FINAL REPORT | NOVEMBER 2021

2020 Urban Water Management Plan

PREPARED FOR

City of San Bruno

PREPARED BY

WEST YOST
Water. Engineered.

Urban Water Management Plan

Prepared for

City of San Bruno

Project No. 462-60-21-35

Project Manager: Amy Kwong, PE	November 2021 Date
QA/QC Review: Jim Connell, PE	November 2021 Date

Table of Contents

EXECUTIVE SUMMARY ES-1

Introduction ES-1

California Water Code Requirements ES-1

City Water System ES-2

Water Use by City Customers ES-2

City Water Supplies ES-3

Conservation Target Compliance ES-3

City Water Service Reliability ES-4

Water Shortage Contingency Plan ES-4

UWMP Preparation, Review, and Adoption ES-5

CHAPTER 1 Introduction 1-1

1.1 Introduction 1-1

1.2 Importance and Extent of City's Water Management Planning Efforts 1-1

1.3 Changes from 2015 UWMP 1-1

1.4 Plan Organization 1-3

CHAPTER 2 Plan Preparation 2-1

2.1 Basis for Preparing a Plan 2-1

2.2 Regional Planning 2-1

2.3 Individual or Regional Planning and Compliance 2-1

2.4 Fiscal or Calendar Year and Units of measure 2-1

2.5 Coordination and Outreach 2-2

2.5.1 Wholesale and Retail Coordination 2-2

2.5.2 Coordination with Other Agencies and the Community 2-2

2.5.3 Notice to Cities and Counties 2-3

CHAPTER 3 System Description 3-1

3.1 General Description 3-1

3.2 Service Area Boundary 3-1

3.3 Water System Description 3-1

3.3.1 Water Supply Sources 3-1

3.3.2 Water System Facilities 3-3

3.4 Service Area Climate 3-3

3.4.1 Historical Climate 3-3

3.4.2 Potential Effects of Climate Change 3-5

Table of Contents

3.5 Service Area Population and Demographics 3-6
3.5.1 Service Area Population 3-6
3.5.2 Other Social, Economic, and Demographic Factors 3-7
3.6 Land Uses within Service Area 3-8
3.6.1 Existing Land Uses within Service Area 3-8
3.6.2 Future Land Uses within Service Area 3-8
CHAPTER 4 Water Use Characterization 4-1
4.1 Non-Potable Versus Potable Water Use 4-1
4.2 Water Use by Sector 4-1
4.2.1 Historical and Current Water Use 4-1
4.2.2 Projected Water Use 4-2
4.2.2.1 25-Year Planning Horizon 4-2
4.2.2.2 Characteristic Five-Year Water Use 4-3
4.3 Distribution System Water Losses 4-4
4.4 Estimating Future Water Savings 4-4
4.5 Water Use for Lower Income Households 4-5
4.6 Climate Change Considerations 4-5
CHAPTER 5 SB X7-7 Baselines, Targets, and 2020 Compliance 5-1
5.1 Overview and Background 5-1
5.2 General Requirements for Baseline And Targets 5-1
5.3 Service Area Population 5-2
5.4 Gross Water Use 5-3
5.5 Baselines and Targets Summary 5-3
5.6 2020 Compliance Daily Per Capita Water Use 5-3
5.7 Regional Alliance 5-4
CHAPTER 6 Water Supply Characterization 6-1
6.1 Purchased or Imported Water 6-1
6.1.1 SFPUC Regional Water System 6-1
6.1.1.1 SFPUC Regional Water System Overview 6-1
6.1.1.2 Individual Supply Guarantee 6-1
6.1.1.3 2018 Amended and Restated Water Supply Agreement 6-2
6.1.1.4 2028 SFPUC Decisions 6-2
6.1.1.5 Bay Area Water Supply and Conservation Agency 6-2
6.1.2 NCCWD 6-3
6.2 Groundwater 6-3

Table of Contents

6.2.1 Groundwater Basin Description 6-4
6.2.1.1 Westside Basin Description 6-4
6.2.1.2 Aquifer Conditions and Properties of the South Westside Basin 6-4
6.2.1.3 Basin Water Budget Analysis 6-6
6.2.2 Groundwater Management and Sustainability 6-6
6.2.2.1 South Westside Basin Groundwater Management Plan 6-6
6.2.2.2 Sustainable Groundwater Management Act 6-7
6.2.2.3 Regional Groundwater Storage and Recovery Project 6-8
6.2.3 Historical Groundwater Use 6-9
6.2.4 Projected Groundwater Use 6-9
6.3 Surface Water 6-10
6.4 Stormwater 6-10
6.5 Wastewater and Recycled Water 6-11
6.5.1 Coordination 6-11
6.5.2 Wastewater Collection, Treatment, and Disposal 6-11
6.5.2.1 Wastewater Collected Within Service Area 6-11
6.5.2.2 Wastewater Treatment and Disposal 6-12
6.5.2.3 Wastewater Quantity and Current Uses 6-12
6.5.3 Recycled Water System Description 6-12
6.5.4 Potential, Current, and Projected Recycled Water Uses 6-12
6.5.4.1 Potential Recycled Water 6-12
6.5.4.2 Projected Recycled Water 6-13
6.6 Desalinated Water 6-14
6.7 Exchanges and Transfers 6-14
6.8 Future Water Projects 6-14
6.9 Summary of Existing and Planned Sources of Water 6-15
6.10 Climate Change Impacts to Supply 6-16
6.10.1 Bay Area Integrated Regional Water Management Plan 6-17
6.10.2 SFPUC Climate Change Studies 6-19
6.11 Energy Intensity 6-19
6.12 References 6-21
CHAPTER 7 Water Service Reliability and Drought Risk Assessment 7-1
7.1 Constraints on Water Sources 7-1
7.2 Water Service Reliability Assessment 7-1
7.2.1 Reliability of SFPUC Supplies 7-2
7.2.1.1 SFPUC Regional Water System Level of Service Goals and Objectives 7-2
7.2.1.2 Adoption of the 2018 Bay-Delta Plan Amendment 7-2
7.2.1.2.1 Background 7-2
7.2.1.2.2 Impacts of the Bay-Delta Plan Amendment on SFPUC Regional Water System Supplies 7-3

Table of Contents

7.2.1.3 SFPUC Dry Year Supply Projects 7-4
7.2.1.4 SFPUC Alternative Water Supply Planning Program 7-5
7.2.1.5 Bay Area Water Conservation and Supply Agency 7-8
7.2.1.5.1 Long-Term Reliable Water Supply Strategy 7-8
7.2.1.5.2 Making Conservation a Way of Life Strategic Plan 7-9
7.2.1.5.3 BAWSCA Conservation Programs 7-10
7.2.1.6 SFPUC Supply Allocations 7-11
7.2.1.6.1 Tier One Drought Allocations 7-11
7.2.1.6.2 Tier Two Drought Allocations 7-12
7.2.1.6.3 Allocations for Supply Shortages Greater than 20 Percent 7-13
7.2.1.7 Projected Supplies from SFPUC Regional Water System 7-13
7.2.2 Reliability of NCCWD Supplies 7-15
7.2.3 Reliability of City's Groundwater Supplies 7-16
7.2.4 Regional Supply Reliability 7-16
7.3 Basis of Water Supply Data 7-17
7.3.1 Basis of Water Supply Data for SFPUC Supplies 7-17
7.3.2 Basis of Water Supply Data for NCCWD Supplies 7-19
7.3.3 Basis of Water Supply Data for City's Groundwater Supplies 7-20
7.3.4 Summary of Basis of Water Supply for the City 7-20
7.4 Supply and Demand Assessment 7-21
7.4.1 Normal Year 7-21
7.4.2 Single Dry Year 7-21
7.4.3 Multiple Dry Years (Five-Year Droughts) 7-22
7.5 Drought Risk Assessment 7-24
7.5.1 Data, Methods, and Basis for Water Shortage Condition 7-24
7.5.2 Drought Risk Assessment Water Source Reliability 7-24
7.5.3 Total Water Supply and Use Comparison 7-24
CHAPTER 8 Water Shortage Contingency Plan 8-1
8.1 Water Shortage Contingency Planning Background 8-1
8.2 Water Shortage Contingency Plan 8-1
8.3 Seismic Risk Assessment and Mitigation Plan 8-1
8.4 Water Shortage Contingency Plan Adoption, Submittal, and Availability 8-2
CHAPTER 9 Demand Management Measures 9-1
9.1 Water Conservation Program Overview 9-1
9.2 Demand Management Measures 9-1
9.2.1 Water Waste Prevention Ordinances 9-1
9.2.2 Metering 9-2
9.2.3 Conservation Pricing 9-2
9.2.4 Public Education and Outreach 9-3

Table of Contents

9.2.4.1 Public Outreach 9-3
9.2.4.2 School Education 9-3
9.2.4.3 Implementation 9-3
9.2.5 Programs to Assess and Manage Distribution System Real Loss 9-3
9.2.6 Water Conservation Program Coordination and Staffing Support 9-4
9.2.7 Other Demand Management Measures 9-4
9.2.7.1 Residential Retrofits 9-4
9.2.7.2 Large Landscape Program 9-5
9.2.7.3 Commercial, Industrial, Institutional Programs 9-5
9.2.7.4 High-Efficiency Toilet Rebate Program 9-6
9.3 Planned Implementation to Achieve Water Use Targets 9-6
9.4 Water Use Objectives (Future Requirements) 9-6
CHAPTER 10 Plan Adoption, Submittal, and Implementation 10-1
10.1 Inclusion of All 2020 Data 10-1
10.2 Notice of Public Hearing 10-1
10.2.1 Notices to Cities and Counties 10-1
10.2.2 Notice to the Public 10-1
10.3 Public Hearing and Adoption 10-2
10.3.1 Public Hearing 10-2
10.3.2 Adoption 10-2
10.4 Plan Submittal 10-2
10.5 Public Availability 10-2
10.6 Amending an Adopted UWMP or Water Shortage Contingency Plan 10-3

LIST OF TABLES

Table 3-1. Monthly Average Climate Data Summary 3-5
Table 3-2. Population – Current and Projected 3-7
Table 4-1. Demands for Potable Water - Historical and Current 4-2
Table 4-2. Demands for Potable Water - Projected 4-3
Table 4-3. Total Water Demands 4-3
Table 4-4. Projected Water Demands for the Next Five Years (2021-2025) 4-4
Table 4-5. Last Five Years of Water Audit Reporting 4-4
Table 4-6. Projected Water Demands for Lower Income Households 4-5
Table 5-1. Baselines and Targets Summary 5-3
Table 5-2. 2020 Compliance 5-3
Table 6-1. Sustainable Groundwater Management Act Implementation Steps and Deadlines 6-7

