



October 31, 2023

TO: Commissioner Tim Paulson, President
 Commissioner Anthony Rivera, Vice President
 Commissioner Newsha K. Ajami
 Commissioner Sophie Maxwell
 Commissioner Kate H. Stacy

THROUGH: Dennis J. Herrera, General Manager *Dh J. Hh*
 FROM: Steven R. Ritchie, Assistant General Manager, Water *Steven R. Ritchie*
 RE: Revised Water Supply Assessment for the 655 4th Street Project

Summary

Introduction

The California Water Code (Sections 10910 through 10915) requires urban water suppliers like the San Francisco Public Utilities Commission (SFPUC) to 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 655 4th Street Project (proposed project), for use in the support of a Housing Element General Plan Evaluation to be filed by the San Francisco Planning Department (case no. 2022-011490ENV, San Francisco Planning Department).

This WSA is a revision to and supersedes the WSA that was previously prepared for the same proposed project dated May 17, 2019 and approved on May 28, 2019 (Resolution No. 19-0103). This WSA was revised to account for (1) changes to the project description including the addition of more residential units, reduction of retail uses, and removal of previously-proposed office and hotel uses; and (2) recent changes to San Francisco retail water demand projections reflecting the adopted Housing Element 2022 Update described in the next section.

1.1.1 2020 Urban Water Management Plan and 2023 Interim Water Demand Projections

The Commission, by Resolution No. 21-0100, adopted the SFPUC's current 2020 UWMP. The water demand projections in the UWMP incorporated housing unit growth projections from the Housing Element 2022 Update objective and employment growth projections from the 2017 Land Use Allocation (LUA 2017); San Francisco Planning Department provided both projections. Since the SFPUC's adoption of the 2020 UWMP in June 2021, the Planning Commission certified the Housing Element 2022 Update Environmental Impact Report (Housing Element EIR) in November 2022. The Housing Element EIR, which supported the City's adoption of the Housing Element in January 2023, assumed slightly higher housing unit projections than those used in the 2020

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UWMP, but was still in line with the objective to produce an average of 5,000 housing units per year. Nonetheless, as a result of the slightly higher housing unit projections associated with the Housing Element EIR, the SFPUC determined that its 2020 UWMP no longer accounted for all projected retail water demands.

The SFPUC will not be updating its UWMP until 2025. Therefore, during this interim period, the SFPUC has prepared the 2023 Interim Water Demand Projections (Attachment A) to document the SFPUC's projected retail water supplies when compared to projected retail water demands associated with the adopted Housing Element 2022 Update. The San Francisco Planning Department provided the updated housing unit projections for SFPUC to update its water demand projections. The water demand projections are presented in five-year increments through 2045, meeting Water Code requirements.

Growth associated with the proposed project was encompassed within the growth projections used in the 2020 UWMP, and therefore encompassed within the updated growth projections used in the 2023 Interim Water Demand Projections. Consequently, water demand associated with the proposed project was encompassed within the water demand projections in the 2020 UWMP, and therefore encompassed within the 2023 Interim Water Demand Projections. In other words, **the proposed project has already been accounted for in SFPUC's water supply planning.**

The WSA for a qualifying project within the SFPUC's retail service area¹ may use information from the UWMP and, as applicable, the 2023 Interim Water Demand Projections. Therefore, ***the 2020 UWMP and 2023 Interim Water Demand Projections are incorporated by reference throughout this WSA, as shown in bold, italicized text.*** The 2020 UWMP and 2023 Interim Water Demand Projections may be accessed at www.sfpuc.org/uwmp.

As described in detail in **Section 7.3.1** of the UWMP, 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). The City, along with multiple other water agencies, filed suit in early 2019 challenging the validity of the Bay-Delta Plan Amendment. That lawsuit, which is consolidated with other legal challenges, is currently pending in Sacramento Superior Court. In January 2021, the SWRCB moved to implement the Bay-Delta Plan Amendment on the Tuolumne River by issuing a water quality certification under Section 401 of the Clean Water Act in the Federal Energy Regulatory Commission (FERC) licensing proceedings for the hydropower projects associated with the New Don Pedro and La Grange dams. The City and other water users on the Tuolumne River have filed pending legal and administrative challenges to these SWRCB actions. FERC has not yet reissued a license for the New Don Pedro Hydropower Project, and the legal challenges to the water quality certification are pending and remain unresolved. Alongside the water quality certification, on August 8, 2022, the SWRCB issued a CEQA Notice of Preparation for an alternative means of implementing the Bay-Delta Plan Amendment.

Recognizing the obstacles to implementing the Bay-Delta Plan Amendment, the SWRCB, by 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

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

presented to the SWRCB “as early as possible after December 1, 2019.” In accordance with the SWRCB’s instruction, on March 1, 2019, the 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 (Proposed Voluntary Agreement). Since 2019, SFPUC has participated in negotiations with the State and other stakeholders regarding the Proposed Voluntary Agreement. On November 9, 2022, SFPUC signed a non-binding Memorandum of Understanding with various representatives of the State environmental and resource agencies, outlining conceptual deal points for a Tuolumne River Voluntary Agreement. As of the date of the issuance of this Water Supply Assessment, those negotiations remain ongoing.

Implementation of the Bay-Delta Plan Amendment is uncertain given the ongoing negotiations, litigation, and regulatory proceedings; these are further described in **Section 7.3.1** of the UWMP. Given the current uncertainty regarding the extent and timing of the implementation of the Bay-Delta Plan Amendment, this WSA analyzes water supply and demand through 2045 under three scenarios: (1) No implementation of the Bay-Delta Plan Amendment or the Proposed Voluntary Agreement (Scenario 1), (2) Implementation of the Proposed Voluntary Agreement (Scenario 2), and (3) Implementation of the Bay-Delta Plan Amendment (Scenario 3).

1.1.2 Basis for Requiring a WSA for the Proposed Project

Except for the WSA approved on May 28, 2019 (Resolution No. 19-103), 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.

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

1.2 *Proposed Project Description*

The project site is located at 655 4th Street in San Francisco’s South of Market (SoMa) neighborhood. The intersection of 4th Street and Townsend Street is directly south of the project site, with 4th Street to the west and Townsend Street to the south.

Tishman Speyer proposes to demolish the three existing buildings, associated surface parking lots, and vegetation on the project site, including street trees and other plantings. The proposed project would merge the seven existing lots and construct a podium building with two new towers containing approximately 1,032,528 square feet (sf) of residential area (1,105 housing units) and 9,923 sf of ground-floor retail use. The proposed project would also contain 9,195 sf of exterior privately-owned, publicly-accessible open space (POPOS) in the form of a public plaza. The new development would also include a 142,580-sf below-grade, two-level basement containing car parking.

The project is anticipated to begin construction in January 2025 with completion anticipated in January 2028, immediately followed by project occupancy. The project is not anticipated to be phased.

For additional details on the proposed project, see Attachment B.

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 San Francisco Regional Water System (RWS), **Section 6.1 of the UWMP** for water rights held by City and County of San Francisco, and **Section 7.1 of the UWMP** for 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 6.2.1.1 of the UWMP**.

The Westside and Treasure Island Recycled Water Projects are 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 2045 in normal years is provided in **Section 6.2.5 of the UWMP**. For dry years, see the next section.

2.5 Dry-Year Water Supplies

A description of dry-year supplies developed under WSIP is provided in **Section 7.2 of the UWMP**.

2.6 Additional Water Supplies

The SFPUC is increasing and accelerating its efforts to acquire additional water supplies and explore other projects that would increase overall water supply resilience through the Alternate Water Supply Program. A description of the Alternative Water Supply Program and the supplies being studied is provided in **Section 7.4 of the UWMP**.

3.0 Water Demand

This section reviews the projected retail water demands and the demand associated with the proposed project.

3.1 Projected Retail Water Demand

The projected retail water demand through 2045 is described in **Section 4.1 of the UWMP and updated in the 2023 Interim Water Demand Projections (Attachment**

A). This section of the UWMP also describes the methodology used for demand projections and the factors considered. Updates specific to the to the change in housing unit projections are described in the 2023 Interim Water Demand Projections.

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 development projects with 100,000 square feet or more of gross floor area, that apply for a site permit after January 1, 2022, to install and operate an onsite non-potable water system. Commercial buildings must meet their toilet and urinal flushing and drain trap priming demands through the collection, treatment, and use of available blackwater and condensate. Residential and mixed-use buildings must meet their toilet and urinal flushing, irrigation, clothes washing, and drain trap priming demands through the collection, treatment, and use of available graywater and condensate. While not required, residential and mixed-use projects may use treated blackwater if desired. 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 reusing cooling system condensate in addition to using graywater to meet toilet and urinal flushing, clothes washing, irrigation, and drain trap priming.

Both potable and non-potable demands for the project were estimated using the SFPUC's Non-potable Water Calculator and supplemented with additional calculations for cooling tower demand. 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 1.

The non-potable demand estimates in Table 1 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 2023 Interim 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 1: Water Demand Based on Project Phasing (mgd)

	2025	2030	2035	2040	2045
Potable Demand	--	0.051	0.051	0.051	0.051
Non-potable Demand	--	0.033	0.033	0.033	0.033
Total Demand	--	0.084	0.084	0.084	0.084
Potential Potable Water Savings as Percentage of Total Demand	--	39%	39%	39%	39%
mgd = million gallons per day					
<u>Notes:</u> Total demand conservatively assumes that all demands are met with potable supplies.					

