Appendix 3.11-1

Water Supply Assessment (WSA)

FINAL REPORT

Bayhill Specific Plan Development Project Water Supply Assessment

PREPARED FOR

City of San Bruno

SEPTEMBER 2019

WEST YOST ASSOCIATES

Bayhill Specific Plan Development Project Water Supply Assessment

Prepared for

City of San Bruno

Project No. 462-60-19-24



09-03-19

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Bayhill Specific Plan Development Project
Water Supply Assessment

EXECUTIVE SUMMARY

Overview

This Water Supply Assessment (WSA) has been prepared for City of San Bruno (City) by West Yost Associates (West Yost) in accordance with Water Code sections 10910 through 10915 for the Bayhill Specific Plan Development Project (Proposed Project). The Proposed Project is located in the central-eastern portion of the City, in the City's water service area. The Proposed Project is bounded by Interstate 280 to the west, Interstate 380 to the north, El Camino Real to the east, and San Bruno Avenue West to the south, and is comprised of mainly office and commercial land uses.

The Proposed Project is part of the continued growth of the Bayhill Area. The Proposed Project is located in an existing mixed-use district that includes the headquarters of YouTube, as well as various other land uses, including approximately 1,558,000 square feet (sf) of office buildings, 122,000 sf of retail buildings, and a 133-room hotel. Four buildout scenarios of varying housing and office densities are evaluated in this WSA. Two buildout scenarios are the Proposed Project while the other two scenarios are alternatives that were evaluated to capture the highest demand future scenario. The highest demand future scenario proposes a total of approximately 3,501,000 sf of office buildings, 122,000 sf of retail buildings, a 186-room hotel, and 1,070 dwelling units of multi-family residential housing, including those existing land use types that will remain. For purposes of this WSA, the Proposed Project and the alternatives are collectively referred to as the Future Scenarios.

Water Demands

The projected water demands for buildout of the Future Scenarios have been calculated for the respective land uses. The projected water demands for buildout of the highest demand future scenario are 0.63 million gallons per day (MGD), or approximately 307,000 hundred cubic feet (CCF) per year.

Although the Future Scenarios are not specifically identified in the City's 2015 Urban Water Management Plan (2015 UWMP) water demand projections, the Bayhill Specific Plan Area is included within the City's population and employment growth projections, which were used to develop water demand projections.

The Future Scenarios do not have any proposed recycled water use but are assumed to incorporate water conservation practices. Summaries of the availability and reliability of potable water supplies to serve the projected water demands for the highest water demand future scenario are discussed below.

Water Supply Availability and Reliability

As discussed in this WSA, the City receives water from three supply sources: San Francisco Public Utilities Commission (SFPUC), North Coast County Water District (NCCWD), and local groundwater. The City purchases treated surface water from SFPUC and NCCWD. The surface water is delivered through the Regional Water System (RWS) that is operated by SFPUC. The

City is a Wholesale Customer of the SFPUC and purchases water from NCCWD to exclusively meet the demands of the Treetop Apartments complex. The City owns and operates four wells that pump local groundwater from the South Westside Basin (Department of Water Resources (DWR) Basin 2-35). According to the City's 2015 UWMP, the City does not anticipate any water supply shortage during Normal, Single Dry, or Multiple Dry water years through 2040.

The City's water supply reliability is partially dependent upon its water supply contract with SFPUC and its membership in the Bay Area Water Supply and Conservation Agency (BAWSCA), which represents SFPUC's 26 Wholesale Customers and coordinates each of their water conservation programs. BAWSCA's Long-Term Reliable Water Supply Strategy was developed to quantify the water supply reliability needs of the BAWSCA member agencies through 2040, identify projects and/or programs that could be developed to meet those needs, and prepare an implementation plan for the strategy's recommendations.

The reliability of the City's water supplies also depends on SFPUC's water supply reliability policy and the reliability of the SFPUC RWS. Delivery reliability of the RWS is impacted by the SFPUC's Water System Improvement Plan (WSIP) and the Water Shortage Allocation Plan (WSAP). The WSIP aims to meet customer water needs in non-drought and drought conditions through the completion of defined improvements to the RWS that improve seismic, delivery, water quality, and water supply reliability for the RWS. The WSAP outlines the reductions in water allocated to wholesale and retail customers that would occur if SFPUC were to declare a water shortage emergency.

Additionally, the reliability the City's water supplies depends on the local groundwater reliability of the South Westside Basin. A Groundwater Management Plan (GWMP) was completed in 2012 to ensure that the basin will continue to provide sustainable, high quality, reliable water supply at a fair price for beneficial uses. In December 2014, a Regional Groundwater Storage and Recovery (GSR) operating agreement was also signed to ensure long-term management and sustainability of the South Westside Groundwater Basin through a strategic conjunctive use partnership. The partnership with the City, SFPUC, California Water Service (serving South San Francisco and Colma), and the City of Daly City allows the agencies to operate the basin jointly and provides a new 20-billion-gallon regional dry year groundwater supply.

The City plans to continue to manage potable water demands within its water service area through conservation efforts. However, if supply shortages should occur, the City Council may declare a water supply emergency and implement the City's *Water Shortage Contingency Plan*, described in the City's 2015 UWMP.

Therefore, pursuant to Water Code section 10910(c)(4), and based on the technical analyses described in this WSA and the City's 2015 UWMP, the City finds that the projected potable water demands for the highest water demand future scenario can be met by the City during Normal, Single Dry and Multiple Dry years through 2040.

Verification of Sufficient Water Supply

In accordance with the requirements of SB 221, Section 8.0 of this WSA provides a verification of sufficient water supply to meet the projected demands associated with the highest water demand future scenario, in addition the City's existing and planned future uses, including, but not limited to, industrial uses. There are no existing nor planned agricultural uses in the City's service area.

1.0 INTRODUCTION

The proposed Bayhill Specific Plan Development Project (Proposed Project) is a proposed redevelopment of a 92.2-acre site located in the central-eastern portion of the City of San Bruno (City), in the City's water service area. The purpose of this Water Supply Assessment (WSA) is to support the Environmental Impact Report (EIR) for the Proposed Project. The following sections describe the legal requirements for the WSA and the project background.

1.1 Legal Requirements for a Water Supply Assessment

California Senate Bill 610 (SB 610) and Senate Bill 221 (SB 221) amended state law, effective January 1, 2002, to improve the link between information on water supply availability and certain land use decisions made by cities and counties. SB 610 and SB 221 were companion measures which sought to promote more collaborative planning between local water suppliers and cities and counties. Both statutes require detailed information regarding water availability to be provided to the city and county decision-makers prior to approval of specified large development projects. The purpose of this coordination is to ensure that prudent water supply planning has been conducted, and that planned water supplies are adequate to meet existing demands, anticipated demands from approved projects and tentative maps, and the demands of proposed projects.

SB 610 amended California Water Code sections 10910 through 10915 (inclusive) to require land use lead agencies to:

- Identify any public water purveyor that may supply water for a proposed development project; and
- Request a WSA from the identified water purveyor.

The purpose of the WSA is to demonstrate the sufficiency of the purveyor's water supplies to satisfy the water demands of the proposed project, while still meeting the water purveyor's existing and planned future uses. Water Code sections 10910 through 10915 delineate the specific information that must be included in the WSA.

SB 221 amended State law (California Government Code section 66473.7) to require that approval by a city or county of certain residential subdivisions[1] requires an affirmative written verification of sufficient water supply. SB 221 was intended as a fail-safe mechanism to ensure that collaboration on finding the needed water supplies to serve a new large residential subdivision occurs before construction begins.

[1] Per Government Code Section 66473.7(a)(1) subdivision means a proposed residential development of more than 500 dwelling units.

1.2 Need for and Purpose of Water Supply Assessment

The purpose of this WSA is to perform the evaluation required by SB 610 and SB 221 (Water Code sections 10910 through 10915) in connection with the Proposed Project, located within the City's service area.

This WSA does not reserve water, nor does it function as a "will serve" letter or any other form of commitment to supply water (see Water Code section 10914). The provision of water service will continue to be undertaken in a manner consistent with applicable policies and procedures, consistent with existing law.

This WSA for the Proposed Project has been prepared by West Yost Associates (West Yost), as requested by the City, the responsible water purveyor for the Proposed Project.

1.3 Water Supply Assessment Preparation, Format, and Organization

The format of this WSA is intended to follow Water Code sections 10910 through 10915 to clearly delineate compliance with the specific requirements for a WSA. This WSA includes the following sections:

Section 1: Introduction

Section 2: Description of the Proposed Project

Section 3: Required Determinations

Section 4: City of San Bruno Water Demands

Section 5: City of San Bruno Water Supplies

Section 6: Water Supply Reliability

Section 7: Determination of Water Supply Sufficiency Based on the Requirements of SB 610

Section 8: Verification of Sufficient Water Supply Based on the Requirements of SB 221

Section 9: Water Supply Assessment and Verification Approval Process

Section 10: References

Relevant citations of Water Code sections 10910 through 10915 are included throughout this WSA in *italics* to demonstrate compliance with the specific requirements of SB 610.

1.4 Acronyms and Abbreviations

The following acronyms and abbreviations have been used throughout this WSA.

AF	Acre-Feet
BARDP	Bay Area Regional Desalination Project
BAWSCA	Bay Area Water Supply and Conservation Agency
BDPLs	Bay Division Pipelines
Bioterrorism Act	Security and Bioterrorism Preparedness and Response Act of 2002
CCF	Hundred Cubic Feet
CEQA	California Environmental Quality Act
City/San Bruno	City of San Bruno
Cordilleras MWC	Cordilleras Mutual Water Company
Department	San Bruno's Public Services Department
DSOD	Division of Safety of Dams
du	Dwelling Units
DWR	Department of Water Resources
DWR Guidebook	2015 Urban Water Management Plans Guidebook
EIR	Environmental Impact Report
EO	Executive Order
EOP	Emergency Operations Plan
ERP	Emergency Response Plan
ERRP	Emergency Response and Recovery Plan
Feasibility Study	Recycled Water Feasibility Study
FY	Fiscal Year
GWMP	Groundwater Management Plan
GSR	Groundwater Storage and Recovery
Harry Tracy WTP	Harry Tracy Water Treatment Plant
Hetch Hetchy Project	Hetch Hetchy Water and Power Project
ISG	Individual Supply Guarantee
MGD	Million Gallons Per Day
MID	Modesto Irrigation District
NCCWD	North Coast County Water District
Projects	Projects and/or Programs
Proposed Project	Bayhill Specific Plan Development Project
RWS	Regional Water System
SB 221	Senate Bill 221
SB 610	Senate Bill 610
sf	Square Feet
SFPUC	San Francisco Public Utilities Commission
SWRCB	State Water Resources Control Board

TID	Turlock Irrigation District
UAFW	Unaccounted for Water
USEPA	U.S. Environmental Protection Agency
UWMP	Urban Water Management Plan
West Yost	West Yost Associates
WSA	Water Supply Assessment
WSAP	Water Shortage Allocation Plan
WSCP	Water Shortage Contingency Plan
WSIP	Water System Improvement Program

2.0 DESCRIPTION OF THE PROPOSED PROJECT

The following sections describe the Proposed Project, including the Proposed Project's location, proposed land uses, and existing and projected water demand.

2.1 Proposed Project Location

The Proposed Project comprises an approximately 92.2-acre area located in the central-eastern portion of the City. As shown on Figure 2-1, the site is bounded by Interstate 280 to the west, Interstate 380 to the north, El Camino Real to the east, and San Bruno Avenue West to the south.

2.2 Proposed Project Land Uses

The Proposed Project is located in an existing mixed-use district that includes the headquarters of YouTube, as well as various other land uses, including office, retail/commercial, hotel, and streets/right-of-way land uses.

The parcels owned by YouTube comprise the majority of the Proposed Project area. These parcels are proposed for redevelopment under YouTube's long-term campus expansion plan. The first phase of YouTube's campus expansion plan (Phase I Development) consists of 8.15-acres across two parcels. Anticipated buildout for the Phase I Development is 2022. The improvements corresponding to the Phase I Development are presented in this WSA both separately and within the total buildout (2040) improvements totals.

Four buildout scenarios of varying housing and office densities are evaluated in this WSA to capture the highest demand future scenario. Full buildout of the Proposed Project is assumed to occur by 2040. The two Proposed Project buildout scenarios include the following:

- Maximum Office Scenario
- Maximum Housing Scenario

The Maximum Office and Maximum Housing Scenarios differ based on whether the new housing and mixed use overlay zone proposed by the Plan in the southern portion of the Proposed Project site is implemented by future property owners. The proposed housing and mixed use overlay zone would encompass 19.6-acres on the southern portion of the Proposed Project, which would allow for the development of up to 573 multi-family residential units. Under the Maximum Office Scenario, no residential construction would occur within the housing and mixed use overlay zone, resulting in a proposed increase of nearly 2.5 million square feet (sf) of office space. Under the Maximum Housing Scenario, the housing development is assumed to be constructed at the highest density allowable under the specific plan, resulting in a proposed increase of nearly 2.0 million sf of office space and 573 residential dwelling units (du).

