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: Revised Water Supply Assessment for the 630-698 Brannan Street (Flower Mart) 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 630-698 Brannan Street (Flower Mart) Project (“proposed project”), for use in the support of a Community Plan Evaluation to be filed by the San Francisco Planning Department (case no. 2015-004256ENV, San Francisco Planning Department).

This WSA is a revision to and supersedes the WSA that was previously prepared for the same proposed project dated January 21, 2018 and approved on February 27, 2018 (Resolution No. 18-0033). The WSA was revised to account for (1) a residential variant in lieu of the proposed project, described in Section 1.2; and (2) recent changes to water supply availability under implementation of the Bay-Delta Plan Amendment, described in Section 1.1.2.

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.

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The WSA for a qualifying project within the SFPUC’s retail service area\(^1\) 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.

1.1.2 **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).

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\(^{1}\) 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.

\(^{2}\) 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.
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 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. 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

Except for the WSA approved on February 27, 2018 (Resolution No. 18-0033), which is superseded by this revised WSA, 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. However, water supply for the Central SoMa Plan, of which the proposed project is part, was analyzed in the Environmental Impact Report for the Central SoMa Plan. The water supply analysis determined that development under the area plan would not require expansion of the city’s water supply system and would not adversely affect the city’s water supply. This determination was based on the water supply and demand projections contained in the 2010 UWMP and a 2013 Water Availability Study prepared by the SFPUC to update demand projections for San Francisco. The information and projections in these documents have since been superseded by those in the 2015 UWMP. Further, on December 11, 2018, by Resolution No. 18-0212, the SFPUC amended its 2009 Water Supply Agreement between the SFPUC and its Wholesale Customers. These amendments, which are unrelated to the Bay-Delta Plan Amendment, included a revision to the “Tier 1” Allocation in the Water Supply Allocation Plan (WSAP) between the SFPUC’s Retail and Wholesale Customers to require a minimum 5% reduction by San Francisco Retail Customers for any level of required reduction in system-wide water use during shortages. This memo modifies projections of available water supply contained in the 2015 UWMP to incorporate the effect of this amendment. Thus, this WSA for the proposed project is based on the latest available information and projections.

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 250,000 square feet of commercial office space. The proposed project is characterized further in Section 1.2.

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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 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 South of Market District on Assessor’s Block 3778, which is bounded by Fifth Street to the north, Brannan Street to the east, Sixth Street to the south, and Bryant Street to the west. The proposed project would include the demolition of all of the existing buildings on the project site, including the existing Wholesale Flower Market and accessory space, as well as the surface parking lot and additional vacant buildings. The project sponsor, KR Flower Mart, LLC, proposes to construct three new buildings—the Market Hall Building, the Blocks Building, and the Gateway Building—containing approximately 2,032,800 square feet of office space, 204,200 square feet of retail space, and 115,000 square feet of space for a new Wholesale Flower Mart, along with underground parking and loading areas both at grade and below grade. The ground floor of the Blocks Building would contain the new Flower Mart.

The proposed project would have four basement levels containing approximately 393,400 square feet of vehicle parking (867 spaces), 25 Wholesale Flower Mart loading spaces, bicycle parking, mechanical equipment, and building service uses. The first basement level of the proposed project would also include approximately 64,400 square feet of retail uses, including a supermarket. The proposed project would also include approximately 31,300 square feet of privately owned public open space.

In addition to the proposed project, a residential variant is under consideration. Under the residential variant, the Market Hall and Blocks Buildings would be developed as under the proposed project, but the Gateway Building would contain 289 residential units, reducing office space to 1,711,500 square feet. Total retail space is assumed to remain unchanged.

For the purpose of the WSA, only the residential variant is assessed for water supply as it would result in a higher water demand estimate and would encompass the proposed project demands. Refer to Attachment B for additional details on both the proposed project and residential variant. All references to the “proposed project” in this memo refers to the residential variant unless otherwise noted.

Construction is expected to begin in November 2019 and be complete in April 2024. Construction would be completed in a single phase, with no partial occupancy.