The San Francisco Planning Department has determined that the proposed project is encompassed within the housing projections described in the Housing Element 2022 Update and the employment projections from LUA 2017, 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 the **2023 Interim Water Demand Projections**, which considers retail water demand based on the housing and employment projections provided by the Planning Department. The following Table 2 shows the demand of the proposed project relative to total retail demand.

Table 2: Proposed Project Demand Relative to Total Retail Demand

	2025	2030	2035	2040	2045
Total Retail Demand (mgd) ¹	71.3	73.0	75.0	77.9	81.1
Total Demand of Proposed Project (mgd)	--	0.084	0.084	0.084	0.084
Total Demand of Proposed Project as Percentage of Total Retail Demand ²	--	0.12%	0.11%	0.11%	0.10%
<u>Notes:</u> 1. Retail water demands per Table 3 of the 2023 Interim Water Demand Projections . 2. The proposed project is accounted for in the housing and employment projections provided by the Planning Department; therefore, total demands associated with the proposed project are accounted for in the 2023 Interim Water Demand Projections.					

4.0 Conclusion

4.1 Comparison of Projected Supply and Demand

For all scenarios presented here, local supplies (i.e., supplies not from the RWS) correspond to those in **Table 6-5 of the UWMP**. Procedures for determining RWS supply availability per the SFPUC's Water Shortage Allocation Plan (WSAP) are described in **Section 8.2.4 of the UWMP**.

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 0.12% of the total retail water demand. Total retail demands correspond to those in **Table 3 of the 2023 Interim Water Demand Projections** and reflect both passive and active conservation, onsite water reuse savings, and water loss.

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

Table 3 below is adapted from **Table 5 of the 2023 Interim Water Demand Projections** and compares the SFPUC's retail water supplies and demands through 2045 during normal year, single dry-, and multiple dry-year periods under Scenario 1.

As shown in Table 3, under Scenario 1 without implementation of the Bay-Delta Plan Amendment, existing and planned supplies would meet all projected RWS demands in all years. Even though system-wide shortages of RWS supplies would occur in the 4th and 5th years of a multi-year drought at 2045 projected levels of demand, retail customers would reduce their demands by 5% as required by the Water Supply Agreement between SFPUC and its Wholesale Customers. To achieve a small reduction such as this, the SFPUC may prohibit certain discretionary outdoor water uses and/or call for voluntary water use reduction by its retail customers pursuant to its Water Shortage Contingency Plan (**Appendix K of the UWMP**). The required level of water use reduction is well below the SFPUC's RWS level of service (LOS) goal of limiting water use reduction to no more than 20% on a system-wide basis (i.e., an average throughout the RWS) in drought years. In 2008, by Resolution No. 08-0200, the Commission adopted this goal.

4.1.2 Scenario 2: Implementation of the Proposed Voluntary Agreement

A 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 Proposed Voluntary Agreement are to provide fishery improvements while protecting water supply through flow and non-flow measures, the RWS supply shortfalls under the Proposed Voluntary Agreement would be less than those under the Bay-Delta Plan Amendment, and therefore would require water use reductions of a lesser degree than that which would occur under Scenario 3. The degree of water use reduction would also more closely align with the SFPUC's RWS LOS goal of limiting water use reduction to no more than 20% on a system-wide basis in drought years.

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

Table 4 below provides projected supplies and demands under Scenario 3. The RWS is projected to experience significant shortfalls in single dry and multiple dry years through 2045, 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 11 to 29 mgd, corresponding to water use reduction in the retail service area ranging from 15-36%, over the next 20 years.

**Table 3: Projected Supply and Demand Comparison Under Scenario 1
 (No Implementation of the Bay-Delta Plan Amendment or the Proposed Voluntary Agreement) (mgd)**

		Normal Year	Single Dry Year ¹	Multiple Dry Years ²				
				Year 1	Year 2	Year 3	Year 4	Year 5
2025	Total Retail Demand ³	71.3	71.3	71.3	71.3	71.3	71.3	71.3
	Total Retail Supply ⁴	71.3	71.3	71.3	71.3	71.3	71.3	71.3
	Shortfall	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Shortfall as % of Demand	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2030	Total Retail Demand ³	73.0	73.0	73.0	73.0	73.0	73.0	73.0
	Total Retail Supply ⁴	73.0	73.0	73.0	73.0	73.0	73.0	73.0
	Shortfall	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Shortfall as % of Demand	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2035	Total Retail Demand ³	75.0	75.0	75.0	75.0	75.0	75.0	75.0
	Total Retail Supply ⁴	75.0	75.0	75.0	75.0	75.0	75.0	75.0
	Shortfall	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Shortfall as % of Demand	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2040	Total Retail Demand ³	77.9	77.9	77.9	77.9	77.9	77.9	77.9
	Total Retail Supply ⁴	77.9	77.9	77.9	77.9	77.9	77.9	77.9
	Shortfall	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Shortfall as % of Demand	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2045	Total Retail Demand ^{3,5}	81.1	81.1	81.1	81.1	81.1	77.0	77.0
	Total Retail Supply ⁴	81.1	81.1	81.1	81.1	81.1	81.1	81.1
	Shortfall	0.0	0.0	0.0	0.0	0.0	4.1	4.1
	Shortfall as % of Demand	0.0%	0.0%	0.0%	0.0%	0.0%	5.3%	5.3%

Notes:

1. During all single dry years, no RWS system-wide shortages are in effect.
2. During multiple dry years, no RWS system-wide shortages are in effect until years 4 and 5 at 2045 levels of demand. During those years, a 10% system-wide shortage is in effect.
3. Total retail demands correspond to those in **Table 3 of the 2023 Interim Water Demand Projections**.
4. Local supplies (i.e., supplies not from the RWS, including groundwater and recycled water) correspond to those in **Table 6-5 of the UWMP**. Local supplies are assumed to be used before RWS supplies to meet retail demand.
5. As amended in 2018, the WSAP Tier One Allocation Plan requires retail customers to conserve a minimum of 5% during droughts. If, during a declared water shortage, retail demands on the RWS are lower than the retail allocation in a dry year, retail demands on the RWS will be reduced by 5%. This provision is in effect in years 4 and 5 of a multi-dry year sequence at 2045 levels of demand.

**Table 4: Projected Supply and Demand Comparison Under Scenario 3
 (Implementation of the Bay-Delta Plan Amendment) (mgd)**

		Normal Year	Single Dry Year ¹	Multiple Dry Years ²				
				Year 1	Year 2	Year 3	Year 4	Year 5
2025	Total Retail Demand ³	71.3	71.3	71.3	71.3	71.3	71.3	71.3
	Total Retail Supply ⁴	70.7	59.5	59.5	51.5	51.5	51.5	51.5
	Shortfall	0.0	-11.8	-11.8	-19.8	-19.8	-19.8	-19.8
	Shortfall as % of Demand	0.0%	-16.5%	-16.5%	-27.8%	-27.8%	-27.8%	-27.8%
2030	Total Retail Demand ³	73.0	73.0	73.0	73.0	73.0	73.0	73.0
	Total Retail Supply ⁴	72.4	61.4	61.4	53.4	53.4	53.4	53.4
	Shortfall	0.0	-11.6	-11.6	-19.6	-19.6	-19.6	-19.6
	Shortfall as % of Demand	0.0%	-15.9%	-15.9%	-26.8%	-26.8%	-26.8%	-26.8%
2035	Total Retail Demand ³	75.0	75.0	75.0	75.0	75.0	75.0	75.0
	Total Retail Supply ⁴	74.5	63.8	63.8	55.5	55.5	55.5	51.4
	Shortfall	0.0	-11.2	-11.2	-19.5	-19.5	-19.5	-23.6
	Shortfall as % of Demand	0.0%	-14.9%	-14.9%	-26.0%	-26.0%	-26.0%	-31.5%
2040	Total Retail Demand ³	77.9	77.9	77.9	77.9	77.9	77.9	77.9
	Total Retail Supply ⁴	77.4	66.4	66.4	57.9	57.9	52.0	52.0
	Shortfall	0.0	-11.5	-11.5	-20.0	-20.0	-25.9	-25.9
	Shortfall as % of Demand	0.0%	-14.8%	-14.8%	-25.7%	-25.7%	-33.2%	-33.2%
2045	Total Retail Demand ³	81.1	81.1	81.1	81.1	81.1	81.1	81.1
	Total Retail Supply ⁴	80.6	60.1	60.1	60.1	60.1	52.1	52.1
	Shortfall	0.0	-21.0	-21.0	-21.0	-21.0	-29.0	-29.0
	Shortfall as % of Demand	0.0%	-25.9%	-25.9%	-25.9%	-25.9%	-35.8%	-35.8%

Notes:

1. During a single dry year, system-wide shortages of 30 – 40% are in effect (see **Table 8-3 of the 2020 UWMP**). For this analysis, shortages greater than 20% are considered to have the same retail/wholesale allocation as the maximum Stage 4, 16-20% system-wide shortage in the Water Shortage Allocation Plan (WSAP).
2. During multiple dry years, system-wide shortages of 30 – 55% are in effect (see **Table 8-3 of the 2020 UWMP**). For this analysis, shortages greater than 20% are considered to have the same retail/wholesale allocation as the maximum Stage 4, 16-20% system-wide shortage in the WSAP.
3. Total retail demands correspond to those in **Table 3 of the 2023 Interim Water Demand Projections**.
4. Local supplies (i.e., supplies not from the RWS, including groundwater and recycled water) correspond to those in **Table 6-5 of the UWMP**. Local supplies are assumed to be used before RWS supplies to meet retail demand.