In addition to the two Proposed Project buildout scenarios, two alternative scenarios were evaluated under this WSA to account for the highest potential future water demand projection. The two additional alternatives are:

- Increased Height Alternative – Maximum Office Scenario
- Increased Height Alternative – Maximum Housing Scenario

The Increased Height Alternatives are not part of the Specific Plan but are additional scenarios that would occur only if voters approve overriding the existing 50-foot height restriction set forth by City Ordinance 1284. The Increased Height Alternative – Maximum Office Scenario is identical to the Maximum Office Scenario for Office and Retail land uses but would increase the height of the hotel, adding 53 rooms. The Increased Height Alternative – Maximum Housing Scenario is identical to the Maximum Housing Scenario but would also increase the height of the hotel, adding 53 rooms, and would increase the number of residential housing units, adding 497 du for a total of 1,070 du.

Collectively, the Proposed Project and the Increased Height Alternatives are referred to in this WSA as the Future Scenarios.

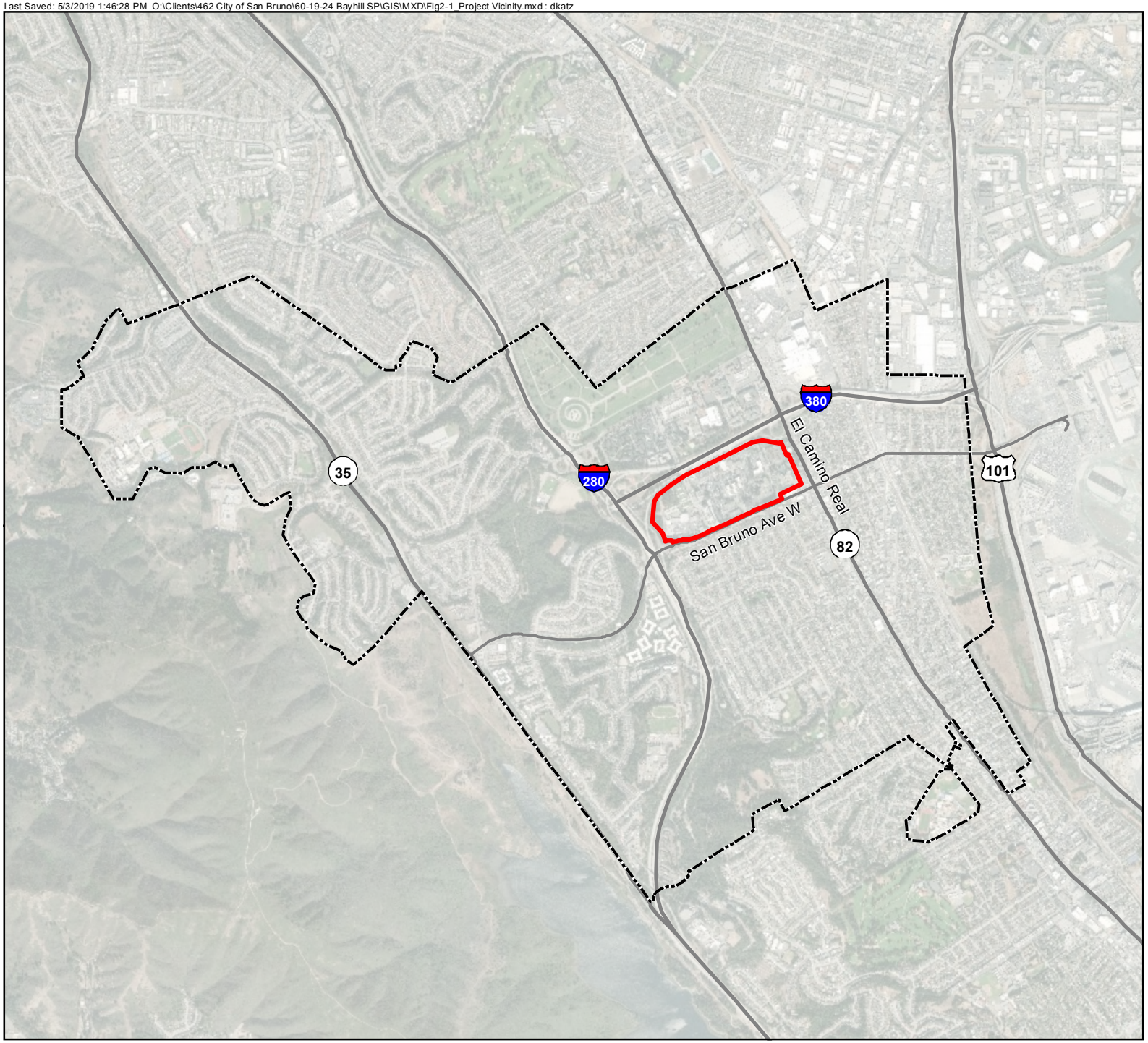
A summary of the existing and proposed land uses is shown in Table 2-1. The existing land uses at the Proposed Project site and the location of the Phase 1 Development are shown on Figure 2-2. The proposed land uses are shown on Figure 2-3, with the proposed housing and mixed use overlay zones shown.

Table 2-1. Existing and Projected 2040 Development Scenarios[a]

			Buildout (2040) Scenarios		Buildout (2040) Scenarios: Increased Height Alternatives	
	Existing Conditions	Phase 1 Development (2021)	Maximum Office Scenario	Maximum Housing Scenario	Maximum Office Scenario	Maximum Housing Scenario
Office (sf) [b]	1,557,847	1,859,323	4,017,694	3,500,743	4,017,694	3,500,743
Retail (sf)	121,846	121,846	121,846	121,846	121,846	121,846
Hotel (rooms)	133	133	133	133	186	186
Residential (du)	-	-	-	573	-	1,070

(a) Based on data provided to West Yost by ICF International Inc., on 3/13/2019 and 3/29/2019.
(b) Approximately 692,852 to 827,564 SF of existing office space would be removed under the Future Scenarios. Values include the existing office area that will remain.

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N

0 1,500 3,000

Scale in Feet

Symbology

City Limits

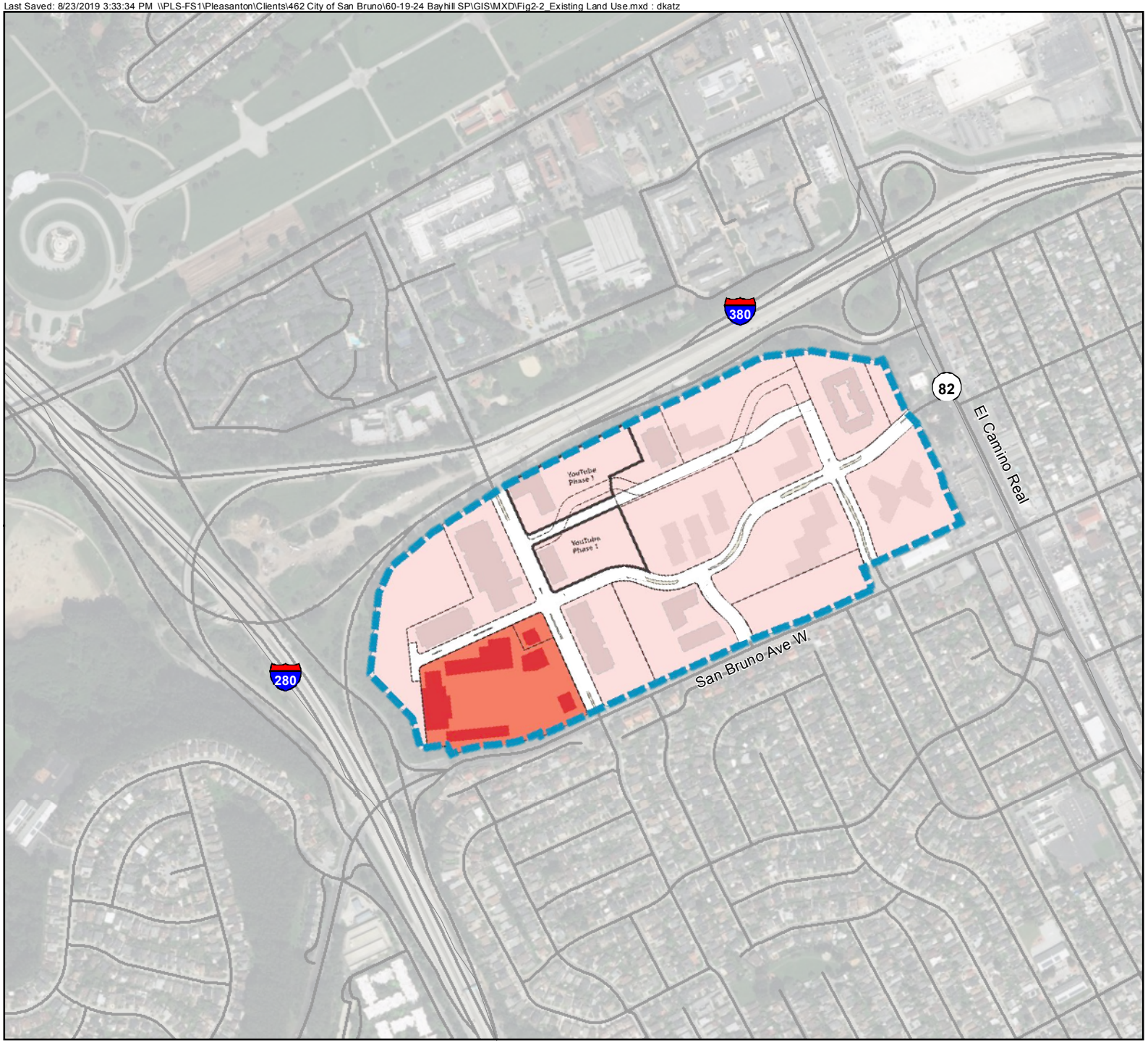
Proposed Project Location

Figure 2-1

Proposed Project Location

City of San Bruno
Bayhill Specific Plan
Water Supply Assessment

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0 375 750

Scale in Feet

Symbology

- Planning Area
- Regional Office
- Neighborhood Commercial

Source:Bayhill Existing GP Land Use (Dyett & Bhatia, July 2019).

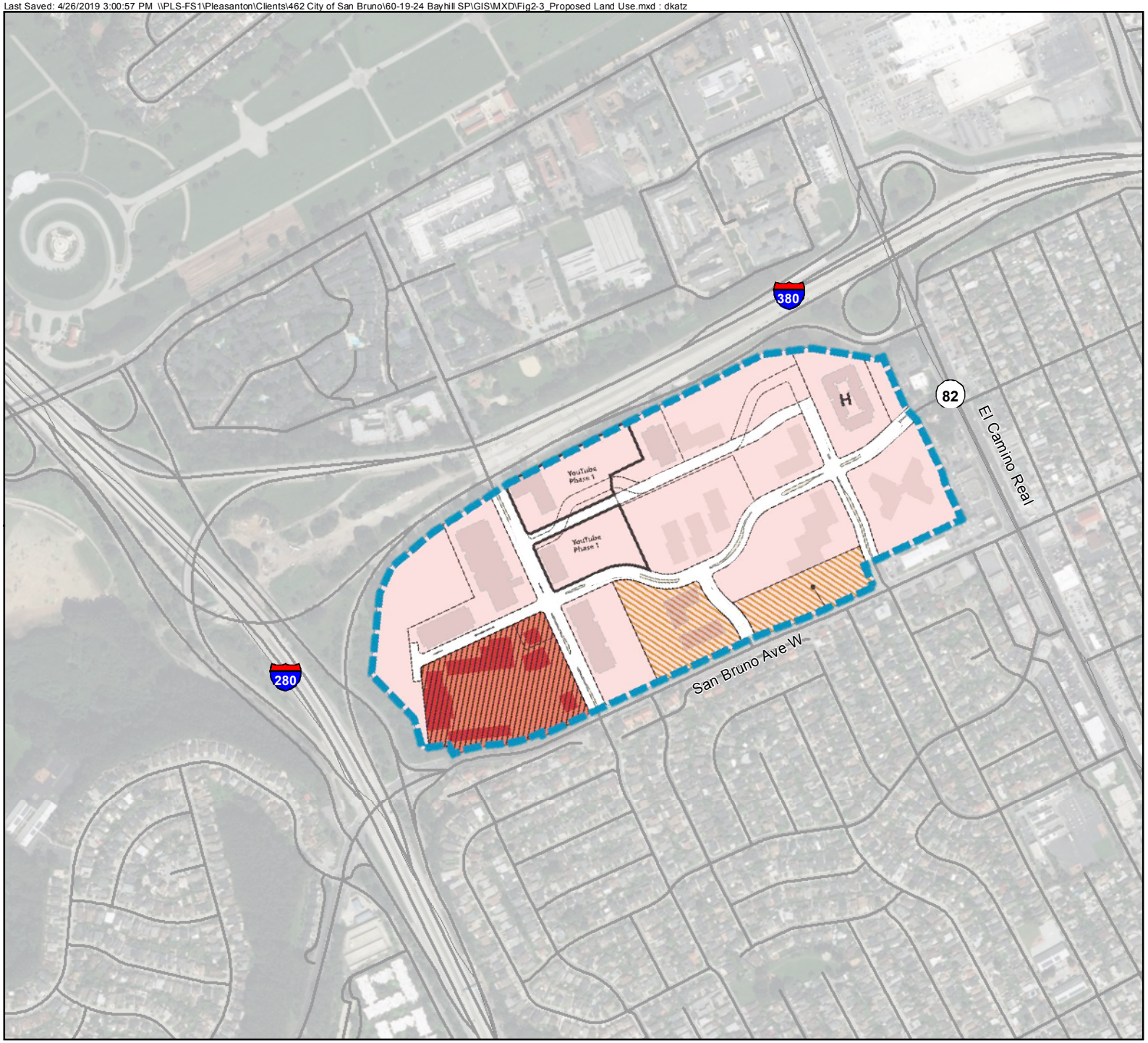
WEST YOST ASSOCIATES

Figure 2-2

Existing Land Use

City of San Bruno
Bayhill Specific Plan
Water Supply Assessment

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0 375 750

Scale in Feet

Symbology

- Planning Area
- Bayhill Regional Office (BRO)
- Bayhill Neighborhood Commercial (BNC)
- Housing Overlay (H-O)
- Mixed Use Overlay (MX-O)
- H — Hotel Only

Source: Bayhill Specific Plan Land Use (Dyett & Bhatia, July 2019).