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 project\(^4\), 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

\(^4\) 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.
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. 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

<table>
<thead>
<tr>
<th>Month</th>
<th>Average Maximum Temperature (°F)</th>
<th>Average Minimum Temperature (°F)</th>
<th>Average Monthly Rainfall (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>58.0</td>
<td>45.7</td>
<td>4.36</td>
</tr>
<tr>
<td>February</td>
<td>60.3</td>
<td>47.3</td>
<td>4.41</td>
</tr>
<tr>
<td>March</td>
<td>61.4</td>
<td>48.1</td>
<td>2.98</td>
</tr>
<tr>
<td>April</td>
<td>62.3</td>
<td>49.1</td>
<td>1.38</td>
</tr>
<tr>
<td>May</td>
<td>63.2</td>
<td>50.9</td>
<td>0.68</td>
</tr>
<tr>
<td>June</td>
<td>64.8</td>
<td>52.7</td>
<td>0.18</td>
</tr>
<tr>
<td>July</td>
<td>65.6</td>
<td>54.3</td>
<td>0.02</td>
</tr>
<tr>
<td>August</td>
<td>66.6</td>
<td>55.3</td>
<td>0.06</td>
</tr>
<tr>
<td>September</td>
<td>68.1</td>
<td>55.0</td>
<td>0.19</td>
</tr>
<tr>
<td>October</td>
<td>67.8</td>
<td>53.3</td>
<td>1.04</td>
</tr>
<tr>
<td>November</td>
<td>61.2</td>
<td>48.1</td>
<td>2.85</td>
</tr>
<tr>
<td>December</td>
<td>58.3</td>
<td>45.9</td>
<td>4.33</td>
</tr>
<tr>
<td>Annual</td>
<td><strong>63.3</strong></td>
<td><strong>50.6</strong></td>
<td><strong>22.45</strong></td>
</tr>
</tbody>
</table>

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 exceed the requirements of the Non-potable Water Ordinance by using non-potable water for washdown in addition to using graywater and rainwater 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 and supplemented with additional calculations for cooling tower and washdown demands. 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

<table>
<thead>
<tr>
<th>Demand of Proposed Project (mgd)</th>
<th>2020</th>
<th>2025</th>
<th>2030</th>
<th>2035</th>
<th>2040</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potable Demand</td>
<td>--</td>
<td>0.059</td>
<td>0.059</td>
<td>0.059</td>
<td>0.059</td>
</tr>
<tr>
<td>Non-potable Demand</td>
<td>--</td>
<td>0.004</td>
<td>0.004</td>
<td>0.004</td>
<td>0.004</td>
</tr>
<tr>
<td>Total Demand</td>
<td>--</td>
<td>0.063</td>
<td>0.063</td>
<td>0.063</td>
<td>0.063</td>
</tr>
<tr>
<td>Potential Potable Water Savings as Percentage of Total Demand</td>
<td>--</td>
<td>6.3%</td>
<td>6.3%</td>
<td>6.3%</td>
<td>6.3%</td>
</tr>
</tbody>
</table>

**Notes:**
- The estimates above reflect the residential variant. Water demand estimates for the proposed project are lower and are provided in Attachment B.
- The non-potable demand estimates above reflect non-potable water use for washdown purposes (26,000 gallons per year), which is not required to be met with non-potable sources under San Francisco’s Non-potable Water Ordinance.
- The proposed project would be expected to be completed and ready for occupancy in 2024.

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

<table>
<thead>
<tr>
<th></th>
<th>2020</th>
<th>2025</th>
<th>2030</th>
<th>2035</th>
<th>2040</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Retail Demand (mgd)</td>
<td>72.1</td>
<td>79.0</td>
<td>82.3</td>
<td>85.9</td>
<td>89.9</td>
</tr>
<tr>
<td>Potable Demand of Proposed Project (mgd)</td>
<td>--</td>
<td>0.059</td>
<td>0.059</td>
<td>0.059</td>
<td>0.059</td>
</tr>
<tr>
<td>Potable Demand of Proposed Project as Percentage of Total Retail Demand</td>
<td>--</td>
<td>0.07%</td>
<td>0.07%</td>
<td>0.07%</td>
<td>0.07%</td>
</tr>
<tr>
<td>Total Demand of Proposed Project (mgd)</td>
<td>--</td>
<td>0.063</td>
<td>0.063</td>
<td>0.063</td>
<td>0.063</td>
</tr>
<tr>
<td>Total Demand of Proposed Project as Percentage of Total Retail Demand</td>
<td>--</td>
<td>0.08%</td>
<td>0.08%</td>
<td>0.07%</td>
<td>0.07%</td>
</tr>
</tbody>
</table>

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 0.08% 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)