4.2 Potential for Shortages in SFPUC Service Area

The inflow to SFPUC reservoirs can vary greatly from year to year, based on the hydrology of the region. When inflows are low during dry years, the potential exists for water supply shortages in the SFPUC service area. The occurrence of shortages depends on the magnitude and duration of dry conditions, and also on the system demand for water supply.

- In an evaluation of historical hydrology (1920 – 2017) combined with 2020 system demand, the potential for water supply shortages due to dry hydrology is low.

- When projected system demand in 2045 (an increase over 2020 demand) is evaluated along with historical hydrology, the potential for shortage increases but remains relatively low.
- When large increases in instream flow requirements (such as those associated with the Bay-Delta Plan update) are included in either of the above evaluations, the potential for water shortages in the SFPUC system increases markedly. The instream flow requirements are analogous to an increase in demand in this evaluation.

4.3 Water Use Reduction Implications to the Proposed Project

While the levels of water use reduction described above apply to the retail service area as a whole (i.e., 15-36% under Scenario 3), the SFPUC may allocate different levels of water use reduction to individual retail customers based on customer type (e.g., dedicated irrigation, single family residential, multi-family residential, commercial) to achieve the required level of retail system-wide demand reduction. Allocation methods and processes that have been considered in the past and may be used in future droughts are described in the SFPUC's 2020 Water Shortage Contingency Plan (**Appendix K of the UWMP**). For both residential and commercial customers, the SFPUC may implement varying levels of water use reductions based on the baseline level of water use, e.g., require less reduction from customers that use less water to begin with. Under the 2020 Water Shortage Contingency Plan, the allocation method or combination of methods that would be applied during water shortages caused by drought would be subject to the discretion of the General Manager.

In accordance with the Water Shortage Contingency Plan, the level of water use reduction 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 and should be better prepared than older buildings to meet the required reductions.

4.4 Findings

Regarding the availability of water supplies to serve the proposed project beginning in 2028, 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 a 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 water use reduction beyond the LOS goal of 20% system-wide water use reduction.
- During single dry years and multiple dry years under Scenario 2—Implementation of a Voluntary Agreement—the SFPUC would still face a shortfall in single dry and multiple dry years, thus requiring water use reduction, but to a lesser degree and in closer alignment to the LOS goal of no more than 20% system-wide water use reduction compared to that which would occur under Scenario 3. Because negotiations in furtherance of the November 9, 2022 Voluntary Agreement Memorandum of Understanding continue in earnest, and litigation challenging the adoption of the Bay-Delta Plan Amendment remains pending, SFPUC further finds that the supply and demand that would result under Scenario 2 are more likely to occur than those projected in 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 water use reduction at a level greater than that required to achieve the LOS goal of a maximum of 20% system-wide average water use reduction. The SFPUC estimates it would impose up to 36% water use reductions across the retail service area.
- The SFPUC’s 2020 Water Shortage Contingency Plan describes allocation methods and processes that may be used in future droughts. For both residential and commercial customers, the SFPUC may implement varying levels of water use reductions based on the baseline level of water use, e.g., require less reduction from customers that use less water to begin with. For the proposed project specifically, these policies may result in lower levels of mandatory water use reduction as a result of the installation of water-efficient plumbing fixtures and non-potable water systems associated with new construction.
- Under Scenario 3, 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 significant demand reductions.

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

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

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

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

Attachments: Attachment A, 2023 Interim Water Demand Projections
Attachment B, 655 4th Street Project Demand Memo

Attachment A –

2023 Interim Water Demand Projections

2023 Interim Water Demand Projections

for the City and County of San Francisco

Prepared by:

San Francisco Public Utilities Commission

September 2023



San Francisco
Water Power Sewer

Services of the San Francisco Public Utilities Commission

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1.0 Introduction

1.1 Purpose of Water Supply Assessments

The California Water Code (Sections 10910 through 10915) requires urban water suppliers to evaluate water supply availability to inform environmental review for qualifying projects ("water demand projects") defined in Water Code Section 10912(a). Water Code Section 10910 requires the preparation of a "water supply assessment" (WSA) for water demand projects that include a determination of whether available water supplies are sufficient to serve the demand generated by the project, as well as reasonably foreseeable cumulative demand over a 20 year period, including years of normal precipitation, single dry, and multiple dry years. If the water supplies needed by a water demand project were accounted for in the water supplier's most recently adopted Urban Water Management Plan (UWMP), under Water Code Section 10910(c)(2), the water supplier may incorporate the requested information from the UWMP in preparing a WSA for a water demand project.

1.2 Purpose of this Document

The SFPUC most recently adopted the 2020 UWMP update for the City and County of San Francisco in June 2021. As described in the 2020 UWMP, Section 4.1.2, Projected Retail Demands, the 2020 UWMP relied on the San Francisco Planning Department's (SF Planning) housing projections based on the Housing Element 2022 Update, which was still under development when the 2020 UWMP was adopted. One of the objectives of the Housing Element 2022 Update was to produce an average of 5,000 housing units per year with adjustments for certain large development plans. Since the SFPUC's adoption of the 2020 UWMP in June 2021, the Planning Commission certified the Housing Element 2022 Update Environmental Impact Report (Housing Element EIR) in November 2022. The Housing Element EIR, which supported the City's adoption of the Housing Element in January 2023, assumed slightly higher housing unit projections than those used in the 2020 UWMP, but was still in line with the objective to produce an average of 5,000 housing units per year. Nonetheless, as a result of the slightly higher housing unit projections associated with the Housing Element EIR, the SFPUC determined that its 2020 UWMP no longer accounted for all projected retail water demands.

The SFPUC will not be updating its UWMP until 2025. Therefore, during this interim period, the SFPUC has prepared the 2023 Interim Water Demand Projections herein to document the SFPUC's projected retail water supplies when compared to projected retail water demands associated with the adopted Housing Element 2022 Update. This document also adjusts the retail water supply projections to meet the updated retail water demands.

The information in this document, in concert with the background information provided in the 2020 UWMP that are not superseded by the 2023 Interim Water Demand Projections herein, can be used in the development of WSAs for pending water demand projects.

1.3 What this Document Does and Does Not Address

This document only updates the following items from the 2020 UWMP as they are directly related to the change in housing unit projections:

- Retail water demand projections, specifically demands of the in-City multi-family residential sector, through 2045
- Retail water supply and demand comparisons (i.e., surpluses and shortfalls) during normal, single dry, and multiply dry years through 2045

This document does not update the following items from the 2020 UWMP as they are not directly related to the change in housing unit projections:

- Population projections associated with the Housing Element 2022 Update
- Employment projections associated with the Housing Element 2022 Update
- Retail water demands for the single family residential and non-residential sectors
- Retail water loss
- Retail water savings associated with Conservation and Onsite Water Reuse programs
- Suburban retail water demands
- Wholesale water demands
- Status of water supply projects

2.0 Housing Unit Projections

SF Planning provided updated housing unit projections in alignment with the Housing Element EIR in a memorandum to the SFPUC dated August 18, 2023 (Appendix A). Per SF Planning’s recommendation, it is assumed that the number of single-family detached houses will not increase from existing stock and that all future net housing growth will take the form of multi-family structures.

Table 1 compares the updated housing unit projections to those used in the 2020 UWMP in 5-year increments from 2025 to 2045. SFPUC used the updated housing unit projections as inputs to the same water demand forecasting model (i.e., econometric model) that was developed for the 2020 UWMP, described in the next section.

Table 1: Housing Unit Projections

	2025	2030	2035	2040	2045
Used in 2020 UWMP	425,118	450,923	476,728	502,533	528,338
2023 Update	432,667	458,333	483,600	509,000	534,000
Net Change	7,549	7,410	6,872	6,467	5,662

3.0 Retail Water Demands

As described in the 2020 UWMP, Section 3.2, Retail Service Area, retail customers include the residents, businesses, and industries located within City limits, referred to as the in-City retail service area. Retail service is also provided to a patchwork of customers located outside the City, such as the Town of Sunol, San Francisco International Airport, Lawrence Livermore National Laboratory, and Castlewood County Service Area. These areas are not contiguous and are collectively referred to as the suburban retail service area.

The SFPUC uses econometric models to project the demands for its in-City single family residential, multi-family residential, and commercial/industrial sectors. Other in-City non-residential demands (i.e., irrigation and municipal) and suburban retail demands are estimated based on historical consumption and supplement the demands projected by the econometric models. Water loss is forecasted separately. For

more information about how retail water demand projections were developed for the 2020 UWMP, refer to Section 4.1.2, Projected Retail Demands, of the 2020 UWMP.

The SFPUC, with the support of its consultant team that developed the econometric models used for the 2020 UWMP, re-ran the model specific to the multi-family residential sector using the updated housing unit projections described in the previous section. No other model inputs were changed from those that were used for the 2020 UWMP. The resulting model outputs are detailed in Appendix B and summarized in Table 2 below. Multi-family residential demands increased by about 0.5 to 0.6 mgd, or 1.5 to 2.5%, compared to those in the 2020 UWMP.

Table 2: Multi-Family Residential Water Demands (million gallons per day [mgd])

	2025	2030	2035	2040	2045
Used in 2020 UWMP	23.7	25.6	27.9	30.3	33.0
2023 Update	24.3	26.2	28.4	30.9	33.5
Difference	0.6	0.6	0.6	0.5	0.5
% Difference from 2020 UWMP	2.5%	2.3%	2.0%	1.8%	1.5%

Total retail water demand projections are shown in Table 3, which supersedes Table 4-1 of the 2020 UWMP. These projections comprise the updated multi-family residential demands from Table 2 and the unchanged demands for the remaining sectors. The demands of the remaining sectors are not updated as they are not directly related to the change in housing unit projections. Total retail demands increased by about 0.6 to 0.8% compared to those in the 2020 UWMP.