Table of Contents

Table 6-2. Groundwater Basin Prioritization for Sustainable Groundwater Management Act 6-8
Table 6-3. Groundwater Volume Pumped by the City 6-9
Table 6-4. Projected Groundwater Production During 'Take' Years 6-10
Table 6-5. Current Water Supply 6-15
Table 6-6. Projected Water Supply During 'Put' Years 6-15
Table 6-7. Projected Water Supply During 'Take' Years 6-16
Table 6-8. Summary of BAIRWMP Climate Change Vulnerability Assessment 6-17
Table 6-9. Energy Intensity for FY 2019/20 6-20
Table 7-1. Share of Available SFPUC Supplies Under Various Shortages 7-12
Table 7-2. SFPUC Regional Water System Supply Capacity 7-14
Table 7-3. Projected Retail and Wholesale Demand Assumptions for the SFPUC Regional Water System 7-14
Table 7-4. Projected SFPUC Supply Availability for the City of San Bruno in Years 2025 to 2045 with Bay-Delta Plan Amendment 7-15
Table 7-5. Projected SFPUC Supply Availability for the City of San Bruno in Years 2025 to 2045 without Bay-Delta Plan Amendment 7-15
Table 7-6. Estimated Availability of the City's Groundwater Supplies 7-16
Table 7-7. Basis of Water Supply Data for the City's Supplies from SFPUC with the Bay-Delta Plan Amendment 7-18
Table 7-8. Basis of Water Supply Data for the City's Supplies from SFPUC without the Bay-Delta Plan Amendment 7-18
Table 7-9. Basis of Water Supply Data for the City's Supplies from NCCWD with the Bay-Delta Plan Amendment 7-19
Table 7-10. Basis of Water Supply Data for the City's Supplies from NCCWD without the Bay-Delta Plan Amendment 7-19
Table 7-11. Basis of Water Supply Data for the City's Groundwater Supplies 7-20
Table 7-12. Summary of Basis of City Water Supplies with the Bay-Delta Plan Amendment 7-20
Table 7-13. Summary of Basis of City Water Supplies without the Bay-Delta Plan Amendment 7-21
Table 7-14. Normal Year Supply and Demand Comparison, MGD 7-21
Table 7-15. Single Dry Year Supply and Demand Comparison, MGD 7-22
Table 7-16. Multiple Dry Year Supply and Demand Comparison, MGD 7-23
Table 7-17. Projected Water Supplies for Drought Risk Assessment 7-24
Table 7-18. Five-Year Drought Risk Assessment Tables to Address Water Code Section 10635(b) 7-25

Table of Contents

LIST OF FIGURES

Figure 3-1. City Limits and Water Service Area 3-2
Figure 3-2. Existing Water Distribution System 3-4
Figure 6-1. South Westside Groundwater Basin 6-5

LIST OF APPENDICES

Appendix A: Legislative Requirements
Appendix B: DWR 2020 Urban Water Management Plan Tables
Appendix C: DWR 2020 Urban Water Management Plan Checklist
Appendix D: Agency and Public Notices
Appendix E: Annual Water Loss Audit
Appendix F: SB X7-7 2020 Compliance Form
Appendix G: 2018 Amended and Restated WSA
Appendix H: SFPUC and BAWSCA Information
Appendix I: Water Shortage Contingency Plan
Appendix J: Water Rate Schedule
Appendix K: UWMP and WSCP Adoption Resolutions

LIST OF ACRONYMS AND ABBREVIATIONS

°F	Fahrenheit
2020 Target	2020 Urban Water Use Target
AB	Assembly Bill
ABAG	Association of Bay Area Governments
Act	Urban Water Management Planning Act
ACWD	Alameda County Water District
ADUs	Accessory Dwelling Units
AFY	Acre-feet of Water Per Year
AMI	Area Median Income
AWWA	American Water Works Association
BAIRWMP	Bay Area Integrated Regional Water Management Plan
BARR	Bay Area Regional Reliability Partnership
BART	Bay Area Rapid Transit
BAWSCA	Bay Area Water Supply and Conservation Agency
CCF	Hundred Cubic Feet

CEQA	California Environmental Quality Act
CII	Commercial, Institutional, and Industrial
City	City of San Bruno
CWC	California Water Code
DBP	Disinfection by-Product
DMM	Demand Management Measures
DOF	Department of Finance
DRA	Drought Risk Assessment
DSS	Decision Support System
DWR	Department of Water Resources
DWR Guidebook	Urban Water Management Plan Guidebook 2020
DWR's Methodologies	DWR's Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ET	Evapotranspiration
FY	Fiscal Year
GHG	Greenhouse Gas
GPCD	Gallons Per Capita Per Day
GPF	Gallons per Flush
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
GSR	Groundwater Storage and Recovery
GWMP	South Westside Basin Groundwater Management Plan
HET	High Efficiency Toilet
in/mo	Inches Per Month
ISG	Individual Supply Guarantees
JPA	Joint Powers Authority
kWh	Kilowatt Hours
LHMP	Local Hazard Mitigation Plans
LOS	Level of Service
LVE	Los Vaqueros Reservoir Expansion
MG	Million Gallons
MGD	Million Gallons Per Day
MWELO	2015 Model Water Efficient Landscape Ordinance
NCCWD	North Coast County Water District
NPDES	National Pollutant Discharge Elimination System
PWS	Public Water System
Region	Bay Area Region
Regional GSR	Regional Groundwater Storage and Recovery Project

RUWMP	Regional Urban Water Management Plan
RWS	Regional Water System
SB X7-7	Water Conservation Act of 2009/Senate Bill Seven of the Senate's Seventh Extraordinary Session of 2009
SBMC	San Bruno Municipal Code
SFPUC	San Francisco Public Utilities Commission
SGMA	Sustainable Groundwater Management Act of 2014
SMCWPPP	San Mateo County Water Pollution Prevention Program
SOI	Sphere of Influence
SVCW	Silicon Valley Clean Water
USD	Union Sanitary District
UWMP	Urban Water Management Plan
WCIP	Water Conservation Implementation Plan
WQCP	South San Francisco-San Bruno Water Quality Control Plant
WSA	Water Supply Agreement
WSAP	Water Shortage Allocation Plan
WSCP	Water Shortage Contingency Plan
WSIP	Water System Improvement Program
WSMP	Water System Master Plan
WUE	Water Use Efficiency

EXECUTIVE SUMMARY

INTRODUCTION

An Urban Water Management Plan (UWMP) helps water suppliers assess the availability and reliability of their water supplies and current and projected water use to help ensure reliable water service under different conditions. This water supply planning is especially critical for California currently, as climate change alters rainfall and snowfall patterns, which in turn impact water supply availability. In addition, development continues to occur throughout the State resulting in increased needs for reliable water supplies. The Urban Water Management Planning Act (Act) requires larger water suppliers that provide water to urban users (whether directly or indirectly) to develop UWMPs every five years. UWMPs evaluate conditions for the next 20 to 25 years, so these regular updates ensure continued long-term water supply planning.

The City of San Bruno (City) sells and distributes treated water directly to individual water users (e.g., residences and businesses). Since the City provides water to more than 3,000 customers, it is required to prepare a UWMP.

This Executive Summary serves as a Lay Description of the City's 2020 UWMP, as required by California Water Code Section 10630.5.

CALIFORNIA WATER CODE REQUIREMENTS

The California Water Code (CWC) documents specific requirements for California water suppliers. The Act is included in the CWC and specifies the required elements of a UWMP, including discussing an agency's water system and facilities, calculating how much water its customers use (i.e., water demand) and how much it can supply, and detailing how it would respond during a drought or other water supply shortage. Also, a UWMP must describe what specific coordination steps were taken to prepare, review, and adopt the plan.

The Act has been revised over the years. The Water Conservation Act of 2009 (also known as SB X7-7) required retail water agencies to establish water use targets for 2015 and 2020 that would result in statewide water savings of 20 percent by 2020. In their 2020 UWMPs, retail water agencies are required to report on their compliance with SB X7-7.

The 2012 to 2016 drought led to further revisions to the Act to improve water supply planning for long-term reliability and resilience to drought and climate change. These revisions were formalized in the 2018 Water Conservation Legislation and include:

- Five Consecutive Dry-Year Water Reliability Assessment: Analyze water supply reliability for five consecutive dry years over the planning period of this plan (see Chapter 7).
- Drought Risk Assessment: Assess water supply reliability from 2021 to 2025 assuming they are dry years (see Chapter 7).
- Seismic Risk: Identify the seismic risk to the agency's water facilities and have a plan to address identified risks (see Chapter 8).
- Energy Use Information: If data are available, include reporting on the amount of electricity used to obtain, treat, and distribute water (see Chapter 6).

- Water Shortage Contingency Plan (WSCP): Update the agency's plan to include an annual process for assessing potential gaps between planned water supply and demands; conform with the State's standard water shortage levels (including a shortage level greater than 50 percent) for consistent messaging and reporting; and provide water shortage responses that are locally appropriate (see Chapter 8).
- Lay Description: Provide a lay description of the findings of the UWMP; this Executive Summary serves as the "Lay Description" for this plan.

Major components and findings of the City's 2020 UWMP are summarized below.

CITY WATER SYSTEM

The City is primarily an urban residential community located in San Mateo County with low density residential land uses in the west hillside areas and higher density residential, commercial, and institutional land uses in the east, towards San Francisco Bay. The City's water service area encompasses about 5.4 square miles and is generally contiguous with the City limits.

Water supplied through the City's water system is a combination of purchased water and groundwater pumped from the City's groundwater supply wells. The City purchases its treated surface water from San Francisco Public Utilities Commission (SFPUC) and North Coast County Water District (NCCWD). The City's Public Works Department (Water Division) owns, operates, and maintains the potable water distribution system that serves drinking water to users within its water service area.

The City currently (2020) serves a population of approximately 45,300 and anticipates population growth and future planned development in its water service area. Future service area population is based on projections provided in the Association of Bay Area Governments (ABAG) Plan Bay Area 2040. The City's 2045 population is projected to be approximately 56,800.

Chapter 3 provides a general description of the City's water service area and includes a summary of its water system facilities, climate, population, and land uses.

WATER USE BY CITY CUSTOMERS

Thorough and accurate accounting of current and future water demands is critical for the City's planning efforts. To continue delivering safe and reliable drinking water, the City must know how much water its customers currently use and how much they expect to use in the future.

An update of the City's Water System Master Plan (WSMP) was prepared concurrently with this plan. The water demand projections in this plan are based on projections developed in the City's updated WSMP. The City's potable water demand is expected to increase by approximately 53 percent (from 2020 levels) at buildout (2040). The majority of demands from identified developments are located in the Transit Corridors Plan area and the Bayhill Specific Plan area. In addition to the water demands from identified development projects, the projected buildout demands also account for the potential extension of water service to the San Francisco County Jail, as well as additional demand from unidentified future development, which was estimated in consultation with City staff.

Current and projected water demands are discussed in Chapter 4.

CITY WATER SUPPLIES

The City currently utilizes water from the following sources:

- Wholesale treated surface water from the City and County of San Francisco's Regional Water System (RWS), operated by the SFPUC, served through four connections to the City's system;
- Retail treated surface water purchased from NCCWD; and
- Local groundwater from the Westside Groundwater Basin.

In recent years, approximately 90 percent of the City's water supply has been purchased from the SFPUC and NCCWD, both of which are supplied through the RWS. The RWS is predominantly supplied from runoff and snowmelt from the Sierra Nevada delivered through the Hetch Hetchy aqueducts, but also includes treated water produced by SFPUC from its local watersheds and facilities in Alameda and San Mateo counties.

The remaining 10 percent of the City's water supply is produced locally from its groundwater wells. The City currently operates four wells that extract groundwater from the central portion of the 40 square mile Westside Basin. Prior to 2016, groundwater use comprised about 50 percent of the City's total water supply. In 2016, the City reduced its use of groundwater in accordance with the Regional Groundwater Storage and Recovery Project (Regional GSR).

The City is a member of Bay Area Water Supply and Conservation Agency (BAWSCA). BAWSCA was created on May 27, 2003 to represent the interests of the 26 cities, water districts, and private utilities in Alameda, Santa Clara and San Mateo counties that purchase water on a wholesale basis from the RWS. BAWSCA is the only entity having the authority to directly represent the needs of the cities, water districts and private utilities (wholesale customers) that depend on the RWS.

Additional discussion on the City's water supplies is provided in Chapter 6 of this plan.

CONSERVATION TARGET COMPLIANCE

In its 2015 UWMP, the City achieved its interim water use target and confirmed its 2020 water use target based on 2010 Census data. In 2020, the City achieved its 20 percent reduction target in accordance with SB X7-7. This achievement was the result of continued water conservation by its customers following the 2012 to 2016 drought.

Additional discussion regarding the City's compliance with SB X7-7 is provided in Chapter 5 of this plan. Chapter 9 of this plan discusses the City's historical and existing water conservation efforts and the Demand Management Measures that are implemented by the City to achieve compliance with SB X7-7 water use targets.