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Figure 2-3
Proposed Land Use

City of San Bruno
Bayhill Specific Plan
Water Supply Assessment

2.3 Existing Water Demand

Existing water demands for the Proposed Project site were evaluated to determine the overall net increase in water demand associated with the Proposed Project. The existing demands were based on 2010 historical metered water consumption data for the Proposed Project parcels, as evaluated for the City's Water System Master Plan (November 2012). The 2010 metered consumption data was scaled to match the 2009/2010 production data by applying an unaccounted-for water (UAFW) value of 9 percent, consistent with the 5-year average UAFW presented in the Water System Master Plan. Because the City's total water production was greater in FY 2009/2010 than FY 2017/2018, the 2010 demands were used as the conservative baseline for existing water demand for the Proposed Project.

The Proposed Project site has an existing water demand of 0.14 million gallons per day (MGD), as shown in Table 2-2.

2.4 Projected Water Demand

The methodology and projections of the water demand associated with the Proposed Project are presented below.

2.4.1 Water Use Factors

Future water demands for the Future Scenarios have been projected using unit water demand factors according to the following water use assumptions:

- The Multi-Family Residential water demand factor, as presented in the 2012 Water System Master Plan, was applied to the residential land use.
- The Commercial Office and Commercial Retail water demand factors, as presented in the 2012 Water System Master Plan, were applied to the office and retail land uses.
- A unit water demand factor of 120 gpd/room was applied to the hotel land use. The hotel unit water demand factor is based on an evaluation of actual hotel water use within a local San Francisco Bay Area water district's service area from 2013 to 2017, which indicated that the average water demand per hotel room is approximately 115 gpd/room. With UAFW added, the unit water demand factor would be 125 gpd/room. It is assumed that future hotels within the City's water service area will incorporate conservation practices, which will reduce the per room water demand. Therefore, a unit demand factor of 120 gpd/room would incorporate improved conservation practices but with a 9 percent UAFW added.
- The housing and mixed-use overlay may include a civic land use such as a library. Though references to library water use were not found, libraries are often included in the same category as churches and schools (on a gpd/square foot basis) for water use projections. Water use factors for churches and school were found to be 0.00007 acre-feet per year per square foot, which corresponds to approximately 0.06 gpd/square foot.

The unit water demand factors for the Proposed Project are shown below in Table 2-3.

Table 2-2. Existing Water Demand: Historical Consumption[(a)]

Service Address	2010 Metered Consumption, gpm	UAFW, %	Existing Water Demand		
			gpm	MGD	CCF/YR
0 BAYHILL DR-POOL/LAWNS	3.99	9	4.38	0.006	3,078
999 BAYHILL DR	3.55	9	3.90	0.006	2,740
999-BAYHILL DR	3.03	9	3.33	0.005	2,340
1050 BAYHILL DR	6.70	9	7.36	0.011	5,172
1111 BAYHILL DR	7.91	9	8.69	0.013	6,106
0 BAYHILL SHOPPING CTR	7.17	9	7.88	0.011	5,537
2 BAYHILL SHOPPING CTR	0.53	9	0.58	0.001	408
4 BAYHILL SHOPPING CTR	0.14	9	0.15	0.000	105
5 BAYHILL SHOPPING CTR	0.48	9	0.53	0.001	372
6 BAYHILL SHOPPING CTR	0.56	9	0.62	0.001	436
8 BAYHILL SHOPPING CTR	0.93	9	1.02	0.001	717
9 BAYHILL SHOPPING CTR	0.32	9	0.35	0.001	246
10 BAYHILL SHOPPING CTR	0.25	9	0.27	0.000	190
21 BAYHILL SHOPPING CTR	0.47	9	0.52	0.001	365
22 BAYHILL SHOPPING CTR	3.03	9	3.33	0.005	2,340
811 CHERRY AVE	1.27	9	1.40	0.002	984
850 CHERRY AVE	7.70	9	8.46	0.012	5,945
899 CHERRY AVE	1.41	9	1.55	0.002	1,089
900 CHERRY AVE	2.95	9	3.24	0.005	2,277
901 CHERRY AVE	12.30	9	13.52	0.019	9,500
1000 CHERRY AVE	3.11	9	3.42	0.005	2,403
900 CHERRY AVE IRR	0.51	9	0.56	0.001	393
950 ELM AVE	3.38	9	3.71	0.005	2,607
950 ELM AVE	2.32	9	2.55	0.004	1,792
1100 GRUNDY LN	2.87	9	3.15	0.005	2,213
1250 GRUNDY LN	0.79	9	0.87	0.001	611
0 LAKE AMIR PARK	3.44	9	3.78	0.005	2,656
1150-LAKE AMIR PARK	4.08	9	4.48	0.006	3,148
851 TRAEGER AVE	0.62	9	0.68	0.001	478
801 TRAEGER AVE	2.78	9	3.05	0.004	2,143
		Total	**97.33**	**0.140**	**68,391**

(a) Source: 2010 metered consumption data provided by the City during development of the City of San Bruno Water System Master Plan, November 2012.

Table 2-3. Unit Water Demand Factors	
Use Type	Unit Use[a]
Multi-Family Residential[b]	120 gpd/du
Commercial Office[b]	0.13 gpd/square foot
Commercial Retail[b]	0.19 gpd/square foot
Hotel[c]	120 gpd/room
Library[d]	0.06 gpd/square foot

(a) All unit water demand factors include UAFW.
(b) Source: Table 3-9, City of San Bruno Water System Master Plan, November 2012.
(c) Hotel unit water use is based on an evaluation of actual hotel water use within a local San Francisco Bay Area water district's service area from 2013 to 2017.
(d) Based on similar water use per square foot values for schools and churches.

2.4.2 Projected Water Demand

The buildout (2040) water demands for the Future Scenarios were projected using the unit water demand factors and assumptions discussed previously. As shown in Table 2-4, projected water demands were calculated for the Phase 1 Development, as well as the four buildout scenarios (Maximum Office; Maximum Housing; Increased Height Alternative – Maximum Office; and Increased Height Alternative – Maximum Housing). The water demand projected for the Phase 1 Development is included in the total projected water demand for each of the buildout scenarios but is also shown separately to indicate the portion of the total projected buildout demand under each scenario that will be associated with the Phase 1 Development.

The Increased Height Alternative – Maximum Housing Scenario results in the highest buildout water demand, with a total projected demand of 0.63 MGD. This scenario represents the highest demand future scenario and was therefore be evaluated in this WSA with the understanding that, if sufficient potable water supplies are available to serve this highest demand future scenario, then sufficient potable water supplies would be available to serve any of the other Future Scenarios.

Although the Future Scenarios are not specifically identified in the City's 2015 UWMP, the Bayhill Specific Plan Area is included within the City's water demand projection, which projected a water demand increase of 2.17 MGD between 2015 to 2040, from 3.14 MGD (Fiscal Year (FY) 2014/2015) to 5.31 MGD (2040), as described in more detail in Section 4.

Table 2-4. Projected Development Scenarios[a]

Land Use	Quantity	Units	Unit Demand Factor	Units	Water Demand		
					gpd	MGD	CCF/YR
Phase 1 Development (2022)							
Office[b]	1,859,323	sf	0.13	gpd/sf	241,712	0.24	117,948
Retail[b]	121,846	sf	0.19	gpd/sf	23,151	0.02	11,297
Hotel[c]	133	room	120	gpd/room	15,960	0.02	7,788
Residential[d]	-	du	120	gpd/du	-	-	-
Phase 1 Development Total					**280,823**	**0.28**	**137,033**
Maximum Office Scenario (2040, including Phase 1 development)							
Office[b]	4,017,694	sf	0.13	gpd/sf	522,300	0.52	254,866
Retail[b]	121,846	sf	0.19	gpd/sf	23,151	0.02	11,297
Hotel[c]	133	room	120	gpd/room	15,960	0.02	7,788
Residential[d]	-	du	120	gpd/du	-	-	-
Maximum Office Scenario Total					**561,411**	**0.56**	**273,951**
Maximum Housing Scenario (2040, including Phase 1 development)							
Office[b]	3,500,743	sf	0.13	gpd/sf	455,097	0.46	222,073
Retail[b]	121,846	sf	0.19	gpd/sf	23,151	0.02	11,297
Hotel[c]	133	room	120	gpd/room	15,960	0.02	7,788
Residential[d]	573	du	120	gpd/du	68,760	0.07	33,553
Maximum Housing Scenario Total					**562,968**	**0.57**	**274,711**
Increased Height Alternative – Maximum Office Scenario (2040, including Phase 1 development)							
Office[b]	4,017,694	sf	0.13	gpd/sf	522,300	0.52	254,866
Retail[b]	121,846	sf	0.19	gpd/sf	23,151	0.02	11,297
Hotel[c]	186	room	120	gpd/room	22,320	0.02	10,891
Residential[d]	-	du	120	gpd/du	-	-	-
Increased Height Alternative – Maximum Office Scenario Total					**567,771**	**0.56**	**277,054**
Increased Height Alternative – Maximum Housing Scenario (2040, including Phase 1 development)							
Office[b]	3,500,743	sf	0.13	gpd/sf	455,097	0.46	222,073
Retail[b]	121,846	sf	0.19	gpd/sf	23,151	0.02	11,297
Hotel[c]	186	room	120	gpd/room	22,320	0.02	10,891
Residential[d]	1,070	du	120	gpd/du	128,400	0.13	62,655
Increased Height Alternative – Maximum Housing Scenario Total					**628,968**	**0.63**	**306,916**

(a) Based on data received from ICF International Inc., on 3/29/2019.
(b) Source: Table 3-9, City of San Bruno Water System Master Plan, November 2012.
(c) Hotel unit water use is based on an evaluation of actual hotel water use within a local San Francisco Bay Area water district's service area from 2013 to 2017.
(d) Multi-Family Residential units assumed based on the Draft EIR.

3.0 REQUIRED DETERMINATIONS

The following sections describe the required determinations for a WSA.

3.1 Does SB 610 Apply to the Proposed Project?

10910 (a) Any city or county that determines that a project, as defined in Section 10912, is subject to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) under Section 21080 of the Public Resources Code shall comply with this part.

10912 (a) "Project" means any of the following:

(1) A proposed residential development of more than 500 dwelling units.

(2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.

(3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.

(4) A proposed hotel or motel, or both, having more than 500 rooms.

(5) A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.

(6) A mixed-use project that includes one or more of the projects specified in this subdivision.

(7) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500-dwelling unit project.

As shown in Table 3-1, the Proposed Project does meet the definition of a "Project" as specified in Water Code section 10912(a)(7). The Proposed Project has not been the subject of a previously adopted WSA and has not been included in an adopted WSA for a larger project. Therefore, according to Water Code section 10910(a), a WSA is required for the Proposed Project.

The City has also determined that the Proposed Project is subject to the California Environmental Quality Act (CEQA) and that an EIR is required.

Table 3-1. Does the Proposed Project Meet the SB 610 Definition of a "Project"?

SB 610 Project Definition Components	Proposed Project Quantity	Meets the SB 610 Definition of a "Project"?
Residential > 500 dwelling units	Up to 1,070 du	YES
Retail > 1,000 employees or > 500,000 sf	Up to 121,846 sf	NO
Commercial Office Building > 1,000 employees or > 250,000 sf	Up to 3,500,743 sf	YES
Hotel/Motel > 500 rooms	Up to 186 rooms	NO
Industrial Plant/Park > 1,000 employees or > 40 acres or > 650,000 sf	N/A	NO
Mixed Use Project that includes one or more of the above	--	YES
A Project that would demand the amount of water required by a 500-dwelling unit project	--	YES
SB 610 Required?	--	YES

3.2 Does SB 221 Apply to the Proposed Project?

In 2001, SB 221 amended State law to require that approval by a city or county of certain residential subdivisions requires an affirmative written verification of sufficient water supply. Per California Government Code section 66473.7(a)(1), a subdivision is defined as a proposed residential development of more than 500 dwelling units. The highest water demand Future Scenario, with up to 1,070 new residential dwelling units in the City's water service area, is therefore subject to the requirements of SB 221. Section 8.0 of this WSA provides the required written verification of sufficient water supply.

3.3 Who is the Identified Public Water System?

> *10910(b) The city or county, at the time that it determines whether an environmental impact report, a negative declaration, or a mitigated negative declaration is required for any project subject to the California Environmental Quality Act pursuant to Section 21080.1 of the Public Resources Code, shall identify any water system that is, or may become as a result of supplying water to the project identified pursuant to this subdivision, a public water system, as defined by Section 10912, that may supply water for the project*
>
> *10912 (c) "Public water system" means a system for the provision of piped water to the public for human consumption that has 3,000 or more service connections…*

As shown on Figure 2-1, the Proposed Project is located within the City limits, in the City's water service area. The City's service area consists of 11 pressure zones within the City, with the Proposed Project being located in a central-eastern zone (Zone 3/5). Therefore, the City is the identified public water system for the Proposed Project.

