. or greater in size and is not eligible for a grant

Demands Met by Non-Potable Supply for Project (gpy):	4,754,000	Meets grant criteria of offsetting a minimum of 1,000,000 gal/yr of potable water use
Demands Met by Non-Potable Supply for Project *:	16%	
Project Total Annual Water Demand (gpy) *:	30,368,671	
Project Total Annual Toilet + Irrigation Water Demand (gpy) *:	4,753,985	
Toilet + Irrigation Demands Met by Non-Potable Supply *:	100.0%	
Potable Water Allocation (gpy):	28,176,155	Potable supplies are allocated to this project to meet remaining demands. Projects are allocated an additional 10% in potable supplies that are available as a buffer.
Daily Wet Weather Potable Allocation (gpd):	77,516	Projects are allocated these potable supplies during wet weather months (October - March)
Daily Dry Weather Potable Allocation (gpd):	77,005	Projects are allocated these potable supplies during dry weather months (April - September)

*Note: Estimates for Demands Met by Non-Potable Supply for Project and Project Total Annual Water Demand based on Tab 6 - Building Potential Summary total water demand values. Manually entered non-potable demands that exceed auto-calculated non-potable demands from Tab 6 may result in Total Annual Water demands greater than the value used in this analysis.
Project Total Annual Toilet Water Demand and Toilet Demands Met by Non-Potable Supply based on Tab 6 - Building Potential Summary toilet demands.

2. Building Information Summary

Project / Building Name:	Balboa Reservoir - Additional Housing Option (Phase 1)	Building Type:	Mixres
Project Address:	11 Frida Kahlo Way	(gross square footage or GSF):	1,007,950
Assessor's Block & Lot No. / APN:	3180190	Total Lot Size (ft²):	767,000
Year Online:	2024	Number of Residential Units:	850
		Impervious Surface Above Grade (ft²):	144,018
		Impervious Surface Below Grade (ft²):	112,327
		Landscaped Area (ft²):	132,344
		Site Location (Zone):	Western SF

3. Summary of Non-Potable Demands and Supplies for the Project

Non-Potable Water Supply Estimates

On-site Alternate Water Source Supplies	Water Quantity (gpy)
Rainwater:	0
Stormwater:	0
Graywater:	14,902,858
Blackwater:	0
Foundation Drainage:	0
Cooling & Other Supplies:	0
TOTAL:	14,902,858

Non-Potable Water Demand Estimates

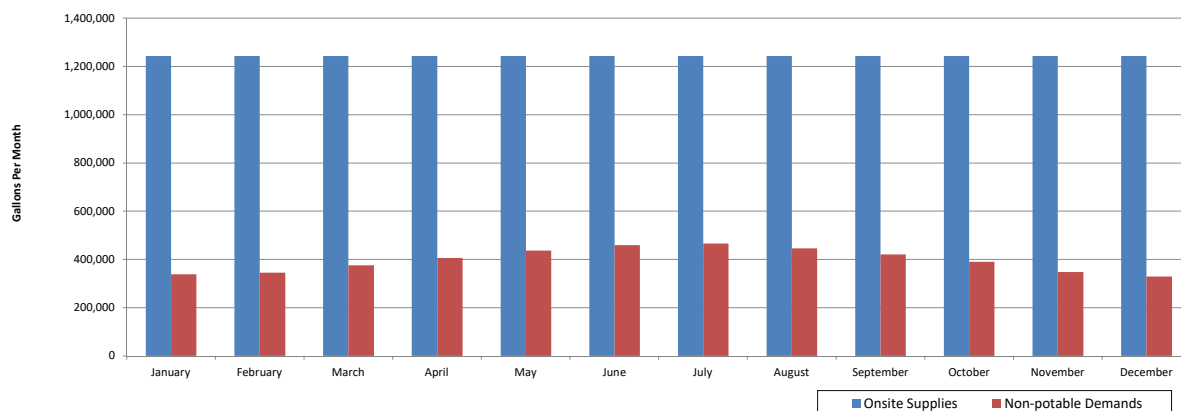
Project Specific Non-Potable Application Demands	Quantity (gpy)
Toilets/Urinals:	3,820,336
Irrigation:	933,649
Toilets/Urinals + Irrigation:	4,753,985
Cooling Tower:	0
Commercial Laundry & Other:	0
Total:	4,753,985

4. Project Summary

Demands Met by Non-Potable Supply for Projects (gpy):	4,754,000	
Total Water Demand (gpy):	30,368,671	Based on Tab 6 - Building Potential Summary tab
Total Water Demand Offset:	16%	
Potable Water Allocation (gpy):	28,176,155	Amount of Potable Water Allocated to Project to Meet Total Demands
Daily Wet Weather Potable Allocation (gpd):	77,516	Amount of Potable Water Allocated Daily during Wet Weather Months
Daily Dry Weather Potable Allocation (gpd):	77,005	Amount of Potable Water Allocated Daily during Dry Weather Months
Total Toilet + Irrigation Water Demand (gpy):	4,753,985	Based on Tab 6 - Building Potential Summary tab
Total Toilet + Irrigation Water Demand Offset:	100%	Based on Tab 6 - Building Potential Summary tab
Selected Toilet + Irrigation Water Demand (gpy):	4,753,985	Based on selections on Tab 7 - Project Definition
Selected Toilet + Irrigation Water Demand:	100%	Based on selections on Tab 7 - Project Definition

This offset analysis assumes the full year of supplies is available to offset non-potable demands. Some scenarios may require storage to store excess supplies from one month in order to use those supplies in another month with unmet demands.