<table>
<thead>
<tr>
<th>Year</th>
<th>Normal Year</th>
<th>Single Dry Year</th>
<th>Multiple Dry Years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Year 1¹</td>
<td>Year 2²</td>
</tr>
<tr>
<td>2020</td>
<td>Total Retail Demand⁴</td>
<td>72.1</td>
<td>72.1</td>
</tr>
<tr>
<td></td>
<td>Total Retail Supply⁵</td>
<td>72.1</td>
<td>68.5</td>
</tr>
<tr>
<td></td>
<td>Shortfall</td>
<td>0.0</td>
<td>3.6</td>
</tr>
<tr>
<td></td>
<td>Shortfall as % of Demand</td>
<td>0.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>2025</td>
<td>Total Retail Demand⁴</td>
<td>79.0</td>
<td>79.0</td>
</tr>
<tr>
<td></td>
<td>Total Retail Supply⁵</td>
<td>79.0</td>
<td>75.0</td>
</tr>
<tr>
<td></td>
<td>Shortfall</td>
<td>0.0</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>Shortfall as % of Demand</td>
<td>0.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>2030</td>
<td>Total Retail Demand⁴</td>
<td>82.3</td>
<td>82.3</td>
</tr>
<tr>
<td></td>
<td>Total Retail Supply⁵</td>
<td>82.3</td>
<td>78.2</td>
</tr>
<tr>
<td></td>
<td>Shortfall</td>
<td>0.0</td>
<td>4.1</td>
</tr>
<tr>
<td></td>
<td>Shortfall as % of Demand</td>
<td>0.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>2035</td>
<td>Total Retail Demand⁴</td>
<td>85.9</td>
<td>85.9</td>
</tr>
<tr>
<td></td>
<td>Total Retail Supply⁵</td>
<td>85.9</td>
<td>81.6</td>
</tr>
<tr>
<td></td>
<td>Shortfall</td>
<td>0.0</td>
<td>4.3</td>
</tr>
<tr>
<td></td>
<td>Shortfall as % of Demand</td>
<td>0.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>2040</td>
<td>Total Retail Demand⁴</td>
<td>89.9</td>
<td>89.9</td>
</tr>
<tr>
<td></td>
<td>Total Retail Supply⁵</td>
<td>89.9</td>
<td>85.4</td>
</tr>
<tr>
<td></td>
<td>Shortfall</td>
<td>0.0</td>
<td>4.5</td>
</tr>
<tr>
<td></td>
<td>Shortfall as % of Demand</td>
<td>0.0%</td>
<td>5.0%</td>
</tr>
</tbody>
</table>

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 WSAP 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 WSAP 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 WSAP 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)

<table>
<thead>
<tr>
<th></th>
<th>Normal Year</th>
<th>Single Dry Year</th>
<th>Multiple Dry Years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Year 1¹</td>
<td>Year 2²</td>
</tr>
<tr>
<td>2020</td>
<td>Total Retail Demand¹</td>
<td>72.1</td>
<td>72.1</td>
</tr>
<tr>
<td></td>
<td>Total Retail Supply²</td>
<td>72.1</td>
<td>68.5</td>
</tr>
<tr>
<td></td>
<td>Shortfall</td>
<td>0.0</td>
<td>3.6</td>
</tr>
<tr>
<td></td>
<td>Shortfall as % of Demand</td>
<td>0.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>2025</td>
<td>Total Retail Demand¹</td>
<td>79.0</td>
<td>79.0</td>
</tr>
<tr>
<td></td>
<td>Total Retail Supply²</td>
<td>79.0</td>
<td>66.7</td>
</tr>
<tr>
<td></td>
<td>Shortfall</td>
<td>0.0</td>
<td>12.3</td>
</tr>
<tr>
<td></td>
<td>Shortfall as % of Demand</td>
<td>0.0%</td>
<td>15.6%</td>
</tr>
<tr>
<td>2030</td>
<td>Total Retail Demand¹</td>
<td>82.3</td>
<td>82.3</td>
</tr>
<tr>
<td></td>
<td>Total Retail Supply²</td>
<td>82.3</td>
<td>68.7</td>
</tr>
<tr>
<td></td>
<td>Shortfall</td>
<td>0.0</td>
<td>13.6</td>
</tr>
<tr>
<td></td>
<td>Shortfall as % of Demand</td>
<td>0.0%</td>
<td>16.5%</td>
</tr>
<tr>
<td>2035</td>
<td>Total Retail Demand¹</td>
<td>85.9</td>
<td>85.9</td>
</tr>
<tr>
<td></td>
<td>Total Retail Supply²</td>
<td>85.9</td>
<td>68.8</td>
</tr>
<tr>
<td></td>
<td>Shortfall</td>
<td>0.0</td>
<td>17.1</td>
</tr>
<tr>
<td></td>
<td>Shortfall as % of Demand</td>
<td>0.0%</td>
<td>19.9%</td>
</tr>
<tr>
<td>2040</td>
<td>Total Retail Demand¹</td>
<td>89.9</td>
<td>89.9</td>
</tr>
<tr>
<td></td>
<td>Total Retail Supply²</td>
<td>89.9</td>
<td>68.9</td>
</tr>
<tr>
<td></td>
<td>Shortfall</td>
<td>0.0</td>
<td>21.0</td>
</tr>
<tr>
<td></td>
<td>Shortfall as % of Demand</td>
<td>0.0%</td>
<td>23.4%</td>
</tr>
</tbody>
</table>

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 WSAP 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 WSAP 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 WSAP 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 office customer such as the proposed project could be subject to up to 30% rationing during a severe drought. 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.