CITY WATER SERVICE RELIABILITY

The CWC asks agencies to evaluate their water service reliability by examining the impact of drought on their water supplies and comparing those reduced supplies to water demands. Specifically, agencies should calculate their water supplies during a single dry year and five consecutive dry years using historical records.

The amount of water supplies available to the City is constrained by numerous factors. The amount of imported water available to SFPUC's retail and wholesale customers, including the City, is constrained by hydrology, climate conditions, physical facilities, and the institutional parameters that allocate the water supply of the Tuolumne River. The amount of the City's groundwater supplies is constrained by the sustainable yield of the Westside Basin and the capacity of the City's physical water system infrastructure.

A new constraint on SFPUC supply, as of 2023, is the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan Amendment). The implementation of the Bay-Delta Plan Amendment comes with uncertainty due to pending lawsuits and efforts to have the State Water Resources Control Board adopt the Tuolumne River Voluntary Agreement, as part of a Global Voluntary Agreement package. As presented by SFPUC and BAWSCA, the impacts of the Bay-Delta Plan Amendment will be significant (more than 50 percent cut back possible) in multiple drought years for wholesale customers of the RWS.

As described in this plan, the City has sufficient water supply in normal water years to meet existing and projected demand. However, during single dry year scenarios, the City may experience a water shortage up to 19 percent. During multiple dry year scenarios, the City may experience a water shortage up to 24 percent during a five-year long dry period. These supply shortfalls are primarily due to significant cutbacks in the City's purchased water supply due to the Bay-Delta Plan Amendment. In years with a supply shortfall, the City can implement its WSCP to reduce demands to the level of available supply. The WSCP Stages required to achieve the necessary demand reductions range from Stage 1 to Stage 3.

Results from the Drought Risk Assessment indicated that during a five-year drought beginning in 2021, the City's supplies are adequate to meet projected demands through 2025, despite the significant cutbacks in SFPUC supplies resulting from the Bay-Delta Plan Amendment.

As discussed above, the implementation of the Bay-Delta Plan Amendment comes with uncertainty. It should be noted that without the Bay-Delta Plan Amendment, supply shortfalls would be nearly eliminated and the only anticipated supply shortage would be less than one percent in the fourth and fifth dry years of the five-year dry period in 2045.

Additional discussion on the City's water supply reliability is provided in Chapter 7 of this plan.

WATER SHORTAGE CONTINGENCY PLAN

A WSCP describes an agency's plan for preparing and responding to water shortages. The City updated its WSCP to include its process for assessing potential gaps between planned water supply and demands for the current year and the next potentially dry year. The City also aligned its water shortage levels with the State's standard stages for consistent messaging and reporting and planned for locally appropriate water shortage responses. The WSCP may be used for foreseeable and unforeseeable events and is adopted concurrently with this plan by separate resolution to allow for updates as conditions change.

The updated WSCP is described in Chapter 8 and provided in Appendix I of this plan.

UWMP PREPARATION, REVIEW, AND ADOPTION

The City developed this 2020 UWMP and WSCP in coordination with the public. While preparing its UWMP an WSCP, the City notified other stakeholders (including San Mateo County, SFPUC, NCCWD, and BAWSCA, etc.) of their preparation, availability for review, and the public hearing prior to adoption. The City encouraged community participation in the development of the 2020 UWMP and WSCP using newspaper advertisements and web-based communication. These public notices included the time and place of the public hearing, as well as the location where the plan would be available for public inspection.

The public hearing provided an opportunity for City water users and the general public to become familiar with the 2020 UWMP and WSCP and ask questions about the City's plans for continuing to providing a reliable, safe, high-quality water supply and mitigating potential water shortages. Following the public hearing, the City Council adopted the 2020 UWMP and WSCP on October 26, 2021. A copy of the adopted UWMP was submitted to the Department of Water Resources and is available on the City's website (www.sanbruno.ca.gov).

Additional discussion on the City's 2020 UWMP preparation, review, and adoption is provided in Chapters 2 and 10 of this plan.

CHAPTER 1
Introduction

This chapter provides an introduction and overview of the City of San Bruno's (City's) 2020 Urban Water Management Plan (UWMP) including the importance and extent of the City's water management planning efforts, changes since the preparation of the 2015 UWMP, and the organization of the 2020 UWMP. This 2020 UWMP has been prepared jointly by City staff and West Yost.

1.1 INTRODUCTION

The Urban Water Management Planning Act (Act) was originally established by Assembly Bill (AB) 797 on September 21, 1983. Passage of the Act was recognition by state legislators that water is a limited resource and a declaration that efficient water use and conservation would be actively pursued throughout the state. The primary objective of the Act is to direct "urban water suppliers" to develop a UWMP that provides a framework for long-term water supply planning, and documents how urban water suppliers are carrying out their long-term resource planning responsibilities to ensure adequate water supplies are available to meet existing and future water demands. A copy of the current version of the Act, as incorporated in Sections 10608 through 10657 of the California Water Code, is provided in Appendix A of this plan.

1.2 IMPORTANCE AND EXTENT OF CITY'S WATER MANAGEMENT PLANNING EFFORTS

The purpose of the UWMP is to provide a planning tool for the City for developing, managing, and delivering municipal water supplies to the City's water service area. Since its founding in 1914, the City has had a long history of providing a reliable water supply to its customers. To continue to meet the water needs of the community, the City carefully manages its available water resources. This plan provides the City with a comprehensive water management action plan for guidance as water supply and/or demand conditions change.

1.3 CHANGES FROM 2015 UWMP

The Act has been modified over the years in response to the State's water shortages, droughts and other factors. A significant amendment was made in 2009, after the 2007 to 2009 drought, and as a result of the Governor's call for a statewide 20 percent reduction in urban water use by the year 2020. This was the Water Conservation Act of 2009, also known as Senate Bill Seven of the Senate's Seventh Extraordinary Session of 2009 (SB X7-7). The Water Conservation Act of 2009 required agencies to establish water use targets for 2015 and 2020 that would result in statewide water savings of 20 percent by 2020. The 2012 to 2016 drought led to further amendments to the California Water Code to improve water supply planning for long-term reliability and resilience to drought and climate change.

Summarized below are the major additions and changes to the California Water Code (CWC) since the City's 2015 UWMP was prepared.

- **Five Consecutive Dry-Year Water Reliability Assessment** [CWC §10635(a)]. The Legislature modified the dry-year water reliability planning from a "multi-year" time period to a "drought lasting five consecutive water years" designation. This statutory change requires the urban water supplier to analyze the reliability of its water supplies to meet its water use over an extended drought period. This requirement is addressed in the water use assessment presented in Chapter 4, the water supply analysis presented in Chapter 6, and the water service reliability determinations in Chapter 7 of this plan.
- **Drought Risk Assessment** [CWC §10635(b)]. The Legislature created a new UWMP requirement for drought planning because of the significant duration of recent California droughts and the predictions about hydrological variability attributable to climate change. The Drought Risk Assessment (DRA) requires the urban water supplier to assess water supply reliability over a five-year period from 2021 to 2025 that examines water supplies, water uses, and the resulting water supply reliability under a reasonable prediction for five consecutive dry years. The DRA is discussed in Chapter 7 based on the water use information in Chapter 4, the water supply analysis presented in Chapter 6, and the water service reliability determinations discussed in Chapter 7 of this plan.
- **Seismic Risk** [CWC §10632.5]. The CWC now requires urban water suppliers to specifically address seismic risk to various water system facilities and to have a mitigation plan. Water supply infrastructure planning is correlated with the regional hazard mitigation plan associated with the urban water supplier. The City's seismic risk is discussed in Chapter 8 of this plan.
- **Energy Use Information** [CWC §10631.2]. The CWC now requires urban water suppliers to include readily obtainable information on estimated amounts of energy used for their water supply extraction, treatment, distribution, storage, conveyance, and other water uses. The reporting of this information was voluntary in 2015. Energy use information is provided in Chapter 6 of this plan.
- **Water Loss Reporting for Five Years** [CWC §10608.34]. The CWC now requires urban water suppliers to include water loss reporting for the past five years. Water loss reporting is provided in Chapter 4 of this plan.
- **Water Shortage Contingency Plan** [CWC §10632]. In 2018, the Legislature modified the UWMP laws to require a Water Shortage Contingency Plan (WSCP) with specific elements. The WSCP is a document that provides the urban water supplier with an action plan for a drought or catastrophic water supply shortage. Although the new requirements are more prescriptive than previous versions, many of these elements have long been included in WSCPs, other sections of UWMPs, or as part of the urban water supplier's standard procedures and response actions. Many of these actions were implemented by the urban water suppliers during the last drought to successfully meet changing local water supply challenges. The WSCP is used by DWR, the State Water Resources Control Board, and the Legislature in addressing extreme drought conditions or statewide calamities that impact water supply availability. The City's WSCP is summarized in Chapter 8 and provided in Appendix I of this plan.

- **Groundwater Supplies Coordination** [CWC §10631(b)(4)]. In 2014, the Legislature enacted the Sustainable Groundwater Management Act to address groundwater conditions throughout California. The CWC now requires 2020 UWMPs to be consistent with Groundwater Sustainability Plans in areas where those plans have been completed by Groundwater Sustainability Agencies. This requirement is addressed in Chapter 6 of this plan.
- **Lay Description** [CWC §10630.5]. The Legislature included a new statutory requirement for the urban water supplier to include a lay description of the fundamental determinations of the UWMP, especially regarding water service reliability, challenges ahead, and strategies for managing reliability risks. This section of the UWMP could be viewed as a go-to synopsis for new staff, new governing members, customers, and the media, and it can ensure a consistent representation of the urban water supplier's detailed analysis. This requirement is addressed in the Executive Summary of this plan.
- **Water Loss Management** [CWC §10608.34(a)(1)]. The Legislature included a requirement for urban water suppliers to report on their plan to meet the water loss performance standards in their 2020 UWMPs. This requirement is addressed in the Demand Management Measures presented in Chapter 9 of this plan.

1.4 PLAN ORGANIZATION

This plan contains the appropriate sections and tables required per CWC Division 6, Part 2.6 (Urban Water Management Planning Act), included in Appendix A of this plan, and has been prepared based on guidance provided by the California Department of Water Resources (DWR) in its "Urban Water Management Plan Guidebook 2020" (DWR Guidebook).

This plan is organized into the following chapters:

- Chapter 1: Introduction
- Chapter 2: Plan Preparation
- Chapter 3: System Description
- Chapter 4: Water Use Characterization
- Chapter 5: SB X7-7 Baselines, Targets, and 2020 Compliance
- Chapter 6: Water Supply Characterization
- Chapter 7: Water Service Reliability and Drought Risk Assessment
- Chapter 8: Water Shortage Contingency Plan
- Chapter 9: Demand Management Measures
- Chapter 10: Plan Adoption, Submittal, and Implementation

This plan also contains the following appendices of supplemental information and data:

- Appendix A: Legislative Requirements
- Appendix B: DWR 2020 Urban Water Management Plan Tables
- Appendix C: DWR 2020 Urban Water Management Plan Checklist
- Appendix D: Agency and Public Notices
- Appendix E: Annual Water Loss Audit
- Appendix F: SB X7-7 2020 Compliance Form
- Appendix G: 2018 Amended and Restated WSA
- Appendix H: SFPUC and BAWSCA Information
- Appendix I: Water Shortage Contingency Plan
- Appendix J: Water Rate Schedule
- Appendix K: UWMP and WSCP Adoption Resolutions

All of the tables recommended in the DWR Guidebook have been completed and are included in Appendix B.

DWR's Urban Water Management Plan Checklist, as provided in the DWR Guidebook, has been completed by West Yost to demonstrate the plan's compliance with applicable requirements. A copy of the completed checklist is included in Appendix C.

CHAPTER 2
Plan Preparation

This chapter describes the preparation of the City's 2020 UWMP and WSCP, including the basis for the preparation of the plan, individual or regional planning, fiscal or calendar year reporting, units of measure, and plan coordination and outreach.