Table 3: Retail Water Demands (mgd)

Retail Sector or Use Type	Actual ^a	Projected ^b				
	2020	2025	2030	2035	2040	2045
In-City Retail						
Single-Family Residential	14.5	13.7	13.5	13.4	13.5	13.5
Multi-Family Residential	22.9	24.3	26.2	28.4	30.9	33.5
Non-residential	20.9	22.9	22.9	22.8	23.1	23.6
Water Loss ^c	7.2	6.0	6.0	6.0	6.0	6.0
Subtotal In-City Retail Demand	65.3	66.9	68.6	70.6	73.5	76.7
Suburban Retail						
Single-Family Residential ^d	0.1	0.1	0.1	0.1	0.1	0.1
Non-Residential	3.1	4.0	4.0	4.0	4.0	4.0
Groveland CSD ^e	0.3	0.3	0.3	0.3	0.3	0.3
Water Loss ^c	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal Suburban Retail Demand	3.5	4.4	4.4	4.4	4.4	4.4
Total Retail Demand	68.8	71.3	73.0	75.0	77.9	81.1
% Difference from 2020 UWMP	N/A	0.8%	0.8%	0.8%	0.7%	0.6%

a Actual consumption data are obtained from customer billing data.

b Single family residential and multi-family residential demand projections are from an econometric model developed for the SFPUC. Non-residential demands include commercial/industrial demands, which are also from an econometric model, as well as municipal and irrigation demands, which are assumed to remain constant at the previous five-year average level.

c Water losses include both apparent and real losses. Suburban retail water losses are considered to be negligible. Actual water loss in 2020 is based on SFPUC's July 2019 – June 2020 water loss audit.

d Suburban retail residential demands are for single family only as no multi-family residential buildings are served.

e Groveland Community Services District (CSD) is accounted for as a retail customer for the purpose of this table and subsequent retail supply and demand comparisons in the 2020 UWMP. Demand projections were provided by Groveland CSD based on its population projections and assumed per capita water use of 107 GPCD (projections are subject to change as part of its UWMP process). In the corresponding standardized tables in UWMP 2020 Appendix B, Groveland CSD is not reported as retail, but rather wholesale.

4.0 Water Supply and Demand Comparisons

This section compares the SFPUC's retail water supplies (unchanged from the 2020 UWMP) and demands (updated in Table 3) through 2045 during normal, single dry, and multiple dry years. The supply and demand comparisons are presented for two Regional Water System (RWS) supply scenarios: (1) with full implementation of the Bay-Delta Plan Amendment and (2) without implementation of the Bay-Delta Plan Amendment. For more information about these scenarios and how their corresponding supplies were estimated, refer to Section 8, Water Supply Reliability Assessment, of the 2020 UWMP¹.

4.1 With Bay-Delta Plan Amendment

The instream flow requirements of the Bay-Delta Plan Amendment would impact the RWS supplies in single dry years and multiple dry years. The comparison of retail demands and supplies under the Bay-Delta Plan Amendment is presented in Table 4, which supersedes Table 8-4 of the 2020 UWMP and demonstrates the following:

- **Normal Years:** During normal hydrologic years, the SFPUC will have adequate supplies to meet its projected retail water demands. This is unchanged from the 2020 UWMP.
- **Single Dry Year:** During single dry years, there would be an anticipated 30 to 40% shortage of RWS supplies. When the supplies available to retail customers (RWS plus local supplies) are compared to the projected retail demands, a retail supply shortfall of 15% to 26% (11 to 21 mgd) is expected in single dry year conditions. These shortfalls are less than 1%, or 1 mgd, higher than estimated in the 2020 UWMP.
- **Multiple Dry Years:** If a multiple dry year event occurs, there would be anticipated shortages in RWS supplies of 30 to 49%, depending on demand levels. When the supplies available to retail customers (RWS plus local supplies) are compared to the projected retail demands, there is an anticipated shortfall of almost 36%, or 29 mgd, by the fifth dry year at 2045 projected levels of demand. This shortfall is less than 1%, or 1 mgd, higher than estimated in the 2020 UWMP.

4.2 Without Bay-Delta Plan Amendment

Without implementation of the Bay-Delta Plan Amendment, existing and planned supplies would meet all projected RWS demands in all years except deep into a multi-year drought at 2045 projected levels of demand. The comparison of retail demands and supplies is presented in Table 5, which supersedes Table 8-6 of the 2020 UWMP and demonstrates the following:

- **Normal Years:** During normal hydrologic years, the SFPUC will have adequate supplies to meet its projected retail water demands. This is unchanged from the 2020 UWMP.
- **Single Dry Year:** During single dry years, there are no anticipated shortages of RWS supplies. This is unchanged from the 2020 UWMP.
- **Multiple Dry Years:** In the multiple dry year scenario, the SFPUC would only experience system-wide shortages in RWS supplies of 10% during years 4 and 5 of an extended drought at 2045

¹ Section 7.3.1, page 7-5, of the 2020 UWMP states, "Although the [State Water Resources Control Board] has stated it intends to implement the Bay-Delta Plan Amendment on the Tuolumne River by the year 2022, given the current level of uncertainty, it is assumed for the purposes of this draft UWMP that the Bay-Delta Plan Amendment will be fully implemented starting in 2023." To date, the Bay-Delta Plan Amendment has not been implemented and the SFPUC currently does not have an anticipated date for implementation.

levels of demand. In a 10% shortage, retail customers would reduce their demands by 5% as required by the Water Supply Agreement between SFPUC and its Wholesale Customers. As a result of this demand reduction, there is a projected surplus of 5.3%, or 4.1 mgd, which is 0.1 mgd greater than that estimated in the 2020 UWMP.

Table 4: Retail Supply and Demand Comparison for Projected Normal & Dry Year Scenarios With Bay-Delta Plan Amendment (mgd)

		Normal Year	Single Dry Year ^a	Multiple Dry Years ^b				
				Year 1	Year 2	Year 3	Year 4	Year 5
2025	Total Retail Demand	71.3	71.3	71.3	71.3	71.3	71.3	71.3
	Baseline Retail Demand ^c	71.3	71.3	71.3	71.3	71.3	71.3	71.3
	5% Retail Demand Reduction ^d	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total Retail Supply	70.7	59.5	59.5	51.5	51.5	51.5	51.5
	Retail Groundwater ^e	1.4	1.4	1.4	1.4	1.4	1.4	1.4
	Retail Recycled Water ^f	2.1	2.1	2.1	2.1	2.1	2.1	2.1
	RWS Supply Utilized by Retail ^g	67.2	56.0	56.0	48.0	48.0	48.0	48.0
	Difference (Supply Surplus or Shortfall)	0.0	-11.8	-11.8	-19.8	-19.8	-19.8	-19.8
	Difference as Percentage of Demand	0.0%	-16.5%	-16.5%	-27.8%	-27.8%	-27.8%	-27.8%
2030	Total Retail Demand	73.0	73.0	73.0	73.0	73.0	73.0	73.0
	Baseline Retail Demand ^c	73.0	73.0	73.0	73.0	73.0	73.0	73.0
	5% Retail Demand Reduction ^d	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total Retail Supply	72.4	61.4	61.4	53.4	53.4	53.4	53.4
	Retail Groundwater ^e	2.4	2.4	2.4	2.4	2.4	2.4	2.4
	Retail Recycled Water ^f	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	RWS Supply Utilized by Retail ^g	67.5	56.5	56.5	48.5	48.5	48.5	48.5
	Difference (Supply Surplus or Shortfall)	0.0	-11.6	-11.6	-19.6	-19.6	-19.6	-19.6
	Difference as Percentage of Demand	0.0%	-15.9%	-15.9%	-26.8%	-26.8%	-26.8%	-26.8%
2035	Total Retail Demand	75.0	75.0	75.0	75.0	75.0	75.0	75.0
	Baseline Retail Demand ^c	75.0	75.0	75.0	75.0	75.0	75.0	75.0
	5% Retail Demand Reduction ^d	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total Retail Supply	74.5	63.8	63.8	55.5	55.5	55.5	51.4
	Retail Groundwater ^e	3.4	3.4	3.4	3.4	3.4	3.4	3.4
	Retail Recycled Water ^f	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	RWS Supply Utilized by Retail ^g	68.6	57.9	57.9	49.6	49.6	49.6	45.5
	Difference (Supply Surplus or Shortfall)	0.0	-11.2	-11.2	-19.5	-19.5	-19.5	-23.6
	Difference as Percentage of Demand	0.0%	-14.9%	-14.9%	-26.0%	-26.0%	-26.0%	-31.5%

		Normal Year	Single Dry Year ^a	Multiple Dry Years ^b				
				Year 1	Year 2	Year 3	Year 4	Year 5
2040	Total Retail Demand	77.9	77.9	77.9	77.9	77.9	77.9	77.9
	Baseline Retail Demand ^c	77.9	77.9	77.9	77.9	77.9	77.9	77.9
	5% Retail Demand Reduction ^d	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total Retail Supply	77.4	66.4	66.4	57.9	57.9	52.0	52.0
	Retail Groundwater ^e	4.4	4.4	4.4	4.4	4.4	4.4	4.4
	Retail Recycled Water ^f	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	RWS Supply Utilized by Retail ^g	70.5	59.5	59.5	51.0	51.0	45.1	45.1
	Difference (Supply Surplus or Shortfall)	0.0	-11.5	-11.5	-20.0	-20.0	-25.9	-25.9
	Difference as Percentage of Demand	0.0%	-14.8%	-14.8%	-25.7%	-25.7%	-33.2%	-33.2%
2045	Total Retail Demand	81.1	81.1	81.1	81.1	81.1	81.1	81.1
	Baseline Retail Demand ^c	81.1	81.1	81.1	81.1	81.1	81.1	81.1
	5% Retail Demand Reduction ^d	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total Retail Supply	80.6	60.1	60.1	60.1	60.1	52.1	52.1
	Retail Groundwater ^e	4.4	4.4	4.4	4.4	4.4	4.4	4.4
	Retail Recycled Water ^f	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	RWS Supply Utilized by Retail ^g	73.7	53.2	53.2	53.2	53.2	45.2	45.2
	Difference (Supply Surplus or Shortfall)	0.0	-21.0	-21.0	-21.0	-21.0	-29.0	-29.0
	Difference as Percentage of Demand	0.0%	-25.9%	-25.9%	-25.9%	-25.9%	-35.8%	-35.8%

Normal, single dry, and multiple dry year conditions are on a water year basis.