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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 commercial and industrial (e.g., office) 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 commercial and industrial customers with onsite water systems per the Non-potable Water Ordinance would not have to conserve more than 30% due to the efficiency of water use in these developments compared to other commercial and industrial customers without onsite water systems.
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 30% rationing for mixed-use office 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.
Memo to Commissioners
Revised WSA for 630-698 Brannan Street (Flower Mart) Project
May 17, 2019
Page 21 of 21

Attachments: Attachment A, Communications from San Francisco Planning Department
Attachment B, 630-698 Brannan Street (Flower Mart) Project Demand Memo
Attachment A –

Communications from San Francisco Planning Department
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

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. ABAG maintains its own set of regional models and develops each forecast with its in-house experts and private economic consultants. 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. 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](http://www.abag.ca.gov/planning/research/index.html)


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 –

630-698 Brannan Street (Flower Mart) Project Demand Memo
DATE: April 12, 2019
TO: Fan Lau, SFPUC
FROM: Chris Thomas, Environmental Planning
CC: Joy Navarette, Environmental Planning
RE: 630-698 Brannan Street (Flower Mart) Project Water Supply Assessment Request (Planning Department Case No. 2015-004256ENV)

The purpose of this memorandum is to request that the San Francisco Public Utilities Commission (SFPUC) prepare a revised Water Supply Assessment (WSA) for the 630-698 Brannan Street (Flower Mart) project, in compliance with CEQA Guidelines Section 15155 and Sections 10910 through 10915 of the California Water Code. A WSA was approved by the SFPUC commission on February 27, 2018 (Resolution 18-0033) for the proposed project; however, the proposed project has been revised to include a residential variant in addition to the proposed project.

As indicated in the attached March 8, 2019 memorandum, the proposed Flower Mart project currently includes the proposed project and a residential variant. Both the proposed project and the residential variant would involve in the demolition of all existing buildings at the 6.8-acre project site. The proposed project would result in the construction of three buildings containing approximately 2,032,800 square feet (sf) of office space, 204,200 sf of retail/restaurant space, and 115,000 sf of space for a new Wholesale Flower Mart. The residential variant would result in 289 residential units, about 1,711,500 sf of office space and, like the proposed project, 204,200 sf of retail/restaurant space and 115,000 sf for a new Wholesale Flower Mart.

As stated in the memorandum, both the proposed project and residential variant would be constructed over a five-year period in a single phase, with no partial occupancy occurring during construction.

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, average daily water demands for both the proposed project and residential variant, and supporting tables prepared by the project sponsor's consultant, are attached. Two Non-Potable Water Calculator (Version 6) spreadsheets are attached providing water demand calculations for the proposed project and the residential variant.

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
March 8, 2019 Memorandum
SFFM-SFPUC_Water Calculator_2018-0129.xlsx
SFFM-SFPUC_Water Calc_Resid-Var_2019-0308.xlsx
March 29, 2019
Flower Mart Project Water Assessment Request
Page 2

SFFM-SFPUC_Water Calculator_2018-0129.pdf
SFFM-SFPUC_Water Calc_Resid-Var_2019-0308.pdf
memorandum

date April 11, 2019
to Chris Thomas, San Francisco Planning Department, Environmental Planning
from Karl Heisler, ESA
subject New Flower Mart Project: Revised 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 New Flower Mart project (proposed project), for both the project previously considered and approved by SFPUC and the residential variant. This memo provides a brief description of both the project and the residential variant and the estimated water and wastewater demands for the proposed project and project variant, 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 South of Market (SoMa) District on Assessor’s Block 3778, which is bounded by Fifth Street to the north, Brannan Street to the east, Sixth Street to the south, and Bryant Street to the west. The proposed project would include the demolition of all of the existing buildings on the project site, including the existing Wholesale Flower Market and accessory space, as well as the surface parking lot and additional vacant buildings. Under the proposed project, the project sponsor, KR Flower Mart, LLC, proposes to construct three new buildings—the Market Hall Building, the Blocks Building, and the Gateway Building—containing approximately 2,032,800 square feet of office space, 204,200 square feet of retail space, and 115,000 square feet of space for a new Wholesale Flower Mart, along with underground parking and loading areas both at grade and below grade. The ground floor of the Blocks Building would contain the new Flower Mart. Under the residential variant, the Market Hall and Blocks Buildings would be developed as under the proposed project, but the Gateway Building would contain 289 residential units, reducing office space to 1,711,500 square feet. Total retail space is assumed to remain unchanged. Table 1 provides a summary of basic project information, while Table 2 contains characteristics of the proposed project and the residential variant.