3.4 Does the Identified Water Supplier have an adopted Urban Water Management Plan (UWMP) and does the UWMP include the projected water demand for the Proposed Project?

> *10910(c)(1) The city or county, at the time it makes the determination required under Section 21080.1 of the Public Resources Code, shall request each public water system identified pursuant to subdivision (b) to determine whether the projected water demand associated with a proposed project was included as part of the most recently adopted urban water management plan adopted pursuant to Part 2.6 (commencing with Section 10610).*

As discussed in Section 2.4.2, the projected water demands associated with the highest water demand Future Scenario (0.63 MGD) aren't specifically identified in the 2015 UWMP water demand projections but are included in the City's future population and employment growth projections. The 2015 UWMP projected the long-range water demands using the Demand Side Management Least Cost Planning Decision Support System (DSS Model) based on the forecasted increases in population and employment, which therefore includes future water demands for the Proposed Project in the 2015 UWMP.

4.0 CITY OF SAN BRUNO WATER DEMANDS

10910(c)(2) If the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f) and (g).

Except as noted, the descriptions provided below for the City's water demands have been taken from the City's 2015 UWMP (adopted in June 2016).

4.1 Historical Water Demand

According to the City's 2015 UWMP, during FY 2009/2010 and FY 2014/2015, the service population had grown by about 7.9 percent, while the total volume of water sold decreased by 14 percent. The decrease in water demand can be attributed to mandatory state-wide restrictions issued by the State Water Resources Control Board (SWRCB) during the recent statewide drought.

Table 4-1 shows the City's water demand (based on water production) for FY 2013/2014 through FY 2017/2018. The City's water demand has remained low following recovery from the historical drought.

Table 4-1. Historical Water Demand

	Units	FY 2013/14[a]	FY 2014/15[b]	FY 2015/16[c]	FY 2016/17[d]	FY 2017/18[e]
Total Water Demand	MGD	2.16	3.14	3.04	2.93	3.05
	CCF/YR	1,053,066	1,529,900	1,482,846	1,429,544	1,488,555

(a) Source: "2014 water data.xlsx" provided by the City.
(b) Source: "2015 water data.xlsx" provided by the City. This data matches the FY 2014/15 potable water demands presented in Table 4-1 of the City of San Bruno 2015 UWMP (June 2016).
(c) Source: "2016 water data.xlsx" provided by the City.
(d) Source: "2017 water data.xlsx" provided by the City.
(e) Source: "2018 water data.xlsx" provided by the City.

4.2 Future Water Demand

Table 4-2 shows the City's projected normal year water demands in five-year increments through 2040 to match the years of the water demand projections documented in the City's 2015 UWMP. The projected total water demand for 2020 (3.93 MGD) is expected to be 25 percent greater than the actual FY 2014/2015 historical water demand (3.14 MGD). This projected increase in demand reflects a potential rebound in water use following the end of the suppressed 2015 drought demands and an accelerated growth in employment. However, the City's actual calendar year 2018 water demand (2.99 MGD) was lower than the City's FY 2014/2015 water demand (3.14 MGD) presented in the 2015 UWMP. It is assumed that the reduced 2018 water demand is due to systemwide implementation of permanent conservation measures (i.e., low-flow plumbing fixtures and/or drought-tolerant landscaping) that will not result in a rebound in water use. Therefore, the City's actual 2018 water demand was used as the baseline existing water demand for this analysis.

Table 4-2. Projected Future Water Demand – Water Demands

Water Demand Type	2020	2025	2040
Existing Water Demand, MGD[(a)]	2.99	2.99	2.99
Known Projects, MGD[(b)]	0.00	0.61	0.61
Net Increase from Project, MGD[(c)]	0.00	0.14	0.49
Water Available for Future Development, MGD[(d)]	0.94	0.50	1.22
Total Projected Water Demand, MGD[(e)]	3.93	4.24	5.31

(a) Source: "2018 water data.xlsx" provided by the City.

(b) Source: Table 3-10, City of San Bruno Water System Master Plan, November 2012. Known projects includes all projected water demands associated with future projects, less the Bayhill Office Park.

(c) Increased Height Alternative - Maximum Housing Scenario (Table 2-4) less the site's Existing Water Demand (0.14 MGD; Table 2-2). For purposes of this WSA, the development of the highest water use future scenario would be phased as follows:
2020 – No Development
2025 – Phase 1 Development, completion expected by 2022 (0.28 MG)
2040 –Buildout of highest water demand future scenario (0.63 MG)

(d) 2015 UWMP projected demands minus the existing water, known projects, and net increase from highest water demand future scenario demands.

(e) Source: City of San Bruno 2015 UWMP (June 2016), Table 4-2.

Water demand projections for the City, presented in the 2015 UWMP, were developed as part of a BAWSCA study. In September 2014, BAWSCA completed the Regional Water Demand and Conservation Projections Report (Demand Study). The goal of the Demand Study was to develop transparent, defensible, and uniform demand and conservation savings projections for each wholesale customer using a common methodology to support both regional and individual agency planning efforts. The Demand Study projections were incorporated into BAWSCA's Long-Term Reliable Water Supply Strategy (Strategy) discussed below.

Through the Demand Study process, BAWSCA and the wholesale customers coordinated to determine the following: (1) the total average-year water demand for each BAWSCA member agency through 2030; (2) passive and active conservation water savings potential for each individual wholesale customer through 2040; and (3) identified conservation programs for further consideration for regional implementation by BAWSCA. The Demand Study projected that by 2040, the collective active conservation efforts of the wholesale customers would yield an additional 16 MGD in savings beyond what has already been achieved for the BAWSCA service area. Based on the revised water demand projections, the identified water conservation savings (including passive savings), and other actions, the collective purchases of the BAWSCA member agencies from the SFPUC are projected to stay below 184 MGD through 2018. Additionally, the identified water conservation savings result in revised projected demands for the City that are lower than the water demand projections developed for the City's 2012 Water System Master Plan.

As part of the Demand Study, each wholesale customer was provided with a demand model that could be used to support on-going demand and conservation planning efforts, including UWMP preparation. The water projections shown in Table 4-2 are based on the demand model developed for the City.

4.3 Dry Year Water Demand

As discussed previously, the City's FY 2014/15 water demand was lower than the FY 2009/10 water demand. This reduction in demands occurred in response to the drought and to Governor Brown's April 2015 Executive Order (EO) B-29-15, which mandated a statewide 25 percent reduction in urban potable water usage. In response to the mandated 25 percent reduction, the State Water Resources Control Board (SWRCB) imposed mandatory restrictions on urban water suppliers by adopting Resolution 2015-0032 in May 2015. The restrictions imposed by the SWRCB placed each urban water supplier into one of nine tiers, and tied mandatory conservation standards to each tier. The City was required to reduce water use by 8 percent relative to 2013 water use.

On April 14, 2015, in response to EO B-29-15, the City Council implemented Stage II of the City's *Water Shortage Contingency Plan* (WSCP). Stage II requires a 20 percent mandatory water supply reduction with outdoor irrigation limited to two days per week. At the July 26, 2016 City Council meeting, the City Council adopted a resolution to implement Stage I of the WSCP.

The City's WSCP includes four Stages of Action to be followed during a water shortage. The stages were developed to meet supply cutbacks ranging from 5 percent to 50 percent. The four stages of water use reduction range from 10 percent to 50 percent. The demand reduction assumptions under dry year conditions, as included in the City's 2015 UWMP, are listed below.

- During Single Dry Years, the potable water demands are assumed to be 90 percent of Normal Year demands (10 percent reduction in water use). This assumes that the City implements Stage I of the WSCP.
- During Multiple Dry Years, the potable water demands are assumed to be 90 percent of Normal Year demands (10 percent reduction in water use) for the first dry year and 80 percent of Normal Year demands (20 percent reduction in water use) for the second and third dry year. This assumes that the City implements Stage I of the WSCP in the first year and implements a Stage II water shortage in the second and third years.

Table 4-3 presents the projected future single and multiple dry year water demand in MGD, as presented in the City's 2015 UWMP.

Table 4-3. Projected Future Water Demand – Dry Years, MGD

Hydrologic Condition	Demand Reduction[a]	2020	2025	2040
Single Dry Year[b]	10%	3.54	3.82	4.78
Multiple Dry Years, Year 1[c,d]	10%	3.54	3.82	4.78
Multiple Dry Years, Year 2[c,d]	20%	3.14	3.39	4.25
Multiple Dry Years, Year 3[c,d]	20%	3.14	3.39	4.25

(a) Demands will be reduced 10% for single dry years for a Stage I water shortage and 20% for multiple dry years for a Stage II shortage.
(b) Source: City of San Bruno 2015 UWMP (dated June 2016), Table 7-5.
(c) Source: City of San Bruno 2015 UWMP (dated June 2016), Table 7-6.
(d) Demand totals assume 10% demand reduction in the first year and 20% reduction in the second and third years.

Table 4-4 presents the projected future single and multiple dry year water demand in CCF/YR, as presented in the City's 2015 UWMP.

Table 4-4. Projected Future Water Demand – Dry Years, CCF/YR

Hydrologic Condition	Demand Reduction[a]	2020	2025	2040
Single Dry Year[b]	10%	1,725,943	1,862,086	2,331,999
Multiple Dry Years, Year 1[c,d]	10%	1,725,943	1,862,086	2,331,999
Multiple Dry Years, Year 2[c,d]	20%	1,534,171	1,655,187	2,072,888
Multiple Dry Years, Year 3[c,d]	20%	1,534,171	1,655,187	2,072,888

(a) Demands will be reduced 10% for single dry years for a Stage I water shortage and 20% for multiple dry years for a Stage II shortage.
(b) Source: City of San Bruno 2015 UWMP (dated June 2016), Appendix B, Table 7-3.
(c) Source: City of San Bruno 2015 UWMP (dated June 2016), Appendix B, Table 7-4.
(d) Demand totals assume 10% demand reduction in the first year and 20% reduction in the second and third years.

5.0 CITY OF SAN BRUNO WATER SUPPLIES

10910(c)(2) If the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f) and (g).

10910(d)(1) The assessment required by this section shall include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system…under the existing water supply entitlements, water rights, or water service contracts.

10910(e) If no water has been received in prior years by the public water system…under the existing water supply entitlements, water rights, or water service contracts, the public water system…shall also include in its water supply assessment…an identification of the other public water systems or water service contract holders that receive a water supply or have existing water supply entitlements, water rights, or water service contracts, to the same source of water as the public water system.

10910(f) If a water supply for a proposed project includes groundwater, the following additional information shall be included in the water supply assessment.

(1) A review of any information contained in the urban water management plan relevant to the identified water supply for the proposed project.

(2) A description of any groundwater basin or basins from which the proposed project will be supplied. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most recent bulletin of the department that characterizes the condition of the groundwater basin, and a detailed description by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), of the efforts being undertaken in the basin or basins to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the amount and location of groundwater pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), for the past five years from any groundwater basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historical use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), from any basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historical use records.

(5) An analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project. A water assessment shall not be required to include the information required by this paragraph if the public water system determines, as part of the review required by paragraph (1), that the sufficiency of groundwater necessary to meet the initial and projected water demand associated with the project was addressed in the description and analysis required by paragraph (4) of subdivision (b) of Section 10631.

Except as noted, the descriptions provided below for the City's water supplies have been taken from the City's 2015 UWMP (adopted in June 2016) and San Francisco Public Utilities Commission (SFPUC)'s 2015 UWMP (adopted in June 2016).

5.1 Water Supply Overview

The City receives water from three supply sources:

- Treated surface water purchased on a wholesale basis from the San Francisco Public Utilities Commission Regional Water System (SFPUC RWS);
- Treated surface water purchased from North Coast County Water District (NCCWD); and
- Local groundwater pumped by the City from the South Westside Groundwater Basin.

The City's treated surface water supply is delivered through the RWS, originating from the Tuolumne River and the Alameda County and Peninsula watersheds. The RWS is owned and operated by the SFPUC that supplies water to both retail and wholesale customers. Retail customers include residents, businesses, and industries located within the City of San Francisco's city limits. It also includes the Town of Sunol, San Francisco International Airport, Lawrence Livermore National Laboratory, and the Castlewood customer service area, which are all located outside of the city limits for the City of San Francisco. Wholesale customers include the 26 wholesale customers represented by BAWSCA, including 24 permanent customers and two customers with temporary and interruptible water supply contracts with the SFPUC (Wholesale Customers), Cordilleras Mutual Water Company (Cordilleras MWC), and Groveland Community Services District (Groveland CSD).

BAWSCA represents the interests of the 26 Wholesale Customers and helps to coordinate their water conservation programs. Of the 26 Wholesale Customers represented by BAWSCA, the SFPUC has a perpetual commitment (Supply Assurance) to deliver 184 MGD to the 24 permanent wholesale customers[2] collectively. The Supply Assurance is allocated among the 24 permanent wholesale customers through Individual Supply Guarantees (ISG), which represent each wholesale customer's allocation of the 184 MGD Supply Assurance.

