APPENDIX A

2020 Water Supply Assessment

FINAL

Water Supply Assessment for Midway Village Redevelopment

Prepared for
City of Daly City
Daly City, California
January 2020

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List of Abbreviations

ABAG	Association of Bay Area Governments
ACWD	Alameda County Water District
AF	acre-feet
AFY	acre-feet per year
amsl	above mean sea level
BAWSCA	Bay Area Water Supply and Conservation Agency
BC	Brown and Caldwell
CCWD	Contra Costa Water District
CIMIS	California Irrigation Management Information System
CWS	California Water Service
Daly City	City of Daly City
DWR	Department of Water Resources
EBMUD	East Bay Municipal Utility District
ETo	evapotranspiration
ft^2.	square foot/feet
°F	degrees Fahrenheit
gpd	gallons per day
gpm	gallons per minute
GMP	groundwater management plant
GSP	Groundwater Sustainability Plan
GSR	groundwater storage and recovery
HTWTP	Harry Tracy Water Treatment Plant
I-280	Interstate 280
in.	inch/inches
ISA	Interim Supply Allocation
ISG	Interim Supply GuaranteeISL Interim Supply Limitation
LOS	level of service
mgd	million gallons per day
NPDES	National Pollutant Discharge Elimination System
NSMCSD	North San Mateo County Sanitation District
O&M	operations and maintenance
PS	pump station
RWS	Regional Water System
SCVWD	Santa Clara Valley Water District
SFPUC	San Francisco Public Utilities Commission
SGMA	Sustainable Groundwater Management Act
SSF	South San Francisco
SVWTP	Sunol Valley Water Treatment Plant
SWRCB	State Water Resources Control Board
USD	Union Sanitary District
USEPA	United States Environmental Protection Agency
UWMP	Urban Water Management Plan
WCIP	Water Conservation Implementation Plan
WSA	Water Supply Assessment
WSAg	Water Supply Agreement
WSAP	Water Shortage Allocation Plan
WSIP	Water System Improvement Program
WWTP	wastewater treatment plant

Executive Summary

On behalf of the City of Daly City (Daly City), Brown and Caldwell (BC) prepared this Water Supply Assessment (WSA) for the proposed Midway Village Redevelopment. BC has prepared the WSA in accordance with the requirements of Senate Bill 610, now Water Code Sections 10910 and 10911.

The projected available potable water supplies under non-drought conditions for the Daly City water system in 2040 are 8,645 acre-feet (AF), and the estimated potable demand including this proposed development project is 7,397 acre-feet per year (AFY). Including recycled water supplies and demand, Daly City's total projected available water supplies are 15,553 AFY, and the estimated total demand including the proposed development project is 9,085 AFY. Thus, BC has determined that sufficient Daly City water supplies are available to serve the proposed Midway Village Redevelopment in normal conditions.

However, due to environmental concerns and pending legislation, this report identifies some uncertainty regarding future dry year supplies. BC based this determination on the following pertinent information:

- This WSA uses the 20-year water demand projections prepared and published in the 2015 Daly City Urban Water Management Plan (UWMP) (BC, 2016). The demands are based on the 2013 Association of Bay Area Governments (ABAG) demographic projections and include projected passive (plumbing and buildout code) and active conservation savings.
- As available, both groundwater and surface water supplies would provide water supplies needed to serve the proposed project. Currently, Daly City purchases treated surface water supplies from the San Francisco Public Utilities Commission (SFPUC). Historically, SFPUC has delivered sufficient surface water supplies. This analysis incorporates reductions in surface water supplies from SFPUC of up to 20 percent of average in dry years per the 2015 UWMP; however, per the letter from SFPUC to Bay Area Water Supply and Conservation Agency (BAWSCA) that includes WSA Language for BAWSCA (with corrections) dated July 31, 2019 (Appendix A), SFPUC faces potential for further reductions of its supply due to scenarios associated with the Bay-Delta Plan Amendment.
- Daly City has limited ability to increase groundwater pumping to enhance water supply reliability and address added demands. Daly City currently has a maximum groundwater safe yield of 3,839 AFY anticipated through 2040.
- Recycled water currently serves irrigation demands within Daly City and to nearby golf courses, which lowers the estimated demands for potable water and further enhances overall water supply reliability. Based on current practices, this recycled water supply is not expected to increase or further enhance potable water supply availability.

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Section 1

Introduction

This section discusses the purpose and scope of the Water Supply Assessment (WSA) and describes both the proposed Midway Village Redevelopment and the existing City of Daly City (Daly City) water system.

1.1 Purpose and Scope of Water Supply Assessment

Senate Bill 610, now codified as California Water Code sections 10910 and 10911, requires land use planning entities, when evaluating certain large development projects, to request an assessment of the availability of water supplies from the water supply entity that will provide water for the project. Such a WSA is performed in conjunction with a project's land-use approval process and must evaluate the sufficiency of the water supplies available to the water supplier to meet existing and anticipated future demands. The WSA must include the project's demand over a 20-year horizon that recognizes normal years, a single-dry water year, and multiple-dry years.

The WSA must identify any existing water supply entitlements, water rights, or water service contracts held by the water supplier or relevant to the identified water supply for the proposed project. The WSA also must document water quantities received in prior years by the public water system.

If the public water supplier relies on groundwater supplies, the WSA must describe all groundwater basins that will supply the proposed project. For each unadjudicated basin, the WSA should indicate whether the Department of Water Resources (DWR) has identified the basin as overdrafted or has projected that the basin will become overdrafted if present management conditions continue. Furthermore, the WSA should provide a detailed description of the efforts undertaken in the basin to eliminate the long-term overdraft condition.

1.2 Proposed Midway Village Redevelopment

The proposed Midway Village Redevelopment project will modify an existing 15-acre site, zoned Residential Low Density and Recreation per Figure LUE-1, Existing Land Use, in the Daly City 2030 General Plan (Appendix B). As shown in Figure 1-1, the site is bounded by Cypress Lane to the north, Schwerin Street to the west, Martin Street to the south, and the Toll Brothers site to the east. As shown on the drawings prepared by BKF Engineers and David Baker Architects and provided to BC on July 11, 2019 (Appendix C), the proposed project will have four phases plus buildout. It will remove 150 existing dwelling units and construct 555 new units, a childcare center, two parking garages (A with 407 spaces and B with 254 spaces), and a park. Per Figure LUE-3, Future Land Use, in the Daly City 2030 General Plan (Appendix B), the future land use will consist of medium density and public park.

Figure 1-1. Midway Village Redevelopment project site

Table 1-1 summarizes the proposed (buildout) land uses and size of the proposed Midway Village Redevelopment.

Table 1-1 Midway Village Redevelopment Land Uses at Buildout

Land Use	No. of Units	Approximate Area[a] ft²
Demolition of existing apartments	–155	-
Demolition of existing recreational area	-	–145,000
Multi-family residential	535	-
Single-family residential	20	-
Public park	-	145,000
Total increase	400	0

a. Approximate total building areas of all floor levels within the exterior walls as provided by the developer.
ft² = square foot/feet

1.3 Existing Daly City Service Area

This section describes the existing Daly City service area, location, climate, water system, and demographics.

1.3.1 Service Area Location

Daly City serves water to all residents and businesses within its City limits. Daly City does not serve two unincorporated pockets, surrounded generally by the Daly City boundaries. Figure 1-2 presents the location of the Midway Village Redevelopment project within the Daly City service area.

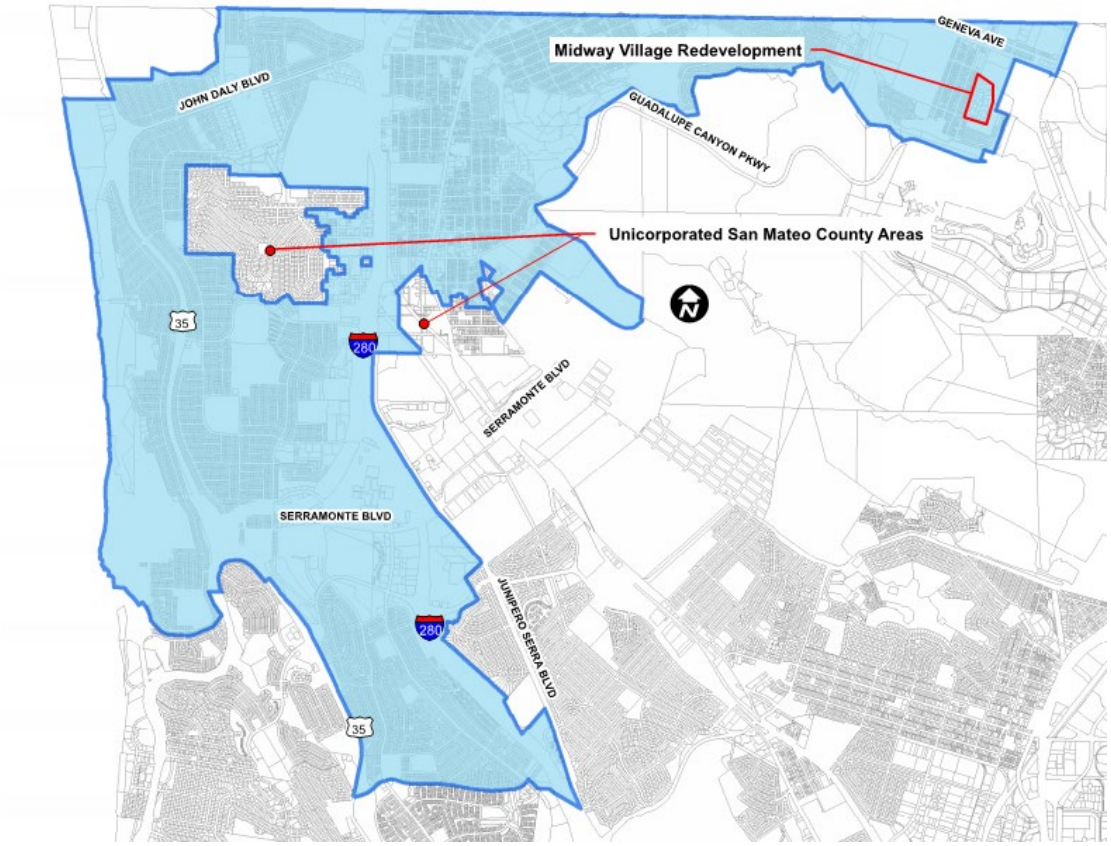

Figure 1-2. Daly City water service area and project location

Located in the northern part of San Mateo County, adjacent to the southern boundary of Daly City and County of San Francisco, Daly City is bounded on the east by the cities of South San Francisco (SSF), Colma, and Brisbane, San Bruno Mountain, and state and county parks; on the south by the cities of Pacifica and SSF; and on the west by the Pacific Ocean. Topography of the area is typical of the northern California coast. Near Daly City, the coast range rises to an elevation of 600 feet above mean sea level (amsl). A 2-mile-wide valley separates the coast range from San Bruno Mountain, which rises to a peak elevation of 1,300 feet amsl.

1.3.2 Service Area Climate

The Pacific Ocean moderates the Daly City climate. Precipitation typically occurs from October through April. BC found no direct-measured precipitation and evapotranspiration (ET_o) data for Daly City proper; however, Daly City's standard average ET_o can be assumed to be relatively close to the data from a California Irrigation

Management Information System (CIMIS) station located in Castroville. The Castroville CIMIS Station is located in the Monterey Bay Region, about 100 miles from Daly City, and is representative of the Daly City climate from the ocean side of San Francisco. BC obtained rainfall and temperature data from the Western Regional Climate Center station for the San Francisco Oceanside Station, which lies just north of Daly City. Coastal fog during the summer months and relatively mild winter temperatures produce monthly average minimum temperatures between 44 and 55 degrees Fahrenheit (°F) and monthly average maximum temperatures between 57°F and 66°F. The annual average precipitation is approximately 20 inches (in.). Normal monthly precipitation during the winter months is about 3 to 4 in.

Table 1-2 summarizes the standard average ET_o, rainfall, and monthly average minimum and maximum temperatures for Daly City.

Table 1-2. Daly City Climate

Month	Standard Average ETo in.[a]	Average Rainfall in.[b]	Average Minimum Temperature °F[b]	Average Maximum Temperature °F[b]
January	1.60	3.99	44.2	57.6
February	1.90	3.55	45.9	59.4
March	3.13	2.81	46.5	59.8
April	4.20	1.23	47.6	60.4
May	4.77	0.49	49.6	60.6
June	4.82	0.15	51.5	62
July	4.05	0.02	53.4	62.7
August	3.61	0.08	54.6	64
September	3.15	0.16	54.2	65.6
October	2.66	1.08	52.2	65.7
November	1.81	2.66	48.2	62.2
December	1.47	3.77	44.5	57.6
Annual	37.17	19.99	49.4	61.5

a. *Reference ET_o data for the 1982 to 2019 period were obtained from the CIMIS website for Station 19 (Castroville) http://www.cimis.water.ca.gov/cimis/frontMonthlyEToReport.do).*

b. *Data from Western Regional Climate Center, San Francisco Oceanside Station (047767), period of record for monthly climate summary: 07/01/48 to 05/19/16.*

1.3.3 Daly City Water System

Daly City receives a large portion of its water supply from SFPUC and supplements supply with groundwater pumped from seven local wells. During dry periods, groundwater makes up a larger proportion (up to 45 percent) of Daly City's supply. Daly City also uses tertiary recycled water from the North San Mateo County Sanitation District (NSMCSD) Wastewater Treatment Plant (WWTP) wherever feasible to offset potable/aquifer water demands.

Daly City's water distribution system is divided into six zones across two defined geographical areas— the Westside System and the Eastside System, shown in Figure 1-3. The Westside System consists of the Westlake Pump Station (PS) and Hickey PS; the Eastside System consists of the Bayshore PS, Citrus PS, A Street Well Booster Zones (currently not in operation because of nitrates), and Reservoir 8 Booster PS.

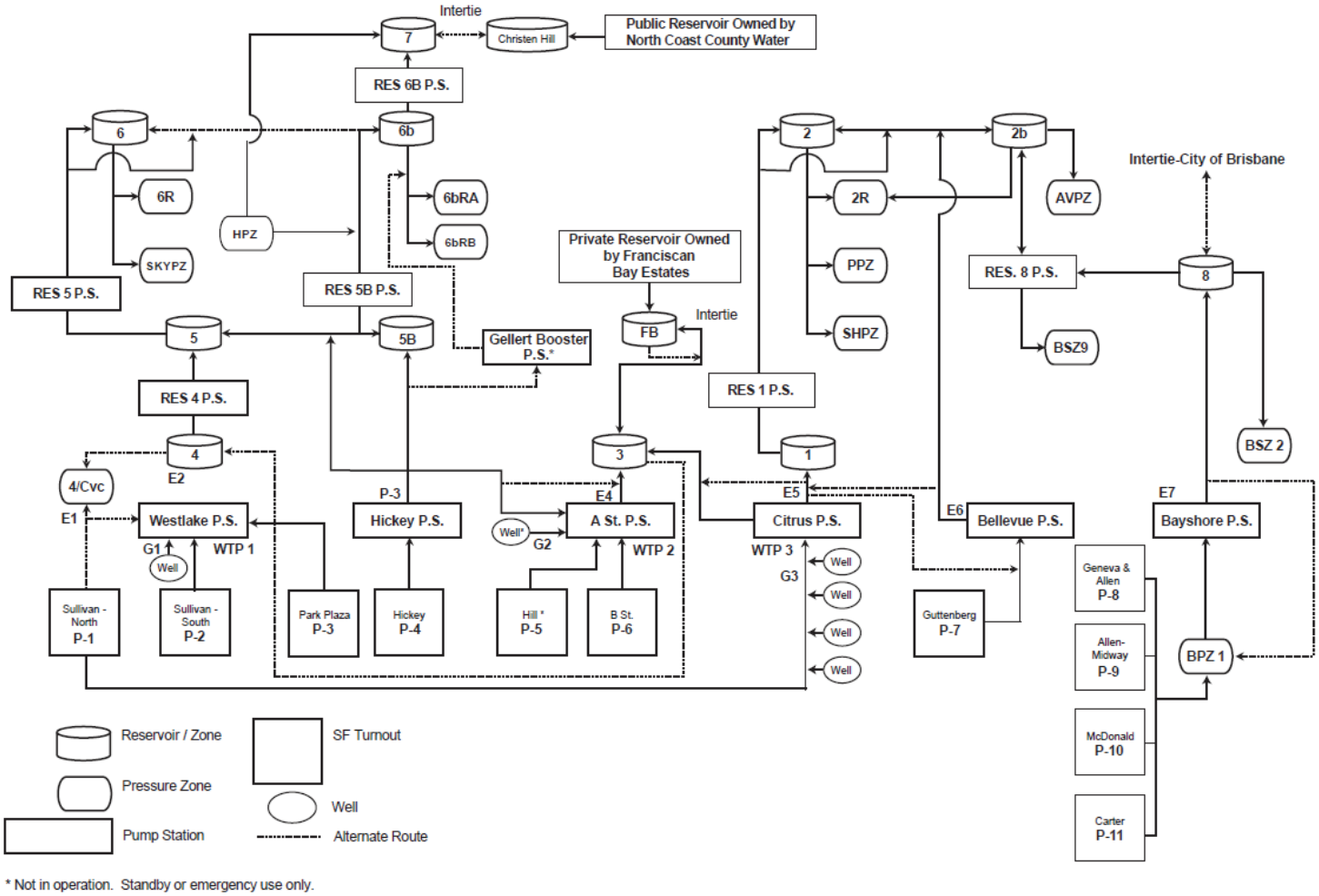

Figure 1-3. Daly City water distribution schematic.