<table>
<thead>
<tr>
<th>TABLE 1 – PROJECT INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Name</td>
</tr>
<tr>
<td>Case No.</td>
</tr>
<tr>
<td>Estimated Construction Completion</td>
</tr>
<tr>
<td>Project Contact</td>
</tr>
<tr>
<td>Project Address</td>
</tr>
<tr>
<td>Block/Lot</td>
</tr>
<tr>
<td>Project Site Size</td>
</tr>
<tr>
<td>Days In Operation Per Year</td>
</tr>
</tbody>
</table>
The proposed project and variant would each have four basement levels containing vehicle parking spaces, truck loading spaces, bicycle parking, mechanical equipment, and building service uses. The proposed project would also include approximately 31,300 square feet of privately owned public open space (POPOS). Construction is expected to begin in November 2019 and be complete in April 2024. Construction would be completed in a single phase, with no partial occupancy.

**TABLE 2 – PROJECT AND VARIANT CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Proposed Use</th>
<th>Proposed Project</th>
<th>Residential Variant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flower Mart (PDR) (Sq. Ft.)</td>
<td>115,000</td>
<td>115,000</td>
</tr>
<tr>
<td>Office (Sq. Ft.)</td>
<td>2,032,759</td>
<td>1,711,476</td>
</tr>
<tr>
<td>Retail/Restaurant (Sq. Ft.)</td>
<td>204,166</td>
<td>204,166</td>
</tr>
<tr>
<td><strong>TOTAL NON-RESIDENTIAL AREA</strong></td>
<td><strong>2,351,925</strong></td>
<td><strong>2,030,642</strong></td>
</tr>
<tr>
<td>Residential Units</td>
<td>0</td>
<td>289</td>
</tr>
<tr>
<td>Residential Square Feet</td>
<td>0</td>
<td>321,283</td>
</tr>
<tr>
<td><strong>TOTAL DEVELOPMENT (Sq. Ft.)</strong></td>
<td><strong>2,351,925</strong></td>
<td><strong>2,351,925</strong></td>
</tr>
<tr>
<td>Total Site Area</td>
<td>295,144</td>
<td></td>
</tr>
<tr>
<td>Above Ground Impervious Area a</td>
<td>95,012</td>
<td></td>
</tr>
<tr>
<td>Other Impervious Area b</td>
<td>59,837</td>
<td></td>
</tr>
<tr>
<td>Landscaped Area c</td>
<td>75,295</td>
<td></td>
</tr>
<tr>
<td>Height of Buildings</td>
<td>142 to 234 feet</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
- a Excludes green roof features (factored under open space).
- b Includes sidewalks, alley extensions, and outdoor plazas.
- c Includes publicly accessible open spaces, but does not include the 65,000 sf of permeable upper decks.


Tables 3 and 4 show the estimate of water demand for the proposed project and residential variant; this includes the proposed office, retail/restaurant, and warehouse/distribution square footages as well as the site coverage data. Table 5 provides information on impervious and pervious surfaces, which are assumed to be identical for the project and variant. 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, Water Efficient Irrigation Ordinance, and Reclaimed Water Use 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. However, the project sponsor has confirmed that both rainwater and graywater capture, treatment as required, and reuse would be employed in the proposed project.

Between the general office, retail, restaurant, and warehouse/distribution uses on site, it is anticipated that the proposed project would employ approximately 8,574 full-time employees (FTEs) and 1,751 transient FTEs at buildout. The project variant would employ an estimated 7,289 FTEs and 1,751 transient FTEs at buildout.