2.1 BASIS FOR PREPARING A PLAN

The Act requires every "urban water supplier" to prepare and adopt an UWMP, to periodically review its UWMP at least once every five years and make any amendments or changes which are indicated by the review. An "urban water supplier" is defined as a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water per year (AFY).

A public water system (PWS) is a system that provides drinking water for human consumption through pipes or other constructed conveyances. The City manages PWS #CA4110023. In Fiscal Year (FY) 2019/20, the City provided water to 11,902 customer connections and supplied 3.12 million gallons per day (MGD) (equivalent to approximately 3,500 AFY) of potable water. Therefore, the City is required to prepare a UWMP. The City's last UWMP, the 2015 UWMP, was adopted by the City Council in June 2016.

2.2 REGIONAL PLANNING

The City is a member of the Bay Area Water Supply and Conservation Agency (BAWSCA). BAWSCA provides regional water reliability planning and conservation programming for the benefit of its 26 member agencies that purchase wholesale water supplies from SFPUC. BAWSCA also represents the collective interests of these wholesale water customers on all significant technical, financial and policy matters related to the operation and improvement of the SFPUC Regional Water System.

As described in Section 2.3 below, the City has prepared this plan on an individual reporting basis, not as part of a regional planning process. However, BAWSCA has had a role in the development of the 2020 UWMP updates by working with its member agencies and SFPUC to seek consistency among the multiple documents being developed.

2.3 INDIVIDUAL OR REGIONAL PLANNING AND COMPLIANCE

This plan has been prepared on an individual reporting basis covering only the City's water service area. The City does not participate in a regional alliance, and it has not prepared a Regional Urban Water Management Plan (RUWMP). As described below in Section 2.5, the City has notified and coordinated planning and compliance with appropriate regional agencies and constituents, including SFPUC and NCCWD, as well as BAWSCA and its member agencies, and several local agencies.

2.4 FISCAL OR CALENDAR YEAR AND UNITS OF MEASURE

The City is a water retailer. The City's 2020 UWMP has been prepared on a fiscal year basis, with the fiscal year starting on July 1 and ending on June 30 of each year. Water use and planning data for the entire Fiscal Year of 2019/20 has been included.

The California Water Code does not specify which units must be used to report water demand and supply in the UWMPs. The DWR Guidebook, however, states that the UWMP tables are to be completed in one of the following units: AFY, million gallons (MG), or hundred cubic feet (CCF). The City has opted to complete the required DWR tables, provided in Appendix B, in units of CCF.

However, because the City's water supply contracts specify water supply volumes in MGD, the City's reporting of water volumes throughout the text of this plan is in MGD, representing the average daily water demand or supply. For clarity, the tables in the text of this plan show data in both MGD and CCF where appropriate.

2.5 COORDINATION AND OUTREACH

This section includes a discussion of the City's inter-agency coordination and coordination with the general public. The Act requires the City to coordinate the preparation of its plan with other appropriate agencies and all departments within the City, including other water suppliers that share a common source, water management agencies, and relevant public agencies. These agencies, as well as the public, participated in the coordination and preparation of this plan and are summarized below.

2.5.1 Wholesale and Retail Coordination

The City receives wholesale water supplies from SFPUC and NCCWD. In accordance with CWC Section 10631, the City has informed SFPUC and NCCWD of projected water use from that source for the period of 2021 to 2045.

As discussed in Section 2.2, the City is a member of BAWSCA. BAWSCA coordinated with its member agencies and SFPUC to seek consistency among the multiple UWMPs being developed.

2.5.2 Coordination with Other Agencies and the Community

Land use planning and development approvals within the City's boundaries are the responsibility of the City Planning Division. The City's Wastewater Division provides wastewater collection and the City's Fire Department provides fire suppression services. These and other agencies, including San Mateo County as well as the public participated in the coordination and preparation of this plan.

The City actively encourages community participation in water management activities and specific water-related projects. The City's public participation program includes both active and passive means of obtaining input from the community, such as mailings, public meetings, and web-based communication. The City's website describes ongoing projects and posts announcements of planned rate increases to fund these water projects.

As part of the 2020 UWMP and WSCP update, the City facilitated a public review period. Public noticing, pursuant to Section 6066 of the Government Code, was conducted prior to commencement of a public comment period. Public hearing notices are included in Appendix D of this plan. During the public comment period, the Draft 2020 UWMP was made available on the City's website, as well as at City Hall and the San Bruno Public Library.

The public hearings provided an opportunity for all stakeholders including the City water users and the general public to become familiar with the 2020 UWMP and ask questions about the City's water supply, in addition to the City's continuing plans for providing a reliable, safe, high-quality water supply.

2.5.3 Notice to Cities and Counties

CWC Section 10621 (b) requires agencies to notify the cities and counties to which they serve water at least 60 days in advance of the public hearing that the plan is being updated and reviewed. In February 2021, a notice of preparation was sent to San Mateo County and other stakeholders, to inform them of the UWMP update process and schedule, and to solicit input for the City's 2020 UWMP and WSCP. The notifications to cities and counties, the public hearing notifications, and the public hearing and adoption are discussed in Chapter 10 of this plan.

CHAPTER 3
System Description

This chapter provides a general description of the City's water service area and includes a summary of water system facilities, climate, population, and land uses within the service area.

3.1 GENERAL DESCRIPTION

The City is located in San Mateo County, south of the City of South San Francisco, north of the City of Millbrae, and just west of the San Francisco International Airport, as shown on Figure 3-1. The City is connected to major transportation corridors such as Highway 101, I-280, I-380, El Camino Real and Skyline Boulevard. The City is also served by two major public transit lines, Bay Area Rapid Transit (BART) and Caltrain.

The City owns, operates, and maintains the potable water distribution system that serves drinking water to residential, commercial, institutional, and industrial establishments within its water service area. Water supplied through the City's distribution system is a combination of purchased water and groundwater pumped from the City's groundwater supply wells.

3.2 SERVICE AREA BOUNDARY

The City's water service area is about 5.4 square miles and the water service boundary is generally contiguous with the City limits as shown on Figure 3-1[1]. Elevations within the City range from near sea level in the east to almost 900 feet on the northwestern edge of the City. The City is primarily an urban residential community with low density residential land uses in the west hillside areas and higher density residential, commercial, and institutional land uses in the east, towards San Francisco Bay.

3.3 WATER SYSTEM DESCRIPTION

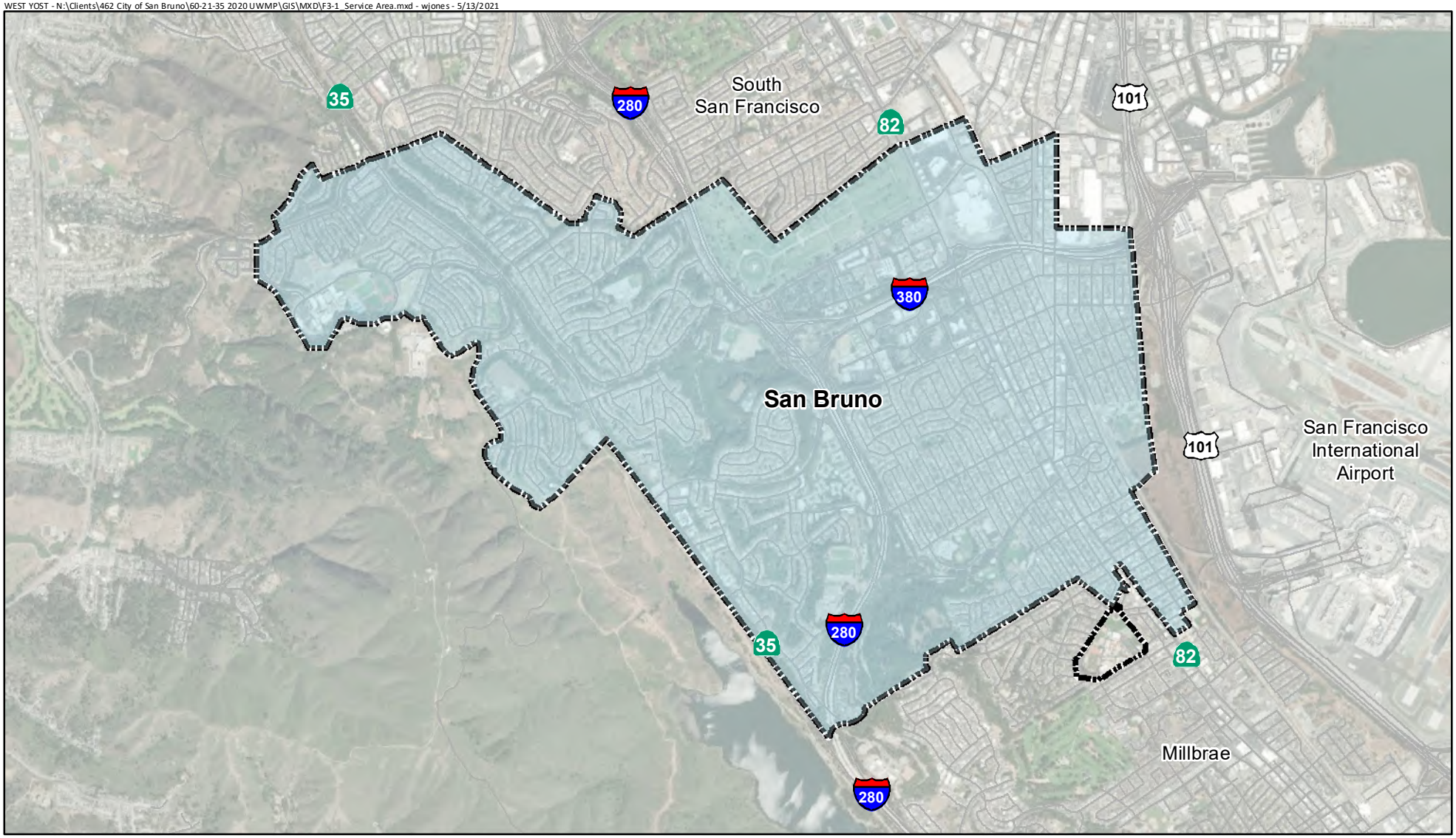
Brief descriptions of the City's water supply sources and water system facilities are provided below.

3.3.1 Water Supply Sources

The City's water supply comes from three different sources – surface water purchased from San Francisco Public Utilities Commission (SFPUC), surface water purchased from North Coast County Water District (NCCWD), and groundwater produced from the City's wells. Historically, approximately half of the City's total water supply came from purchased surface water and the remaining supply was produced from the City's groundwater wells. As of 2016, the City has increased its use of surface water supplies during wet and normal years in accordance with the regional Groundwater Storage and Recovery (GSR) Project. The City now receives approximately 90 percent of its supplies from surface water in wet and normal years.

[1] The City provides domestic service, but not irrigation service, to the Golden Gate Cemetery. The City does not serve the Capuchino High School.

WEST YOST - N:\Clients\462 City of San Bruno\60-21-35 2020 UWMP\GIS\MXD\F3-1_Service Area.mxd - wjones - 5/13/2021



City Limits

Water Service Area

N

0 0.3 0.6

Scale in Miles

Figure 3-1

City Limits and Water Service Area

City of San Bruno
2020 Urban Water Management Plan

3.3.2 Water System Facilities

The City's water system facilities are shown on Figure 3-2 and generally include:

- Five surface water supply turnouts, four of which supply wholesale surface water from SFPUC and one of which supplies surface water from NCCWD;
- Four active groundwater wells, each equipped with sodium hypochlorite and ammonium hydroxide feed equipment to provide disinfection and residual disinfectant;
- Eight water storage tanks with a total storage capacity of approximately 8.3 MG;
- Eight booster pump stations that transfer water from lower pressure zones to higher pressure zones;
- Thirty-one (31) pressure regulating stations, most of which are equipped with pressure reducing valves that regulate water from higher pressure zones into lower pressure zones; and
- Approximately 116 miles of water main ranging in size from 2 to 18 inches in diameter.