The City is a member agency of BAWSCA and purchases treated water from the SFPUC RWS in accordance with the 2009 Water Supply Agreement between the City and County of San Francisco and Wholesale Customers in Alameda, San Mateo and Santa Clara Counties. The City has an ISG of 3.25 MGD, supplied by the SFPUC RWS. The SFPUC RWS water supplies are discussed in detail in Section 5.2 (Water Supplies from the SFPUC RWS). Water purchased from the NCCWD is also from the RWS, but is served directly from NCCWD, and is used exclusively to meet the demands of the City's Treetop Apartments complex, located in Pressure Zone 13. The City purchases approximately 0.05 MGD from NCCWD.

Local groundwater is pumped by the City from the southern part of the Westside Basin (South Westside Basin). A Groundwater Management Plan (GWMP) was prepared for the South Westside Basin in 2012, which indicated that the basin is not in overdraft and the City can pump at a rate of 2.1 MGD on a long-term basis. To diversify the water supply for drought protection and ensure the resiliency of SFPUC water supplies, the City entered into a strategic conjunctive use partnership with SFPUC and two other San Mateo County agencies: California Water

[2] The City of San Jose and the City of Santa Clara are not included in the Supply Assurance commitment and each has temporary and interruptible water supply contracts with San Francisco.

Service (serving South San Francisco and Colma) and the City of Daly City. The City implemented conjunctive use operations starting in 2016 as a participant in the Regional Groundwater Storage and Recovery (GSR) Project, thereby reducing groundwater pumping under normal year supply conditions.

5.2 Water Supplies from the SFPUC RWS

The SFPUC RWS consists of more than 280 miles of pipeline and 60 miles of tunnels, eleven reservoirs, five pump stations, and two water treatment plants. It is geographically delineated between the Hetch Hetchy Project and the Bay Area water system facilities. The various SFPUC RWS elements include:

- Hetch Hetchy Watershed and System
- Bay Area System (consisting of the Alameda Watershed and System and the Peninsula Watershed and System)
- Water Treatment
- Water Storage

Each of these elements is described further below.

5.2.1 Hetch Hetchy Watershed and System

Approximately 85 percent of the water supply to the SFPUC RWS originates in the Hetch Hetchy watershed, located in Yosemite National Park, and flows down the Tuolumne River into the Hetch Hetchy Reservoir. Water from the Hetch Hetchy watershed is managed through the Hetch Hetchy Water and Power Project (Hetch Hetchy Project). The Hetch Hetchy Project is generally composed of the reservoirs, hydroelectric generation and transmission facilities, and water transmission facilities from the Hetch Hetchy Valley west to the Alameda East Portal of the Coast Range Tunnel in Sunol Valley. Water system components of the Hetch Hetchy Project are also referred to as the Hetch Hetchy System.

In the Hetch Hetchy System, water is diverted from Hetch Hetchy Reservoir into a series of tunnels and aqueducts from the Sierra Nevada to the San Joaquin Pipelines that cross the San Joaquin Valley to the Coast Range Tunnel, which connects to the Alameda System at the Alameda East Portal. Hetch Hetchy System water is disinfected at the Tesla Treatment Facility.

5.2.2 Bay Area System

Approximately 15 percent of the water supply to the SFPUC RWS originates locally in the Alameda and Peninsula watersheds. The local Bay Area water system is comprised of two parts—the Alameda System and the Peninsula System—generally consisting of the facilities west of Alameda East Portal, including the 63,000-acre Alameda and Peninsula watersheds, storage reservoirs, two water treatment plants, and the distribution system that delivers water to retail and wholesale customers.

5.2.2.1 Alameda Watershed and System

The Alameda System includes two reservoirs, San Antonio Reservoir and Calaveras Reservoir, which collect water from the San Antonio Creek, Upper Alameda Creek, and Arroyo Hondo watersheds in Alameda County. San Antonio Reservoir also receives water from the Hetch Hetchy System. Conveyance facilities in the Alameda System connect the Hetch Hetchy System and Alameda water sources to the RWS. The Bay Division Pipelines (BDPLs) cross the South Bay to the Peninsula System delivering water to customers along the pipeline route. The Sunol Valley Water Treatment Plant (Sunol Valley WTP) filters and disinfects water supplied from San Antonio Reservoir and Calaveras Reservoir.

5.2.2.2 Peninsula Watershed and System

The Peninsula System includes conveyance facilities connecting the BDPLs to the in-City distribution system and to other customers on the Peninsula. Two reservoirs, Crystal Springs Reservoir and San Andreas Reservoir, collect runoff from the San Mateo Creek watershed. Crystal Springs Reservoir also receives water from the Hetch Hetchy System. A third reservoir, Pilarcitos Reservoir, collects runoff from the Pilarcitos Creek watershed and directly serves one of the Wholesale Customers, the Coastside County Water District (which serves the City of Half Moon Bay), along with delivering water to the Crystal Springs and San Andreas Reservoirs. The Harry Tracy Water Treatment Plant (Harry Tracy WTP) filters and disinfects water supplied from Crystal Springs Reservoir and San Andreas Reservoir before it is delivered to customers on the Peninsula and the in-City distribution system.

5.2.3 Water Treatment

The Hetch Hetchy Reservoir is the largest unfiltered water supply on the West Coast, and one of only a few large unfiltered municipal water supplies in the nation. The water originates from runoff and snowmelt flowing down the Tuolumne River to Hetch Hetchy Reservoir, where it is stored. This high-quality water source comes from well-protected wilderness areas in Yosemite National Park and meets or exceeds all federal and State criteria for watershed protection. Water from Hetch Hetchy Reservoir is protected in pipes and tunnels as it is conveyed to the Bay Area, and only requires pH adjustment to control pipeline corrosion and disinfection for bacteria control. Based on the SFPUC's disinfection treatment practice, extensive bacteriological quality monitoring, and high operational standards, the U.S. Environmental Protection Agency (USEPA) and the SWRCB Division of Drinking Water determined that the Hetch Hetchy water source meets federal and State drinking water quality requirements without the need for filtration.

A new USEPA regulation took effect in 2012 requiring secondary disinfection for all unfiltered drinking water systems to control the waterborne parasite cryptosporidium. To comply with this regulation, the SFPUC completed construction of a new ultraviolet treatment facility in 2011. The Tesla Treatment Facility is a key component of the Water System Improvement Program (WSIP) and further enhances the Hetch Hetchy System's high-quality water. The facility has a capacity of 315 MGD, making it the third largest ultraviolet drinking water disinfection facility in the U.S.

All water derived from Alameda System and Peninsula System sources is treated at one of two treatment plants: the Sunol Valley WTP or the Harry Tracy WTP. The Sunol Valley WTP treats water primarily from the Alameda System reservoirs and has both a peak capacity and sustainable capacity of 160 MGD. Treatment processes include coagulation, flocculation, sedimentation, filtration, and disinfection. Fluoridation, chloramination, and corrosion control treatment are provided for the combined Hetch Hetchy System and Sunol Valley WTP water at the Sunol chloramination and fluoridation facilities. The Harry Tracy WTP treats water from the Peninsula System reservoirs and has a peak capacity of 180 MGD and a sustainable capacity of 140 MGD. Treatment processes include ozonation, coagulation, flocculation, filtration, disinfection, fluoridation, corrosion control treatment, and chloramination. Major upgrades to the Sunol Valley WTP were completed in 2013 and to the Harry Tracy WTP in 2015.

5.2.4 Raw Water Storage

The majority of the water delivered by the SFPUC is supplied by runoff from the upper Tuolumne River watershed on the western slope of the central Sierra Nevada. Three major reservoirs collect runoff: Hetch Hetchy Reservoir, Lake Lloyd, and Lake Eleanor. A "water bank" in Don Pedro Reservoir is integrated into system operations.[3] Don Pedro Reservoir is jointly owned and operated by Modesto Irrigation District (MID) and Turlock Irrigation District (TID) and is located on the Tuolumne River downstream of the Hetch Hetchy System.

Table 5-1 displays the raw water storage capacity of the RWS.

As a by-product of water delivery and water supply management, hydroelectric power is also generated by the Hetch Hetchy Project. Water stored in Hetch Hetchy Reservoir is used for hydroelectric generation and also satisfies instream flow requirements when released downstream. Normally, only Hetch Hetchy Reservoir water supplies are exported to the Bay Area, while releases from Lake Eleanor and Lake Lloyd are used to satisfy instream flow requirements, satisfy Raker Act entitlements to MID and TID downstream, and produce hydroelectric power. The Hetch Hetchy Water and Power System is comprised of three major hydroelectric powerhouses along the Tuolumne River—Holm, Kirkwood, and Moccasin—that have a collective generating capacity of nearly 400 megawatts.

Downstream of the Hetchy System, the SFPUC utilizes local watersheds in the Bay Area. On the Peninsula, the Crystal Springs, San Andreas, and Pilarcitos Reservoirs located in San Mateo County capture local watershed runoff. In the Alameda Creek watershed in Alameda County, the SFPUC operates Calaveras and San Antonio Reservoirs. In addition to using these facilities to capture local runoff, San Andreas, San Antonio, and Crystal Springs Reservoirs also provide storage for the Hetch Hetchy System and, along with Calaveras Reservoir, are important water supply sources in the event of an interruption to Hetch Hetchy System deliveries.

[3] MID and TID have senior water rights to the SFPUC for the Tuolumne River water and are entitled to the first increment of flow in the basin. Water bank provides a credit and debit system which allows the SFPUC to divert water upstream while meeting its obligations to TID and MID. Through this mechanism the SFPUC may pre-deliver the TID and MID entitlements and credit the water bank so that at other times the SFPUC may retain water upstream while TID and MID debit the water bank.

Calaveras Reservoir was under construction from 2011 to September 2018 to replace the existing dam with an earth and rock fill dam that is designed to accommodate a maximum credible earthquake on the Calaveras Fault. The replacement dam will restore the original reservoir capacity. Filling of the reservoir began during the wet season of the 2019 water year.

Table 5-1. Regional Water System Storage Capacity

Reservoir	Storage Capacity	
	Acre-Feet, AF	Billions of Gallons, BG
Up-Country[a]		
Hetch-Hetchy	360,360	117.4
Lake Lloyd[b]	273,300	89.1
Lake Eleanor	27,100	8.8
Subtotal	660,760	215.3
Local		
Calaveras (East Bay)[c]	96,800	31.5
San Antonio (East Bay)	50,500	16.5
Crystal Springs (Peninsula)[d]	69,300	22.6
San Andreas (Peninsula)	19,000	6.2
Pilarcitos (Peninsula)	3,100	1.0
Subtotal	238,700	77.8
Total Regional Water System[e]	899,460	293.1

Source: SFPUC 2015 UWMP (dated April 2016), Table 3-1.

Three other regulating reservoirs are also part of the RWS: Early Intake, Priest, and Moccasin Reservoirs.

Storage capacity shown includes flashboards, which are structures placed in a spillway to increase the capacity of a reservoir.

Calaveras Reservoir was constructed with a storage capacity of 96,800 AF. Since December 2001, in response to safety concerns about the seismic stability of the dam and a directive from the Division of Safety of Dams (DSOD), the SFPUC has held the maximum water level at approximately 37,800 AF (roughly 40% of its maximum capacity), pending the refilling of the reservoir following the construction of a new comparably sized replacement dam downstream, completed in September 2018.

Crystal Springs Reservoir has a maximum storage capacity of 22.1 BG (at 291.8 feet). When the Lower Crystal Springs Dam Improvement is complete, the reservoir will be operated normally at 287.8 feet (4 feet below capacity) based on permit conditions.

This includes 63,700 AF in dead storage (i.e., the volume in a reservoir below the lowest controllable level). In addition, the SFPUC may draw against a credit of up to 570,000 AF in storage in a water bank account in Don Pedro Reservoir, for total storage for planning purposes of 1,469,460 AF.

5.3 Potable Water Supplies from NCCWD

The City purchases water from NCCWD under the terms of Resolution No. 2001-52, Intertie and Water Service Agreement. The cost of water purchased from NCCWD is set according to NCCWD's Rate and Fee Schedule for governmental multi-unit residential property. There is no contractual limit to the quantity of water the City may purchase from NCCWD, except that purchases are "only such water service as [NCCWD] can normally render".

The City purchases approximately 0.05 MGD of water from the NCCWD (Table 5-4). This water is served from the Crystal Springs turnout in Pressure Zone 13, and is used exclusively to meet the demands of the Treetop Apartments complex. The City does not anticipate any changes to its NCCWD water supply in the near future. The water purchased from NCCWD originates

from the SFPUC RWS and is characterized and is subject to the same overview as the SFPUC imported supply detailed in this section.

5.4 Groundwater Supply

This section describes the City's groundwater basin and the management of the South Westside Basin.

The City owns and operates four groundwater wells in the South Westside Basin. The groundwater pumped by the City currently comprises approximately 10 percent of total supply (based on 2018 production data). This groundwater resource is described in the sections below.

5.4.1 Groundwater Basin Description

The City overlies the southern portion of the 40 square mile Westside Basin. The Westside Basin consists of unconsolidated colluvium that was deposited in a northwest trending trough in the underlying impervious bedrock. The Westside Basin is bounded by bedrock highs in Golden Gate Park to the north and at Coyote Point to the south. San Bruno Mountain and San Francisco Bay form the eastern boundary of the Basin while the Serra Fault and the Pacific Ocean form the western boundary. Adjoining groundwater basins are the Lobos Basin to the North and the San Mateo Plain Aquifer to the south.