“Project coverage” refers to the permeability of materials used onsite. More than three-quarters of the project site would be covered in impervious surfaces, which would include the roof and sidewalk/alleyway/plaza areas. Less than one-quarter of the site area would consist of plaza open spaces, which would be a mix of paving and landscaped areas.
### Table 3 – Proposed Project, Building Inputs

<table>
<thead>
<tr>
<th>Proposed Use</th>
<th>Total Proposed (sf)</th>
<th>Days in Use</th>
<th>SF Per Land Use</th>
<th>Commercial Use Occupancy¹</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>FTE</td>
<td>Transient FTE</td>
</tr>
<tr>
<td>Office</td>
<td>2,032,759</td>
<td>252</td>
<td>250</td>
<td>0</td>
</tr>
<tr>
<td>Retail</td>
<td>122,255</td>
<td>350</td>
<td>550</td>
<td>130</td>
</tr>
<tr>
<td>Restaurant</td>
<td>53,431</td>
<td>350</td>
<td>435</td>
<td>95</td>
</tr>
<tr>
<td>Grocery Store</td>
<td>28,480</td>
<td>360</td>
<td>550</td>
<td>115</td>
</tr>
<tr>
<td>Warehouse/Distribution</td>
<td>115,000</td>
<td>350</td>
<td>2,500</td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>2,351,925</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹ Numbers may not add due to rounding.

### Table 4 – Residential Variant, Building Inputs

<table>
<thead>
<tr>
<th>Proposed Use</th>
<th>Total Proposed (sf)</th>
<th>Days in Use</th>
<th>SF Per Land Use</th>
<th>Commercial Use Occupancy¹</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>FTE</td>
<td>Transient FTE</td>
</tr>
<tr>
<td>Residential</td>
<td>321,283</td>
<td>365</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Office</td>
<td>1,711,476</td>
<td>252</td>
<td>250</td>
<td>0</td>
</tr>
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<td>Retail</td>
<td>122,255</td>
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<td>115,000</td>
<td>350</td>
<td>2,500</td>
<td>0</td>
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<td><strong>TOTAL</strong></td>
<td><strong>2,351,925</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹ Numbers may not add due to rounding.

### Table 5 – Proposed Project and Residential Variant, Coverage

<table>
<thead>
<tr>
<th>Surface</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impervious Area</td>
<td>154,849 sf</td>
</tr>
<tr>
<td>Roof</td>
<td>95,012 sf</td>
</tr>
<tr>
<td>Sidewalks/Open Space</td>
<td>59,837 sf</td>
</tr>
<tr>
<td>Pervious Area</td>
<td>140,295 sf</td>
</tr>
<tr>
<td>Upper Decks</td>
<td>65,000 sf</td>
</tr>
<tr>
<td>Landscaped Area*</td>
<td>2,235 sf</td>
</tr>
<tr>
<td>Green Roof</td>
<td>73,060 sf</td>
</tr>
</tbody>
</table>

* Open Space does not assume turfgrass, as features do not involve turfgrass development.
Proposed Project – Demand

Table 6 shows the estimated daily and annual water demand for the proposed project by land use category. Table 7 shows comparable information for the residential variant. As shown in Table 6, the total water use for the proposed project would be approximately 47,000 gallons per day (gpd), or 14.0 million gallons per year (gpy). Of the total water demand, 11.6 million gpy would be for indoor water use and 234,240 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 42,030 gpd, or 12.4 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 687,394 gpy of graywater and 890,978 gpy of rainwater to offset projected water demand. At this time, the project sponsor has confirmed that both rainwater and graywater would be captured, treated as required, and reused within the proposed project. Additionally, the project would comply with the City’s Water Efficient Irrigation Ordinance, which could limit outdoor water use.

<table>
<thead>
<tr>
<th>Proposed Use</th>
<th>Estimated Avg. Daily Water Demand (gpd)</th>
<th>Estimated Annual Water Demand (gpy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial water demand</td>
<td>40,876</td>
<td>11,565,533</td>
</tr>
<tr>
<td>Potential graywater generated and available for reuse</td>
<td>N/A</td>
<td>687,394</td>
</tr>
<tr>
<td>HVAC/Cooling water demand a</td>
<td>6,090</td>
<td>2,223,000</td>
</tr>
<tr>
<td>Irrigation</td>
<td>N/A</td>
<td>234,240</td>
</tr>
<tr>
<td>Washdown</td>
<td>71</td>
<td>26,000</td>
</tr>
<tr>
<td>TOTAL b</td>
<td>47,038</td>
<td>14,048,773</td>
</tr>
<tr>
<td>Wastewater Discharge</td>
<td>42,334</td>
<td>12,433,080</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
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<td>12,433,080</td>
</tr>
</tbody>
</table>

a HVAC (Heating, Ventilation, and Air Conditioning)/Cooling water demand was estimated by the project mechanical engineer, based on an annual cooling load of approximately 1.2 million ton-hours. This load was estimated by prorating loads from a recent project in San Francisco that would employ a similar HVAC system. Estimated water consumption was derived from the annual cooling load based on applicable figures for cooling tower evaporation, blowdown (the small amount of water that must be drained from the recirculating HVAC system to minimize a buildup impurities), and drift (water released into the atmosphere along with discharge air from an evaporative cooler), as described in the ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) HVAC Systems and Equipment Handbook. The annual figure was then converted to a monthly figure based on the cooling load profile.

b Does not reflect offset of potable demands with graywater and rainwater sources.