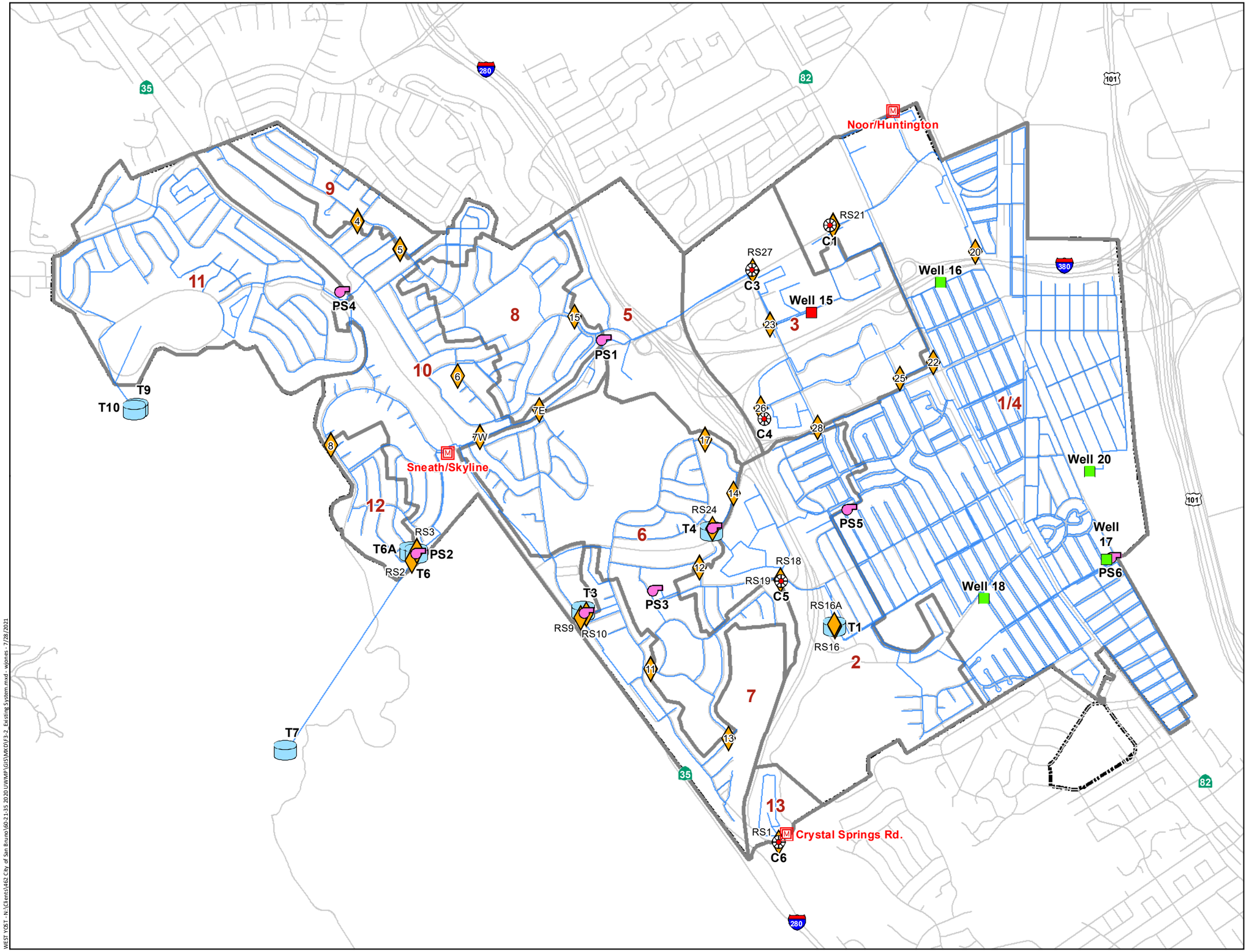
The City's Public Works Department (Water Division) maintains and replaces portions of the water system on an as-needed basis.

3.4 SERVICE AREA CLIMATE

This section describes the City's historical climate and potential effects of climate change.

3.4.1 Historical Climate

The City's climate is generally considered temperate. Monthly average climate data are shown in Table 3-1. The average annual temperature is 57 degrees Fahrenheit (°F), with an average low of 49°F and an average high of 65°F. The mean summer temperature (i.e., June through September) is 63°F. Precipitation averages 20 inches per year with most of the precipitation falling between November and March and little to none occurring April through September. The lack of rainfall during the warmer summer months contributes to a higher water use in the summer, which is exacerbated by a high evapotranspiration (ET) rate. ET records indicate an average loss of 3.25 inches per month (in/mo), with a high of about 5 in/mo in June and July, and lows of 1 to 2 in/mo from December and January.



WEST YOST - N:\Clients\462 City of San Bruno\GIS\2020 UWMP\GIS\MXD\F3-2_Existing System.mxd - wjones - 7/28/2021

WEST YOST

Figure 3-2

Existing Water Distribution System

City of San Bruno
2020 Urban Water Management Plan

Table 3-1. Monthly Average Climate Data Summary

Month	Standard Monthly Average ET_o, inches[(a)]	Average Total Rainfall, inches[(b)]	Average Temperature, degrees Fahrenheit[(b)]	
			Maximum	Minimum
January	1.24	4.31	55.8	42.6
February	1.68	3.58	59.1	45.0
March	3.10	2.88	61.2	46.2
April	3.90	1.38	63.8	47.7
May	4.65	0.39	66.7	50.2
June	5.10	0.13	70.0	52.8
July	4.96	0.02	71.4	54.1
August	4.65	0.04	72.0	55.0
September	3.90	0.17	73.4	54.8
October	2.79	1.00	70.2	52.1
November	1.80	2.31	62.9	47.4
December	1.24	3.73	56.4	43.3
Totals	**39.0**	**19.9**	**65.2**	**49.3**

(a) Source: California Irrigation Management Information System (https://cimis.water.ca.gov/) data for Zone 2 downloaded April 9, 2021.
(b) Source: Western Regional Climate Center (www.wrcc.dri.edu) data for San Francisco International Airport, California (period of record: July 1, 1945 to June 9, 2016).

3.4.2 Potential Effects of Climate Change

The CWC now requires urban water suppliers to account for the impacts of climate change on water supplies and supply reliability. A discussion of the effects of climate change on water demands, supplies, and reliability can be found in Chapter 4, Chapter 6, and Chapter 7 of this plan. This section summarizes those discussions.

In general, climate change is expected to increase water demand for irrigation and the year-to-year variability of demands. This is the result of increased temperatures (which increases evapotranspiration) and more variability in precipitation (which impacts supply availability and reliability). Also, natural disasters such as wildfires, droughts, and floods are expected to increase in both frequency and intensity.

Responding to climate change generally takes two forms: mitigation and adaptation. Mitigation is taking steps to reduce the contribution to the causes of climate change by reducing greenhouse gas (GHG) emissions. Adaptation is the process of responding to the effects of climate change by modifying systems and behaviors to function in a warmer climate.

The 2019 Bay Area Integrated Regional Water Management Plan[2] provides an assessment of climate change impacts and findings for vulnerability areas including water demand, water supply, water quality, sea-level rise, flooding, ecosystem and habitat, and hydropower. Climate change impacts to the Bay Area region water resources include the following:

- Higher temperatures and heat waves that increase demand for water, especially for agricultural and residential irrigation uses.
- A projected overall decrease in precipitation levels coupled with more intense individual storm events may lead to increased flooding.
- Higher temperatures that may cause more precipitation to fall as rain rather than snow, hasten snowmelt and increase runoff will affect water storage planning.
- Increased evaporation will create a generally drier climate, with wildfires likely to increase and groundwater basins likely to receive less replenishment.
- Sea level rise, which is estimated to rise an average of 14 inches by 2050, will likely affect low lying infrastructure of all types, including many of the Bay Area region's wastewater treatment plants.

Additional discussion on the potential impacts of climate change on the City's water demands and water supplies is provided in Chapters 4 and 6.

3.5 SERVICE AREA POPULATION AND DEMOGRAPHICS

This section summarizes the existing population served within the City, as well as projected population demographics. The City was founded as a railroad suburb to the City of San Francisco in 1914. The City's population has grown steadily since its inception during World War II, when it was used to house military personnel and other activities, and into the 1960s when the City's population reached its peak growth rate and a population of over 35,000 people. The City's most rapid growth occurred between 1940 and 1970, and then declined slightly in the subsequent decade. Between the 1980's and 2010, the City's population has grown steadily, but at an increasingly slower rate. In recent years, the City's growth rate has stabilized, likely due to a lack of available land for development. Future increases in population will be primarily from re-development and densification.

3.5.1 Service Area Population

In 2005, Maddaus Water Management, Inc. (Maddaus) developed a Demand Side Management Least Cost Planning Decision Support System (DSS) Model for the BAWSCA member agencies as part of the Capital Improvement Program for SFPUC's Regional Water System. The DSS Model has been updated and was used in developing the BAWSCA 2020 Regional Water Demand and Conservation Projections which support the BAWSCA member agencies' 2020 UWMPs, including the City's plan. For the projections, BAWSCA member agencies and Maddaus used Association of Bay Area Governments (ABAG) population data as it represented the most current population information for each BAWSCA member agency service area. Population estimates were provided by ABAG in their Plan Bay Area 2040 Projections 2040 report (http://projections.planbayarea.org/) on a sub-regional jurisdictional level (not by

[2] San Francisco Bay Area Integrated Regional Water Management Plan, October 2019.

water service area boundaries) in five-year increments from 2010 to 2040. Use of the ABAG projections was previously approved by DWR for use in the 2015 UWMPs, and in November 2020 BAWSCA and Maddaus received approval from DWR for use of the ABAG 2040 projections for the 2020 UWMPs.

Since the City's water service area is generally contiguous with its City limits, the ABAG population data for the City of San Bruno were used to estimate projected population values. The current and projected population in the City's water service area are presented in Table 3-2.

Table 3-2. Population – Current and Projected

2020[a]	2025[b]	2030[b]	2035[c]	2040[c]	2045[c]
45,257	45,865	46,472	47,080	51,922	56,764

(a) Source: Report E-4. Population and Housing Estimates for Cities, Counties, and the State, 2011-2020, with 2010 Benchmark obtained from the State of California, Department of Finance on May 14, 2020.
(b) Source: Population data between 2020 and 2035 is linearly interpolated.
(c) Source: BAWSCA 2020 Regional Water Demand and Conservation Projections (Table 5-3).

3.5.2 Other Social, Economic, and Demographic Factors

The State now requires the inclusion of service area socioeconomic information as part of the system description in UWMPs. However, differences in household water use across sociodemographic groups in the City have not been studied, nor does the City differentiate water management based on sociodemographic factors. To comply with the new regulation, the following social, economic, and demographic information from the U.S. Census Bureau[3] is provided. Information is for the five-year period from 2015 to 2019.

- The average number of people per household 2.83
- The median household income was $109,387
- The average unemployment rate was 2.8 percent
- The owner-occupied housing unit rate was 58.9 percent, with a median home value of $908,300
- The median gross rent was $2,372 per month
- The median age was 39.3 years
- Of persons 25 years or older, 88.8 percent had earned at least a high school diploma or equivalent and 43.9 percent had earned a bachelor's degree or higher
- Of persons under 65 years of age, 4.7 percent had a disability and 4.8 percent did not have health insurance
- Over 94 percent of households had a computer, and 90.2 percent had a broadband internet subscription

[3] United States Census Bureau. American Community Survey, 2015-2019 ACS 5-Year Data Profile for San Bruno, California.