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On the Eastside System, water from the Citrus PS pumps to both Reservoir 1 and Reservoir 3. To facilitate equalization of system demand, the system has an intertie between these two reservoirs. Reservoirs 2, 2b, and 8 also store water for the Eastside System. On the Westside System, the Westlake PS pumps water to Reservoir 4. Reservoirs 5, 5b, 6, 6b, and 7 also store water for the Westside System.

1.3.4 Existing and Projected Demographics

This section describes the existing and projected Daly City population, housing, and employment based on information from the 2015 UWMP.

Daly City is the most populous city in San Mateo County and is projected to be the most populous through 2038, according to the Daly City 2030 General Plan (General Plan) (Daly City, 2013). Table 1-3 shows the historical and projected population, households, and employees based on the ABAG data used in the 2015 UWMP. The change in population from approximately 105,810 in 2015 to 124,159 in 2040 is about a 0.7 percent average annual growth rate.

Table 1-3. Historical and Projected Population, Households, and Employees

	2010	2015	2020	2025	2030	2035	2040
Population	101,123	105,810	109,249	112,799	116,465	120,251	124,159
Households[a]	31,090	31,275	33,615	34,005	34,390	34,415	35,775

a. *Households projections are based on ABAG data for occupied housing units that assumes a 4 percent vacancy rate.*

Source: 2015 UWMP (population data 2015-2040) and Bay Area Census (2010 data)

According to Daly City's General Plan, Daly City's predominant land use remains as lower-density residential development. Although this land use will remain true for quite some time, the density of new Daly City-approved development has increased markedly. Increasing development pressures and regional land use policies intended to promote more Bay Area residents living closer to where they work will place additional pressures on Daly City to allow private redevelopment of older buildings and increases in residential densities, all with fewer regulatory hurdles.

Daly City is a center for retail trades, primarily home furnishings and appliances, apparel, general merchandise, and eating and drinking establishments. Major shopping areas include Serramonte Shopping Center, Westlake Shopping Center, Pacific Plaza, and the Mission Street retail corridor.

Interstate 280 (I-280), running north and south, divides Daly City into two geographically distinct areas with different development characteristics. Older neighborhoods of medium-density, single-family housing are located east of I-280. Small corner markets and strip developments characterize businesses in this area. West of I-280 development is newer, primarily built after 1949. In this area, lower-density, single-family homes are concentrated around shopping centers often dedicated to serving a region rather than a local population. Daly City's limited manufacturing enterprises are located near the Cow Palace in the Bayshore neighborhood east of I-280.

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Section 2

Existing and Projected Water Demands

This section describes historical and projected water demand for Daly City with and without the Midway Village Redevelopment.

Per Water Code 10910, the information included in a WSA is dependent on whether the proposed development under question was accounted for in the most recently adopted UWMP. In this case, it is uncertain whether the 2015 UWMP demand projections for 2020-2040 included the Midway Village Redevelopment.

The basis of the 2015 UWMP demand projections is as follows:

- BC prepared the 2015 UWMP using demand projections from the previously completed WSA for the Serramonte Center Expansion Project (BC, 2015) as it included the most recent demand projections prepared for the City at that time.
- The WSA for the Serramonte Center Expansion Project referenced demand projections from the 2014 Bay Area Water Supply and Conservation Agency (BAWSCA) Demand and Conservation Projection (Maddaus Water Management, 2014).
- The 2014 BAWSCA report referenced the 2013 ABAG demographic projections, which include projected passive (plumbing and buildout code) and active conservation savings.

It is unclear whether the population-based 2013 ABAG demand projections account for redevelopment or densification of existing sites, such as Midway Village, in its analysis.

For the purposes of this WSA, we added projected demands for the Midway Village Redevelopment to the projected demands included in the 2015 UWMP. As the existing site is planned to be demolished prior to construction of the redevelopment, we subtracted demands for the existing site from these projections before adding the projected demands for the redeveloped site.

2.1 Historical Water Demand

Table 2-1 presents Daly City's historical water demand in 5-year increments. Water use has decreased substantially since 2010 due to voluntary water conservation during the drought period. Although drought conditions have improved recently, water use has not returned to pre-drought levels. Water conservation during drought periods has resulted in some permanent changes in customers' water use patterns.

Table 2-1. Daly City Historical Water Demand				
	Historical Water Demand AFY			
Water Use Sector	2005[a]	2010[a]	2015[b]	2019[c]
Single-family	4,401	3,908	3,416	3,408
Multi-family	1,933	1,708	1,574	1,665
Commercial	892	976	945	438
Industrial	127	-	0.3	399
Institutional/governmental	239	223	172	109
Landscape	244	131	138	134
Agricultural irrigation	0	0	0	0
Billed use subtotal	7,836	6,946	6,245	6,154
Conjunctive use pilot	3,071	2,204	-	-
Other uses[d]	40	40	-	-
Water losses[e, f]	405	365	486	N/A
Potable water production subtotal	11,352	9,555	6,731	6,154
Recycled water	476	547	853	134
Total	11,828	10,102	7,584	6,288

a. *Data reference: WSA for Serramonte Center Expansion*
b. *Data reference: 2015 UWMP*
c. *Billing use data for Daly City from 9/25/2018 to 9/24/2019, provided by City staff.*
d. *Other uses include sewer flushing, hydrant flushing, and traveling meter (contractor).*
e. *Water losses not provided for 2019 but likely have not change percentage-wise from prior periods, i.e., less than 7 percent.*
f. *Adding a reasonable allowance for water losses would increase the 2019 usage to about 6,700 AF.*

2.2 Projected Water Demand

This section describes the projected water demands for the existing Daly City water system and for the proposed Midway Village Redevelopment.

2.2.1 Daly City Water System Projected Water Demands

The projected demands presented in this document are from Daly City's 2015 UWMP.

Table 2-2 shows the projected water demand for the existing Daly City water system by water use sector. Table 2-2 does not include demands from the proposed Midway Village Redevelopment, only demands for the existing Midway site.

Table 2-2. Daly City System Projected Water Demands by Water Use Sector (without Midway Village Redevelopment)

Water Use Sector	Projected Water Demand, AFY				
	2020	2025	2030	2035	2040
Single-family	3,842	3,818	3,784	3,778	4,005
Multi-family	1,679	1,669	1,654	1,651	1,823
Commercial	961	954	945	942	804
Industrial	0	0	0	0	0
Institutional/governmental	218	218	215	215	178
Landscape irrigation	129	129	126	126	126
Agriculture	-	-	-	-	-
Billed use subtotal	6,828	6,788	6,724	6,712	6,936
Other uses[a]	-	-	-	-	-
Water losses	359	356	353	353	365
Potable water production subtotal	7,187	7,144	7,077	7,065	7,301
Recycled water[b]	1,688	1,688	1,688	1,688	1,688
Total	8,875	8,832	8,765	8,752	8,989

a. Other uses include sewer flushing, hydrant flushing, and traveling meter (contractor)

b. The current tertiary facilities' maximum production capacity is 3,100 AFY. Most of the recycled water distributed does not replace a potable water supply. Increase in future years is contingent on an additional recycled water facility being constructed and rated at 3.4 million gallons per day (mgd) for watering cemeteries in Colma and/or for groundwater regeneration. Per SFPUC letter to BAWSCA including WSA language for BAWSCA (with corrections), dated July 31, 2019 (Appendix A), this project is anticipated to be in operation by 2027.

Source: 2015 UWMP

Note: Midway Village Redevelopment water demands are not included in this summary.

It is important to note that due to projected passive and active conservation savings accounted for in the 2015 UWMP, projected water demands for existing customers likely will decrease slightly through 2035. Additionally, as water use has decreased substantially since the drought period, demand projections from the 2015 UWMP may now be overestimated. Daly City is currently preparing a Water System Master Plan that will include an updated water demand analysis to account for this decrease.

2.2.2 Proposed Midway Village Redevelopment Projected Water Demands

BC estimated the Midway Village Redevelopment water demands by combining unit water demand factors for each land use type with the square footage or dwelling units proposed for each land use as shown in Table 2-3.

Table 2-3. Midway Village Redevelopment Projected Water Demand and Allowance for Water Losses

Proposed Projects	No. of Units	Approximate Area[a] ft^2	Approximate Number of Occupants[b]	Land Use Classifications	Unit Water Demands[b,c]	Average Day Demands[d] AFY
Phase 1						
Building A/parking garage A	78	234,000 (86,000/148,000)	3.12	multiple-family residential	60 gpcd	16.4
Building A2	70	71,000	3.12	multiple-family residential	60 gpcd	14.7
Subtotal	148	305,000				31.0
Phase 2						
Building B	58	69,000	3.12	multiple-family residential	60 gpcd	12.2
Building B2 (childcare center)	36	50,500	3.12	multiple-family residential	60 gpcd	7.5
Building C	34	29,000	3.12	multiple-family residential	60 gpcd	7.1
Townhomes	22	27,000	3.12	multiple-family residential	60 gpcd	4.6
Subtotal	150	175,500				31.5
Phase 3						
Building D/parking garage D	95	192000 (103,500/88,500)	3.12	multiple-family residential	60 gpcd	19.9
Community center	-	5,500	-	multiple-family residential	0.135 gpsfpd	0.8
Townhomes	22	46,000	3.12	multiple-family residential	60 gpcd	4.6
Subtotal	117	51,500				25.4
Phase 4						
Building E	65	60,000	3.12	multiple-family residential	60 gpcd	13.6
Building F	40	45,000	3.12	multiple-family residential	60 gpcd	8.4
Townhomes	15	12,600	3.12	multiple-family residential	60 gpcd	3.1
Townhomes (ownership)	20	39,000	3.12	single-family residential	60 gpcd	4.2
Subtotal	140	156,600				29.4
Buildout						
Park[e]	-	145,000 (72,500)	-	public park	0.135 gpsfpd	11.0
Proposed project total		761,100				128.2

a. Approximate total building areas of all floor levels within the exterior walls provided by developer

b. Approximate number of occupants and unit water demands are from Near- and Long-Term Water Resources Planning (BC, 2012). Hotel: 60 gallons per day (gpd) per room. Theater/Restaurant/Gym: 0.135 gpsfpd

c. gpcd = gallons per capita per day; gpsfpd = gallons per square foot per day; gps = gallons per minute per sprinkler; gpd/rm = gallons per day per room

d. Average day demands converted to AFY

e. Water use for the proposed Bayshore Park is uncertain. BC assumed 50% of total area as landscaping and applied a demand factor of 0.135 gpsfpd

The total projected demand for the Midway Redevelopment is approximately 128 AFY or about 114,000 gpd.

2.2.3 Other Projected Water Demands

In 2012, BC prepared a Near- and Long-Term Water Resources Planning report for Daly City (BC, 2012), evaluating future water demands for future projects in Daly City. Although a WSA is not required by DWR guidelines (DWR, 2003) to consider other future developments (i.e. water supply is first come first served for new developments. In this case, Midway Village Development is included, but other potential future developments are not included), it is important to note that though Daly City has available water sources to supply the Midway Village Development, it may have issues supplying others in dry years. Per the study BC prepared in 2012, it was concluded that to meet future demands of projects planned to be constructed after 2018, Daly City would need to take one of two approaches:

1. Consider options for additional supply – Some options may include, but are not limited to, water transfers from other SFPUC wholesale customers, further groundwater exploration/development outside the existing developed groundwater basin, increased recycled water use, and/or increased conservation.
2. Decline projects seeking development approval – An obvious solution to the increasing supply deficit is to not approve further future development unless the developer clearly demonstrates a secured water right apart from Daly City's supplies that said developer can deliver to Daly City as a right in perpetuity.

The 2012 Water Resources Planning report anticipates a total estimated demand ranging from 732 AFY to 819 AFY (low to high range) to be needed for projects planned to be constructed after 2018. Note that the Midway Village was originally included in this estimate, with total estimated demands ranging from 80 to 84 AFY, which has since been revised. This section of the report is provided only for informational purposes and is not included in demand projections for Midway Village Redevelopment. Note also that the 2012 TM demands did not reflect the further reductions in Daly City water use flowing from additional conservation and decreased use in response to several water rate increases.

2.3 Total Projected Water Demand

Table 2-4 presents the projected demand for Daly City, including the proposed Midway Village Redevelopment project. As per an email provided to Daly City by the developer's engineer dated October 11, 2019, the developer expects to complete Phases 1 and 2 by 2025 and anticipates full buildout by 2030.

Table 2-4. Total Projected Water Production

	Projected Water Demand, AFY				
	2020	2025	2030	2035	2040
Existing system (projected potable production)[a]	7,187	7,144	7,077	7,065	7,301
Demolition of existing Midway Village site[b]	0	–32	–32	–32	–32
Midway Village redevelopment (projected potable production)[c]	-	62	117	128	128
Subtotal (potable)	7,187	7,175	7,162	7,161	7,397
Recycled water	1,688	1,688	1,688	1,688	1,688
Total	8,875	8,863	8,850	8,849	9,085

a. *Source: Projected potable production includes water losses and other uses from 2015 UWMP*
b. *Source: Projected potable production for Midway Village Redevelopment is from Table 2-3. Dates shown in table are based on email from the developer's engineer dated October 11, 2019.*
c. *Source: Demands for existing Midway Apartments were provided for 2018 by City staff. These demands are considered to be negative once the existing site is demolished.*

Daly City billing usage data show demands for the existing Midway Village apartment complex of 32 AFY and 33 AFY, for 2017 and 2018, respectively. Since Tables 2-1 and 2-2 incorporate demands for the existing site and new construction will demolish the existing site, we subtracted these demands from projected demands (from 2015 UWMP) and replaced them with proposed demands for the Midway Village Redevelopment.

Section 3

Water Supplies

Daly City has three sources of water supply consisting of purchased surface water, groundwater, and recycled water. This section describes existing and projected water supply and water supply reliability.

3.1 Surface Water

Daly City receives water from the City and County of San Francisco's Regional Water System (RWS), operated by SFPUC. This supply is predominantly from the Sierra Nevada delivered through the Hetch Hetchy aqueducts, but also includes treated water produced by SFPUC from its local watersheds in Alameda and San Mateo counties (see Figure 3-1 for major system components).