Residential Variant – Demand

Table 7 shows that the total water use for the residential variant would be approximately 70,000 gallons per day (gpd), or 22.9 million gallons per year (gpy). Of the total water demand, 20.4 million gpy would be for indoor water use and 234,240 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 63,000 gpd, or 20.6 million gpy, of wastewater. Lastly, because the residential variant 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 590,481 gpy of graywater and 850,724 gpy of rainwater to offset projected water demand. At this time, the project sponsor has confirmed that both rainwater and graywater would be captured, treated as required, and reused within the proposed project. It is noted that graywater would be captured only from the commercial (or non-residential) portions of the project, and these alternate supplies would only be applied to the commercial (or non-residential) portions of the project. Additionally, the residential variant would comply with the City’s Water Efficient Irrigation Ordinance, which could limit outdoor water use.
### TABLE 7 – RESIDENTIAL VARIANT, ESTIMATED DEMAND

<table>
<thead>
<tr>
<th>Proposed Use</th>
<th>Estimated Avg. Daily Water Demand (gpd)</th>
<th>Estimated Annual Water Demand (gpy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial water demand</td>
<td>36,449</td>
<td>10,449,956</td>
</tr>
<tr>
<td>Residential water demand</td>
<td>27,390</td>
<td>9,997,184</td>
</tr>
<tr>
<td>Commercial plus residential water demand</td>
<td>63,839</td>
<td>20,447,140</td>
</tr>
<tr>
<td><strong>Potential graywater generated and available for reuse</strong></td>
<td>N/A</td>
<td>590,481</td>
</tr>
<tr>
<td><strong>Potential rainwater generated and available for reuse</strong></td>
<td>N/A</td>
<td>850,724</td>
</tr>
<tr>
<td>HVAC/Cooling water demand &lt;sup&gt;a&lt;/sup&gt;</td>
<td>6,090</td>
<td>2,223,000</td>
</tr>
<tr>
<td>Irrigation</td>
<td>N/A</td>
<td>234,240</td>
</tr>
<tr>
<td>Washdown</td>
<td>71</td>
<td>26,000</td>
</tr>
<tr>
<td><strong>TOTAL &lt;sup&gt;b&lt;/sup&gt;</strong></td>
<td>70,001</td>
<td>22,930,379</td>
</tr>
<tr>
<td>Wastewater Discharge (at 90% non-landscape water supplied)</td>
<td>63,000</td>
<td>20,637,341</td>
</tr>
</tbody>
</table>

<sup>a</sup> HVAC (Heating, Ventilation, and Air Conditioning) Cooling water demand was estimated by the project mechanical engineer, based on an annual cooling load of approximately 1.2 million ton-hours. This load was estimated by prorating loads from a recent project in San Francisco that would employ a similar HVAC system. Estimated water consumption was derived from the annual cooling load based on applicable figures for cooling tower evaporation, blowdown (the small amount of water that must be drained from the recirculating HVAC system to minimize a buildup of impurities), and drift (water released into the atmosphere along with discharge air from an evaporative cooler), as described in the ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) HVAC Systems and Equipment Handbook. The annual figure was then converted to a monthly figure based on the cooling load profile.

<sup>b</sup> Does not reflect offset of potable demands with greywater and rainwater sources.
# NON-POTABLE WATER CALCULATOR

## Project Summary Sheet

- **Project Contact:** Kyle Brown
  - 415-778-5673
  - kbrown@kilroyrealty.com

- **Estimated Site/Building Permit Issuance Date:** 10/15/2019

### 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. 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 (gpy):** 1,578,372
  - 11%

- **Project Total Annual Water Demand (gpy):** 14,048,773
  - 24%

- **Potential water 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.**

### 2. Building Information Summary

- **Project / Building Name:** SF Flower Mart
- **Building Type:** MIPS
- **Total Lot Size (ft$^2$):** 295,144
- **Number of Residential Units:** Assessor’s Block & Lot No. / APN: 3778/LOT 1B,2B,4,5,47,48
- **Impervious Surface Above Grade (ft$^2$):** 95,012
- **Impervious Surface Below Grade (ft$^2$):** 59,837
- **Landscaped Area (ft$^2$):** 75,295
- **Year Online:** 2024
- **Site Location (Zone):** Eastern SF