- By race/ethnicity, 32.8 percent of people were White, 1.0 percent were Black or African American, 0.1 percent were American Indian or Alaska Native, 30.8 percent were Asian, 2.9 percent were Hawaiian Native or Pacific Islander, 0.8 percent were some other race alone, 4.8 percent were two or more races, and 26.8 percent were Hispanic or Latino
- 37.5 percent of residents were foreign born, and 49.9 percent of people age five years and older spoke a language other than English at home

3.6 LAND USES WITHIN SERVICE AREA

This section describes the City's current and projected land uses in its water service area. Existing and future land use information is based on the City's current General Plan, which was adopted by the City Council in 2009. The City's General Plan contains the land use plan and policies within the City's incorporated limit and the City's Sphere of Influence (SOI).

3.6.1 Existing Land Uses within Service Area

Existing land uses are largely segregated, with commercial uses concentrated in the downtown area, along El Camino Real, San Mateo Avenue and San Bruno Avenue, and in several regional and neighborhood shopping centers. Residential neighborhoods include smaller, mixed-density residences east of El Camino Real, and larger hillside homes in the hills on the west side of the City. The majority of the City consists of residential use (52 percent); remaining uses include various commercial, industrial and institutional land uses (28 percent), parks/open space (13 percent), and other land uses (7 percent).

3.6.2 Future Land Uses within Service Area

To develop buildout (2040) water demand projections for the City's 2021 Water System Master Plan (WSMP), West Yost worked with the City's Planning Division to identify locations of specific planned developments, consistent with the City's General Plan and Transit Corridors Specific Plan. Land use planning information used for projecting buildout water demands included the Transit Corridors Specific Plan Water Supply Assessment, previous hydraulic evaluations of development projects, and other documents provided by the Planning Division. Information from these planning documents is summarized below.

In 2013, the City Council adopted the Transit Corridors Specific Plan, which complements the General Plan and provides more specific guidance on the development of the area along El Camino Real, San Bruno Avenue, San Mateo Avenue and Huntington Avenue in the core of the City where major transit connections already exist and additional transit connections are planned. Buildout of the General Plan was initially established at 2025, and the Transit Corridors Specific Plan extended the estimated buildout date to 2030. The City is currently in the process of developing the Bayhill Specific Plan, which will provide guidelines for the re-development of a cluster of large office buildings surrounding Bayhill Drive, including the YouTube campus. Although the Draft Environmental Impact Report for the project is still being prepared and the plan has yet to be adopted, anticipated changes in land use driven by the Bayhill Specific Plan are incorporated into the City's future water demand projections.

The City's Planning Division has noted a significant increase in applications for Accessory Dwelling Units (ADUs), also known as guest houses or granny suites, between 2010 to 2020. An ADU is defined as an attached or detached residential dwelling unit built on the same parcel as an existing primary single-family dwelling, which provides complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking, and sanitation. Based on the observed trend in ADU applications, City staff estimate that there will be approximately 25 units constructed in the City each year for the foreseeable future. Therefore, between 2020 and 2040, it is projected that 500 additional ADUs will be constructed.

CHAPTER 4
Water Use Characterization

This chapter describes and quantifies the City's historical, current, and projected water use. Water use projections are provided in five-year increments to the year 2045, as well as on a yearly basis for the next five years (2021-2025). This chapter also presents the City's water losses for the previous five years, projects future water use for lower income households, and discusses the impact of climate change on water use.

4.1 NON-POTABLE VERSUS POTABLE WATER USE

The City currently provides only potable water to its customers. Potable water is water that is safe to drink and typically has had various levels of treatment and disinfection. The City receives its potable water supply from SFPUC's Regional Water System and groundwater pumped from City wells.

Non-potable water is not intended for consumption and includes both recycled water and raw water. Recycled water is municipal wastewater that has been treated to a specified quality that allows for re-use. Raw water is untreated water that is used in its natural state or with minimal treatment. As discussed in Chapter 6, the City does not deliver raw or recycled water to any customers in its service area and has no plans to do so in the future.

4.2 WATER USE BY SECTOR

This section describes the City's historical, current, and projected water use by sector through the year 2045. The following are the definitions from the DWR Guidebook for sectors that are relevant for the City and were used to analyze consumption patterns among its various types of customers:

- **Single family residential**: A single-family dwelling unit. A lot with a free-standing building containing one dwelling unit that may include a detached secondary dwelling.
- **Multi-family residential**: Multiple dwelling units contained within one building or several buildings within one complex.
- **Commercial**: A water user that provides or distributes a product or service (CWC 10608.12(d)).
- **Institutional (and Governmental)**: A water user dedicated to public service. This type of user includes, among other users, higher education institutions, schools, courts, churches, hospitals, government facilities, and nonprofit research institutions (CWC 10608.12(i)).
- **Distribution System Losses**: The difference between the actual volume of water treated and delivered into the distribution system and the actual metered consumption.

4.2.1 Historical and Current Water Use

The City's historical and current (FY 2019/20) water use among its various water use sectors is presented in Table 4-1. Historical values shown in Table 4-1 are the same values reported in the City's 2015 UWMP. Losses are estimated based on the City's potable water production and billing data.

Table 4-1. Demands for Potable Water - Historical and Current				
Water Use Sector	Water Use, MGD			
	FY 2004/05[a]	FY 2009/10[a]	FY 2014/15[a]	FY 2019/20[b]
Residential	2.78	2.48	2.14	2.14
Commercial	0.52	0.59	0.62	0.55
Governmental (City Parks and Facilities)	--	0.17	0.13	0.18
Other	0.32	0.01	--	--
Water Losses	0.15	0.40	0.25	0.25
Total, MGD	**3.76**	**3.65**	**3.14**	**3.12**
Annual Total, CCF	**1,834,638**	**1,780,965**	**1,529,900**	**1,523,986**

(a) Source: Table 4-1, City of San Bruno 2015 UWMP, June 2016.
(b) Source: Fiscal year summary sheet of water sold/produced/purchased, provided by City in February 2021 in units of CCF.

4.2.2 Projected Water Use

This section presents water demand projections for the City's service area in five-year increments through 2045 (i.e., a 25-year planning horizon) and annually from 2021 through 2025. Water demand projections in this plan are based on projections developed for the City's 2021 Water System Master Plan (2021 WSMP).

4.2.2.1 25-Year Planning Horizon

The City's projected water demands through the year 2045 are presented in Table 4-2. In the 2021 WSMP, water demands were projected to 2040, which is the projected buildout of the City's water service area. The majority of demands from identified developments are located in the Transit Corridors Plan area and the Bayhill Specific Plan area. In addition to the water demands from identified development projects, the projected buildout demands also account for the potential extension of water service to the San Francisco County Jail, as well as additional demand from unidentified future development, which was estimated in consultation with City staff. A straight-line projection from 2019 to 2040 was used to determine the demand projection for each 5-year increment. Projected demands do not change between 2040 and 2045 because buildout is assumed complete by 2040.

Table 4-2. Demands for Potable Water - Projected					
	Water Use, MGD				
Water Use Sector	2025	2030	2035	2040	2045
Single Family	1.38	1.40	1.42	1.44	1.44
Multi-Family	0.90	1.02	1.15	1.28	1.28
Commercial	0.81	1.00	1.20	1.39	1.39
Governmental	0.22	0.26	0.30	0.35	0.35
Water Losses	0.23	0.26	0.30	0.32	0.32
Total, MGD	**3.53**	**3.95**	**4.37**	**4.78**	**4.78**
Annual Total, CCF	**1,724,349**	**1,929,187**	**2,134,026**	**2,333,474**	**2,333,474**
Source: Buildout (2040) demands were identified in the City's 2021 WSMP. 2025, 2030, and 2035 demands were estimated using a straight-line projection from 2019 to 2040. Projected demands do not change between 2040 and 2045 because buildout is complete by 2040.					

The City's projected water demands by water type are shown in Table 4-3. As described in Section 4.1, the City does not anticipate the future use of recycled water within its service area.

Table 4-3. Total Water Demands					
	Projected Water Use, MGD				
Water Use Sector	2025	2030	2035	2040	2045
Potable Water (from Table 4-2)	3.53	3.95	4.37	4.78	4.78
Recycled Water	0.00	0.00	0.00	0.00	0.00
Total, MGD	**3.53**	**3.95**	**4.37**	**4.78**	**4.78**
Annual Total, CCF	**1,724,349**	**1,929,187**	**2,134,026**	**2,333,474**	**2,333,474**

4.2.2.2 Characteristic Five-Year Water Use

CWC Section 10635(b) requires urban suppliers to include a five-year DRA in their 2020 UWMP. A key component of the DRA is estimating demands for the next five years (2021-2025) without drought conditions (i.e., unconstrained demand). Chapter 7 details the DRA, but the five-year demand projections are summarized in Table 4-4. These demand projections were based on the City's 2021 WSMP, using the same methodology described in Section 4.2.2.1 above.

Table 4-4. Projected Water Demands for the Next Five Years (2021-2025)					
Water Use	2021	2022	2023	2024	2025
Total, MGD	3.20	3.28	3.37	3.45	3.53
Annual Total, CCF	1,560,478	1,601,446	1,642,414	1,683,381	1,724,349

Source: Buildout (2040) demands were identified in the City's 2021 WSMP.
The demands above were estimated using a straight-line projection from 2019 to 2025.

4.3 DISTRIBUTION SYSTEM WATER LOSSES

System water losses are the difference between the actual volume of water treated and delivered into the distribution system and the actual metered consumption. Such apparent losses are always present in a water system due to pipe leaks, unauthorized connections or use, faulty meters, unmetered services (e.g., fire protection and training), and system flushing.

New regulations require retail water suppliers to include potable distribution system water losses for the preceding five years (to the extent records are available). The City uses the American Water Works Association (AWWA) method to annually evaluate its distribution system losses. Copies of the City's Water Audit worksheets are provided in Appendix E. The City's 2020 water audit was not available at the time of this plan's preparation. Therefore, a preliminary estimate of City water losses for the 2020 calendar year was calculated. Table 4-5 summarizes estimated water losses for the previous five calendar years (2016 through 2020).

At the time of preparation of this plan, DWR and the State Water Resources Control Board are in the process of adopting water loss standards, as discussed further in Chapter 9.

Table 4-5. Last Five Years of Water Audit Reporting		
Reporting Period Start Date	Volume of Water Loss, MGD	Volume of Water Loss, CCF
01/2016[a]	0.32	158,318
01/2017[b]	0.26	128,633
01/2018[b]	0.17	84,012
01/2019[b]	0.17	84,611
01/2020[a]	0.25	125,977

(a) From calendar year summary sheet of water sold/produced/purchased, provided by City in units of CCF.
(b) From the City's water audits, provided in Appendix E.

4.4 ESTIMATING FUTURE WATER SAVINGS

Water savings from codes, standards, ordinances, or transportation and land use plans, also known as passive savings, can decrease the water use for new and future customers. To be conservative, these potential "passive" water savings have not been included in the City's water demand projections. However, lower income residential demands are included in the City's water demand projections as detailed in Section 4.5.

4.5 WATER USE FOR LOWER INCOME HOUSEHOLDS

SB 1087 (2006) requires that water providers develop written policies prioritizing development that includes affordable housing to low income households. The demand projections shown in Table 4-2 include water use for single family and multi-family residential housing needed for low income households, as identified in the City's Housing Element.

A lower income household is defined as a household that has an income below 80 percent of the Area Median Income (AMI), adjusted for family size. According to the City Housing Element (2015-2023) adopted in April 2015, approximately 46 percent of City households are classified as Low, Very Low, or Extremely Low income as of 2010.[1]

Therefore, based on the 2010 housing data for the City, it is estimated that approximately 46 percent of the City's residential water demands are attributed to low income households. This proportion is assumed to remain constant in the future. The water demand projections for low income households are summarized in Table 4-6.