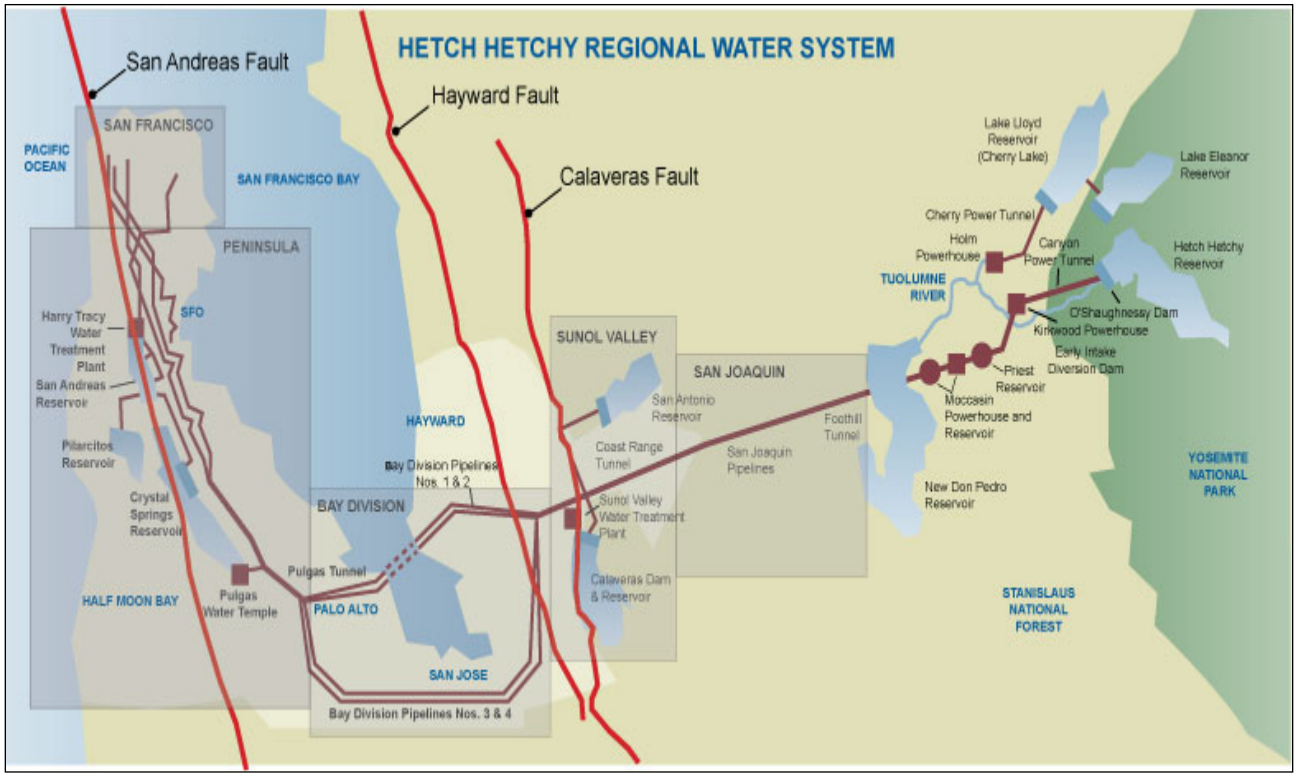

Figure 3-1. Diagram of City and County of San Francisco's RWS

Source: www.sfwater.org

3.1.1 Description

Hydrology, physical facilities, and the institutional parameters that allocate the water supply from the Tuolumne River constrain the amount of imported water available to SFPUC's retail and wholesale customers. Due to these constraints, SFPUC depends highly on reservoir storage to increase reliability of its water supplies.

SFPUC serves its retail and wholesale water demands with an integrated operation of local Bay Area water production and imported water from Hetch Hetchy, which accounts for 85 percent of the RWS supply. In practice, the local watershed facilities operate to capture local runoff from parts of Alameda, Santa Clara and San Mateo (Peninsula) counties.

The Alameda and Peninsula watersheds provide the remaining 15 percent of SFPUC's water system. The Alameda watershed, located in the East Bay, represents about half of the local watershed supplies, with water captured and stored in two reservoirs—Calaveras and San Antonio. The Peninsula watershed captures runoff in three reservoirs—Crystal Springs, San Andreas and Pilarcitos—and represents the remaining half of SFPUC's supply.

SFPUC treats these local supplies at the Sunol Valley Water Treatment Plant (SVWTP) in Alameda County and the Harry Tracy Water Treatment Plant (HTWTP) in San Mateo County, which contribute 60 to 65 mgd and 40 to 45 mgd, respectively.

3.1.2 SFPUC Physical Constraints and Possible Limitations on Delivery Capacity

SFPUC has identified 265 mgd as the operational amount of water that can be delivered to the service area. From this amount, San Francisco reserves 81 mgd, and the remaining 184 mgd becomes the contractual supply guarantee provided to wholesale customers. The City and County of San Francisco uses about 32 percent of this supply, and the remaining 68 percent serves cities, water districts, and other private water companies located in Alameda, Santa Clara, and San Mateo counties.

Daly City previously had 12 SFPUC pipeline connections called turnouts. In March 2014, Daly City had three turnout meters disconnected (501 and 503 Carter and D Street) and flanged off. If needed, SFPUC can reconnect these connections quickly. This adjustment brings the total to nine. The remaining nine turnouts can theoretically supply approximately 31 mgd at a rate of about 21,800 gpm. Daly City has never drawn water from SFPUC aqueducts at this rate and never expects to do so. During normal well operation, the purchases from SFPUC contribute up to 50 percent of Daly City's annual water supply. Daly City also has emergency interconnections with the following water agencies:

- Westborough Water District
- California Water Service (CWS)
- North Coast County Water District
- Brisbane/Guadalupe Valley Municipal Improvement District

Note that all four of these agencies depend on SFPUC for most, if not all, of their water supply. Daly City can draw upon supply from these entities to cover a loss of supply for an emergency local to the Daly City water system, but these supplies will be unavailable if a SFPUC systemwide emergency should occur. SFPUC faces several limitations on its water facilities that now or in the near future will limit its ability to deliver water fully to its wholesale customers, including Daly City, such as during dry periods and/or peak demand periods.

Physical limitations during wet and average conditions. During wet and average conditions, the RWS may have enough water available from rainfall and the Sierra snowpack, but physical limitations may prevent SFPUC from fully delivering such water to its customers in the City of San Francisco as well as its wholesale customers during peak demand periods. These limitations result from hydraulic bottlenecks in its pipelines and tunnels, as well as fixed water treatment plant capacity at SVWTP and HTWTP. To relieve these bottlenecks, SFPUC plans to replace existing pipelines or tunnels with larger-diameter conduits or build new, parallel conduits. These facilities are generally critical during periods of peak demand (i.e., a series of hot summer or fall days). To enhance SFPUC's water supply system's ability to meet identified service goals for water quality, seismic reliability, delivery reliability, and water supply, SFPUC has undertaken the Water System Improvement Program (WSIP), approved October 31, 2008. Section 3.1.3 includes a recent update on SFPUC's WSIP.

Physical limitations during drought conditions. During drought conditions, the hydraulic limitations in SFPUC's delivery system will be a lesser concern and the problem will instead be relative supply. In most years, the system can meet required deliveries. If local runoff is low and Bay Area storage reservoirs are low, then SFPUC must bring more Sierra water than normal into the Bay Area to augment local supplies. During such periods, the existing conveyance capacity across the San Joaquin Valley could be limiting.

3.1.3 SFPUC Water System Improvement Program

The WSIP will deliver capital improvements aimed at enhancing SFPUC's ability to meet its water service mission of providing high-quality water to customers in a reliable, affordable and environmentally sustainable manner.

The $4.6 billion WSIP consists of 87 projects—35 local projects located within San Francisco and 52 regional projects spread over seven counties between the Central Valley and San Francisco along the RWS. SFPUC is mandated by the state Wholesale RWS Security and Reliability Act to report on the Regional program annually (SFPUC, 2019). As of June 30, 2019 (end of FY2018-19), the regional projects were more than 97 percent complete. Construction is in progress on five regional projects valued at $1.015 billion, while construction had been completed on 43 regional projects valued at $2.715 billion. Besides closeout projects, two projects remain in pre-construction (the Alameda Creek Recapture Project and the Watershed and Environmental Improvement Program). In addition, Phase 2 of the Regional Groundwater Storage and Recovery Project is in design, while Phase 1 is nearing construction completion. The largest project in the program, Calaveras Dam Replacement, finished during FY2018-19 and is on track to be closed out by the end of December 2019. The overall WSIP completion schedule is driven by the closeout completion date for Regional Groundwater Storage and Recovery on December 30, 2021.

3.1.4 Legal Constraints

A number of legal agreements limit the amount of water that Daly City can receive from SFPUC, as described below. Under current agreements with SFPUC, Daly City's supply allocation is 4.292 mgd. Details on specific SFPUC water supply agreements are included below:

2018 Interim Supply Limitation (ISL). As part of its adoption of the WSIP in October 2008, SFPUC Commission adopted an ISL to limit sales from the RWS watersheds to an average annual of 265 mgd through 2018. The wholesale customers' collective allocation under the ISL was 184 mgd, and San Francisco's was 81 mgd. The Water Supply Agreement (WSAg) between the City and County of San Francisco and wholesale customers in Alameda County, San Mateo County and Santa Clara County, provides a framework for administering the ISL (SFPUC, 2009). BAWSCA has developed a strategy to address each of its member agencies' unmet needs flowing from the ISL through its Water Conservation Implementation Plan (WCIP) (Maddaus Water Management, 2009) and the Long-Term Reliable Water Supply Strategy Phase II Final Report (CDM Smith, 2015).

Interim Supply Allocation (ISA). The ISAs refer to each individual wholesale customer's share of the ISL. On December 14, 2010, SFPUC established each agency's ISA through 2018. In general, SFPUC based the allocations on the lesser of the projected fiscal year (FY) 2017–18 purchase projections or ISAs. The ISAs were effective only until December 31, 2018.

San Francisco's ISA was 81 mgd, and the wholesale agencies were 184 mgd. Daly City's ISA was 4.292 mgd through 2018. As stated in the WSAg, the wholesale customers do not concede the legality of SFPUC's establishment of the ISAs and Environmental Enhancement Surcharge, discussed below, and expressly retain the right to challenge either or both, when and if imposed, in a court of competent jurisdiction.

2009 WSAg. SFPUC's business relationship between San Francisco and its wholesale customers is, in large part, defined by the WSAg. The WSAg addresses the rate-making methodology used by SFPUC in setting wholesale water rates for its wholesale customers, in addition to addressing water supply and water

shortages for the RWS. The WSAg has a 25-year term with an option to extend its term. In terms of water supply, the WSAg provides for 184 mgd (expressed on an annual average basis) "Supply Guarantees" to SFPUC's wholesale customers, subject to reduction, to the extent and for the period made necessary by reason of water shortage because of drought, emergencies, or by malfunctioning or rehabilitation of the RWS.

The WSAg does not guarantee that SFPUC will meet peak daily or hourly customer demands when its annual usage exceeds the Supply Guarantees. SFPUC's wholesale customers have agreed to the allocation of the 184-mgd Supply Guarantees among them, with each entity's share of the ISA to the WSAg. The ISA survives termination or expiration of the WSAg and Daly City's Individual Water Sales Contract with San Francisco. The Water Shortage Allocation Plan (WSAP) between SFPUC and its wholesale customers, adopted as part of the WSAg in July 2009, addresses shortages of up to 20 percent of systemwide use. The Tier 1 Shortage Plan allocates water from the RWS between San Francisco retail and wholesale customers during systemwide shortages of 20 percent or less. The WSAg also anticipated a Tier 2 Shortage Plan adopted by the wholesale customers, which would allocate the available water from the RWS among the wholesale customers. Daly City and other member agencies are in Tier 2.

Interim Supply Guarantee (ISG). In 2009, Daly City, along with 25 other Bay Area water suppliers, signed a WSAg with San Francisco, supplemented by an individual Water Supply Contract. These contracts, which expire in 2034, provide for a 184-mgd (expressed on an annual average basis) Supply Assurance to SFPUC's wholesale customers collectively. Daly City's ISG is 4.292 mgd. Although the WSAg and accompanying Water Supply Contract expire in 2034, the Supply Assurance (which quantifies San Francisco's obligation to supply water to its individual wholesale customers) survives their expiration and continues indefinitely.

Tier 1 Drought Allocations. In July 2009, in connection with the WSAg, the wholesale customers and San Francisco adopted a WSAP to allocate water from the RWS to retail and wholesale customers during system-wide shortages of 20 percent or less (the Tier 1 Plan). The Tier 1 Plan replaced the prior Interim WSAP, adopted in 2000, which also allocated water for shortages up to 20 percent. The Tier 1 Plan also allows for voluntary transfers of shortage allocations between SFPUC and any wholesale customer, and between wholesale customers themselves. In addition, wholesale customers who have banked water through usage reductions greater than required may transfer banked water to other wholesale customers. The Tier 1 Plan, which allocates water between San Francisco and the wholesale customers collectively, distributes water based on the level of shortage as shown in Table 3-1.

Table 3-1. SFPUC and Wholesale Purchasers Share of Water

Level of Systemwide Reduction in Water Use Required	Share of Available Water	
	Wholesale Customers Share	SFPUC Share
5% or less	35.5%	64.5%
6–10%	36.0%	64.0%
11–15%	37.0%	63.0%
16–20%	37.5%	62.5%

The Tier 1 Plan will expire at the end of the WSAg term unless extended by San Francisco and the wholesale customers.

Tier 2 Drought Allocations. The wholesale customers have negotiated and adopted the Tier 2 Plan, the second component of the WSAP that allocates the collective wholesale customer share among each of the 26 wholesale customers.

The Tier 2 allocation's formula takes multiple factors for each wholesale customer into account:

- ISG
- Seasonal use of all available water supplies
- Residential per capita use

The water made available to the wholesale customers would be divided among the wholesale customers who have supplies above their needs as determined among the BAWSCA agencies under the Tier 2 Plan. That amount is proportional to each wholesale customer's Allocation Basis, expressed in mgd, which in turn is the weighted average of two components. The first component is the wholesale customer's ISG, as stated in the WSAg, and is fixed. The second component, the Base/Seasonal Component, is variable and is calculated using the monthly water use for three consecutive years prior to the onset of the drought for each of the wholesale customers for all available water supplies. The second component is based on twice the weight of the first, fixed component in calculating the Allocation Basis. Minor adjustments to the Allocation Basis then are made to ensure a minimum cutback level, a maximum cutback level, and a sufficient supply provided for all wholesale customers. The Allocation Basis is used in a fraction, as numerator, over the sum of all wholesale customers' Allocation Bases to determine 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 under the Tier 1 Plan by the wholesale customer's Allocation Factor. The Tier 2 Plan requires that BAWSCA calculate the Allocation Factors each year in preparation for a potential water shortage emergency. As the wholesale customers change their water use characteristics (e.g., increase or decrease SFPUC water purchases and use of other water sources, changes in monthly water use patterns, or changes in residential per capita water use), the Allocation Factor for each wholesale customer also will change; however, for long-term planning purposes, each wholesale customer must use as its Allocation Factor the value identified in the adopted Tier 2 Plan, when adopted.

The Tier 2 Plan was originally set to expire in 2018 unless extended by the wholesale customers. Per BAWSCA's October 9, 2019 meeting minutes, in light of uncertainties surrounding new statewide water use efficiency requirements, it was recommended that the Board extend the present Tier 2 Plan for one more calendar year to December 31, 2020 (BAWSCA, 2019).

3.1.5 2018 Bay-Delta Plan Amendment[1]

The Bay-Delta Plan Amendment is another policy impacting SFPUC's future supply during dry years. In December 2018, the State Water Resources Control Board (SWRCB) adopted amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan Amendment) to establish water quality objectives that maintain the health of the Bay-Delta ecosystem. By law, SWRCB regularly reviews this plan. SWRCB developed the adopted Bay-Delta Plan Amendment with the stated goal of increasing salmonid populations in three San Joaquin River tributaries (the Stanislaus, Merced, and Tuolumne Rivers) and the Bay-Delta. The Bay-Delta Plan Amendment requires the release of 40 percent of the "unimpaired flow"[2] on the three tributaries from February through June in every year type, whether wet, normal, dry, or critically dry.