- a During a single dry year, system-wide shortages of 30 – 40% are in effect (see Table 8-3 of the 2020 UWMP). For this analysis, shortages greater than 20% are considered to have the same retail/wholesale allocation as the maximum Stage 4, 16-20% system-wide shortage in the Water Shortage Allocation Plan (WSAP).
- b During multiple dry years, system-wide shortages of 30 – 55% are in effect (see Table 8-3 of the 2020 UWMP). For this analysis, shortages greater than 20% are considered to have the same retail/wholesale allocation as the maximum Stage 4, 16-20% system-wide shortage in the WSAP.
- c Total retail demands correspond to those in Table 3 and reflect passive and active conservation, onsite water reuse savings, and water loss. Demands for Groveland Community Services District is included in the table above.
- d As amended in 2018, the WSAP Tier One Allocation Plan requires retail customers to conserve a minimum of 5% during droughts. If, during a declared water shortage, retail demands on the Regional Water System (RWS) are lower than the retail allocation in a dry year, retail demands on the RWS will be reduced by 5%. An N/A on this row means that either this 5% rationing requirement doesn't apply (i.e. no declared water shortage), or retail customers are already rationing greater than 5%.
- e Groundwater supplies are assumed to be equivalent to projected demands for the San Francisco Groundwater Supply Project (ramping up to 4 mgd by 2040) and Castlewood County Service Area (0.4 mgd). Groundwater availability would not be affected by dry year conditions.
- f Recycled water supplies are assumed to be equivalent to projected demands related to the Westside Recycled Water Project (1.6 mgd by 2021 and 1.8 mgd by 2030), Harding Park and Fleming Golf Courses (0.23 mgd), and Sharp Park Golf Course (up to 0.1 mgd) and Treasure Island (0.2 mgd by 2025 and 0.4 mgd by 2030). Recycled water availability would not be affected by dry year conditions.
- g Procedures for RWS allocations and the WSAP are described in Section 8.3 of the 2020 UWMP. Groundwater and recycled water are assumed to be used before RWS supplies to meet retail demand. However, in normal years, if groundwater and recycled water supplies are not available, up to 81 mgd of RWS supply could be used.

Table 5: Retail Supply and Demand Comparison for Projected Normal & Dry Year Scenarios Without Bay-Delta Plan Amendment (mgd)

		Normal Year	Single Dry Year ^a	Multiple Dry Years ^b				
				Year 1	Year 2	Year 3	Year 4	Year 5
2025	Total Retail Demand	71.3	71.3	71.3	71.3	71.3	71.3	71.3
	Baseline Retail Demand ^c	71.3	71.3	71.3	71.3	71.3	71.3	71.3
	5% Retail Demand Reduction ^d	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total Retail Supply	71.3	71.3	71.3	71.3	71.3	71.3	71.3
	Retail Groundwater ^e	1.4	1.4	1.4	1.4	1.4	1.4	1.4
	Retail Recycled Water ^f	2.1	2.1	2.1	2.1	2.1	2.1	2.1
	RWS Supply Utilized by Retail ^g	67.8	67.8	67.8	67.8	67.8	67.8	67.8
	Difference (Supply Surplus or Shortfall)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Difference as Percentage of Demand	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2030	Total Retail Demand	73.0	73.0	73.0	73.0	73.0	73.0	73.0
	Baseline Retail Demand ^c	73.0	73.0	73.0	73.0	73.0	73.0	73.0
	5% Retail Demand Reduction ^d	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total Retail Supply	73.0	73.0	73.0	73.0	73.0	73.0	73.0
	Retail Groundwater ^e	2.4	2.4	2.4	2.4	2.4	2.4	2.4
	Retail Recycled Water ^f	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	RWS Supply Utilized by Retail ^g	68.1	68.1	68.1	68.1	68.1	68.1	68.1
	Difference (Supply Surplus or Shortfall)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Difference as Percentage of Demand	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2035	Total Retail Demand	75.0	75.0	75.0	75.0	75.0	75.0	75.0
	Baseline Retail Demand ^c	75.0	75.0	75.0	75.0	75.0	75.0	75.0
	5% Retail Demand Reduction ^d	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total Retail Supply	75.0	75.0	75.0	75.0	75.0	75.0	75.0
	Retail Groundwater ^e	3.4	3.4	3.4	3.4	3.4	3.4	3.4
	Retail Recycled Water ^f	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	RWS Supply Utilized by Retail ^g	69.1	69.1	69.1	69.1	69.1	69.1	69.1
	Difference (Supply Surplus or Shortfall)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Difference as Percentage of Demand	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

		Normal Year	Single Dry Year ^a	Multiple Dry Years ^b				
				Year 1	Year 2	Year 3	Year 4	Year 5
2040	Total Retail Demand	77.9	77.9	77.9	77.9	77.9	77.9	77.9
	Baseline Retail Demand ^c	77.9	77.9	77.9	77.9	77.9	77.9	77.9
	5% Retail Demand Reduction ^d	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total Retail Supply	77.9	77.9	77.9	77.9	77.9	77.9	77.9
	Retail Groundwater ^e	4.4	4.4	4.4	4.4	4.4	4.4	4.4
	Retail Recycled Water ^f	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	RWS Supply Utilized by Retail ^g	71.0	71.0	71.0	71.0	71.0	71.0	71.0
	Difference (Supply Surplus or Shortfall)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Difference as Percentage of Demand	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2045	Total Retail Demand	81.1	81.1	81.1	81.1	81.1	77.0	77.0
	Baseline Retail Demand ^c	81.1	81.1	81.1	81.1	81.1	81.1	81.1
	5% Retail Demand Reduction ^d	N/A	N/A	N/A	N/A	N/A	-4.1	-4.1
	Total Retail Supply	81.1	81.1	81.1	81.1	81.1	81.1	81.1
	Retail Groundwater ^e	4.4	4.4	4.4	4.4	4.4	4.4	4.4
	Retail Recycled Water ^f	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	RWS Supply Utilized by Retail ^g	74.2	74.2	74.2	74.2	74.2	74.2	74.2
	Difference (Supply Surplus or Shortfall)	0.0	0.0	0.0	0.0	0.0	4.1	4.1
	Difference as Percentage of Demand	0.0%	0.0%	0.0%	0.0%	0.0%	5.3%	5.3%

Normal, single dry, and multiple dry year conditions are on a water year basis.

- a During all single dry years, no RWS system-wide shortages are in effect.
- b During multiple dry years, no RWS system-wide shortages are in effect until years 4 and 5 at 2045 levels of demand. During those years, a 10% system-wide shortage is in effect.
- c Total retail demands correspond to those in Table 3 and reflect passive and active conservation, onsite water reuse savings, and water loss. Demands for Groveland Community Services District is included in the table above.
- d As amended in 2018, the Water Shortage Allocation Plan (WSAP) Tier One Allocation Plan requires retail customers to conserve a minimum of 5% during droughts. If, during a declared water shortage, retail demands on the Regional Water System (RWS) are lower than the retail allocation in a dry year, retail demands on the RWS will be reduced by 5%. An N/A on this row means that either this 5% rationing requirement doesn't apply (i.e. no declared water shortage), or retail customers are already rationing greater than 5%.
- e Groundwater supplies are assumed to be equivalent to projected demands for the San Francisco Groundwater Supply Project (ramping up to 4 mgd by 2040) and Castlewood County Service Area (0.4 mgd). Groundwater availability would not be affected by dry year conditions.
- f Recycled water supplies are assumed to be equivalent to projected demands related to the Westside Recycled Water Project (1.6 mgd by 2021 and 1.8 mgd by 2030), Harding Park and Fleming Golf Courses (0.23 mgd), and Sharp Park Golf Course (up to 0.1 mgd) and Treasure Island (0.2 mgd by 2025 and 0.4 mgd by 2030). Recycled water availability would not be affected by dry year conditions.
- g Procedures for RWS allocations and the WSAP are described in Section 8.3 of the 2020 UWMP. Groundwater and recycled water are assumed to be used before RWS supplies to meet retail demand. However, in normal years, if groundwater and recycled water supplies are not available, up to 81 mgd of RWS supply could be used.