Table 4-6. Projected Water Demands for Lower Income Households[(a)]

Water Use Sector	2025	2030	2035	2040	2045
Single Family, MGD	0.64	0.64	0.65	0.66	0.66
Multi-Family, MGD	0.41	0.47	0.53	0.59	0.59
Total, MGD	**1.05**	**1.11**	**1.18**	**1.25**	**1.25**

(a) The City's Housing Element indicates that 46 percent of households in the City's service area are classified as low income. Single Family and Multi-Family demands from Table 4-2 were multiplied by 0.46 to estimate lower income household water demand.

4.6 CLIMATE CHANGE CONSIDERATIONS

The City's water demand and use patterns may be impacted by climate change. Changes to hydrology as a result of climate change could lead to changes in total water demand and use patterns. Increased irrigation (outdoor landscape or agricultural) is anticipated to occur with temperature rise, increased evaporative losses due to warmer temperature, and a longer growing season. In addition, climate change may increase the frequency and intensity of wildfires, which would increase the fire industry's water demands. The potential impacts of climate change on the City's water supplies are described in Chapter 6.

[1] San Bruno Housing Element 2015-2023 (Figure 2.3-2: Distribution of Households in San Bruno by Income [2010]), adopted April 14, 2015.

CHAPTER 5
SB X7-7 Baselines, Targets, and 2020 Compliance

In November 2009, SB X7-7, also known as the Water Conservation Act of 2009, was signed into law as part of a comprehensive water legislation package. The legislation addressed both urban and agricultural water conservation and set a goal of achieving a 20 percent statewide reduction in urban per capita water use by December 31, 2020 (i.e., "20 by 2020"). To meet the urban water use target required by SB X7-7, each retail supplier was required to determine its baseline water use, as well as its target water use for the year 2020. Water use is measured in gallons per capita per day (GPCD).

This chapter provides a review of the methodology the City used to calculate its baseline and its 2020 Urban Water Use Target (2020 Target). The City calculated baselines and targets on an individual reporting basis in accordance with SB X7-7 legislation requirements and DWR's *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use* (2016) (DWR's Methodologies).

This chapter demonstrates that the City has achieved its 2020 Target. Compliance with the urban water use target requirement is verified in the SB X7-7 2020 Compliance Form, which is included as Appendix F in this plan.

5.1 OVERVIEW AND BACKGROUND

The City's compliance with SB X7-7 was first addressed in its 2010 UWMP, in which the City determined its baseline per capita water use and established and adopted its urban water use targets for 2015 and 2020. Actual water use data and Department of Finance (DOF) population estimates were used to calculate GPCD water use.

SB X7-7 included a provision that an urban water supplier may update its 2020 Target in its 2015 UWMP and may use a different target method than was used in 2010. Also, the SB X7-7 methodologies developed by DWR in 2011 noted that water suppliers may revise population estimates for baseline years when the 2010 Census information became available. The 2010 Census data was not finalized until 2012. In its 2015 UWMP, the City updated its population, baselines, and targets to reflect 2010 Census data. The City demonstrated that it successfully achieved its 2015 interim target and confirmed its 2020 Target in its 2015 UWMP.

In this plan, the City verifies that it achieved its 2020 target per capita water use.

5.2 GENERAL REQUIREMENTS FOR BASELINE AND TARGETS

SB X7-7 required each urban water retailer to determine its baseline daily per capita water use over a 10-year or 15-year baseline period. The 10-year baseline period is defined as a continuous 10-year period ending no earlier than December 31, 2004 and no later than December 31, 2010. SB X7-7 also defined that for those urban water retailers that met at least 10 percent of their 2008 water demand using recycled water, the urban water retailers can extend the baseline GPCD calculation for a maximum of a continuous 15-year baseline period, ending no earlier than December 31, 2004 and no later than December 31, 2010. In FY 2008/09, the City delivered no recycled water; therefore, the City's baseline GPCD was calculated over a 10-year period. In its 2015 UWMP, the 10-year baseline period that the City selected was July 2000 through June 2010. This is the same 10-year baseline period reported in the City's 2010 UWMP.

SB X7-7 and DWR provided four different methods for calculating an urban water retailer's 2020 Target. Three of these methods are defined in CWC Section 10608.20(a)(1), and the fourth method was developed by DWR. The 2020 Target may be calculated using one of the following four methods:

- **Method 1**: 80 percent of the City's base daily per capita water use;
- **Method 2**: Per capita daily water use estimated using the sum of performance standards applied to indoor residential use; landscaped area water use; and commercial, industrial, and institutional uses;
- **Method 3**: 95 percent of the applicable State hydrologic region target as stated in the State's April 30, 2009, Draft 20x2020 Water Conservation Plan; or
- **Method 4**: An approach that considers the water conservation potential from: 1) indoor residential savings, 2) metering savings, 3) commercial, industrial and institutional savings, and 4) landscape and water loss savings.

The City selected Method 3 to calculate its 2020 Target in its 2015 UWMP.

Daily average water use is divided by the service area population to obtain baseline and target GPCD. In the 2015 UWMP, the City adjusted its baseline and target per capita water use to reflect its updated population estimates based on 2010 Census results. To calculate the City's 2020 compliance year per capita water use and compare it to the 2020 Target, the population is updated to reflect population estimates for 2020.

Details of determining the 2020 service area population and gross water use are provided in Sections 5.3 and 5.4, respectively. The City's baselines and targets are summarized in Section 5.5. The City's 2020 compliance water use is provided in Section 5.6.

5.3 SERVICE AREA POPULATION

To correctly calculate its compliance year GPCD, the City must determine the population that it served in 2020. At the time of preparation of this plan, the 2020 Census results were unavailable. However, the potential difference between the estimates provided here and the eventual final 2020 Census results is not believed to impact the fundamental conclusions of meeting SB X7-7 requirements.

Since the City's water service boundary is generally contiguous with City limits, as previously discussed in Chapter 3, population data from the DOF for the City of San Bruno is valid for use as the City's service area population. The DOF uses U.S. Census data, combined with changes to the housing stock, estimated occupancy of housing units, and the number of persons per household to estimate annual population within jurisdictional boundaries. The DOF 2020 population estimate for the City is 45,257[1].

[1] From Report E-4 Population and Housing Estimates for Cities, Counties, and the State, 2011-2020, with 2010 Benchmark obtained from the State of California, Department of Finance on May 14, 2020.

5.4 GROSS WATER USE

Annual gross water use, as defined in CWC Section 10608.12 (h), is the water that enters the City's distribution system over a 12-month period (fiscal year) with certain exclusions. This section presents the City's 2020 annual gross water use, in accordance with DWR's Methodologies document.

The City's gross water use is based on the metered quantity of water purchased from SFPUC and NCCWD, and pumped from its groundwater wells. Annual gross water use for the baseline periods are provided in the City's 2015 UWMP. The City's actual gross water use for FY 2019/20 is 3.12 MGD, as presented in Chapter 4 of this plan.

5.5 BASELINES AND TARGETS SUMMARY

Annual gross water use is divided by annual service area population to calculate the annual per capita water use for each year in the baseline periods. As discussed in Section 5.1, the City updated its population data, adjusted its baseline, and confirmed its 2020 Target in its 2015 UWMP. The City's 10-year base daily per capita water use is 98 GPCD. Using Method 3 for 2020 Target calculation as described in Section 5.2, the City's confirmed 2020 compliance target is 124 GPCD. The City's baseline and 2020 Target are summarized in Table 5-1.

Table 5-1. Baselines and Targets Summary

Baseline Period	Start Year, FY Ending	End Year, FY Ending	Average Baseline GPCD	Confirmed 2020 Target[(a)]
10 - 15 Year	2001	2010	98	124
5 Year	2006	2010	94	

(a) The 2020 Target must be at least a 5 percent reduction from the 5-year Baseline GPCD, unless the 5-year Baseline GPCD is less than 100 GPCD, which it is for the City. Therefore, the minimum 5 percent reduction does not apply to the City.

5.6 2020 COMPLIANCE DAILY PER CAPITA WATER USE

The City's 2020 population and gross water use are presented in Sections 5.3 and 5.4, respectively. The City calculated its actual daily per capita water use for the 2020 fiscal year in accordance with DWR's Methodologies document. As shown in Table 5-2, the City's urban per capita water use in FY 2019/20 was 69 GPCD, which is well below the confirmed 2020 Target of 124 GPCD. Therefore, the City has met its 2020 final water use target. The complete set of SB X7-7 compliance tables is included in Appendix F.

Table 5-2. 2020 Compliance

Actual 2020 GPCD	2020 Total Adjustments	Adjusted 2020 GPCD	2020 Confirmed Target GPCD	Did Supplier Achieve Targeted Reduction for 2020?
69	0	69	124	Yes

As detailed in DWR's Methodologies document, adjustments are allowed that can be made to an agency's gross water use in 2020 for unusual weather, land use changes, or extraordinary institutional water use. The City has elected not to make the adjustments allowed by CWC Section 10608.24 because these exceptions are not needed to demonstrate compliance with SB X7-7 for 2020. When compared to baseline years, 2020 water use in the City's service area shows a significant reduction as a result of continued water conservation efforts by the City and its customers.

5.7 REGIONAL ALLIANCE

The City has chosen to comply with the requirements of SB X7-7 on an individual basis. The City has elected not to participate in a regional alliance.

CHAPTER 6
Water Supply Characterization

This chapter describes and reviews the sources of water that may be available to the City. Supply sources such as supplies from other agencies, groundwater, surface water, stormwater, wastewater and recycled water, desalinated water, and exchanges or transfers are discussed below. The origin of the water supply, water quality, and quantity, as well as the anticipated actions to meet future demands for each water source are discussed. The City currently utilizes water from the following sources:

- Wholesale treated surface water from the City and County of San Francisco's Regional Water System (RWS), operated by the SFPUC, served through four connections to the City's system
- Retail treated surface water purchased from NCCWD
- Local groundwater from the Westside Groundwater Basin

The following sections describe each of these sources and quantify the historical, current, and projected availability of water from each source. Constraints that may affect water supply reliability are discussed in Chapter 7.

6.1 PURCHASED OR IMPORTED WATER

The City purchases treated surface water from SFPUC and NCCWD. The City's treated surface water supply is delivered through the RWS, and originates from the Tuolumne River and the Alameda County and Peninsula watersheds. Water from SFPUC is purchased in accordance with the 2018 Amended and Restated Water Supply Agreement (WSA) between SFPUC and its wholesale customers. Water purchased from NCCWD is also from the RWS, but is delivered to the City via NCCWD's system, and is used exclusively to meet the demands of the City's Crystal Springs Terrace Apartment complex. In recent years, approximately 90 percent of the City's water supply has been from the SFPUC and NCCWD.

6.1.1 SFPUC Regional Water System

6.1.1.1 SFPUC Regional Water System Overview

The City and County of San Francisco's RWS, operated by SFPUC, is predominantly supplied from runoff and snowmelt from the Sierra Nevada delivered through the Hetch Hetchy aqueducts, but also includes treated water produced by SFPUC from its local watersheds and facilities in Alameda and San Mateo counties.

The amount of imported water available to SFPUC's retail and wholesale customers is constrained by hydrology, physical facilities, and the institutional parameters that allocate the water supply of the Tuolumne River. Due to these constraints, the SFPUC is very dependent on reservoir storage to increase the reliability of its water supplies.

Detailed information on SFPUC's supply sources is provided in SFPUC's 2020 UWMP.

6.1.1.2 Individual Supply Guarantee

San Francisco has a perpetual commitment (Supply Assurance) to deliver 184 MGD to the 24 permanent Wholesale Customers collectively. San Jose and Santa Clara are not included in the Supply Assurance commitment and each has temporary and interruptible water supply contracts with San Francisco. The Supply Assurance is allocated among the 24 permanent Wholesale Customers through Individual Supply

Guarantees (ISG), which represent each Wholesale Customer's allocation of the 184 MGD Supply Assurance. The City's ISG is 3.25 MGD.