If SWRCB implements the Bay-Delta Plan Amendment, SFPUC will be able to meet its contractual obligations to its wholesale customers as presented in SFPUC's 2015 UWMP in *normal years*. SFPUC's 2015 UWMP already assumes shortages in single and multiple-dry years through 2040, but implementation of the Bay-Delta Plan Amendment will result in *greater shortages*. SWRCB has stated that it intends to implement the

[1] Text from this section is copied from BAWSCA's Water Supply Reliability Information for BAWSCA Member Agencies' Water Supply Assessments (with Corrections). (SFPUC, 2019).

[2] Unimpaired flow represents the water production of a river basin, unaltered by upstream diversions, storage, or export or import of water to or from other watersheds. (SFPUC, 2019).

Bay-Delta Plan Amendment on the Tuolumne River by the year 2022, assuming it obtains all required approvals by that time. Implementation of the Plan Amendment is uncertain for several reasons.

First, under the Clean Water Act, the United States Environmental Protection Agency (USEPA) must approve the water quality standards identified in the Plan Amendment within 90 days from the date the approval request is received. By letter dated June 11, 2019, USEPA rejected the SWRCB's two-page submittal as inadequate under the requirements of the Clean Water Act. Pursuant to USEPA's letter, SWRCB has 90 days to respond with a submittal that complies with the law. Currently, USEPA has neither approved nor disapproved of any of the revised water quality objectives. It is uncertain whether the USEPA will approve or disapprove the water quality standards in the future. Furthermore, the determination could result in litigation.

Second, since adoption of the Bay-Delta Plan Amendment, over a dozen lawsuits have been filed in both state and federal court challenging the SWRCB's adoption of the Bay-Delta Plan Amendment, including two legal challenges filed by the federal government at the request of the U.S. Department of Interior, Bureau of Reclamation, in state and federal courts. These cases are in the early stage and the courts have made no dispositive rulings yet.

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

Fourth, in recognition of the obstacles to implementing the Bay-Delta Plan Amendment, SWRCB Resolution No. 2018-0059 adopting the Bay-Delta Plan Amendment directed staff to help complete a "Delta watershed-wide agreement, including potential flow measures for the Tuolumne River" by March 1, 2019, and to incorporate such agreements as an "alternative" for a future amendment to the Bay-Delta Plan to be presented to the SWRCB "as early as possible after December 1, 2019." In accordance with the SWRCB's instruction, on March 1, 2019, SFPUC, in partnership with other key stakeholders, submitted a proposed project description for the Tuolumne River that could serve as the basis for a voluntary substitute agreement with the SWRCB (March 1st Proposed Voluntary Agreement). On March 26, 2019, SFPUC adopted Resolution No. 19-0057 to support SFPUC's participation in the Voluntary Agreement negotiation process. To date, those negotiations are ongoing under the California Natural Resources Agency and the leadership of the Newsom administration. The negotiations for a voluntary agreement have made significant progress since the Department of Fish and Wildlife and DWR presented the initial framework to the SWRCB on December 12, 2018. The package submitted on March 1, 2019, is the product of renewed discussions since Governor Newsom took office. While significant work remains, the package represents an important step forward in bringing together diverse California water interests.

For all these reasons, whether and when SWRCB will implement the Bay-Delta Plan Amendment and how those amendments, if implemented, will affect SFPUC's water supply currently are uncertain and possibly speculative. Given this uncertainty, SFPUC has analyzed water supply and demand through 2040 under three scenarios:

1. No implementation of the Bay-Delta Plan Amendment or the March 1st Proposed Voluntary Agreement (Scenario 1)
2. Implementation of the March 1st Proposed Voluntary Agreement (Scenario 2)
3. Implementation of the Bay-Delta Plan Amendment (Scenario 3)

3.1.6 Dry Year Water Supplies[3]

As discussed in Section 3.1.3, SFPUC is nearing completion of its WSIP. Since adoption of SFPUC's UWMP and the 2015 Daly City UWMP, the following milestones have occurred, which improve dry year water supplies:

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

3.1.7 Additional Water Supplies[4]

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

The capital projects that are under consideration would have significant cost and are still in the early feasibility or conceptual planning stages. Because many of these water supply projects would take 10 to 30 or more years to implement, and because required environmental permitting negotiations may reduce the amount of water that can be developed, aside from the Daly City Recycled Water Expansion SFPUC does not incorporate the yield from these projects now into SFPUC supply projections included in this WSA.

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

3.1.8 Projected SFPUC Supply[5]

Sections 3.1.4 through 3.1.7 include text from SFPUC's Water Supply Reliability Information for BAWSCA Member Agencies' WSA (Appendix A); however, supply and demand projections included in Appendix A only apply to Tier 1 of SFPUC's WSAP.

As shown in Table 1 of Appendix A, under Scenario 1 without implementation of the Bay-Delta Plan Amendment, RWS supplies would meet wholesale demands (i.e., contractual obligations) in all normal years, single-dry water years, and the first year of the 8.5-year design drought. During subsequent drought years,

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[3] Text from this section is copied from BAWSCA's Water Supply Reliability Information for BAWSCA Member Agencies' Water Supply Assessments (with Corrections). (SFPUC, 2019).

[4] Text from this section is copied from BAWSCA's Water Supply Reliability Information for BAWSCA Member Agencies' Water Supply Assessments (with Corrections). (SFPUC, 2019).

[5] Text from this section is copied from BAWSCA's Water Supply Reliability Information for BAWSCA Member Agencies' Water Supply Assessments (with Corrections). (SFPUC, 2019).

shortfalls would range from 31 to 60 mgd, or 17-33 percent, and increase into the outer years of the design drought.

Per discussions with BAWSCA, procedures for determining RWS supply availability for each Tier 2 wholesale customer are still unclear due to uncertainties with the Bay-Delta Plan Amendment.

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

Under Scenario 1, there is no change to wholesale allocation under the WSAP, but in multiple-dry years, Year 2 and Year 3 wholesale customers will require Tier 2 of the WSAP. During Years 2 and 3, wholesale customers will be limited to 64 percent of the Supply Assurance, or 152.6 mgd.

Scenario 2: Implementation of the Voluntary Agreement.

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

Scenario 3: Under implementation of the Bay-Delta Plan Amendment, the RWS is projected to experience significant shortfalls in single-dry and multiple-dry years starting as soon as 2022 and through 2040. If additional water supplies were not acquired before SWRCB implemented the Bay-Delta Plan Amendment, SFPUC would impose wholesale customer rationing to help balance water supply deficits during dry years.

Given the reduction severity in RWS supply with Bay-Delta Plan Amendment implementation, existing and planned dry-year supplies would be insufficient to meet projected wholesale water demand obligations without rationing above SFPUC's RWS LOS goal of limiting rationing to 20 percent on a systemwide basis for all dry years starting as soon as 2022. Although the WSAP does not address implications to supply during systemwide shortages above 20 percent, the WSAP indicates that if a systemwide shortage greater than 20 percent were to occur, RWS supply would be allocated between retail and wholesale customers per the rules corresponding to a 16 percent to 20 percent systemwide reduction, subject to consultation and negotiation between SFPUC and its wholesale customers to modify the allocation rules.

3.2 Groundwater

Groundwater is one of Daly City's two primary water sources. When all components are in full operation, Daly City has six active wells with a combined capacity of about 2,950 gpm (4.25 mgd or 4,760 AFY); Daly City will use no more than five wells simultaneously because the sixth well serves as a backup well. Daly City has one additional well, the A Street Well, that presently is out of service because of elevated nitrate and hexavalent chromium concentrations in the pumped water.

In December 2014, Daly City, along with SFPUC, City of San Bruno, and CWS entered into a comprehensive Groundwater Storage and Recovery (GSR) Agreement among the municipal pumpers within the South Westside Basin Aquifer to self-limit pumping within the aquifer at no more than 6.90 mgd, from which Daly City's aggregated designated quantity is an annual average rate of 3.43 mgd (3,839 AFY).

This section describes Daly City's groundwater supply/capacity, current use, water rights, and projected use.

3.2.1 Description

The aquifer that underlies most of Daly City is within the Westside Groundwater Basin (Westside Basin, Basin 5-35 as defined by DWR). The Westside Basin underlies parts of San Francisco and northern San Mateo county. The basin extends from Golden Gate Park in the north past the San Francisco Airport in the south. The basin extends to the west beneath the Pacific Ocean, at least as far as the San Andreas Fault in the north, the Serra Fault further south, and to the east an unknown distance beneath San Francisco Bay. The cities of San Francisco, Daly City, SSF, Colma, San Bruno, Millbrae and parts of Burlingame and Hillsborough lie above the basin.

The Westside Basin is a buried valley, with the walls and valley floor formed by rock with a mixture of coarse and fine-grained sediments as much as 3,700 feet thick in parts of the basin that fill this rock-bordered valley. The coarse-grained sediments consist of sand and gravel, and the fine-grained sediments consist of silt and clay. Sand and gravel can transmit substantial water quantities to wells, whereas silt and clay impede groundwater movement. Silt and clay deposits that form semi-continuous beds can effectively isolate the water table from the underlying aquifer. Groundwater in the shallow water table aquifer is referred to as "unconfined"; underlying aquifer, separated from the water table by continuous and semi-continuous fine-grained beds, are referred to as "confined". Both unconfined and confined conditions occur in the Westside Basin.

The Westside Basin has been a primary and reliable source of municipal and irrigation water supply for more than a century. Groundwater pumping currently supplies approximately 30 percent of the total water used in the basin. Groundwater pumping supplies water for the communities of Colma, SSF, San Bruno, and Daly City. Groundwater can supply as much as 60 to 70 percent of Daly City's supply during an emergency or drought scenario, with the exception of recycled water currently pumping for irrigation to four golf courses (Olympic Club [two courses], San Francisco, Harding Park, and Lake Merced), two city parks (Westlake and Marchbank) and median strips along John Daly Boulevard, Junipero Serra Boulevard, and the Westlake off ramp.

In 2014, the California Legislature enacted the Sustainable Groundwater Management Act (SGMA), with subsequent amendments in 2015. The SGMA requires groundwater management in priority groundwater basins, which includes forming Groundwater Sustainability Agencies (GSA) developing Groundwater Sustainability Plans (GSP) for groundwater basins or subbasins designated by DWR as medium or high priority. DWR identified such basins in Bulletin-118, 1980, and Bulletin 118, Update 2003 (DWR, 2003); DWR did not identify the Westside Basin (DWR, 2003). In August 2015, DWR issued an updated final list of critically over-drafted basins, which did not include Westside Basin (DWR, 2016c).

In 1992, the California Legislature passed Assembly Bill 3030, which declared that groundwater is a valuable natural resource, and authorized local agencies to develop groundwater management plans (GMP) voluntarily to ensure water quality and maximize supply. Each of the municipal and private agencies that have a direct stake in the Westside Basin has participated in an ongoing bi-annual testing program that measures well levels and groundwater quality. The agencies also participated in an intensive review of groundwater usage and conditions as part of developing a regional groundwater model. Daly City acted as lead agency in developing a unified groundwater model. This model serves as the basis for providing a meaningful tool for decision makers on the Westside Basin management, including pursuit of a formalized basin management program.

Without management plans and changes to current operations, increasing competition for water in California may negatively affect groundwater basins and could result in saltwater intrusion, groundwater contamination, or land subsidence. In 1997, to respond to the benefits of managing the basin and ensure

local control of the process, SFPUC and the cities of San Bruno and Daly City, together with CWS, formed a partnership to develop a groundwater master plan for the Westside Basin that includes:

- Groundwater storage and quality monitoring
- Saltwater intrusion control
- Conjunctive use
- Recycled water
- Source water protection

3.2.2 Conjunctive Use

Daly City entered into a pilot conjunctive use program with SFPUC with the goal of enhancing regional water resource management. The project's first phase, which concluded in November 2003, took advantage of the availability of surplus SFPUC system water at a reduced cost. In the exchange, Daly City agreed to use more SFPUC system water and reduce pumping groundwater from the Westside Basin. This action provided the opportunity to observe basin response from recharge that takes place because of the reduced groundwater pumping. The second phase of conjunctive use began in March 2004 and continued into 2011, and had promising results. The demonstration project assessed, in part, the feasibility of a permanent program. As tentatively outlined, the program would:

- Increase groundwater levels in the Westside Basin
- Reduce the potential for seawater intrusion
- Develop increased SFPUC system yield from the overall surface and groundwater system
- Potentially improve conditions at Lake Merced

Initial results from this project showed that groundwater levels increased within the basin. Daly City has an added benefit of saving its local resource, resulting in enhanced emergency and drought protection. With the promising results of the pilot conjunctive use program, the WSIP and GSR Project proceeded with the construction of up to 16 new recovery wells and associated facilities, such as pumping systems, pipelines, and chemical treatment equipment. Phase 2 of the project is in design, while Phase 1 is nearing construction completion. The project anticipates completion in 2021 (SFPUC, 2019).

During the pilot program, SFPUC determined that a theoretical storage of about 61,000 AF of additional water is available in the Westside Basin. An assessment of the available groundwater yield for extended periods on the South Westside Basin was completed. As it currently does, Daly City plans to adjust the output of its wells and the flow rate of water it purchased from SFPUC to create a blend of water that consistently meets all water quality standards. For further detail, see Brown and Caldwell's (BC) Permit Amendment to Domestic Water Supply System Number 4110013 (BC, 2016). The WSA describes "put" and "take" concepts associated with conjunctive water use. SFPUC is installing new wells as a systemwide asset of SFPUC (thereby becoming a joint asset), the terms for which can be found in the 2009 WSA, Section 3.17. Under this section, Daly City would defer payment of stored conjunctive use system water until actual extraction of that water occurs; Daly City would pay SFPUC at the then-applicable wholesale rate of SFPUC system surface water.

3.2.3 Groundwater Reliability

Table 3-2 shows that Daly City historically has pumped less than the designated annual average rate of 3.43 mgd (3,839 AFY), even with increased groundwater from 2012 through 2014.

Due to the conjunctive use program's implementation, Daly City did not use any water from its groundwater wells from June 2016 through 2019 (see Table 3-2). In the prior 5-year period (2010 through 2015), groundwater was, on average, 40 percent of the water supply. In dry years, Daly City extracts groundwater from the basin. Daly City anticipates continued groundwater reliability as part of its ongoing efforts.

Table 3-2. Groundwater Volume Pumped

Basin name	Volume Pumped, AFY[a]							
	2012	2013	2014	2015	2016	2017	2018	2019
Westside basin	3,778	3,351	3,452	1,979	876	0	0	0
Total	3,778	3,351	3,452	1,979	876	0	0	0
Groundwater as a percent of total water supply[b]	43%	38%	N/A	26%	11%	0%	0%	0%

a. Does not include groundwater pumped for conjunctive use pilot study

b. Total supply data is presented in Table 3-5

Source: 2015 UWMP and data provided by City staff for 2016-2019.

Table 3-3 is summary of projected groundwater supplies per the 2015 UWMP.

Table 3-3. Reasonably Available Groundwater Volume

Basin Name	Volume, AFY				
	2020	2025	2030	2035	2040
Westside basin	3,839	3,839	3,839	3,839	3,839
Total	3,839	3,839	3,839	3,839	3,839
Groundwater as a percent of total water supply[a]	33%	33%	25%	25%	25%

a. Total supply data is presented in Table 3-5

Source: 2015 UWMP

3.3 Recycled Water

NSMCSD manages wastewater collection and treatment for a majority of Daly City. Daly City collects all wastewater flows from Daly City (excluding storm water runoff and a small part of Daly City that is tributary to the City of San Francisco sewers) and treats it at the NSMCSD WWTP.

In 2004, Daly City completed a $7.5 million tertiary treatment project at the WWTP. The upgrades provided Daly City with an unrestricted tertiary recycled water capacity of approximately 3,100 AFY. Daly City currently uses approximately 1,200 AFY of its unrestricted tertiary recycled water. The recycled water program currently pumps recycled water to irrigate four golf courses (Olympic Club—two courses, San Francisco, and Lake Merced), two city parks (Westlake and Marchbank) and median strips along John Daly Boulevard, Junipero Serra Boulevard and Westlake off ramp.