Appendix A – San Francisco Planning Memorandum



August 18, 2023

Paula Kehoe
Director of Water Resources, SFPUC
525 Golden Gate Street, 10th Floor
San Francisco, CA 94102

Re: Projections of growth for San Francisco through 2050

Dear Paula:

On October 27, 2020, the Planning Department provided SFPUC household and job growth projections to inform the citywide water demand projections in the 2020 update of the SFPUC’s Urban Water Management Plan (UWMP). The SFPUC adopted the 2020 UWMP in June 2021. Since that time, the Planning Commission certified the Housing Element 2022 Update Environmental Impact Report (Housing Element EIR or EIR) in November 2022. The EIR, which supported the City’s adoption of the Housing Element in January 2023, assumed slightly higher household projections than those used in the UWMP. As you requested, this memo provides the EIR’s household projections¹ to inform a minor update to SFPUC’s water demand projections.

Citywide Growth Projections

Table 1 shows the Planning Department’s housing projections for the years 2020-2050. We recognize that the 2020 UWMP water planning horizon extends only to 2045.

Table 1: Development Projections

	2020	2025	2030	2035	2040	2045	2050
Housing Units	407,000	432,667	458,333	483,600	509,000	534,000	559,000

The Housing Element update is required to be adopted every eight years by state law and was approved by the Board of Supervisors in January 2023 and certified by the state Department of Housing and Community Development on February 1, 2023. One of the primary goals of the Housing Element 2022 Update is to improve housing affordability by increasing the rate of housing production compared with the past several decades. The projections are based on the Housing Element objective of producing an average of approximately 5,000

¹ The Housing Element EIR assumed slightly less job growth than that assumed in the Planning Department’s October 27, 2020 memo used to inform the 2020 UWMP water demand projections (i.e., EIR assumed 869,000 jobs in 2045 whereas October 2020 memo assumed 894,255 jobs). Given that the 2020 UWMP water demand projections used more conservative (i.e., slightly higher) job growth assumptions, there is no need to update the water demand projections to account for the Housing Element EIR job growth assumptions.

housing units per year, with adjustments for certain large development plans. These projections were analyzed in the Housing Element EIR. (The projections can be found in Appendix C of the EIR.) The Housing Element EIR considered two projection years – 2035 and 2050. For the purposes of generating the 5-year incremental projections required by the SFPUC through 2045, the Planning Department assumes a constant, straight-line average pace of housing production for the periods of 2020-2035 and 2035-2050.

Regarding the typology of projected new housing stock, our memo provided to SFPUC dated October 27, 2020, to inform preparation of the 2020 UWMP, contained analysis supporting a Planning Department recommendation that the SFPUC assume for the purposes of modelling citywide projected housing development in San Francisco that **the number of single-family detached houses will not increase from existing stock and that all future net housing growth will take the form of multi-family structures.** This recommendation is unchanged.

Sincerely,

A handwritten signature in black ink, appearing to read "J Switzky".

Joshua Switzky
Acting Director of Citywide Planning

cc:

Fan Lau, SFPUC
Lisa Gibson, Planning
Wade Wietgreffe, Planning
Debra Dwyer, Planning
Julie Moore, Planning
Scott Edmondson, Planning
Peter Miljanich, City Attorney
Andrea Ruiz-Esquide, City Attorney

Appendix B – Woodard & Curran Memorandum

TECHNICAL MEMORANDUM

TO: Paula Kehoe, Director of Water Resources, San Francisco Public Utilities Commission
Fan Lau, Water Resources Division, San Francisco Public Utilities Commission

PREPARED BY: Chris Hewes, Woodard & Curran

REVIEWED BY: Katie Cole, Woodard & Curran

DATE: August 25, 2023

RE: SFPUC Demand Forecast Model Re-Run with Updated Housing Unit Forecast

In 2020, the San Francisco Public Utilities Commission (SFPUC) engaged The Brattle Group to develop an econometric-based water demand forecast model (Model) to generate retail water demands for the SFPUC's 2020 Urban Water Management Plan (UWMP). A key input to the Model was household development forecasts provided by the San Francisco Planning Department (October 27, 2020 memo from Joshua Switzky, Land Use & Community Planning Program Manager). At the time, these forecasts were in draft form, developed during preparation of the city's General Plan Housing Element (Housing Element 2022 Update). Since June 2021 when the 2020 UWMP was published, the Planning Commission certified the Housing Element 2022 Update Environmental Impact Report (EIR) in November 2022. The EIR, which supported the City's adoption of the Housing Element in January 2023, assumed slightly higher household forecasts than those used in the UWMP.

Woodard & Curran worked with the Model developers to re-run it with the updated housing development forecasts provided by the San Francisco Planning Department (see Section 1 – Updated Model Inputs). The resulting Model outputs (water demands) were combined with other values external to the Model that together provide full retail water demand for SFPUC (see Section 2 – Updated Results).

1. UPDATED MODEL INPUTS

See **Table 1** for the updated housing development forecast provided by the San Francisco Planning Department (August 18, 2023 memo from Joshua Switzky, Acting Director of Citywide Planning). Per SFPUC's guidance in the previous Model effort, and re-confirmed by the San Francisco Planning Department for the current Model effort, it was assumed that there will not be an increase in the number of single-family detached houses from the existing stock. Therefore, the water demand forecast for the single-family sector is the same as the prior outputs. All future housing growth is expected to occur in the multi-family residential sector. No other inputs to the Model were changed (e.g., employment forecast, econometric variables, etc.).

Table 1: Housing Development Forecast

Housing Units	2020	2025	2030	2035	2040	2045
For 2020 UWMP	399,313	425,118	450,923	476,728	502,533	528,338
For 2023 Update	407,000	432,667	458,333	483,600	509,000	534,000

2. UPDATED RESULTS

See **Table 2** for the updated outputs directly from the Model. **Table 3** shows the updated multi-family residential sector forecast details. Tables 2 and 3 contain rows that specify the water savings associated with the Onsite Water Reuse Program. These savings were estimated for the 2020 UWMP but are not updated for this memo as (1) they are estimated separately from the Model and (2) the types of new multi-family residential projects and their participation in the Onsite Water Reuse Program are currently unknown.

See **Table 4** for a comparison of the previous and updated multi-family residential sector forecasts.

See **Table 5** for the updated retail demand forecast, which incorporates additional information that is external to the Model, as it was presented in the 2020 UWMP (e.g., municipal and irrigation demands in the “non-residential” sector, as well as Suburban Retail demands).

Table 2: Model Outputs (mgd)

	FY2019-20	FY2024-25	FY2029-30	FY2034-35	FY2039-40	FY2044-45
Single Family Residential						
Unadjusted Baseline Demand	14.32	13.83	13.63	13.60	13.63	13.65
Conservation: <i>Active</i>	0.00	-0.15	-0.18	-0.17	-0.13	-0.11
Total	14.32	13.68	13.45	13.43	13.49	13.54
Multifamily Residential						
Unadjusted Baseline Demand	23.09	24.63	26.74	29.21	31.85	34.46
Conservation: <i>Active</i>	0.00	-0.15	-0.20	-0.18	-0.11	-0.06
<i>Non-Potable / Onsite Reuse</i>	-0.07	-0.21	-0.35	-0.63	-0.91	-0.91
Other Accounts: <i>Fire</i>	0.01	0.01	0.01	0.01	0.01	0.01
Total	23.03	24.28	26.19	28.41	30.85	33.51
Commercial and Industrial						
Unadjusted Baseline Demand	17.81	17.25	17.33	17.49	17.93	18.38
Conservation: <i>Active</i>	0.00	-0.28	-0.30	-0.30	-0.28	-0.23
<i>Non-Potable / Onsite Reuse</i>	-0.03	-0.09	-0.15	-0.27	-0.39	-0.39
Other Accounts: <i>Docks / Ships</i>	0.02	0.02	0.02	0.02	0.02	0.02
<i>Builders / Contractors</i>	0.18	0.18	0.18	0.18	0.18	0.18
<i>Fire</i>	0.04	0.04	0.04	0.04	0.04	0.04
Total	18.02	17.12	17.11	17.16	17.51	18.00
Grand Total	55.38	55.08	56.76	59.00	61.85	65.05

Notes:

FY2019-20: This column is a forecast that assumes no COVID-19 pandemic and average weather conditions. Actual demand for FY2019-20 is shown in Table 5 of this memo.

Unadjusted Baseline Demand: This is the raw output of the statistical forecast model.

Conservation Adjustments: These estimates are the output of the SFPUC Conservation model and have not been updated in this memo.

Multifamily Residential Fire Accounts: These values were supplied by SFPUC and have not been updated in this memo.

Commercial and Industrial: These forecasts are unchanged from the previous forecasts.

Grand Total: This row does not include water losses, suburban accounts, irrigation accounts, or municipal accounts. The volumes from these additional sector types are included in Table 5 of this memo and are unchanged from the previous forecasts.

Table 3: Multi-Family Demand Forecast Details

	FY2019-20	FY2024-25	FY2029-30	FY2034-35	FY2039-40	FY2044-45
Number of Units	282,814	308,481	334,147	359,414	384,814	409,814
Residents per Unit	2.30	2.30	2.30	2.30	2.30	2.30
Avg. Consumption per Capita (gal / day)						
Unadjusted Baseline Demand	35.50	34.71	34.79	35.34	35.99	36.56
Conservation: <i>Active</i>	0.00	-0.21	-0.27	-0.23	-0.12	-0.06
<i>Non-Potable / Onsite Reuse</i>	-0.11	-0.30	-0.47	-0.78	-1.05	-0.98
Demand per Capita	35.39	34.20	34.05	34.33	34.82	35.52
Avg. Consumption per Unit (gal / day)						
Unadjusted Baseline Demand	81.66	79.84	80.01	81.27	82.78	84.09
Conservation: <i>Active</i>	0.00	-0.49	-0.63	-0.52	-0.29	-0.14
<i>Non-Potable / Onsite Reuse</i>	-0.25	-0.70	-1.07	-1.79	-2.41	-2.25
Demand per Unit	81.40	78.65	78.31	78.97	80.09	81.70
Total Consumption (MGD)						
Unadjusted Baseline Demand	23.09	24.63	26.74	29.21	31.85	34.46
Conservation: <i>Active</i>	0.00	-0.15	-0.20	-0.18	-0.11	-0.06
<i>Non-Potable / Onsite Reuse</i>	-0.07	-0.21	-0.35	-0.63	-0.91	-0.91
Total Demand	23.02	24.27	26.18	28.40	30.84	33.50

Notes:

FY2019-20: This column is a forecast that assumes no COVID-19 pandemic and average weather conditions. Actual demand for FY2019-20 is shown in Table 5 of this memo.