The Westside Basin has been separated into two distinct areas for management purposes: North Westside Basin Area and South Westside Basin Area. The City is located within the South Westside Basin Area.

5.4.2 Groundwater Management

The South Westside Basin is a shared groundwater resource. The local agencies overlying the basin manage the resource jointly through use of a GWMP and the Regional GSR Project, described in the following sections.

5.4.2.1 Groundwater Management Plan

The South Westside Basin GWMP was completed in July 2012 by the City, in coordination with the City of Daly City, Cal Water, the SFPUC, and other stakeholders. This GWMP was developed to provide a framework for regional groundwater management in the South Westside Basin that sustains the beneficial use of the groundwater resource. This framework includes the following objectives: informing the public of the importance of groundwater to the South Westside Basin and the challenges and opportunities it presents; developing consensus among stakeholders on issues and solutions related to groundwater; building relationships among stakeholders within the basin and between state and federal agencies; and defining actions for developing programs to ensure the long-term sustainability of groundwater resources in the South Westside Basin.

The goal of the GWMP is to ensure a sustainable, high quality, reliable water supply at a fair price for beneficial uses achieved through local groundwater management. The GWMP provides steps for monitoring water quality and quantity in the basin. Each groundwater well in the basin has defined triggers for overdraft, seawater intrusion, and various water quality measures. The

GWMP identifies two levels of trigger thresholds for each groundwater well based on historical water levels, and actions to address the trigger that is met.

5.4.2.2 Regional Groundwater Storage and Recovery Project

In December 2014, the Regional GSR operating agreement was signed to ensure long-term management and sustainability of the South Westside Groundwater Basin through a strategic conjunctive use partnership. The partnership with the City, SFPUC, California Water Service (serving South San Francisco and Colma), and the City of Daly City allows the agencies to operate the basin jointly and provides a new 20-billion-gallon regional dry year groundwater supply. The project is included as part of the SFPUC WSIP described in Section 6.2.1 of this WSA.

The Regional GSR Project is an in-lieu groundwater recharge program that balances groundwater and SFPUC RWS supply to increase drought year water supplies. During wet and normal years, water from the RWS is delivered to the City, which reduces the need to pump groundwater and allows the basin to naturally recharge and store additional water supply. The additional supply is stored in the South Westside Basin as groundwater until it is needed during a drought or emergency. The project includes the construction of up to 16 new recovery and test wells and facilities.

The City implemented conjunctive use operations starting in 2016. The Regional GSR Project is over 76% complete with the thirteen Phase I wells drilled and wrapping up construction. Anticipated completion of the project is 2021.

5.4.3 Historical Groundwater Use

The volume of water pumped by the City from FY 2013/14 to FY 2017/18 is shown in Table 5-2.

Table 5-2. Groundwater Volume Pumped by the City

Water Source	Volume of Water Pumped						
	Units	FY 2013/14[a]	FY 2014/15[a]	FY 2015/16[b]	FY 2016/17[c,d]	FY 2017/18[e]	Average
South Westside Groundwater Basin, DWR Basin 2-35[f]	MGD	1.94	1.89	1.63	0.27	0.32	1.21
	CCF/YR	948,253	922,147	797,371	131,905	155,341	591,003
Groundwater as a Percentage of Total Supply	-	54.2%	60.3%	53.8%	9.2%	10.4%	38.5%

(a) Source: City of San Bruno 2015 UWMP (June 2016), Table 6-1 and Appendix B Table 6-1.
(b) Source: "2016 water data.xlsx" provided by the City.
(c) Source: "2017 water data.xlsx" provided by the City.
(d) Note the dramatic decrease in the volume of groundwater pumped in FY 2016/2017 following the City's implementation of conjunctive use operations.
(e) Source: "2018 water data.xlsx" provided by the City.
(f) The South Westside Groundwater Basin is a colluvial basin.

5.4.4 Projected Groundwater Use

As a participant of the Regional GSR Project, the City is projected to have two supply modes that vary according to hydrologic conditions. The supply modes include "put" operations (in normal and wet years) and "take" operations (in dry years). During "put" operations, SFPUC provides additional surface water to the City to reduce the City's groundwater pumping. During "take" operations, the City utilizes available groundwater supplies and reduces surface water deliveries, thereby freeing surface water supply to be delivered to other SFPUC customers. Projected groundwater supplies under Normal Year conditions assumes that groundwater use is minimized (i.e., "put" operations) because this is the expected normal operating scenario under the Regional GSR Project. The City's projected groundwater production during normal and wet years from 2020 to 2040 is shown in Table 5-3.

Table 5-3. Projected Groundwater Production

Hydrologic Condition	Units	FY 2019/20	FY 2024/25	FY 2039/40
Normal Year[a]	MGD	0.00	0.00	0.00
	CCF/YR	0	0	0
Single Dry or Multiple Dry Years[b]	MGD	2.10	2.10	2.10
	CCF/YR	1,024,733	1,024,733	1,024,733

(a) A portion of the City's groundwater production may be offset by SFPUC surface water for in-lieu banking.
(b) Source: City of San Bruno 2015 UWMP (June 2016), Table 6 2.

5.5 Other Supply

According to the City's 2015 UWMP, recycled water is not a cost-effective water supply source for the City within the foreseeable future. In 2009, a consortium of agencies with interests in the South San Francisco and San Bruno area developed a Recycled Water Feasibility Study (Feasibility Study) evaluating the feasibility of implementing a recycled water treatment and distribution system. The study area for the Feasibility Study encompassed the cities of South San Francisco, San Bruno, Brisbane and Colma. Fifteen different alternatives were evaluated within the Feasibility Study. Each alternative included different variations of customer groupings, treatment technologies and wastewater sources. The preferred alternative recommends centralized treatment at the South San Francisco WQCP. The total cost of the preferred alternative is projected at approximately $94 million dollars. In total, the preferred alternative is expected to offset only 0.14 MGD of potable water for the City of San Bruno, if implemented. However, the City does view an expansion of its water supply portfolio to include recycled water as potentially desirable, if not necessarily equivalent on a cost basis to potable water, due to the additional water supply reliability such a recycled water supply would provide the City.

At this time, the City is not considering developing a desalinated water program, because it is not economically feasible for the City.

5.6 Summary of Current and Projected Future Water Supplies

Table 5-4 provides a summary of the City's available, current, and future water supplies in MGD under normal weather conditions. The City has no anticipated future changes to its existing water supply, and so the future supply does not change from the current supply.

Table 5-4. Current and Projected Water Supply, MGD[a]

Water Source	Available	FY 2014/15 (Actual)	FY 2019/20	FY 2024/25	FY 2039/40
Normal Year					
SFPUC[b]	3.25	1.20	5.35	5.35	5.35
NCCWD[c]	0.05	0.04	0.05	0.05	0.05
Groundwater[d]	2.10	1.89	0.00	0.00	0.00
Total Water Supply, MGD	5.40	3.14	5.40	5.40	5.40
Total Water Supply, CCF/YR	2,635,027	1,529,900	2,635,027	2,635,027	2,635,027
Single Dry Year & Multiple Dry Years – Year 1[e]					
SFPUC[b]	-	-	2.92	2.92	2.92
NCCWD[c]	-	-	0.05	0.05	0.05
Groundwater[d]	-	-	2.10	2.10	2.10
Total Water Supply, MGD	-	-	5.07	5.07	5.07
Total Water Supply, CCF/YR	-	-	2,473,997	2,473,997	2,473,997
Multiple Dry Years – Year 2 & Year 3[e]					
SFPUC[b]	-	-	2.52	2.52	2.52
NCCWD[c]	-	-	0.05	0.05	0.05
Groundwater[d]	-	-	2.10	2.10	2.10
Total Water Supply, MGD	-	-	4.67	4.67	4.67
Total Water Supply, CCF/YR	-	-	2,280,762	2,280,762	2,280,762

(a) Source: City of San Bruno 2015 UWMP (June 2016), Table 6-5, Table 6-6, and Appendix B Table 6-8.
(b) SFPUC imports are limited by the City's Interim Supply Allocation. SFPUC supply may be imported surface water or banked in lieu groundwater under the Regional GSR Project. The Normal Year water supply is modified to show the potential water supply with full implementation of the Regional GSR program. Under the Regional GSR program, SFPUC would provide surface water to the City beyond the 3.25 mgd contracted amount in Normal Years. In return, the City would pump less groundwater.
(c) NCCWD purchases assume that the City will purchase the same amount of water as it has historically purchased.
(d) A portion of the City's groundwater production may be offset by SFPUC surface water for in-lieu banking under the Regional GSR Project as described in (b), above.
(e) Water supply reliability (i.e., projected water supply under dry years) is presented in Section 6 of this WSA.

6.0 WATER SUPPLY RELIABILITY

10910(c)(4) If the city or county is required to comply with this part pursuant to subdivision (b), the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses.

10911(a) If, as a result of its assessment, the public water system concludes that its water supplies are, or will be, insufficient, the public water system shall provide to the city or county its plans for acquiring additional water supplies, setting forth the measures that are being undertaken to acquire and develop those water supplies. If the city or county, if either is required to comply with this part pursuant to subdivision (b), concludes as a result of its assessment, that water supplies are, or will be, insufficient, the city or county shall include in its water supply assessment its plans for acquiring additional water supplies, setting forth the measures that are being undertaken to acquire and develop those water supplies. Those plans may include, but are not limited to, information concerning all of the following:

(1) The estimated total costs, and the proposed method of financing the costs, associated with acquiring the additional water supplies.

(2) All federal, state, and local permits, approvals, or entitlements that are anticipated to be required in order to acquire and develop the additional water supplies.

(3) Based on the consideration set forth in paragraphs (1) and (2), the estimated timeframes within which the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), expects to able to acquire additional water supplies.

The current reliability of the City's water supply is largely dependent upon its water supply contract with SFPUC and SFPUC's water supply reliability policy. The reliability discussion provided below has been taken, for the most part, from the City's 2015 UWMP (adopted in June 2016) and SFPUC's 2015 UWMP (adopted in June 2016).

6.1 BAWSCA's Long-Term Reliable Water Supply Strategy

In September 2014, BAWSCA completed the Regional Water Demand and Demand Study. The goal of the Demand Study was to develop transparent, defensible, and uniform demand and conservation savings projections for each wholesale customer using a common methodology to support both regional and individual agency planning efforts. The Demand Study projections were incorporated into Strategy discussed below.

Through the Demand Study process, BAWSCA and the wholesale customers: (1) quantified the total average-year water demand for each BAWSCA member agency through 2030; (2) quantified passive and active conservation water savings potential for each individual wholesale customer through 2040; and (3) identified conservation programs for further consideration for regional implementation by BAWSCA. The Demand Study projected that by 2040 the collective active conservation efforts of the wholesale customers would yield an additional 16 MGD in savings beyond what has already been achieved for the BAWSCA service area. Based on the revised water demand projections, the identified water conservation savings, and other actions, the collective purchases of the BAWSCA member agencies from the SFPUC are projected to stay below 184 MGD through 2018.

As part of the Demand Study, each wholesale customer was provided with a demand model that can be used to support ongoing demand and conservation planning efforts, including UWMP preparation.

BAWSCA's Strategy was developed to quantify the water supply reliability needs of the BAWSCA member agencies through 2040, identify the water supply management projects and/or programs (projects) that could be developed to meet those needs, and prepare an implementation plan for the Strategy's recommendations. Successful implementation of the Strategy is critical to ensuring that there will be sufficient and reliable water supplies for the BAWSCA member agencies and their customers in the future.

Phase II of the strategy was completed in February 2015 with release of the Strategy Phase II Final Report. The water demand analysis done during Phase II of the strategy resulted in the following key findings:

- There is no longer a regional normal year supply shortfall.
- There is a regional drought year supply shortfall of up to 43 MGD.

In addition, the project evaluation analysis completed during Phase II of the strategy resulted in the following key findings:

- Water transfers score consistently high across the various performance measures and within various portfolio constructs and thus represent a high priority element of the Strategy.
- Desalination also potentially provides substantial yield, but its high costs and intensive permitting requirements make it a less attractive drought year supply alternative. However, given the limited options for generating significant yield for the region, desalination warrants further investment in information as a hedge against the loss of local or other imported supplies.
- The other potential regional projects provide tangible, though limited, benefit in reducing dry year shortfalls given the small average yields in drought years.

BAWSCA is now implementing the strategy recommendations in coordination with BAWSCA member agencies. Strategy implementation will be adaptively managed to account for changing conditions and to ensure that the goals of the Strategy are met efficiently and cost-effectively.

Due to the size of the supply and reliability need, and the uncertainty around yield of some strategy projects, BAWSCA will need to pursue multiple actions and projects to provide some level of increased water supply reliability for its member agencies. On an annual basis, BAWSCA will re-evaluate strategy recommendations and results in conjunction with development of the work plan for the following year. In this way, actions can be modified to accommodate changing conditions and new developments.

6.2 SFPUC RWS Reliability

Information regarding the reliability of the SFPUC RWS was provided by BAWSCA, in coordination with SFPUC.

6.2.1 Water System Improvement Program

SFPUC's WSIP was approved on October 31, 2008, with the purpose of improving the delivery reliability of the RWS. The objectives of the WSIP related to water supply are listed below.