Daly City/NSMCSD are currently evaluating the remaining unrestricted recycled water potential. NSMCSD, in conjunction with SFPUC, is conducting a feasibility study to identify and evaluate alternatives and feasibility that would result in adding recycled water irrigation at Colma's cemeteries and Daly City facilities and schools.

Along with other SFPUC wholesale customers and members of the Westside Basin Partners, Daly City has participated in discussions around an expanded recycled water plant as discussed in Section 3.17. The Daly City recycled water expansion project includes a 2.89-mgd expansion of the existing Daly City recycled water treatment, transmission, and distribution system to serve irrigation customers within the Town of Colma. The expanded recycled water capacity could potentially contribute to irrigating cemeteries, more city parks, schools, and a golf course in Colma and/or groundwater recharge, with a recycled water use of up to 3.4 mgd (6,908 AFY) by 2027.

3.4 Summary of Water Supplies and Water Supply Reliability

Table 3-4 shows the breakdown of historical surface water, groundwater, and recycled water for 2005, and 2009 through June 2019.

Table 3-4. Historical Water Production by Source

Year	Water Production, AFY[a]				
	City Wells	SFPUC	Potable Subtotal	Recycled Water	Total
2005	3,797[b]	7,380	11,174	476	11,653
2009	1,667	6,132	7,799	586	8,385
2010	4,007[b]	5,560	9,567	547	10,114
2011	2,700	4,461	7,161	451	7,612
2012	3,778	4,456	8,234	583	8,817
2013	3,351	4,330	7,681	1,146	8,827
2014	3,452	N/A[c]	3,452	N/A	N/A
2015	1,979	4751	6,730	853	7,583
2016	876	6,018	6,895	1,242	8,137
2017	0	8,946	8,946	1,599	10,544
2018	0	7,585	7,585	572	8,158
2019 (1st half)	0	3,315	3,315	134	3,449

a. *Source: WSA for Serramonte Center Expansion and 2016-2019 data from City staff*

b. *Conjunctive use volumes from were added to groundwater well production from Daly City UWMP*

c. *N/A = Not available*

Table 3-5 summarizes the projected annual water supply for the normal climate years. As mentioned in Section 3.1, because there is still uncertainty regarding how the Bay-Delta Plan Amendment will impact future SFPUC supplies, this WSA analyzes water supply and demand through 2040 based on the Tier 2 SFPUC allocations. Total supply is anticipated to increase in 2027 due to implementation of the Daly City Recycled Water Expansion.

Table 3-5. Projected Normal Water Year Water Supply					
	Projected Normal Water Year Water Supply, AFY				
Water Supply	2020	2025	2030	2035	2040
Potable Supply					
SFPUC	4,806	4,806	4,806	4,806	4,806
Groundwater	3,839	3,839	3,839	3,839	3,839
Subtotal (potable)	8,645	8,645	8,645	8,645	8,645
Recycled water[a]	3,100	3,100	6,908	6,908	6,908
Total	11,745	11,745	15,553	15,553	15,553

a. The recycled water supply from 2027 onward is contingent on an additional recycled water facility being constructed and rated at 3.4 mgd for irrigating cemeteries in Colma and/or for groundwater recharge.

Source: 2015 UWMP

Table 3-6 summarizes the projected annual water supply for a single-dry water year using the information available. It is important to note that there is still uncertainty associated with the Bay Delta Plan Amendment scenarios. Daly City is currently evaluating its alternate water sources (groundwater, etc.), to prepare for further reduction of SFPUC supplies. Based on the water supply agreements discussed in Section 3.1 and the 2015 UWMP Tier 2 Allocation Scenarios (BAWSCA, 2016), 90 percent of average supply is projected to be available during single-dry water years.

Table 3-6. Projected Single-Dry Water Year Water Supply					
	Projected Single-Dry Water Year Water Supply, AFY				
Water Supply	2020	2025	2030	2035	2040
Potable Supply					
SFPUC	4,324	4,324	4,324	4,324	4,324
Groundwater	3,839	3,839	3,839	3,839	3,839
Subtotal (potable)	8,163	8,163	8,163	8,163	8,163
Recycled water[a]	3,100	3,100	6,908	6,908	6,908
Total	11,263	11,263	15,071	15,071	15,071

a. The recycled water supply from 2027 onward is contingent upon an additional recycled water facility being constructed and rated at 3.4 mgd for irrigating cemeteries in Colma and/or for groundwater recharge.

Source: 2015 UWMP

Table 3-7 summarizes the projected annual water supply in multiple-dry water years. Based on the water supply agreements discussed in Section 3.1 and the 2015 UWMP Tier 2 Allocation Scenarios (BAWSCA, 2016), 90 percent, 88 percent, and 88 percent of average supply is projected to be available during the first, second, and third multiple-dry years, respectively.

Table 3-7. Projected Multiple-Dry Water Year Water Supply					
	Projected Multiple-Dry Water Year Water Supply, AFY				
Water Supply	2020	2025	2030	2035	2040
First Year Potable Supply					
SFPUC	4,324	4,324	4,324	4,324	4,324
Groundwater	3,839	3,839	3,839	3,839	3,839
Subtotal (potable)	8,163	8,163	8,163	8,163	8,163
Recycled water	3,100	3,100	6,908	6,908	6,908
Total	11,263	11,263	15,071	15,071	15,071
Second Year Potable Supply					
SFPUC	3,686	3,686	3,686	3,686	3,686
Groundwater	3,839	3,839	3,839	3,839	3,839
Subtotal (potable)	7,525	7,525	7,525	7,525	7,525
Recycled water	3,100	3,100	6,908	6,908	6,908
Total	10,625	10,625	14,433	14,433	14,433
Third Year Potable Supply					
SFPUC	3,686	3,686	3,686	3,686	3,686
Groundwater	3,839	3,839	3,839	3,839	3,839
Subtotal (potable)	7,525	7,525	7,525	7,525	7,525
Recycled water	3,100	3,100	6,908	6,908	6,908
Total	10,625	10,625	14,433	14,433	14,433

a. *The recycled water supply from 2027 onward is contingent upon an additional recycled water facility being constructed and rated at 3.4 mgd for irrigating cemeteries in Colma and/or for groundwater recharge.*

Source: 2015 UWMP

Section 4

Availability of Sufficient Supplies and Plans for Acquiring Additional Supplies

This section compares projected water supplies, demand, and water shortage expectations.

4.1 Water Supply and Demand Comparison

In this WSA, Section 2 addresses water demands and Section 3, water supply. Table 4-1 compares the current and projected normal year water supplies to the demand for all of Daly City. Table 4-1 data projects a sufficient supply during normal years that will meet projected demands through 2040.

Table 4-1. Normal Year Water Supply and Demand Comparison, AFY

	2020	2025	2030	2035	2040
Demand[a]					
Potable demand	7,187	7,175	7,162	7,161	7,397
Recycled water	1,688	1,688	1,688	1,688	1,688
Supply[b]					
Potable supply	8,645	8,645	8,645	8,645	8,645
Recycled water	3,100	3,100	6,908	6,908	6,908
Supply Minus Demand					
Potable, surplus/(deficit)	1,458	1,470	1,483	1,484	1,248
Recycled water, surplus/(deficit)	1,412	1,412	5,220	5,220	5,220

a. *Projected demands are from Table 2-4*

b. *Projected supply is from Table 3-5*

Table 4-2 provides a water supply and demand reliability comparison for single-dry years through the year 2040. Sufficient supply is projected during single-dry water years to meet projected demands through 2040. Daly City is currently evaluating options for increased water supply and/or water conservation to reduce demands.

Table 4-2. Single-Dry Water Year Water Supply and Demand Comparison, AFY					
	2020	2025	2030	2035	2040
Demand[a]					
Potable demand	7,187	7,175	7,162	7,161	7,397
Recycled water	1,688	1,688	1,688	1,688	1,688
Supply[b]					
Potable supply	8,163	8,163	8,163	8,163	8,163
Recycled water	3,100	3,100	6,908	6,908	6,908
Supply Minus Demand					
Potable, surplus/(deficit)	976	988	1,001	1,002	766
Recycled water, surplus/(deficit)	1,412	1,412	5,220	5,220	5,220

a. Projected demands are from Table 2-4

b. Projected supply is from Table 3-6

Table 4-3 provides a water supply and demand reliability comparison for multiple-dry years through 2040. Because Daly City's future recycled water supply does not offset future potable demands, BC only compared the potable demands to the potable supply. Figure 4-1 illustrates the supply and demand comparison. Sufficient supply is projected during multiple-dry years to meet projected demands. Daly City is currently evaluating options for increased water supply and/or water conservation to reduce demands.

Table 4-3. Multiple-Dry Year Water Supply and Demand Comparison, AFY					
	2020	2025	2030	2035	2040
Year 1 Demand[a]					
Potable demand	7,187	7,175	7,162	7,161	7,397
Recycled water	1,688	1,688	1,688	1,688	1,688
Supply[b]					
Potable supply	8,163	8,163	8,163	8,163	8,163
Recycled water	3,100	3,100	6,908	6,908	6,908
Supply Minus Demand[a]					
Potable, surplus/(deficit)	976	988	1,001	1,002	766
Recycled water, surplus/(deficit)	1,412	1,412	5,220	5,220	5,220
Year 2 Demand[a]					
Potable demand	7,187	7,175	7,162	7,161	7,397
Recycled water	1,688	1,688	1,688	1,688	1,688
Supply					
Potable supply	7,525	7,525	7,525	7,525	7,525
Recycled water	3,100	3,100	6,908	6,908	6,908
Supply Minus Demand[a]					
Potable, surplus/(deficit)	338	350	363	364	128
Recycled water, surplus/(deficit)	1,412	1,412	5,220	5,220	5,220

Table 4-3. Multiple-Dry Year Water Supply and Demand Comparison, AFY					
	2020	2025	2030	2035	2040
Year 3 Demand[a]					
Potable demand	7,187	7,175	7,162	7,161	7,397
Recycled water	1,688	1,688	1,688	1,688	1,688
Supply[b]					
Potable supply	7,525	7,525	7,525	7,525	7,525
Recycled water	3,100	3,100	6,908	6,908	6,908
Supply Minus Demand[a]					
Potable, surplus/(deficit)	338	350	363	364	128
Recycled water, surplus/(deficit)	1,412	1,412	5,220	5,220	5,220

a. *Projected demands are from Table 2-4*

b. *Projected supply is from Table 3-8*

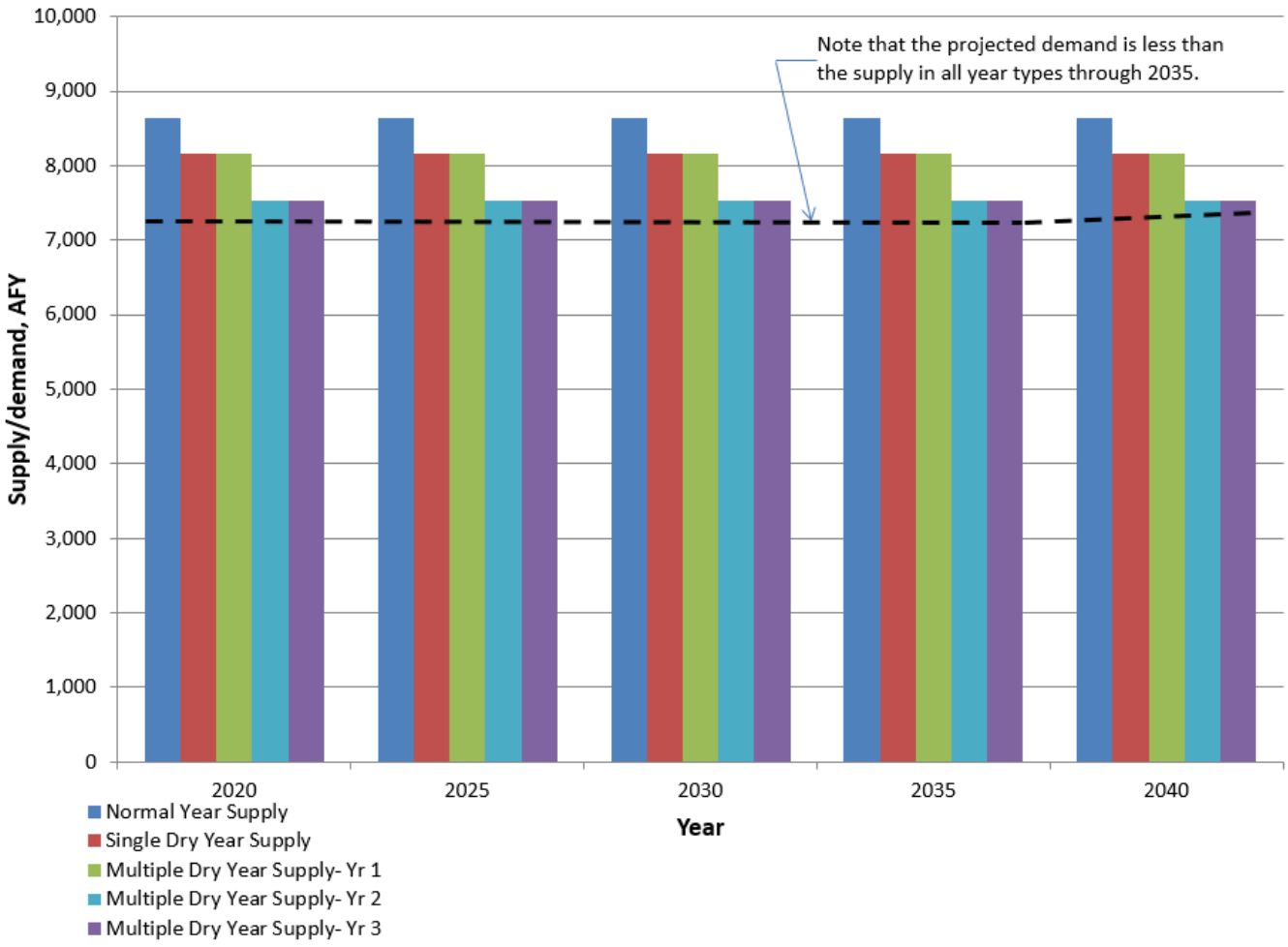

Figure 4-1. Supply and demand comparison

4.2 Water Shortage Expectations

As summarized above, no shortages are anticipated to occur in Daly City if the Midway Village Redevelopment occurs; however, as there are still uncertainties associated with the Bay-Delta Plan Amendment, Daly City is currently evaluating sources for increased water supply and/or conservation to reduce customer demand in dry years.

Section 5

Conclusions

In accordance with the requirements of Senate Bill 610, now Water Code Sections 10910 and 10911, it has been determined that sufficient water supplies are available to serve the proposed Midway Village Redevelopment. The availability of water supply for the proposed project is based primarily on the following findings:

- This WSA uses the 20-year water demand projections prepared and published in the 2015 Daly City UWMP (BC, 2016). The demands are based on the 2013 ABAG demographic projections and include projected passive (plumbing and buildout code) and active conservation savings.
- As available, both groundwater and surface water supplies would provide water supplies needed to serve the proposed project. Currently, Daly City purchases treated surface water supplies from SFPUC. Historically, SFPUC has delivered sufficient surface water supplies. Reductions in surface water supplies from SFPUC of up to 20 percent of average in dry years are incorporated into this analysis per the 2015 UWMP; however, per the letter from SFPUC to BAWSCA including WSA Language for BAWSCA (with Corrections), dated July 31, 2019 (Appendix A), SFPUC faces potential for further supply reductions due to scenarios associated with the Bay-Delta Plan Amendment.
- Daly City has limited ability to increase groundwater pumping to enhance water supply reliability and address added demands. Daly City currently has a maximum groundwater safe yield of 3,839 AFY anticipated through 2040.
- Recycled water currently serves irrigation demands within Daly City as well as to nearby golf courses, thus lowering the estimated demands for potable water and further enhancing overall water supply reliability. Based on current practices, this recycled water supply is not expected to increase or further enhance potable water supply availability.