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

<table>
<thead>
<tr>
<th>Non-Potable Water Supply Estimates</th>
<th>Water Quantity (gpy)</th>
<th>On-site Alternate Water Source Supplies</th>
<th>Quantity (gpy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rainwater</td>
<td>890,978</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stormwater</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graywater</td>
<td>67,394</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blackwater</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foundation Drainage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooling &amp; Other Supplies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td>1,578,372</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Non-Potable Water Demand Estimates</th>
<th>Quantity (gpy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toilet/Urinal + Irrigation</td>
<td>6,324,171</td>
</tr>
<tr>
<td>Cooling Tower</td>
<td>26,000</td>
</tr>
<tr>
<td>Commercial Laundry &amp; Other</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td>6,584,111</td>
</tr>
</tbody>
</table>

### 4. Project Summary

- **Demands Met by Non-Potable Supply for Projects (gpy):** 1,578,372
  - Based on Tab 6 - Building Potential Summary tab
- **Total Water Demand (gpy):** 14,048,773
  - Based on Tab 8 - Building Potential Summary tab
  - **Total Water Demand Offset:** 11%
- **Potential Water Allocation (gpy):** 1,578,372
  - Amount of Potable Water Allocated to Project to Meet Total Demands
- **Daily Wet Weather Water Allocation (gpy):** 13,717,442
  - Amount of Potable Water Allocated Daily during Wet Weather Months
- **Daily Dry Weather Water Allocation (gpy):** 12,537
  - Amount of Potable Water Allocated Daily during Dry Weather Months

- **Selected Toilet + Irrigation Water Demand (gpy):** 6,558,411
  - Based on selections on Tab 7 - Project Definition
  - **Selected Toilet + Irrigation Water Demand:** 24%

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

- **Onsite Supplies** vs. **Non-potable Demands**
- **Gallons Per Month**
  - **January**
  - **February**
  - **March**
  - **April**
  - **May**
  - **June**
  - **July**
  - **August**
  - **September**
  - **October**
  - **November**
  - **December**

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*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 Total Demands Met by Non-Potable Supply based on Tab 6 - Building Potential Summary total demands.

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.*
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): 1,441,205

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: 6%

Project Total Annual Water Demand (gpy): 22,930,379

Demand Met by Non-Potable Supply for Project:

- Potable Water Allocation (gpy): 23,638,092
- Daily Wet Weather Potable Allocation (gpd): 60,420
- Daily Dry Weather Potable Allocation (gpd): 68,162

Projects are allocated these potable supplies during wet weather months (October - March)

Projects are allocated these potable supplies during dry weather months (April - September)

2. Building Information Summary

Project / Building Name: SF Flower Mart - Residential Variant

Building Type: Mixres

Project Address: 5th and Brannan Streets

(gross square footage or GSF): 2,351,925

Total Lot Size (ft²): 295,144

Number of Residential Units: 289

Assessor’s Block & Lot No. / APN: 3778/LOT 1B,2B,4,5,47,48

Impervious Surface Above Grade (ft²): 95,012

Year Online: 2024

Impervious Surface Below Grade (ft²): 59,837

Landscaped Area (ft²): 75,295

Site Location (Zone): Eastern SF

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

Non-Potable Water Supply Estimates

On-site Alternate Water Source Supplies

- Rainwater: 850,724
- Stormwater: 0
- Graywater: 590,481
- Blackwater: 0
- Foundation Drainage: 0
- Cooling & Other Supplies: 0
- Cooling Tower: 0
- Commercial Laundry & Other: 26,000

Total: 1,441,205

Non-Potable Water Demand Estimates

- Toilets/Urinals: 5,462,009
- Irrigation: 234,240
- Toilets/Urinals + Irrigation: 5,696,249
- Blackwater: 0
- Cooling & Other Supplies: 0
- Commercial Laundry & Other: 26,000

Total: 5,722,249

4. Project Summary

Demands Met by Non-Potable Supply for Project (gpy): 1,441,205

Total Water Demand (gpy): 22,930,379

Potable Water Allocation (gpy): 23,638,092

Daily Wet Weather Potable Allocation (gpd): 60,420

Daily Dry Weather Potable Allocation (gpd): 68,162

Total Toilet + Irrigation Water Demand (gpy): 5,696,249

Selected Toilet + Irrigation Water Demand (gpy): 5,696,249

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