Monthly Summary of Selected Onsite Supply vs. Selected Non-Potable Demand



NON-POTABLE WATER CALCULATOR

Project Summary Sheet

Project Contact: Susan Yogi
(415) 962-8447
syogi@esassoc.com

Estimated Site/Building Permit Issuance Date: 02/29/2027



1. Demands and Supplies Summary

Grant Criteria Status: This building is 250,000 sq.ft. or greater in size and is not eligible for a grant

Demands Met by Non-Potable Supply for Project (gpy):	8,398,800	Meets grant criteria of offsetting a minimum of 1,000,000 gal/yr of potable water use
Demands Met by Non-Potable Supply for Project *:	15%	
Project Total Annual Water Demand (gpy) *:	55,110,100	
Project Total Annual Toilet + Irrigation Water Demand (gpy) *:	8,398,729	
Toilet + Irrigation Demands Met by Non-Potable Supply *:	100.0%	
Potable Water Allocation (gpy):	51,382,508	Potable supplies are allocated to this project to meet remaining demands. Projects are allocated an additional 10% in potable supplies that are available as a buffer.
Daily Wet Weather Potable Allocation (gpd):	141,359	Projects are allocated these potable supplies during wet weather months (October - March)
Daily Dry Weather Potable Allocation (gpd):	140,427	Projects are allocated these potable supplies during dry weather months (April - September)

*Note: Estimates for Demands Met by Non-Potable Supply for Project and Project Total Annual Water Demand based on Tab 6 - Building Potential Summary total water demand values. Manually entered non-potable demands that exceed auto-calculated non-potable demands from Tab 6 may result in Total Annual Water demands greater than the value used in this analysis.
Project Total Annual Toilet Water Demand and Toilet Demands Met by Non-Potable Supply based on Tab 6 - Building Potential Summary toilet demands.

2. Building Information Summary

Project / Building Name:	Balboa Reservoir - Additional Housing Option (Phase1+2)	Building Type:	Mixres
Project Address:	11 Frida Kahlo Way	(gross square footage or GSF):	1,836,500
		Total Lot Size (ft²):	767,000
		Number of Residential Units:	1,550
Assessor's Block & Lot No. / APN:	3180190	Impervious Surface Above Grade (ft²):	207,194
Year Online:	#VALUE!	Impervious Surface Below Grade (ft²):	152,121
		Landscaped Area (ft²):	196,825
		Site Location (Zone):	Western SF

3. Summary of Non-Potable Demands and Supplies for the Project

Non-Potable Water Supply Estimates

On-site Alternate Water Source Supplies	Water Quantity (gpy)
Rainwater:	0
Stormwater:	0
Graywater:	27,176,141
Blackwater:	0
Foundation Drainage:	0
Cooling & Other Supplies:	0
TOTAL:	27,176,141

Non-Potable Water Demand Estimates

Project Specific Non-Potable Application Demands	Quantity (gpy)
Toilets/Urinals:	6,972,061
Irrigation:	1,426,668
Toilets/Urinals + Irrigation:	8,398,729
Cooling Tower:	0
Commercial Laundry & Other:	0
Total:	8,398,729

4. Project Summary

Demands Met by Non-Potable Supply for Projects (gpy):	8,398,800	
Total Water Demand (gpy):	55,110,100	Based on Tab 6 - Building Potential Summary tab
Total Water Demand Offset:	15%	
Potable Water Allocation (gpy):	51,382,508	Amount of Potable Water Allocated to Project to Meet Total Demands
Daily Wet Weather Potable Allocation (gpd):	141,359	Amount of Potable Water Allocated Daily during Wet Weather Months
Daily Dry Weather Potable Allocation (gpd):	140,427	Amount of Potable Water Allocated Daily during Dry Weather Months
Total Toilet + Irrigation Water Demand (gpy):	8,398,729	Based on Tab 6 - Building Potential Summary tab
Total Toilet + Irrigation Water Demand Offset:	100%	Based on Tab 6 - Building Potential Summary tab
Selected Toilet + Irrigation Water Demand (gpy):	8,398,729	Based on selections on Tab 7 - Project Definition
Selected Toilet + Irrigation Water Demand:	100%	Based on selections on Tab 7 - Project Definition

This offset analysis assumes the full year of supplies is available to offset non-potable demands. Some scenarios may require storage to store excess supplies from one month in order to use those supplies in another month with unmet demands.

Monthly Summary of Selected Onsite Supply vs. Selected Non-Potable Demand