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Section 6

References

Alameda County, San Mateo County and Santa Clara County. July 2009.

BAWSCA. Board Policy Committee Meeting Minutes. October 2019.

BAWSCA. UWMP Tier 2 Allocation Scenarios, January 2016.

Brown and Caldwell. City of Daly City 2015 Urban Water Management Plan. June 2016.

Brown and Caldwell. Near- and Long-Term Water Resources Planning. City of Daly City. July 2012.

Brown and Caldwell. Permit Amendment to Domestic Water Supply System Number 4110013, January 2016.

Brown and Caldwell. Water Supply Assessment for Serramonte Center Expansion. City of Daly City. January 2015.

California Department of Water Resources. California's Groundwater Bulletin 118 – Update 2003. October. Accessed at: http://www.water.ca.gov/pubs/groundwater/bulletin_118/california's_groundwater__bulletin_118_-_update_2003_/bulletin118_entire.pdf 2003.

California Department of Water Resources. Draft Bulletin 118. March. 2003.

California Department of Water Resources. Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001. October 8, 2003.

CDM Smith. Long-Term Reliable Water Supply Strategy, Strategy Phase II Final Report. BAWSCA. February 2015.

City of Daly City. Daly City 2030 General Plan. Adopted March 25, 2013. Housing Element Revised March 9, 2015.

DWR. 2016c. Final List of Critically Overdrafted Groundwater Basins, January. http://www.water.ca.gov/groundwater/sgm/pdfs/COD_BasinsTable.pdf Accessed February 2016.

Maddaus Water Management and Brown and Caldwell. BAWSCA Regional Water Demand and Conservation Projections. August 2014.

Maddaus Water Management et al. BAWSCA Water Conservation Implementation Plan. September 2009.

SFPUC and Daly City. Wholesale Customer Contingency Plan, Daly City- Draft. June 2000.

SFPUC, Regional Groundwater Storage and Recovery. https://sfwater.org/index.aspx?page=982. Accessed October 30, 2019.

SFPUC. Fiscal Year 2018-19 Annual Report Water System Improvement Program. San Francisco Public Utilities Commission. August 2019.

SFPUC. Water Supply Agreement (WSA) between the City and County of San Francisco and Wholesale Customers in Alameda County, San Mateo County and Santa Clara County. July 2009.

SFPUC. WSA Language for BAWSCA (with corrections). San Francisco Public Utilities Commission. July 2019.

SFPUC. WSIP Overview. https://sfwater.org/index.aspx?page=115. Accessed October 9, 2019.

Western Regional Climate Center. Western U.S. Climate Historical Summaries, Climatological Data Summaries. https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7767. Accessed October 30, 2019.

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Appendix A: Letter from SFPUC to BAWSCA including WSA Language for BAWSCA (with corrections)

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San Francisco
Water Power Sewer
Operator of the Hetch Hetchy Regional Water System

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July 31, 2019

Tom Francis, Water Resources Manager
Bay Area Water Supply and Conservation Agency
155 Bovet Road, Suite 650
San Mateo, CA 94402

Dear Mr. Francis,

This letter is a follow-up to our letter dated June 27, 2019, which provided information you requested on impacts to the Regional Water System under implementation of the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan Amendment). Three errors in the attachment to that letter were recently identified: (1) a typo in the narrative describing the range of shortfalls anticipated under Scenario 1, (2) typos in the table note numbering in Table 1, and (3) incorrect projections for the year 2020 under Scenario 3 because if the Bay-Delta Plan Amendment were to be implemented, such implementation is not anticipated to occur until after 2020. Corrections to these errors are provided in the attachment to this letter.

It is our understanding that you will pass this information on to the Wholesale Customers. It also should be repeated that the information regarding anticipated shortages in the attachment only apply to Tier 1 of the Shortage Allocation Plan, the shortages for the individual wholesale customers will require the application of Tier 2 of the Shortage Allocation Plan. We assume BAWSCA can provide the necessary support to the Wholesale Customers in applying Tier 2.

If you have any questions or need additional information, please do not hesitate to contact me at (415) 554-0792.

Sincerely,

Julie Ortiz for Paula Kehoe

Paula Kehoe
Director of Water Resources

Enclosure: ATTACHMENT - Water Supply Reliability Information for BAWSCA Member Agencies' Water Supply Assessments (with Corrections)

ATTACHMENT

Water Supply Reliability Information for BAWSCA Member Agencies' Water Supply Assessments (with Corrections)

2018 Bay-Delta Plan Amendment

In December 2018, the State Water Resources Control Board (SWRCB) adopted amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan Amendment) to establish water quality objectives to maintain the health of the Bay-Delta ecosystem. The SWRCB is required by law to regularly review this plan. The adopted Bay-Delta Plan Amendment was developed with the stated goal of increasing salmonid populations in three San Joaquin River tributaries (the Stanislaus, Merced, and Tuolumne Rivers) and the Bay-Delta. The Bay-Delta Plan Amendment requires the release of 40% of the "unimpaired flow"[1] on the three tributaries from February through June in every year type, whether wet, normal, dry, or critically dry.

If the Bay-Delta Plan Amendment is implemented, the SFPUC will be able to meet its contractual obligations to its Wholesale Customers as presented in the SFPUC's 2015 UWMP in normal years. The SFPUC's 2015 UWMP already assumes shortages in single and multiple dry years through 2040, but implementation of the Bay-Delta Plan Amendment will result in greater shortages.

The SWRCB has stated that it intends to implement the Bay-Delta Plan Amendment on the Tuolumne River by the year 2022, assuming all required approvals are obtained by that time. But implementation of the Plan Amendment is uncertain for several reasons. First, under the Clean Water Act, the United States Environmental Protection Agency (U.S. EPA) must approve the water quality standards identified in the Plan Amendment within 90 days from the date the approval request is received. By letter dated June 11, 2019, EPA rejected the SWRCB's two-page submittal as inadequate under the requirements of the Clean Water Act. Pursuant to EPA's letter, the Board has 90 days to respond with a submittal that complies with the law. At this point, EPA has neither approved, nor disapproved, any of the revised water quality objectives. It is uncertain whether the U.S. EPA will approve or disapprove the water quality standards in the future. Furthermore, the determination could result in litigation.

Second, since adoption of the Bay-Delta Plan Amendment, over a dozen lawsuits have been filed in both state and federal court, challenging the SWRCB's adoption of the Bay-Delta Plan Amendment, including two legal challenges filed by the federal government, at the request of the U.S. Department of Interior, Bureau of Reclamation in state and federal courts. These cases are in the early stage and there have been no dispositive court rulings to date.

Third, the Bay-Delta Plan Amendment is not self-implementing and does not allocate responsibility for meeting its new flow requirements to the SFPUC or any other water rights holders. Rather, the Plan Amendment merely provides a regulatory framework for flow allocation, which must be accomplished by other regulatory and/or adjudicatory proceedings, such as a comprehensive water rights adjudication or, in the case of the Tuolumne River, the 401 certification process in the Federal Energy Regulatory Commission's relicensing proceeding for Don Pedro Dam. The license amendment process is currently expected to be

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

completed in the 2022-23 timeframe. This process and the other regulatory and/or adjudicatory proceedings would likely face legal challenges and have lengthy timelines, and quite possibly could result in a different assignment of flow responsibility (and therefore a different water supply impact on the SFPUC).

Fourth, in recognition of the obstacles to implementation of the Bay-Delta Plan Amendment, SWRCB Resolution No. 2018-0059 adopting the Bay-Delta Plan Amendment directed staff to help complete a "Delta watershed-wide agreement, including potential flow measures for the Tuolumne River" by March 1, 2019, and to incorporate such agreements as an "alternative" for a future amendment to the Bay-Delta Plan to be presented to the SWRCB "as early as possible after December 1, 2019." In accordance with the SWRCB's instruction, on March 1, 2019, SFPUC, in partnership with other key stakeholders, submitted a proposed project description for the Tuolumne River that could be the basis for a voluntary substitute agreement with the SWRCB ("March 1st Proposed Voluntary Agreement"). On March 26, 2019, the Commission adopted Resolution No. 19-0057 to support SFPUC's participation in the Voluntary Agreement negotiation process. To date, those negotiations are ongoing under the California Natural Resources Agency and the leadership of the Newsom administration. The negotiations for a voluntary agreement have made significant progress since an initial framework was presented to the SWRCB on December 12, 2018. The package submitted on March 1, 2019 is the product of renewed discussions since Governor Newsom took office. While significant work remains, the package represents an important step forward in bringing together diverse California water interests.

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

Dry Year Water Supplies

Since adoption of the UWMP, the following milestones have occurred:

- Calaveras Dam Replacement Project – Construction of the new dam was completed in September 2018, and the overall project was completed in June 2019.

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

Additional Water Supplies

In light of the adoption of the Bay-Delta Plan Amendment and the resulting potential limitations to RWS supply during dry years, the SFPUC is increasing and accelerating its efforts to acquire additional water supplies and explore other projects that would increase overall water supply resilience. Developing these additional supplies would reduce water supply shortfalls and reduce rationing associated with such shortfalls. In addition to the Daly

City Recycled Water Expansion project, which was a potential project identified in the 2015 UWMP and had committed funding at that time, the SFPUC has taken action to fund the study of potential additional water supply projects. Capital projects under consideration to develop additional water supplies include surface water storage expansion, recycled water expansion, water transfers, desalination, and potable reuse. The SFPUC is also considering developing related policies and ordinances, such as funding for innovative water supply and efficiency technologies and requiring potable water offsets for new developments. A more detailed list and descriptions of these efforts are provided below.

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

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

   Project Description: The SFPUC and North San Mateo County Sanitation District (NSMCSD, or Daly City) have been exploring ways to increase the recycled water treatment capacity in Daly City to serve additional customers and decrease irrigation water withdrawals from the Westside Groundwater Basin, both in San Francisco and further south of Daly City. The majority of the irrigation demand met by groundwater withdrawals, approximately 2 mgd, serves cemeteries in Colma. An initial feasibility study completed in 2010 identified the capital requirements that would be needed to produce additional capacity at the existing treatment plant location. The study demonstrated that a new tertiary treatment facility would be required onsite to produce additional capacity of up to 3.4 mgd. Currently, flows that exceed the capacity of the existing treatment plant are discharged into the Pacific Ocean. With this project, some of that discharge may be treated and used for irrigation. New facilities would include a treatment facility, pump station, distribution pipelines, and storage.

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

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

partners for project construction and operation, as well as with the customers whose supplies will change from groundwater to recycled water, will also need to be developed.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

7. Calaveras Reservoir Expansion (Regional)

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

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

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

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

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

- **Evaluation of Recycled Water Throughout Service Area**
  Wastewater treatment plants throughout the SFPUC service area would be surveyed to identify potential non-potable, indirect potable, and direct potable projects.

Comparison of Projected Supply and Demand

The following sections provide a supply and demand comparison for the three scenarios described above. Procedures for determining RWS supply availability are provided in the Water Supply Allocation Plan (WSAP) between the SFPUC's Retail and Wholesale Customers. It also should be noted that the information regarding anticipated shortages in the tables provided below only apply to Tier 1 of the WSAP, the shortages for the individual wholesale customers will require the application of Tier 2 of the WSAP to derive available supply for each wholesale customer. In addition, wholesale customers will need to include the availability of other supplies in addition to SFPUC supplies to drive their total water supply shortages under each scenario.

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

Table 1 below compares the SFPUC's wholesale water supplies and demands through 2040 during normal year, single dry-, and multiple dry-year periods under Scenario 1.

The RWS supply projections shown in Table 1 differ from those provided previously for use in the 2015 UWMP. First, Table 1 reflects SFPUC's full 8.5-year design drought sequence instead of the minimum 3-year sequence required to be provided in the 2015 UWMP. Under legislation adopted in 2018 (S.B. 606) future UWMPs will be required to project water supply availability during a minimum of 5 years of continuous drought (Water Code section 10631(b)(1)). Second, the SFPUC water supply system model includes the following assumptions, which differ from those used for the 2015 UWMP projections:

- In-stream flow releases from Crystal Springs Reservoir to San Mateo Creek were included in this simulation. The average volume of these releases is approximately 3,900 acre-feet per year.
- Annual water supply transfers from the irrigation districts that operate New Don Pedro Reservoir (Districts) to SFPUC were not included in this analysis. An annual transfer of 2,300 acre-feet was assumed from the Districts to the SFPUC Water Bank Account in the WSIP 2018 simulation.

As shown in Table 1, under Scenario 1 without implementation of the Bay-Delta Plan Amendment, RWS supplies would meet wholesale demands (i.e., contractual obligations) in all normal years, single dry years, and the first year of the 8.5-year design drought. During subsequent drought years, shortfalls would range from 31 to 60 mgd, or 17-~~36~~33%, increasing into the outer years of the design drought.

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

		Normal Year	Single Dry Year[4]	Multiple Dry Years							
				Year 1[4]	Year 2[2,1]	Year 3[2,1]	Year 4[2]	Year 5[2]	Year 6[2]	Year 7[3]	Year 8[3]
2020	Total Wholesale Demand[4]	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0
	Total Wholesale RWS Supply[5]	184.0	184.0	184.0	152.6	152.6	132.5	132.5	132.5	124.2	124.2
	Shortfall	0.0	0.0	0.0	31.4	31.4	51.5	51.5	51.5	59.8	59.8
	Shortfall as % of Demand	0.0%	0.0%	0.0%	17.1%	17.1%	28.0%	28.0%	28.0%	32.5%	32.5%
2025	Total Wholesale Demand[4]	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0
	Total Wholesale RWS Supply[5]	184.0	184.0	184.0	152.6	152.6	132.5	132.5	132.5	124.2	124.2
	Shortfall	0.0	0.0	0.0	31.4	31.4	51.5	51.5	51.5	59.8	59.8
	Shortfall as % of Demand	0.0%	0.0%	0.0%	17.1%	17.1%	28.0%	28.0%	28.0%	32.5%	32.5%
2030	Total Wholesale Demand[4]	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0
	Total Wholesale RWS Supply[5]	184.0	184.0	184.0	152.6	152.6	132.5	132.5	132.5	124.2	124.2
	Shortfall	0.0	0.0	0.0	31.4	31.4	51.5	51.5	51.5	59.8	59.8
	Shortfall as % of Demand	0.0%	0.0%	0.0%	17.1%	17.1%	28.0%	28.0%	28.0%	32.5%	32.5%
2035	Total Wholesale Demand[4]	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0
	Total Wholesale RWS Supply[5]	184.0	184.0	184.0	152.6	152.6	132.5	132.5	132.5	124.2	124.2
	Shortfall	0.0	0.0	0.0	31.4	31.4	51.5	51.5	51.5	59.8	59.8
	Shortfall as % of Demand	0.0%	0.0%	0.0%	17.1%	17.1%	28.0%	28.0%	28.0%	32.5%	32.5%
2040	Total Wholesale Demand[4]	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0
	Total Wholesale RWS Supply[5]	184.0	184.0	184.0	152.6	152.6	132.5	132.5	132.5	124.2	124.2
	Shortfall	0.0	0.0	0.0	31.4	31.4	51.5	51.5	51.5	59.8	59.8
	Shortfall as % of Demand	0.0%	0.0%	0.0%	17.1%	17.1%	28.0%	28.0%	28.0%	32.5%	32.5%

Notes:
1. During multiple dry years 2-3 (years 3-4 of SFPUC's design drought sequence), the wholesale allocation under the WSAP is 64.0% of available RWS supply, or 152.6 mgd.
2. During multiple dry years 4-6 (years 5-7 of SFPUC's design drought sequence), the wholesale allocation under the WSAP is 62.5% of available RWS supply, or 132.5 mgd.
3. During multiple dry years 7 and 8 (years 8 and 8.5 of SFPUC's design drought sequence), the wholesale allocation under the WSAP is 62.5% of available RWS supply, or 124.2 mgd.
4. It is assumed that wholesale demands will continue to be limited to the Supply Assurance of 184 mgd. The 184 mgd assumes that San Jose and Santa Clara remain temporary, interruptible customers.
5. Procedures for RWS allocations are provided in the WSAP.