Unadjusted Baseline Demand: This is the raw output of the statistical forecast model.

Conservation Adjustments: These estimates are the output of the SFPUC Conservation model and have not been updated in this memo.

Table 4: Multi-Family Residential Water Demand Forecast (mgd)

Multi-Family Residential	Actual ^a	Projected ^b				
	2020	2025	2030	2035	2040	2045
From 2020 UWMP	22.9	23.7	25.6	27.9	30.3	33.0
From 2023 Update (from Table 3)	22.9	24.3	26.2	28.4	30.9	33.5
Difference	0.0	0.6	0.6	0.6	0.5	0.5

a Actual consumption data are obtained from customer billing data.

b Multi-family residential demand projections are from an econometric model developed for the SFPUC.

Table 5: Retail Water Demand Forecast (mgd)

Retail Sector or Use Type	Actual ^a	Projected ^b				
	2020	2025	2030	2035	2040	2045
In-City Retail						
Single-Family Residential	14.5	13.7	13.5	13.4	13.5	13.5
Multi-Family Residential	22.9	24.3	26.2	28.4	30.9	33.5
Non-residential	20.9	22.9	22.9	22.8	23.1	23.6
Water Loss ^c	7.2	6.0	6.0	6.0	6.0	6.0
Subtotal In-City Retail Demand	65.3	66.9	68.6	70.6	73.5	76.7
Suburban Retail						
Single-Family Residential ^d	0.1	0.1	0.1	0.1	0.1	0.1
Non-Residential	3.1	4.0	4.0	4.0	4.0	4.0
Groveland CSD ^e	0.3	0.3	0.3	0.3	0.3	0.3
Water Loss ^c	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal Suburban Retail Demand	3.5	4.4	4.4	4.4	4.4	4.4
Total Retail Demand	68.8	71.3	73.0	75.0	77.9	81.1

a Actual consumption data are obtained from customer billing data.

b Single family residential and multi-family residential demand projections are from an econometric model developed for the SFPUC. Non-residential demands include commercial/industrial demands, which are also from an econometric model, as well as municipal and irrigation demands, which are assumed to remain constant at the previous five-year average level.

c Water losses include both apparent and real losses. Suburban retail water losses are considered to be negligible. Actual water loss in 2020 is based on SFPUC's July 2019 – June 2020 water loss audit.

d Suburban retail residential demands are for single family only as no multi-family residential buildings are served.

e Groveland Community Services District (CSD) is accounted for as a retail customer for the purpose of this table and subsequent retail supply and demand comparisons in the 2020 UWMP. Demand projections were provided by Groveland CSD based on its population projections and assumed per capita water use of 107 GPCD (projections are subject to change as part of its UWMP process). In the corresponding standardized tables in UWMP 2020 Appendix B, Groveland CSD is not reported as retail, but rather wholesale.

Attachment B –

655 4th Street Project Demand Memo



October 26, 2023

To: Fan Lau, P.E. – San Francisco Utilities Commission
From: Florentina Craciun, AICP – Environmental Planning

Re: 655 Fourth Street – Revised Water Supply Assessment Request
Planning Department File No. 2022-011490ENV

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 proposed 655 Fourth Street project, in compliance with CEQA Guidelines Section 15155 and Sections 10910 through 10915 of the California Water Code.

A prior Project Water Demand Memo and WSA analysis was prepared for the project and was reviewed and approved by the SFPUC Commission on May 17, 2019. This WSA request provides updated information based on current requirements for a modified project at 655 Fourth Street. The WSA is intended for use in the support of a Housing Element General Plan Evaluation for the 655 Fourth Street Project (Case No. 2022-011490ENV) to be filed by the San Francisco Planning Department.

The Planning Commission adopted Motion No. 20470 on June 20, 2019, to approve the original project at 655 Fourth Street. The Revised Project does not include office or hotel uses and would increase the number of residential units from 960 to 1,105. The 655 4th Street Project (project or proposed project) would entail demolition of the three existing buildings, associated surface parking lots, and vegetation on the project site, including street trees and other plantings. The project would merge the seven existing lots and construct a podium building with two towers containing approximately 1,103,528 square feet of residential area including 9,923 square feet of ground-floor retail use and a vehicle drop-off area, bike facilities, a loading dock, back of the house retail operations, refuse handling area; along with 9,153 square feet of exterior privately owned publicly accessible open space (POPOS) (in the form of a public plaza). The new development would also include a 142,580-square-foot-below-grade, two-level basement containing car parking. Please see the attached memorandum for more project information.

The project sponsor provided project information intended to meet the requirements outlined in the SFPUC guidance memo dated January 13, 2022. A summary of the project description, average daily water demands, and supporting tables prepared by the project sponsor's consultant (based on the SFPUC Non-Potable Water Calculator(s) Version 9.1), are attached. Should you have questions or need additional information from the Planning Department or the project sponsor, please contact me at 628.652.7510 or Florentina.craciun@sfgov.org.

Sincerely,

Florentina Craciun, AICP

DATE: October 26, 2023
TO: Florentina Craciun, San Francisco Planning Department
FROM: Veronica Klein, Tishman Speyer (sponsor);
Ryan Beaton and Sara Dansehvar, KPFF (civil engineer)
REGARDING: 655 4th Street: Project Water Demand Memo (Updated 2023)

SUMMARY

Introduction

The purpose of this memorandum is to request that the San Francisco Public Utilities Commission (SFPUC) prepare a Water Supply Assessment (WSA) for the proposed 655 4th Street mixed use residential/commercial project, in compliance with CEQA Guidelines Section 15155 and Sections 10910 through 10915 of the California Water Code. The project site is located at 655 4th Street in San Francisco's South of Market (SoMa) neighborhood. The intersection of 4th Street and Townsend Street is directly south of the project site, with 4th Street to the west and Townsend Street to the south. Interstate 80 (I-80) is approximately two blocks north.

Basis for Requiring a WSA

The proposed project qualifies for preparation of a WSA under Water Code Section 10912(a) because it is a mixed-use development that includes more than 500 dwelling units. The proposed project is characterized further in Table 1.

A previous version of the project was the subject of a previous WSA. The prior Project Water Demand Memo was prepared for the project on November 8, 2018, and was incorporated into the WSA prepared by SFPUC staff on May 17, 2019. The WSA was approved by the SFPUC Commission at their May 28, 2019 public hearing. This revised Project Water Demand Memo provides updated information based on the modified proposed project, which is referred to as the "Proposed Project" in the remainder of this memo.

2023 Proposed Project Description, as Compared to 2019 Previously Approved Project

The basic information of the Proposed Project is as follows:

Table 1: Project Overview

Project Address:	655 4th Street
Project Block/Lot(s):	3787/ 26, 28, 50, and 161-164
Planning Department Case Number:	2022-011490ENV
Planning Case Managers:	Elizabeth White (CEQA) Monica Giacomucci (Entitlements)
Zoning District:	CMUO (Central SoMa Mixed Use Office)
Special Use District:	Central SoMa Special Use District
Height/Bulk District:	400-CS
Estimated Construction Date:	2025 - 2028
Proposed Land Use(s):	<ul style="list-style-type: none"> ▪ Residential (1,105 units) ▪ Retail (9,923 SF)
Site Size:	71,290 SF
Project Size:	1,042,451 GSF

The Proposed Project would entail demolition of the three existing buildings, associated surface parking lots, and vegetation on the project site, including street trees and other plantings. The project would merge the seven existing lots and construct a podium building with two towers containing approximately 1,032,528 square feet of residential area and 9,923 square feet of ground-floor retail use and a vehicle drop-off area, bike facilities, a loading dock, back of the house retail operations, refuse handling area. It also contains 9,153 square feet of exterior privately owned, publicly accessible open space (POPOS) in the form of a public plaza, which is anticipated to be paved with planted areas containing trees and ground coverings. The new development would also include a 142,580-square-foot-below-grade, two-level basement containing car parking, and other back-of-house features such as mechanical equipment required for operation and maintenance of the building.

The 2019 Previously Approved Project was approved by the Planning Commission via Motion No. 20470 on June 20, 2019. The Previously Approved Project included 960 rental units, office space, ground-floor retail and a 38-room hotel, with publicly accessible open space located in an interior courtyard. The characteristics of the previously Approved Project are similar to, but slightly different from those that were analyzed in the Water Supply Assessment approved by the SFPUC on May 28, 2019. Specifically, the square footages for retail uses decreased, open space

increased, and total building size decreased before submittal to the Planning Commission. The water demands associated with the Proposed Project are anticipated to be lower than those presented in the Water Supply Assessment.

Construction activities will take 36-42 months to complete. The project is anticipated to begin construction in January 2025 with completion anticipated in January 2028, immediately followed by project occupancy. The project is not anticipated to be phased. Occupancy is expected to begin in early 2028 with full occupancy expected by the end of 2029.