- Meet average annual water demand of 265 MGD from the SFPUC watersheds for retail and wholesale customers during non-drought years for system demands through 2018.
- Meet dry-year delivery needs through 2018 while limiting rationing to a maximum 20 percent system-wide reduction in water service during extended droughts.
- Diversify water supply options during non-drought and drought periods.
- Improve use of new water sources and drought management, including groundwater, recycled water, conservation, and transfers.

The WSIP provides benefits to the City by improving the reliability of wholesale water purchased from SFPUC, especially during period of drought. The program aims to meet customer water needs in non-drought and drought conditions and provides dry-year water supply projects to augment all year type water supplies during drought.

6.2.2 Dry-year Water Supply Projects

Approximately 85 percent of the SFPUC supply is sourced from the Tuolumne River watershed (through Hetch Hetchy Reservoir) and the remaining 15 percent comes from local watersheds, which include the Alameda Creek watershed and San Mateo County watersheds. Water supply from the local watersheds is stored in the following reservoirs: San Antonio, Calaveras, Crystal Springs, Pilarcitos, and San Andreas. These water supplies are used for all year types, and SFPUC has historically met demand in its service area in all year types.

During dry years, the WSIP limits systemwide rationing to a maximum of 20 percent in any one year. The following projects are a part of the WSIP and will help meet water demand during dry years, as well as will help to improve the seismic, delivery, water quality, and water supply reliability for the RWS:

- Calaveras Dam Replacement Project
- Alameda Creek Recapture Project
- Lower Crystal Springs Dam Improvements
- Regional Groundwater Storage and Recovery Project
- 2 MGD Dry-year Water Transfer

To achieve its target of meeting at least 80 percent of its customer demand during droughts at 265 MGD, the SFPUC must successfully implement the dry-year water supply projects included in the WSIP and described in detail in the following sections.

Furthermore, the permitting obligations for the Calaveras Dam Replacement Project and the Lower Crystal Springs Dam Improvements include a combined commitment of 12.8 MGD for instream flows on average. When this is reduced for an assumed Alameda Creek Recapture Project recovery of 9.3 MGD, the net loss of water supply is 3.5 MGD. The SFPUC's participation in regional water supply reliability efforts, such as the Bay Area Regional Desalination Project (BARDP), additional water transfers, and other projects may help to make up for this shortfall.

6.2.2.1 Calaveras Dam Replacement Project

Calaveras Dam is located near a seismically active fault zone and was determined to be seismically vulnerable. To address this vulnerability, the SFPUC constructed a new dam of equal height downstream of the existing dam. The EIR was certified by the San Francisco City Planning Commission in 2011, and construction was completed in September 2018. SFPUC began refilling the Calaveras Reservoir in the wet season of the 2019 water year.

6.2.2.2 Alameda Creek Recapture Project

The Alameda Creek Recapture Project will recapture the water system yield lost due to instream flow releases at Calaveras Reservoir or bypassed around the Alameda Creek Diversion Dam and return this yield to the RWS through facilities in the Sunol Valley. Water that naturally infiltrates from Alameda Creek will be recaptured into an existing quarry pond known as SMP (Surface Mining Permit)-24 Pond F2. The project will be designed to allow the recaptured water to be pumped to the Sunol Valley Water Treatment Plant or to San Antonio Reservoir. The project's Draft EIR will be recirculated upon completion of updates to the Draft. The Project's schedule will be re-evaluated once the recirculated Draft EIR is published.

6.2.2.3 Lower Crystal Springs Dam Improvements

The Lower Crystal Springs Dam Improvements were substantially completed in November 2011. While the project has been completed, permitting issues for reservoir operation have become significant. While the reservoir water elevation was lowered due to Division of Safety of Dams restrictions, the habitat for the Fountain Thistle, an endangered plant, followed the lowered reservoir water elevation. Raising the reservoir water elevation now requires that new plant populations be restored incrementally before the reservoir water elevation is raised. The result is that it may be several years before the original reservoir water elevation can be restored.

6.2.2.4 Regional Groundwater Storage and Recovery Project

The GSR Project is a strategic partnership between SFPUC and three San Mateo County agencies: California Water Service (serving South San Francisco and Colma), the City of Daly City, and the City of San Bruno. The project seeks to balance the management of groundwater and surface water resources in a way that safeguards supplies during times of drought. During years of normal or heavy rainfall, the project provides additional surface water to the partner

agencies in San Mateo County, allowing them to reduce the amount of groundwater that they pump from the South Westside Groundwater Basin. Over time, the reduced pumping would allow the aquifer to recharge and result in increased groundwater storage of up to 20 billion gallons. The project's Final EIR was certified in August 2014, and the project also received Commission approval that month. The well station construction contract Notice to Proceed was issued in April 2015, and construction is expected to be completed in winter 2021. The City implemented conjunctive use operations starting in 2016.

6.2.2.5 Dry-Year Water Transfer

In 2012, a dry-year transfer was proposed between the Modesto Irrigation District and the SFPUC. Negotiations were terminated because an agreement could not be reached. Subsequently, the SFPUC is having ongoing discussions with the Oakdale Irrigation District for a one-year transfer agreement for 2 MGD (2,240 AF).

6.2.3 Projected SFPUC RWS Supply Reliability

Procedures to allocate RWS supplies during SFPUC system shortages are specified in agreements between SFPUC and the Wholesale Customers. Water shortage allocation procedures and projected supplies during normal and dry years are described below.

The wholesale customers and SFPUC adopted the Water Supply Agreement in July 2009, which included a Water Shortage Allocation Plan (WSAP) to allocate water from the RWS to retail and wholesale customers during system-wide shortages of 20 percent or less. The WSAP has two tiers which are described below.

The Tier One Plan allocates water between SFPUC and the wholesale customers collectively based on the level of the shortage (up to 20 percent). This plan applies only when SFPUC determines that a system-wide water shortage exists and issues a declaration of a water shortage emergency under California Water Code Section 350. The SFPUC may also opt to request voluntary cutbacks from San Francisco and the wholesale customers to achieve necessary water use reductions during drought periods. The Tier One Plan allows for voluntary transfers of shortage allocations between the SFPUC and any wholesale customer and between wholesale customers themselves. The allocations outlined in the Tier One Plan are provided in Table 6-1.

Table 6-1. Tier One Plan Water Shortage Allocations

System-Wide Reduction Required	Share of Available Water	
	SFPUC	Wholesale Customers
≤ 5%	35.5%	64.5%
6% to 10%	36.0%	64.0%
11% to 15%	37.0%	63.0%
16% to 20%	37.5%	62.5%

The Tier One Plan will expire at the end of term of the WSA in 2034, unless mutually extended by San Francisco and the wholesale customers.

The Tier Two Plan allocates the collective wholesale customer share among the wholesale customers based on a formula that accounts for each wholesale customer's ISG, seasonal use of all available water supplies, and residential per capita use. The water made available to the wholesale customers collectively will be allocated among them in proportion to each wholesale customer's Allocation Basis, which is the weighted average of the wholesale customer's ISG and the Base/Seasonal Component. The Allocation Basis is used as the numerator over the sum of all wholesale customers' Allocation Bases to calculate each wholesale customer's Allocation Factor. The final shortage allocation for each wholesale customer is determined by multiplying the amount of water available to the wholesale customers collectively over the Tier One Plan by the wholesale customer's Allocation Factor. BAWSCA calculates each wholesale customer's Allocation Factors annually in preparation for a potential water shortage emergency.

For water shortages greater than 20 percent, the SFPUC will meet with the wholesale customers to determine if modifications to the Tier 1 Plan can be agreed upon by the SFPUC and its wholesale customers. If an agreement cannot be reached, SFPUC may allocate water at its discretion, subject to challenge by the Wholesale Customers, unless all of the Wholesale Customers direct that a particular Tier 2 allocation methodology be used. The City is susceptible to these modifications to its purchased water supply since it is a wholesale customer of SFPUC and depends largely on water from the RWS.

The current Tier Two Plan expired in December 2018.

6.3 NCCWD Reliability

The water received within the City service area from NCCWD originates from the SFPUC Regional System and thus is subject to the same reliability as described previously.

6.4 Groundwater Reliability

The reliability of the City's groundwater supply (South Westside Basin) is dependent on the quantity of water that is recharged and extracted each year and quality of those supplies. Historically, the South Westside Basin has received sufficient recharge such that it has maintained relatively stable groundwater levels in recent years.

San Bruno is concerned about the effect of saltwater intrusion on the quality of its groundwater supplies. To protect the quality of its groundwater source, the City is actively monitoring the effects of groundwater extraction on saltwater intrusion. To date however, there is no indication that saltwater intrusion has occurred in San Bruno, and the potential for seawater intrusion in the future is being studied and monitored.

6.5 Dry Year Water Supply

In the City's 2015 UWMP, projected Normal Year supplies are assumed to satisfy the City's project Normal Year demands. However, as shown in Table 6-2, purchased supplies from SFPUC may be subject to reductions during dry years. In the City's 2015 UWMP, and this WSA, the City's purchased supplies from the SFPUC RWS assume supply reductions as discussed in Section 6.2.3.

Table 6-2 shows the City's projected supplies from SFPUC in MGD during dry years based on the assumptions in the City's 2015 UWMP.

Table 6-2. Projected Water Supplies – Dry Years

Hydrologic Condition	Supply, MGD		
	2020	2025	2040
Single Dry Year[a]	5.07	5.07	5.07
Multiple Dry Years – Year 1[b]	5.07	5.07	5.07
Multiple Dry Years – Year 2[b]	4.67	4.67	4.67
Multiple Dry Years – Year 3[b]	4.67	4.67	4.67

(a) Source: City of San Bruno 2015 UWMP (June 2016), Table 7-5.
(b) Source: City of San Bruno 2015 UWMP (June 2016), Table 7-6.

Table 6-3 shows the City's projected supplies from SFPUC in CCF/year during dry years based on the assumptions in the City's 2015 UWMP.

Table 6-3. Projected Water Supplies – Dry Years

Hydrologic Condition	Supply, CCF/year		
	2020	2025	2040
Single Dry Year[a]	2,473,997	2,473,997	2,473,997
Multiple Dry Years – Year 1[b]	2,473,997	2,473,997	2,473,997
Multiple Dry Years – Year 2[b]	2,280,762	2,280,762	2,280,762
Multiple Dry Years – Year 3[b]	2,280,762	2,280,762	2,280,762

(a) Source: City of San Bruno 2015 UWMP (June 2016), Appendix B Table 7-3.
(b) Source: City of San Bruno 2015 UWMP (June 2016), Appendix B Table 7-4.

7.0 DETERMINATION OF WATER SUPPLY SUFFICIENCY BASED ON THE REQUIREMENTS OF SB 610

> *10910(c)(4) If the city or county is required to comply with this part pursuant to subdivision (b), the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses.*
>
> *10911 (a) If, as a result of its assessment, the public water system concludes that its water supplies are, or will be, insufficient, the public water system shall provide to the city or county its plans for acquiring additional water supplies, setting forth the measures that are being undertaken to acquire and develop those water supplies.*

Pursuant to Water Code section 10910(c)(4) and based on the technical analyses described in this WSA, the City finds that the total projected water supplies determined to be available during a 20-year projection will meet the projected water demand associated with the highest water demand future scenario, in addition to existing and planned future uses. As described previously, the projected water demands for the highest water demand future scenario are accounted for in the City's 2015 UWMP.

As discussed in this WSA, the City is a member of agency of BAWSCA and purchases water from the SFPUC RWS. BAWSCA is investigating projects and implementing strategies to continuously improve the reliability of the water supplies to its member agencies. Additionally, SFPUC is aggressively implementing projects to improve the reliability of the RWS to meet the water demands of its customers through 2040.

Tables 7-1 summarizes the projected availability of the City's existing and planned future water supplies and the City's projected water demands (in MGD) during Normal, Single Dry, and Multiple Dry years through 2040. As shown in Table 7-1, water demand within the City's service area is not expected to exceed the City's water supply during Normal, Single Dry, or Multiple Dry water years.

In December 2018, the State Water Resources Control Board adopted amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary, establishing water quality objectives to maintain the health of the State's rivers and the Bay-Delta ecosystem (the Bay-Delta Plan Amendment). The State Water Resources Control Board has stated that it intends to implement the Bay-Delta Plan Amendment by 2022, assuming all required approvals are obtained by that time. Implementation of the Bay-Delta Plan Amendment will result in a substantial reduction in the City's SFPUC water supplies from the Tuolumne River watershed during dry years, requiring rationing in the City to a degree greater than that previously anticipated to address supply shortages that were not accounted for in the 2015 Urban Water Management Plan.

In a letter dated July 31, 2019 from the SFPUC Director of Water Resources to the BAWSCA Water Resources Manager, SFPUC provided a draft document titled "*Water Supply Reliability Information for BAWSCA Member Agencies Water Supply Assessments (with Corrections)*". The document estimates total shortfalls in water supply (i.e., total retail demand minus total retail

supply) to retail customers through 2040 under various scenarios. With implementation of the Bay-Delta Plan Amendment, by 2040 the City's SFPUC water supply could be reduced by up to 46 percent in Single Dry Year and the first year of a Multiple Dry Year drought, and by over 67 percent in an extended (7 to 8-year) drought.

As indicated above, adequate water supplies are available to serve the proposed project and reasonably foreseeable future development in Normal, Single Dry, and Multiple Dry Years, unless the Bay-Delta Plan Amendment is implemented; in that event, new or expanded water supply facilities will be required to address shortfalls in single and multiple dry years, but the need for these new or expanded facilities would occur with or without the Proposed Project. If the Bay-Delta Plan Amendment is implemented, the City would address supply shortfalls through significantly increased rationing, but the project would not make a considerable contribution to impacts from increased rationing.