Scenario 2: Implementation of the Voluntary Agreement

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

Scenario 3: Implementation of the Bay-Delta Plan Amendment

Table 2 below provides projected supplies and demands under Scenario 3. The RWS is projected to experience significant shortfalls in single dry and multiple dry years ~~starting as soon as 2022 and~~ through 2040, regardless of whether the proposed project is constructed. The 2020 projections in Table 2 are based on the assumption that the Bay Delta Plan Amendment will not be implemented until after 2020. These significant shortfalls are a result of implementation of the Bay-Delta Plan Amendment and not attributed to the incremental retail demand associated with the proposed project. *[Note to Wholesale Customers: This statement will need to be tailored to reflect your own water supply planning (e.g., you may already be showing significant shortfalls regardless of the Bay-Delta Plan Amendment].*

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

Given the severity of the reduction in RWS supply with implementation of the Bay-Delta Plan Amendment, existing and planned dry-year supplies would not be enough to meet projected wholesale water demand obligations without rationing above the SFPUC's RWS LOS goal of limiting rationing to 20% on a system-wide basis for all dry years starting as soon as 2022. Although the WSAP does not address implications to supply during system-wide shortages above 20%, the WSAP indicates that if system-wide shortage greater than 20% were to occur, RWS supply would be allocated between retail and Wholesale Customers per the rules corresponding to a 16-20% system-wide reduction, subject to consultation and negotiation between the SFPUC and its Wholesale Customers to modify the allocation rules. The allocation rules corresponding to the 16-20% system-wide reduction are reflected in Table 2 above for Scenario 3. These allocation rules result in shortfalls of 85 to 124 mgd, or 46-68%, across the wholesale service area under Scenario 3.

Table 2: Projected Supply and Demand Comparison Under Scenario 3 (Implementation of the Bay-Delta Plan Amendment) (mgd)

		Normal Year	Single Dry Year[1]	Multiple Dry Years							
				Year 1[1]	Year 2[2]	Year 3[2]	Year 4[2]	Year 5[2]	Year 6[2]	Year 7[3]	Year 8[3]
2020	Total Wholesale Demand[4]	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0
	Total Wholesale RWS Supply[5,6]	184.0	~~99.4~~ 184.0	~~99.4~~ 184.0	~~76.2~~ 152.6	~~76.2~~ 152.6	~~76.2~~ 132.5	~~76.2~~ 132.5	~~76.2~~ 132.5	~~59.6~~ 124.2	~~59.6~~ 124.2
	Shortfall	0.0	~~84.6~~ 0.0	~~84.6~~ 0.0	~~107.8~~ 31.4	~~107.8~~ 31.4	~~107.8~~ 51.5	~~107.8~~ 51.5	~~107.8~~ 51.5	~~124.4~~ 59.8	~~124.4~~ 59.8
	Shortfall as % of Demand	0.0%	~~46.0%~~ 0.0%	~~46.0%~~ 0.0%	~~58.6%~~ 17.1%	~~58.6%~~ 17.1%	~~58.6%~~ 28.0%	~~58.6%~~ 28.0%	~~58.6%~~ 28.0%	~~67.6%~~ 32.5%	~~67.6%~~ 32.5%
2025	Total Wholesale Demand[4]	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0
	Total Wholesale RWS Supply[5,6]	184.0	99.4	99.4	76.2	76.2	76.2	76.2	76.2	59.6	59.6
	Shortfall	0.0	84.6	84.6	107.8	107.8	107.8	107.8	107.8	124.4	124.4
	Shortfall as % of Demand	0.0%	46.0%	46.0%	58.6%	58.6%	58.6%	58.6%	58.6%	67.6%	67.6%
2030	Total Wholesale Demand[4]	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0
	Total Wholesale RWS Supply[5,6]	184.0	99.4	99.4	76.2	76.2	76.2	76.2	76.2	59.6	59.6
	Shortfall	0.0	84.6	84.6	107.8	107.8	107.8	107.8	107.8	124.4	124.4
	Shortfall as % of Demand	0.0%	46.0%	46.0%	58.6%	58.6%	58.6%	58.6%	58.6%	67.6%	67.6%
2035	Total Wholesale Demand[4]	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0
	Total Wholesale RWS Supply[5,6]	184.0	99.4	99.4	76.2	76.2	76.2	76.2	76.2	59.6	59.6
	Shortfall	0.0	84.6	84.6	107.8	107.8	107.8	107.8	107.8	124.4	124.4
	Shortfall as % of Demand	0.0%	46.0%	46.0%	58.6%	58.6%	58.6%	58.6%	58.6%	67.6%	67.6%
2040	Total Wholesale Demand[4]	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0
	Total Wholesale RWS Supply[5,6]	184.0	99.4	99.4	76.2	76.2	76.2	76.2	76.2	59.6	59.6
	Shortfall	0.0	84.6	84.6	107.8	107.8	107.8	107.8	107.8	124.4	124.4
	Shortfall as % of Demand	0.0%	46.0%	46.0%	58.6%	58.6%	58.6%	58.6%	58.6%	67.6%	67.6%

Notes:
1. During a single dry year and multiple dry year 1 (year 2 of SFPUC's design drought sequence), the wholesale allocation under the WSAP is 62.5% of available RWS supply, or 99.4 mgd.
2. During multiple dry years 2-6 (years 3-7 of SFPUC's design drought sequence), the wholesale allocation under the WSAP is 62.5% of available RWS supply, or 76.2 mgd.
3. During multiple dry years 7 and 8 (years 8 and 8.5 of SFPUC's design drought sequence), the wholesale allocation under the WSAP is 62.5% of available RWS supply, or 59.6 mgd.
4. It is assumed that wholesale demands will continue to be limited to the Supply Assurance of 184 mgd. The 184 mgd assumes that San Jose and Santa Clara remain temporary, interruptible customers.
~~4.~~5. Implementation of the Bay-Delta Plan Amendment is assumed to occur after 2020 and by 2022.
~~5.~~6. Procedures for RWS allocations are provided in the WSAP.

Appendix B: Figure LUE-1, Existing Land Use and Figure LUE-3, Future Land Use, in the Daly City 2030 General Plan

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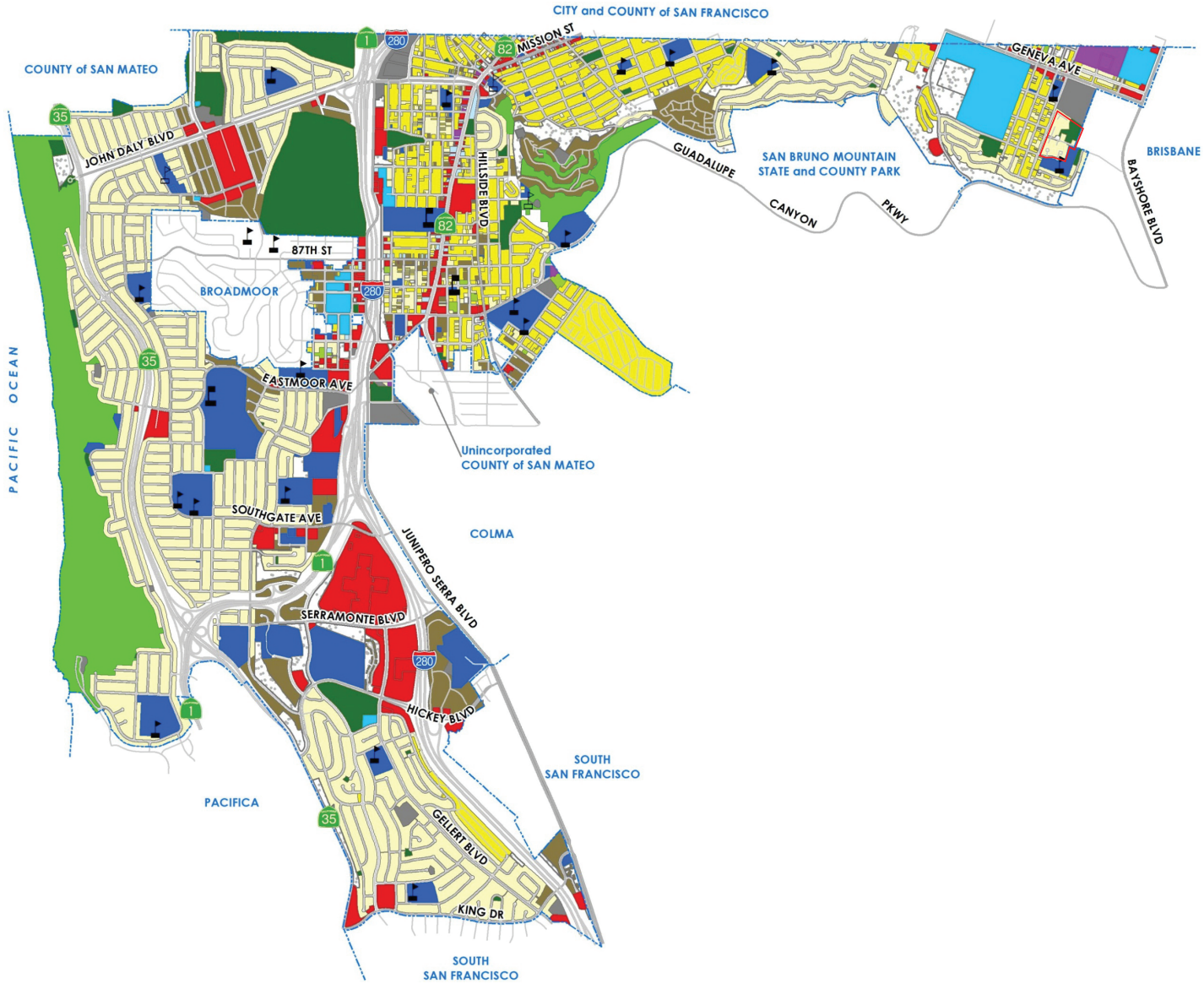

Figure LUE-1

EXISTING LAND USE

- Residential Low Density
- Residential Medium Density
- Residential High Density
- Agriculture
- Industrial
- Commercial
- Public
- Institutional
- Public Utilities
- Recreation
- Open Space
- Mixed Use
- Neighborhood
- Other

NORTH

0 0.5 1 1.5 miles

CITY OF DALY CITY

LAND USE ELEMENT

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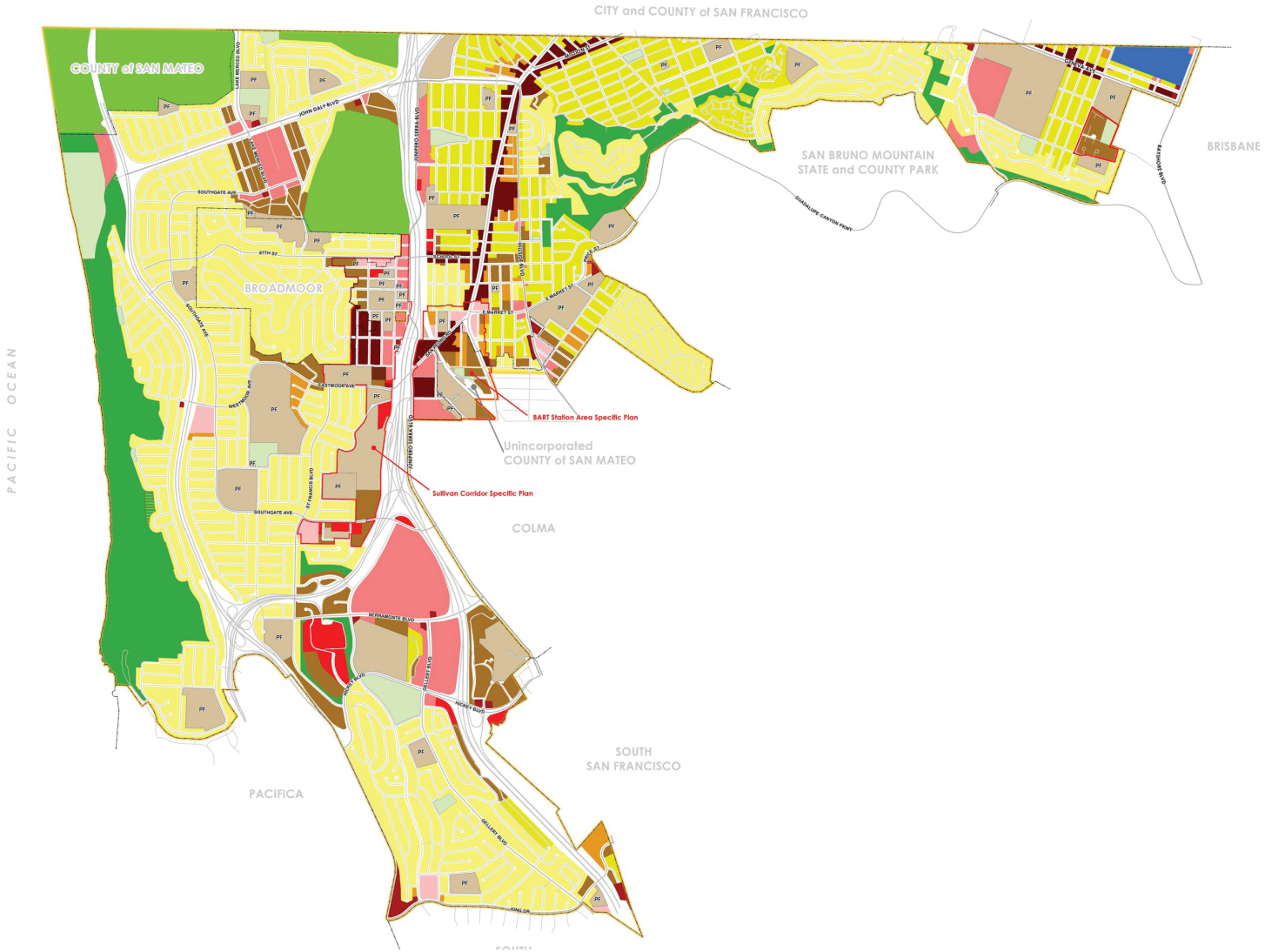


Figure LUE-3
FUTURE LAND USE

Residential
- Residential Open Space (R-OS)
- Low Density (R-LD)
- Medium-Low Density (R-MLD)
- Medium Density (R-MD)
- High Density (R-HD)
- Very High Density (R-VHD)

Recreation and Open Space
- Public Park (PP)
- Private Recreation (PR)
- Open Space Preservation (OSP)

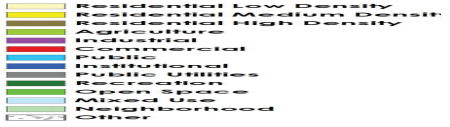
Commercial
- Neighborhood (C-N)
- Retail and Office (C-RO)
- Office (C-O)
- Service (C-S)
- Mixed Use (C-MU)

- Industrial (I)

Public & Institutional Facilities
- B BART (BART)
- CEM Cemeteries (CEM)
- PF Public Facilities (PF)
- H Hospitals (H)

- Sphere of Influence

CITY OF DALY CITY
LAND USE ELEMENT



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Appendix C: Midway Village Phasing Plan