The constructed gross areas of each use in the Proposed Project, as compared to the Previously Approved Project, are outlined below:

Table 2. Comparison of the Previously Approved Project to the Proposed Project

	Previously Approved Project	Proposed Project	Net Change
655 Fourth Street Project (overall square footage)	1,014,968 sf	1,042,451 sf	+27,483 sf
Project Components			
Residential units	960	1,105	+145
Office	21,840 sf	0	(21,840) sf
Hotel	24,509 sf	0	(24,509) sf
Retail	18,454 sf	9,923 sf	(8,531) sf
Open Space	59,595 sf ¹	66,609 sf ²	+7,014 sf
Vehicle Parking	276	284	+8
Bicycle Parking	540	408	(132)
Max Building Height	425 ft (including appurtenances)	435 ft (including appurtenances)	+10 ft

(1) Includes 35,100 square feet of private and commonly accessible open spaces for building residents and 2,484 square feet of ground-floor exterior privately owned public open space.

(2) Includes 57,456 square feet of private and commonly accessible open spaces for building residents (comprised of 23,460 square feet of private balconies and 33,996 square feet of common accessible terrace open spaces on floor 2 and floor 13 of the podium) and 9,153 square feet of ground-floor exterior privately owned public open space.

OVERALL SITE WATER MANAGEMENT APPROACH

The project must comply with the Stormwater Management Requirements (SMR) regulated by the San Francisco Public Utilities Commission (SFPUC), which requires new and redevelopment projects to manage stormwater runoff using green infrastructure (GI) where feasible. GI is a

stormwater management strategy that takes advantage of sustainable processes, such as infiltration and rainwater harvesting, to manage stormwater runoff at its source.

As the project site is within the Combined Sewer System (CSS) area with an existing imperviousness of greater than 50%, the SMR requires a stormwater management plan that reduces the stormwater runoff rate and volume by 25% relative to pre-development conditions for the 2-year, 24-hour design storm. Since the project’s non-potable water demand for toilet flushing, irrigation, and cold-water clothes washing is exceeded by the graywater supply, the project is required to use graywater supply to meet those demands before incorporating rainwater harvesting & reuse. For projects in the CSS with challenging site constraints, the SFPUC has developed a Modified Compliance Program that allows qualifying projects to decrease the volume reduction percentage requirement in combination with an equivalent increase in the peak flow percentage reduction. However, as per the SFPUC Modified Compliance Application, this project is not eligible as it is within the recycled water use area and will generate a non-potable demand (including irrigation, toilet/urinal flushing, and cooling) greater than 2,500 gpd/acre.

Table 3. Water Demand by Use

Phase	Indoor Water Demand (1) (2)				Outdoor Water Demand (1)(3)	Total Demand	
	Commercial	Multi Family Residential	Other Indoor Demands	HVAC/ Cooling (4)	Irrigation (1)	Average mg/day	Average mg/year
Potable	0.0084	18.5887	0.0000	0.0000	0.0000	0.0510	18.5970
Non-Potable	0.0286	8.8461	0.0000	2.9470	0.0744	0.0326	11.8963
Total	0.0370	27.4348	0.0000	2.9470	0.0744	0.0836	30.4933

(1) Annual average volume in units of millions of gallons per year (mgpy).

(2) See SFPUC Calculator Tab 2.

(3) See SFPUC Calculator Tab 3.

(4) The calculation of monthly water use for cooling towers is based on calculated values for cooling tower evaporation, cycles of concentration and drift. These calculations are based on load profiles of the project and the associated weather data. The calculated cooling tower make up water loads are based on the factors listed in the table. The calculated annual cooling loads for the project were made using IES-VE energy modeling software. This provides provided hour-by-hour cooling load (and associated heat rejection load) profiles for the entire year. A post processing Excel spreadsheet was then utilized that factors in the prevailing dry-bulb temperature, wet-bulb temperature, cycles of concentration and drift to calculate the necessary cooling tower make-up water.

Given the project site’s unfavorable soil conditions, the most feasible GI technologies are: rainwater harvesting, green roofs, and flow-through bioretention planters. Given the site’s available graywater supply, the use of rainwater harvesting as the primary BMP is limited. Green roofs and flow-through bioretention planters are planned to be utilized in available open spaces where feasible.

The project also meets the criteria to comply with the City's Non-potable Ordinance (NPO), which requires that new developments with greater than 100,000 square feet of gross floor area implement an onsite water reuse system to meet non-potable demands. Additionally, the project is subject to the Recycled Water Ordinance (RWO), which requires qualifying projects (e.g., have a gross square footage of 40,000 sf or more) located in the designated recycled water use areas to provide building dual-plumbing for the following uses: irrigation, flushing toilets and urinals, and cooling.

The NPO requires that qualifying projects capture rainwater (defined as runoff from building roofs and other above- ground surfaces, distinct from stormwater which in this context refers to runoff from at- or below-grade surfaces), graywater (wastewater from showers, bathroom sinks, and laundry), and foundation drainage (nuisance subsurface water collected to maintain a buildings structural integrity or to dewater below grade floors that would typically be discharged into the CSS) and use these alternate water sources to meet the following non-potable demands: toilet/urinal flushing, irrigation, drain trap priming, and clothes washing. To the maximum extent practicable, the project must either meet 100% of these required non-potable demands or utilize 100% of the available rainwater, graywater, and foundation drainage. Other non-potable demands, such as cooling tower makeup water or clothes washers, are not required but may be met by the water reuse system at the project's discretion.

A water balance analysis of the potential alternative sources and projected non-potable demands was based on:

- Building gross square footage (GSF) provided by Solomon Cordwell Buenz (SCB)
- Occupancy load factors per the SFPUC Non-potable Water Calculator
- Building cooling tower makeup water demand provided by PAE
- Pervious and irrigated open space areas assumed based on open spaces in site plan provided by SCB

It was determined that residential showers, bathtubs, bathroom faucets, and washing machines are a viable source of graywater for the project. In addition, HVAC condensate supply and commercial lavatory faucets will be utilized as a source of graywater for the project. As required by the NPO, toilet flushing, urinal flushing, drain trap priming, clothes washing, and irrigation demands will be met by the captured graywater. Additionally, though not an end use demand required to be met by the NPO, the building cooling tower make up water demand was included as a component of the system. This additional demand on the reuse system allows more of the supply in storage to be used each day and increasing the annual volume of potable water offset.

ONSITE DRAINAGE

The project will incorporate Green Infrastructure to meet the SFPUC Stormwater Management Requirements, such as flow-through bioretention planters and green roofs. The drainage design will strive to further reduce the amount of stormwater entering the combined sewer system by implementing the following strategies:

- Reduce the amount of impervious surface wherever practical. Increases in pervious areas may allow for a decrease in the stormwater volume that leaves the project site.
- Direct upper roof areas into flow-through planters to treat, filter, and detain stormwater. Flow-through planters will reduce the flow rate at which stormwater leaves the project site, and some stormwater volume will be retained.
- Sheet flow paved surfaces onto adjacent landscape to encourage infiltration, filtration, and attenuation of the runoff prior to it being directed into drain inlets. Draining hardscape surfaces onto landscape surfaces has the additional benefit of decreasing the number of drainage inlets, trench drains, etc. within the pedestrian areas.

The site drainage infrastructure will consist of drain inlets, area drains, trench drains, cleanouts, and storm drain piping. Drain grates within accessible routes of travel will need to be ADA compliant. Drains within landscape areas will have atrium grates where blockage caused by landscape debris is a concern. The storm drain pipe network will be sized to carry the 10-year storm flow at a minimum to the CSS within adjacent streets and alleys. Sand traps meeting city standards will be provided at each connection point.

Attachments: SFPUC Single Site Non-Potable Water Calculator for 655 4th Street Project, dated 10-26-23

NON-POTABLE WATER CALCULATOR

Project Summary Sheet 655 4th Street

Project Contact: Veronica Klein
415-609-0771
vklein@tishmanspeyer.com



Total Gross Square Footage: 1,042,451

Estimated Building Permit Issuance Date: 1/1/2025

1. Demand and Supply Summary

Demand Met by Non-Potable Supply (gallons/year):	11,896,277	<i>39% of total</i>
Total Annual Water Demand (gallons/year):	30,493,300	

6-Month Compliance Periods

	January - June	July - December
Potable Make-Up Allocation (gallons/period):	447,346	447,582

2. Building Information Summary

Project / Building Name:	655 4th Street
Project Address:	655 4th St
Assessor's Block & Lot No. / APN:	3787/026,028,050,161-164
Date of Completion:	2028

Building Type:	Mixres
Total Building Size (GSF):	1,042,451
Total Lot Size (ft²):	71,290
Number of Residential Units:	1,105
Impervious Surface Above Grade (ft²):	80,092
Impervious Surface Below Grade (ft²):	7,053
Irrigated Landscaped Area (ft²):	5,500

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

Non-Potable Supply Estimates

Onsite Alternate Water Sources	Annual Supply (gpy)
Graywater:	14,411,242
Blackwater:	0 <i>(includes GW)</i>
Condensate:	397,845
Rainwater/Stormwater:	0
Other Supplies:	0
TOTAL:	14,809,087

Non-Potable Demand Estimates

Project Non-Potable Uses	Annual Demand (gpy)
Toilets/Urinals:	5,217,051
Drain Trap Priming:	0
Irrigation:	74,423
Clothes Washing:	3,657,803
HVAC/Cooling:	2,947,000
Other Demands:	0
TOTAL:	11,896,277