Table 7-1. San Bruno Summary of Water Demand Versus Supply During Hydrologic Normal, Single Dry, and Multiple Dry Years

Hydrologic Condition		MGD 2020	MGD 2025	MGD 2040
Normal Year				
Available Water Supply[a]		5.40	5.40	5.40
Total Water Demand[b]		3.93	4.24	5.31
	Potential Surplus (Deficit)	1.47	1.16	0.09
	Percent Shortfall of Demand	-	-	-
Single Dry Year				
Available Water Supply[c]		5.07	5.07	5.07
Total Water Demand[d]		3.54	3.82	4.78
	Potential Surplus (Deficit)	1.53	1.25	0.29
	Percent Shortfall of Demand	-	-	-
Multiple Dry Years				
Multiple Dry Year 1	Available Water Supply[c]	5.07	5.07	5.07
	Total Water Demand[d]	3.54	3.82	4.78
	Potential Surplus (Deficit)	1.53	1.25	0.29
	Percent Shortfall of Demand	-	-	-
Multiple Dry Year 2	Available Water Supply[c]	4.67	4.67	4.67
	Total Water Demand[d]	3.14	3.39	4.25
	Potential Surplus (Deficit)	1.53	1.28	0.42
	Percent Shortfall of Demand	-	-	-
Multiple Dry Year 3	Available Water Supply[c]	4.67	4.67	4.67
	Total Water Demand[d]	3.14	3.39	4.25
	Potential Surplus (Deficit)	1.53	1.28	0.42
	Percent Shortfall of Demand	-	-	-

(a) From Table 5-4 of this WSA.
(b) From Table 4-2 of this WSA.
(c) From Table 6-2 of this WSA.
(d) From Table 4-3 of this WSA.

Table 7-2 summarizes the projected availability of the City's existing and planned future water supplies and the City's projected water demands (in CCF/year) during Normal, Single Dry, and Multiple Dry years through 2040.

Table 7-2. San Bruno Summary of Water Demand Versus Supply During Hydrologic Normal, Single Dry, and Multiple Dry Years

Hydrologic Condition		CCF/year 2020	2025	2040
Normal Year				
Available Water Supply[(a)]		2,635,027	2,635,027	2,635,027
Total Water Demand[(b)]		1,917,714	2,068,984	2,591,110
	Potential Surplus (Deficit)	717,313	566,043	43,917
	Percent Shortfall of Demand	-	-	-
Single Dry Year				
Available Water Supply[(c)]		2,473,997	2,473,997	2,473,997
Total Water Demand[(d)]		1,725,943	1,862,086	2,331,999
	Potential Surplus (Deficit)	748,054	611,911	141,998
	Percent Shortfall of Demand	-	-	-
Multiple Dry Years				
Multiple Dry Year 1	Available Water Supply[(c)]	2,473,997	2,473,997	2,473,997
	Total Water Demand[(d)]	1,725,943	1,862,086	2,331,999
	Potential Surplus (Deficit)	748,054	611,911	141,998
	Percent Shortfall of Demand	-	-	-
Multiple Dry Year 2	Available Water Supply[(c)]	2,280,762	2,280,762	2,280,762
	Total Water Demand[(d)]	1,534,171	1,655,187	2,072,888
	Potential Surplus (Deficit)	746,591	625,575	207,874
	Percent Shortfall of Demand	-	-	-
Multiple Dry Year 3	Available Water Supply[(c)]	2,280,762	2,280,762	2,280,762
	Total Water Demand[(d)]	1,534,171	1,655,187	2,072,888
	Potential Surplus (Deficit)	746,591	625,575	207,874
	Percent Shortfall of Demand	-	-	-

(a) From Table 5-4 of this WSA.
(b) Source: City of San Bruno 2015 UWMP (June 2016), Table 4-2.
(c) From Table 6-3 of this WSA.
(d) From Table 4-4 of this WSA.

8.0 VERIFICATION OF SUFFICIENT WATER SUPPLY BASED ON THE REQUIREMENTS OF SB 221

The highest water demand future scenario, with up to 1,070 residential dwelling units, is also subject to the requirements of SB 221 (Government Code section 66473.7). SB 221 applies to residential development projects of more than 500 dwelling units (such as the Proposed Project) and requires that the City provide a written verification that the water supply for the Proposed Project is sufficient.

Verification must demonstrate supply sufficiency by showing that water supplies available during Normal, Single Dry and Multiple Dry years within a 20-year projection will meet the projected demand associated with the Proposed Project, in addition to existing and planned future uses, including, but not limited to, agriculture and industrial uses. Per the requirements of SB 221, the following must be considered:

- Historical water deliveries for the previous 20 years;
- Urban water shortage contingency analysis prepared for the UWMP;
- Supply reduction for specific water use sectors; and
- Amount of water expected from specified supply projects.

The City's 2015 UWMP and this WSA for the highest water demand future scenario provide the documentation required to comply with SB 221 and demonstrate that the City's supplies are sufficient to meet the projected demand associated with the highest water demand future scenario, in addition to existing and planned future uses, including, but not limited to, agriculture and industrial uses. The specific considerations to be evaluated for the SB 221 verification are described below and reference applicable sections of the City's 2015 UWMP and this WSA.

8.1 Historical Water Deliveries

The City's water supplies are described in Section 5.0 of this WSA and Chapter 6 of the City's 2015 UWMP. Table 8-1 presents the City's historical use of these supplies over the past 20 years. The use of these supplies will continue into the future, as described in Section 5.0 of this WSA, and as shown in Table 5-1 of this WSA.

Table 8-1. Historical Water Supply[a]

Water Source	1995[b]	2000[b]	2005[b]	2010[c]	2015[d]
SFPUC	2.47	2.36	2.30	1.48	0.90
NCCWD	0.04	0.04	0.05	0.04	0.04
Groundwater	1.76	2.02	1.43	2.12	1.67
Total Water Supply, MGD	4.27	4.42	3.78	3.64	2.61
Total Water Supply, CCF/YR	2,083,646	2,156,852	1,843,963	1,775,688	1,275,570

(a) Historical water supply values are based on calendar year instead of fiscal year due to the historical (1988-2002) data provided in calendar year format only. Therefore, production values may not perfectly align with City's 2015 UWMP production values. The calendar year 2015 total water supplied is lower than the FY 2014/15 water supplied due to the historic statewide drought.
(b) Source: "water data 1988-2010.xls", by City of San Bruno, provided to West Yost on 5/1/2019.
(c) Source: "2010 water data.xls", by City of San Bruno, provided to West Yost in 2016 for preparation of the City's 2015 UWMP.
(d) Source: "2015 water data.xls", by City of San Bruno, provided to West Yost on 3/29/2019.

The availability and historical and projected use of groundwater supplies is described in Section 5.4 of this WSA.

Water supply availability and reliability during Normal, Single Dry and Multiple Dry years is described in Section 6.0 of this WSA.

8.2 Projected Water Demand by Customer Sector

Projected potable water demands in the City's service area are described in Section 4.2 of this WSA based on information provided in Chapter 4 of the City's 2015 UWMP. Projected water demand by customer sector within the City's service area are summarized in the City's 2015 UWMP (Table 4-2) and in Table 8-2.

Table 8-2. Actual and Projected Water Demands

Water Use Factor	FY 2014/15[a] (Actual)	2020[b]	2025[b]	2040[b]
Residential	2.14	2.68	2.89	3.62
Commercial	0.62	0.78	0.84	1.06
City Parks and Facilities	0.13	0.16	0.17	0.21
Water Losses (includes unbilled unmetered)	0.25	0.31	0.34	0.42
Total, MGD	3.14	3.93	4.24	5.31
Total, CCF/YR	1,529,900	1,917,714	2,068,984	2,591,110

(a) Source: City of San Bruno 2015 UWMP (June 2016), Table 4-1.
(b) Source: City of San Bruno 2015 UWMP (June 2016), Table 4-2.

8.3 Water Shortage Contingency Analysis

Chapter 8 of the City's 2015 UWMP provides a *Water Shortage Contingency Plan*, which describes the components of the City's conservation measures, including staged reductions in the City's water use in response to supply cutbacks, emergency response plans to catastrophic supply interruption, and water use prohibitions and enforcement mechanisms. The plan is based on the San Bruno Municipal Code (SBMC), SFPUC Emergency Operations Plan (EOP), San Mateo County's EOP, and City of San Bruno's Emergency Response Plan (ERP).

In the event of a catastrophic supply interruption, the response procedures that the City would follow are described in the SFPUC EOP, San Mateo County's EOP, and the City of San Bruno's ERP. Actions described in these plans focus on maintaining flow within the regional and local water system pipelines. In the event that this water is unsafe for consumption (e.g., only available for fire flow), the City plans to distribute potable water to residents at emergency distribution centers.

The SFPUC EOP, originally released in 1992, has been updated on average every two years. The EOP addresses a broad range of emergency situations that may affect the SFPUC and that supplements the City and County of San Francisco's EOP prepared by the Department of Emergency Management. Specifically, the purpose of the SFPUC EOP is to describe the department's emergency management organization, roles and responsibilities, and emergency policies and procedures. With respect to emergency response for the SFPUC RWS, the SFPUC prepared the *SFPUC Regional Water System Emergency Response and Recovery Plan (ERRP)*, completed in 2003 and regularly updated. The purpose of this plan is to describe the SFPUC RWS emergency management organizations, roles and responsibilities within those organizations, and emergency management procedures. This contingency plan addresses how to respond and recover from a major RWS seismic event, or other major disaster.

The City prepared a Water System ERP in 2004 in response to the requirements of the Public Health, Security and Bioterrorism Preparedness and Response Act of 2002 (Bioterrorism Act), Section 1433 amendment to the Safe Drinking Water Act, and routinely updates the plan. The City's ERP provides a framework for emergency response by the City's Public Services Department (Department) and describes the Department's emergency management organization, outlines the rules and responsibilities of the Department and its staff during emergency response and recovery, compiles and organizes water system emergency response protocols and procedures, and identifies contingency plans to be implemented in the event that one or more of San Bruno's water supplies were to become unusable. The plan provides guidance in response to disasters and attacks, both natural and man-made.

The SBMC "Water Conservation" Chapter 10.16 authorizes the City Council to declare a water supply emergency and impose mandatory water conservation measures and/or water rationing as they see fit. SBMC §10.16 includes enforcement and penalty measures, and violation of any provision under SBMC §10.16 is subject to an infraction punishable by a fine. Upon declaring a water shortage, the City has four Stages of Action to follow. These stages were developed as part of the City's 2001 UWMP to meet water supply cutbacks ranging from 5 percent to 50 percent. Each of the four stages describes actions to be taken by the City to achieve the stated cutback for that particular stage. All of the stages allow for adequate water to protect public health and safety

and to satisfy the fire protection needs of the City. At the July 26, 2016 City Council meeting, the City Council adopted a resolution to implement Stage I Conservation Measures of the *Water Shortage Contingency Plan*.

If an emergency were to occur, or if drought conditions occurred, requiring the City to implement its *Water Shortage Contingency Plan*, all City customers, including those within the Proposed Project, would be subject to the same water conservation measures and water use restrictions as included in the City's *Water Shortage Contingency Plan*.

8.4 Verification of Sufficient Water Supply

As described in Section 7.0 of this WSA, the City's water supplies are sufficient to meet the projected demands, associated with the highest water demand future scenario, in addition to the City's existing and planned future uses, including, but not limited to, industrial uses. There are no existing nor planned future agricultural uses in the City's service area.

9.0 WATER SUPPLY ASSESSMENT AND VERIFICATION APPROVAL PROCESS

> *10910 (g)(1) Subject to paragraph (2), the governing body of each public water system shall submit the assessment to the city or county not later than 90 days from the date on which the request was received. The governing body of each public water system, or the city or county if either is required to comply with this act pursuant to subdivision (b), shall approve the assessment prepared pursuant to this section at a regular or special meeting.*

The City Council must approve this WSA at a regular or special meeting. Furthermore, this WSA must be included in the Draft EIR being prepared for the Proposed Project.

10.0 REFERENCES

"Bayhill Buildout Summary Tables_3.29.19.docx", provided to West Yost Associates by ICF on 3/29/2019.

"Ch.2_Project_Description_ADEIR_021319.doc", provided to West Yost Associates by ICF on 3/13/2019.

City Council Agenda Item – Staff Report, prepared by Jim Burch (Public Services Deputy Director, City of San Bruno), July 26, 2016.

City of San Bruno 2015 Urban Water Management Plan, prepared by West Yost Associates, June 2016.

City of San Bruno Water System Master Plan, prepared by West Yost Associates, November 2012.

Figure 1: Draft EIR Preferred Alternative – Land Use, provided to West Yost Associates by ICF on 3/29/2019.

Figure 2-4: Existing Land Uses, provided to West Yost Associates by ICF on 3/13/2019.

"Regional Groundwater Storage and Recovery" webpage, San Francisco Public Utilities Commission, accessed at https://www.sfwater.org/index.aspx?page=982 on 5/2/2019.

WSIP Regional Projects Quarterly Report – 2nd Quarter / Fiscal Year 2018-2019, prepared by Harlan L. Kelly, Jr. (General Manager, SFPUC).