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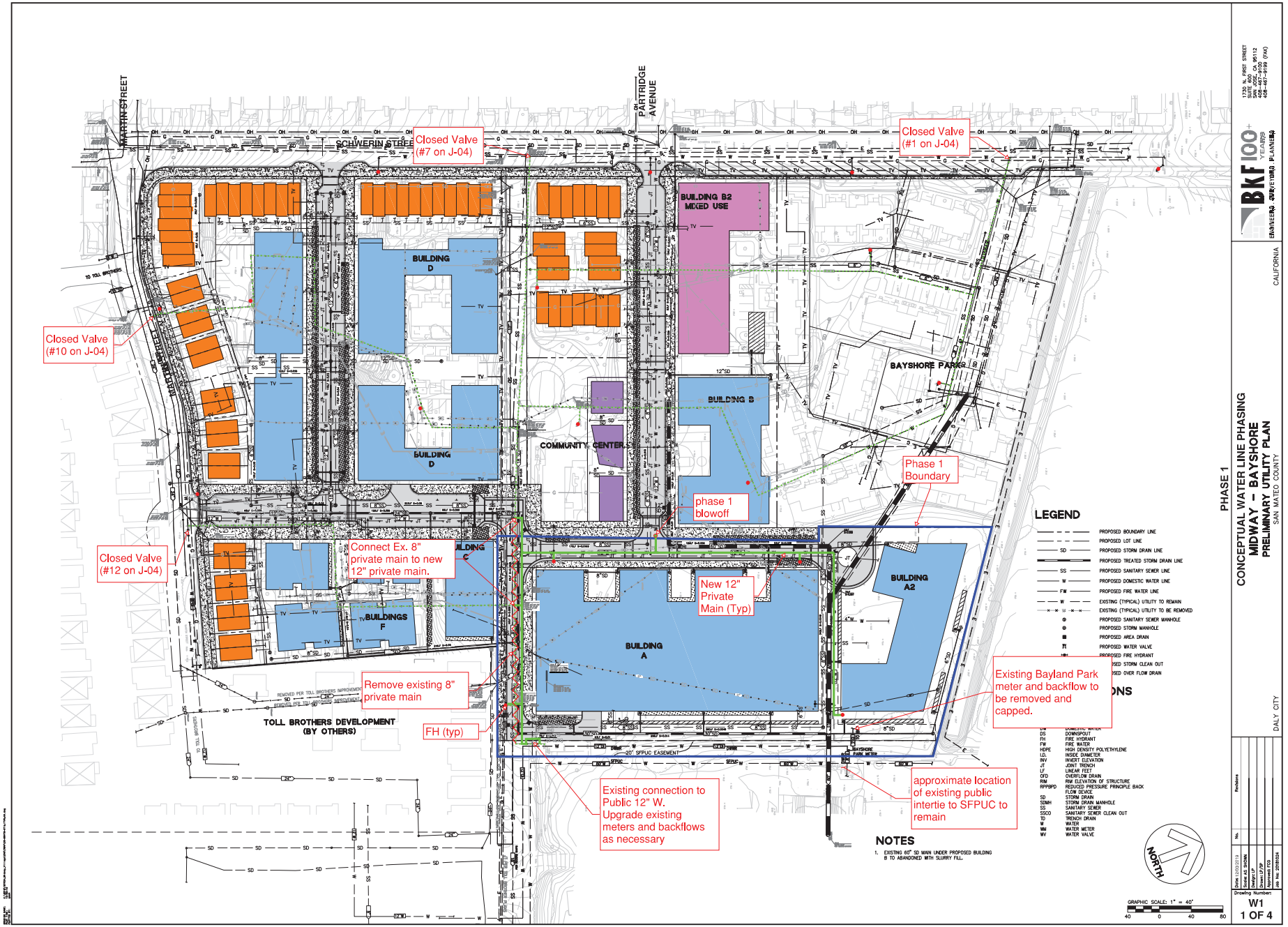

1730 N. FIRST STREET
SUITE 600
SAN JOSE, CA 95112
408-467-9100
408-467-9199 (FAX)

BKF 100+ YEARS
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PHASE 1

CONCEPTUAL WATER LINE PHASING
MIDWAY – BAYSHORE
PRELIMINARY UTILITY PLAN

SAN MATEO COUNTY

DALY CITY

No.	Revisions

Date 10/03/2019
Scale AS SHOWN
Designed AP
Drawn AP
Approved EG
Job No. 20181024

Drawing Number:
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1 OF 4

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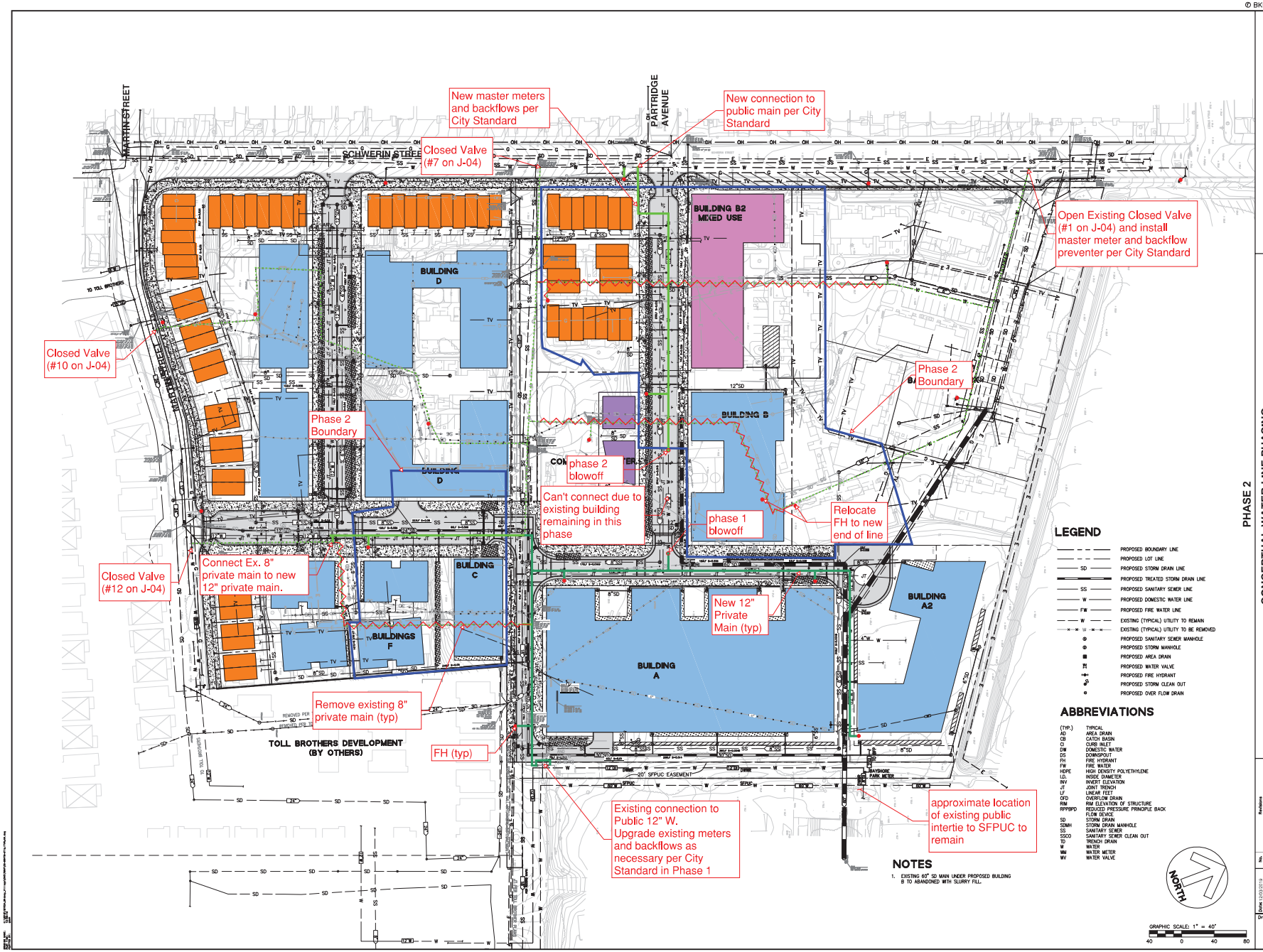

PHASE 2

CONCEPTUAL WATER LINE PHASING
MIDWAY – BAYSHORE
PRELIMINARY UTILITY PLAN
SAN MATEO COUNTY
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Designed JP
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Job No. 20181024

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2 OF 4

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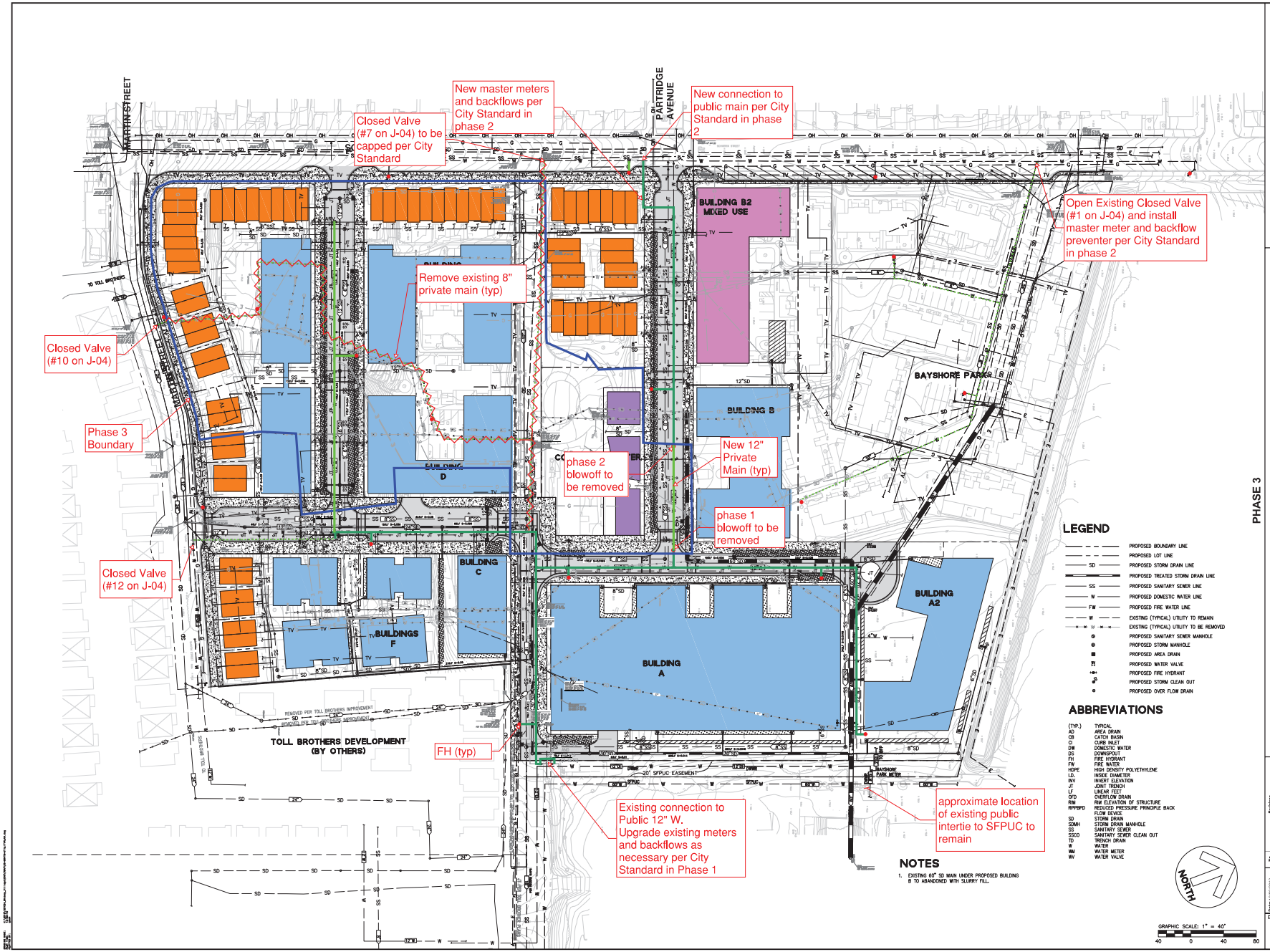

PHASE 3

CONCEPTUAL WATER LINE PHASING
MIDWAY – BAYSHORE
PRELIMINARY UTILITY PLAN
SAN MATEO COUNTY CALIFORNIA
DALY CITY

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Job No. 20181024

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3 OF 4

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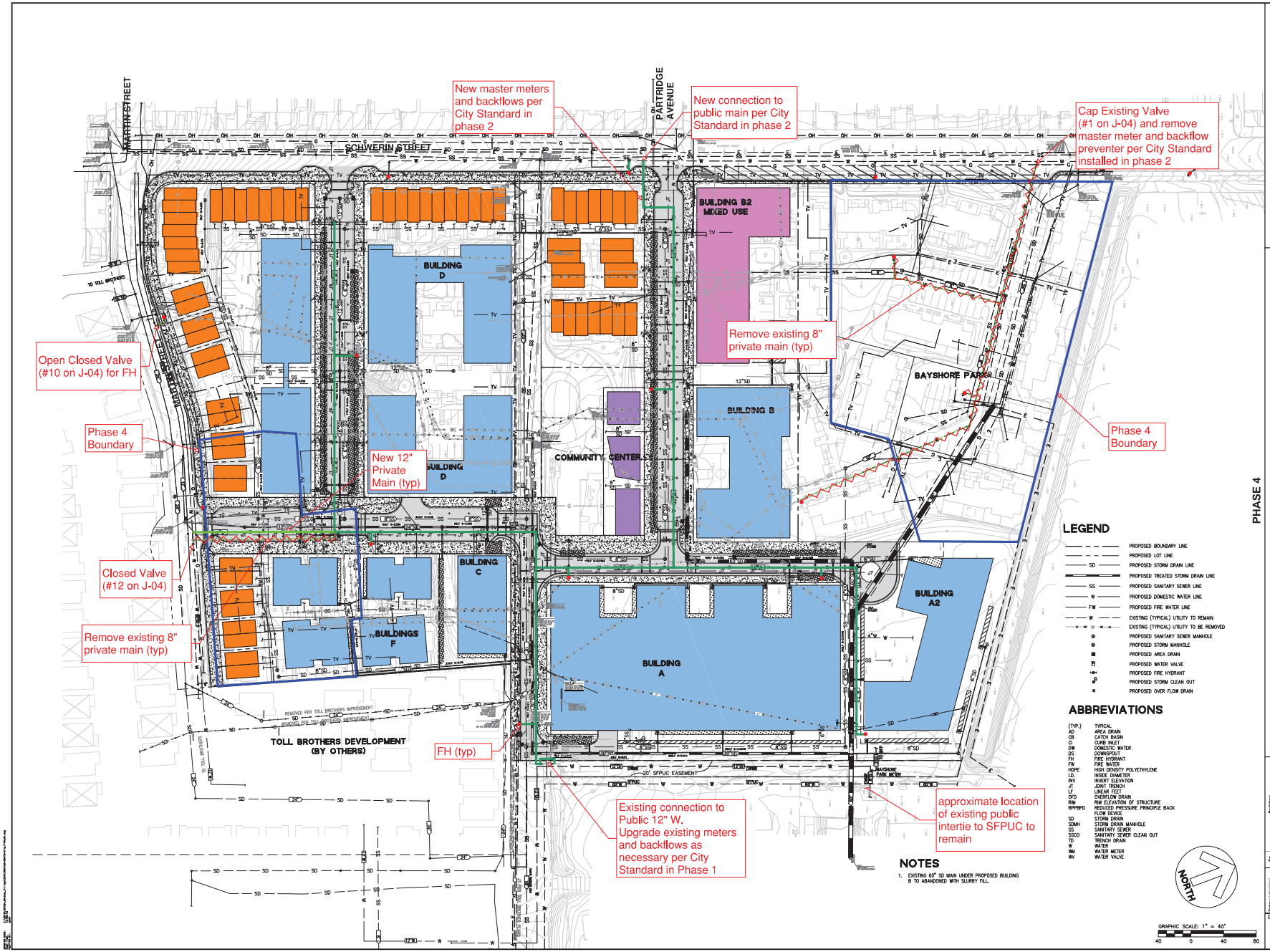

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CALIFORNIA

PHASE 4

CONCEPTUAL WATER LINE PHASING
MIDWAY – BAYSHORE
PRELIMINARY UTILITY PLAN

SAN MATEO COUNTY

DALY CITY

No.	Revisions

Date 10/03/2019
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Designed JP
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Approved EG
Job No. 20181024

Drawing Number:
W4
4 OF 4

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