6.1.1.3 2018 Amended and Restated Water Supply Agreement

The business relationship between SFPUC and its wholesale customers is largely defined by the WSA between SFPUC and wholesale customers in Alameda County, San Mateo County and Santa Clara County. In July 2009, the WSA replaced the Settlement Agreement and Master Water Sales Contract that expired in June 2009, and in 2018, an Amended and Restated WSA was adopted. The WSA addresses the rate-making methodology used by SFPUC in setting wholesale water rates for its wholesale customers and includes a Water Shortage Allocation Plan (WSAP) that describes the method for allocating water from the RWS between Retail and Wholesale Customers during system-wide shortages of 20 percent or less. The WSAP, also known as the Tier One Plan, was amended in the 2018 Amended and Restated WSA. The Wholesale Customers' share is apportioned among the individual Wholesale Customers based on a separate methodology adopted by the Wholesale Customers, known as the Tier Two Plan. The Tier Two Plan, which initially expired in 2018, has been extended by the BAWSCA Board of Directors every year since for one additional calendar year. In November 2020, the BAWSCA Board voted to extend the Tier Two Plan through the end of 2021. The 2018 Amended and Restated WSA is provided in Appendix G.

Additional discussion of the Tier One and Tier Two drought allocation plans is provided in Chapter 7.

6.1.1.4 2028 SFPUC Decisions

In the 2009 WSA, SFPUC committed to make three decisions before 2018 that affect water supply development:

- Whether or not to make the cities of San Jose and Santa Clara permanent customers
- Whether or not to supply the additional unmet supply needs of the Wholesale Customers beyond 2018
- Whether or not to increase the wholesale customer Supply Assurance above 184 MGD

However, SFPUC was not able to conduct the necessary water supply planning and California Environmental Quality Act (CEQA) analysis required to make these three decisions before 2018. Therefore, in the 2018 Amended and Restated WSA, the decisions were deferred for 10 years to 2028.

Additionally, there have been recent changes to instream flow requirements and customer demand projections that have affected water supply planning beyond 2018. As a result, SFPUC has established an Alternative Water Supply Planning program to evaluate several regional and local water supply options. Through this program, SFPUC will conduct feasibility studies and develop an Alternative Water Supply Plan by July 2023 to support the continued development of water supplies to meet future needs.

Additional discussion of SFPUC's future planned programs and studies is provided in Chapter 7.

6.1.1.5 Bay Area Water Supply and Conservation Agency

The City is a member of BAWSCA. BAWSCA was created on May 27, 2003 to represent the interests of the 26 cities, water districts, and private utilities in Alameda, Santa Clara and San Mateo counties that purchase water on a wholesale basis from the RWS.

BAWSCA is the only entity having the authority to directly represent the needs of the cities, water districts and private utilities (wholesale customers) that depend on the RWS. BAWSCA provides the ability for the customers of the RWS to work with San Francisco on an equal basis to ensure the water system gets fixed, and to collectively and efficiently meet local responsibilities.

BAWSCA has the authority to coordinate water conservation, supply and recycling activities for its members; acquire water and make it available to other agencies on a wholesale basis; finance projects, including improvements to the RWS; and build facilities jointly with other local public agencies or on its own to carry out the agency's purposes.

6.1.2 NCCWD

Water purchased from the NCCWD is also from the RWS, but is delivered to the City via NCCWD's system, and is used exclusively to meet the demands of the Crystal Springs Terrace Apartments, located in the City's Pressure Zone 13.

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

The City purchases approximately 0.05 MGD of water from the NCCWD. This water is served from the Crystal Springs turnout in Pressure Zone 13. The City does not anticipate any changes to its NCCWD water supply in the near future. The water purchased from NCCWD originates from the RWS and is characterized and subject to the same overview as the SFPUC imported supply discussed above.

6.2 GROUNDWATER

Local groundwater supply for the City is from the Westside Basin, which is used by the cities of San Bruno, Daly City, and South San Francisco.[1] The City operates multiple production wells that extract groundwater from the central portion of the 40 square mile Westside Basin (i.e., Basin 2-35, as defined by DWR). The City has used groundwater as a source of supply since the early 1900s. Prior to 2016, groundwater use comprised about 50 percent of the City's total water supply. In 2016, the City reduced its use of groundwater in accordance with the Regional Groundwater Storage and Recovery Project (Regional GSR). The Regional GSR Project is discussed further in Section 6.2.2.3.

The following sections provide a description of the hydrogeology and conditions within the Westside Basin and current management efforts within the Westside Basin.

[1] The northern portion of the Westside Basin is managed by SFPUC.

6.2.1 Groundwater Basin Description

6.2.1.1 Westside Basin Description

The City overlies the central portion of the 40 square mile Westside Basin[2]. The Westside Basin consists of unconsolidated colluvium that was deposited in a northwest trending trough in the underlying impervious bedrock. The Westside Basin is bounded by bedrock highs in Golden Gate Park to the north and at Coyote Point to the south (Rogge, 2003; Yates, 2003; DWR, 2003). San Bruno Mountain and San Francisco Bay form the eastern boundary of the Westside Basin, while the Serra Fault[3] and the Pacific Ocean form the western boundary (Rogge, 2003; Yates, 2003; DWR, 2003). Adjoining groundwater basins are the Lobos Basin to the north and the San Mateo Plain Aquifer to the south.

The Westside Basin has been separated into two distinct areas for management purposes. These two areas have been defined as the North Westside Basin Area and the South Westside Basin Area. The City is located within the South Westside Basin Area. The approximate boundaries of the South Westside Basin are shown on Figure 6-1. The South Westside Basin has not been adjudicated. Further discussion regarding aquifer conditions in the South Westside Basin are provided below.

6.2.1.2 Aquifer Conditions and Properties of the South Westside Basin

The Merced Formation and Colma Formation are the major unconsolidated units in the South Westside Basin and are the primary sources of groundwater. These formations were deposited on top of the Franciscan Formation, which forms the basement underlying these unconsolidated sediments. The deepest portions of the basin are in the northwest. Water bearing formations are thin in the areas of Millbrae and Burlingame. Water bearing formations are also thin near San Francisco Bay due to a bedrock ridge that extends in a north-south orientation near San Francisco International Airport. This ridge, along with surficial deposits of Bay Mud in these areas, reduces the potential for sea water intrusion (RMC, 2011).

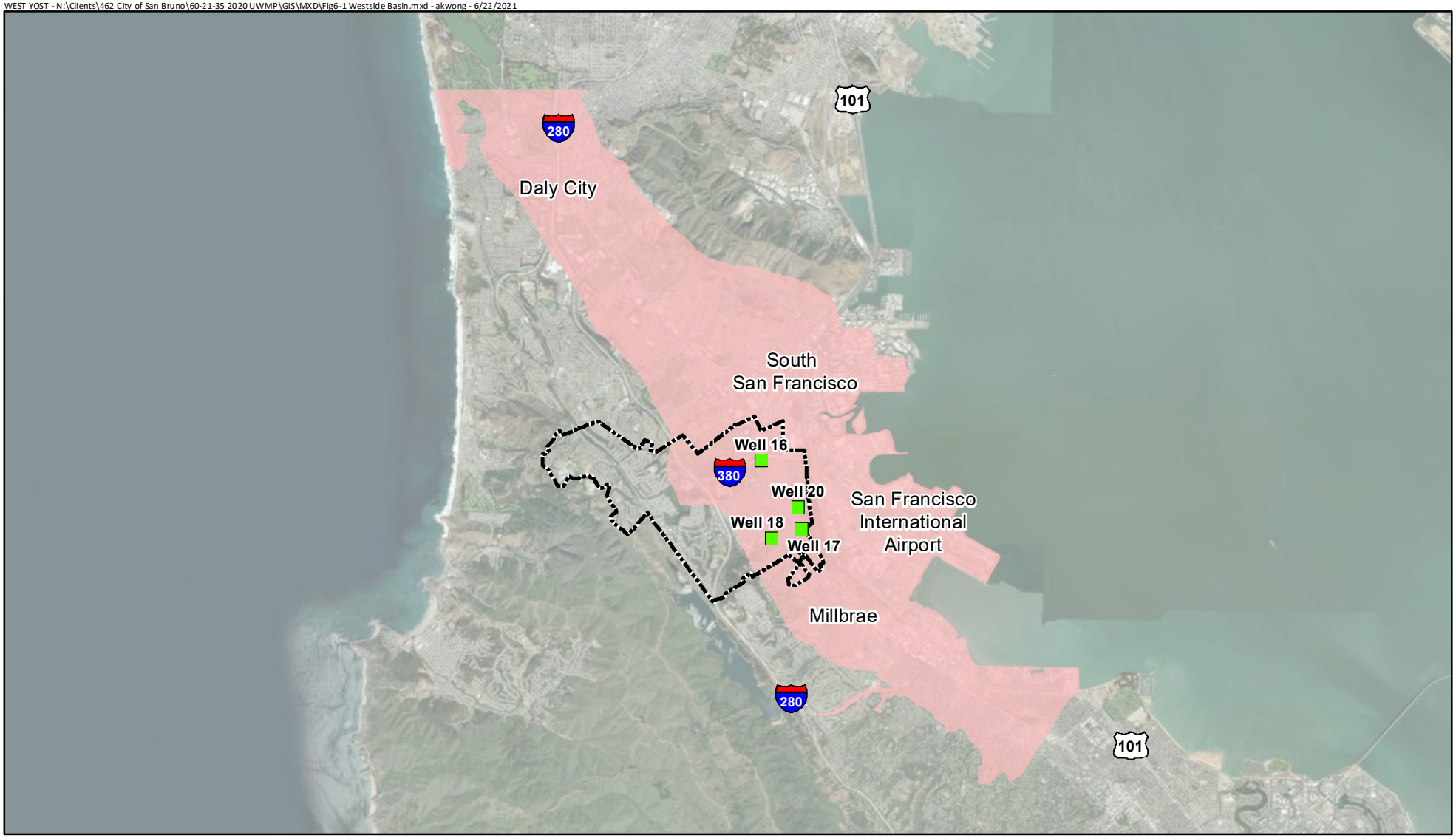
Within the two major water bearing zones in the South Westside Basin, there are multiple smaller aquifer zones that are delineated vertically by different sand and clay layers within the Merced and Colma formations. As discussed above, the thickness and extent of these interbedded sand and clay layers vary spatially throughout the South Westside Basin.

All of the municipal groundwater extraction wells in the City, South San Francisco, and Daly City are screened in the deeper, confined Merced aquifer where the water quality is better. Shallow wells have been installed within the Colma Formation, typically to monitor groundwater in the vicinity of chemical release sites. Steep downward vertical gradients exist between the unconfined (upper) and confined (deeper) aquifers, but the hydraulic connection between the two aquifers is thought to be limited (Yates, 2003a; Luhdorff & Scalmanini, 2002).

[2] A description of the Westside Basin provided in California's Bulletin 118 was updated in 2006. In this update, DWR states that presently not enough data exists to provide either an estimate of the Westside Basin's groundwater budget or the groundwater extraction from the basin. Additional references, as identified herein, have been reviewed and used to evaluate the conditions within the basin.

[3] The Serra Fault is a series of thrust faults parallel to the San Andreas Fault in the Coast Ranges (Rogge, 2003).

WEST YOST - N:\Clients\462 City of San Bruno\60-21-35 2020 UWMP\GIS\MXD\Fig6-1 Westside Basin.mxd - akwong - 6/22/2021



City Limits

Active Groundwater Wells

South Westside Groundwater Basin

N

0 1 2

Scale in Miles

WEST YOST

Figure 6-1

South Westside Groundwater Basin

City of San Bruno

2020 Urban Water Management Plan

Historically, groundwater within the South Westside Basin generally flowed toward pumping centers within the City, Daly City, and South San Francisco. Groundwater extraction has created significant depressions in the water table and water levels are more than 100 feet below sea level in the southern portion of the South Westside Basin. However, annual groundwater monitoring indicates that 2019 groundwater elevations in the South Westside Basin have been stable or trending higher than in previous years, largely because of the Regional GSR Project (SFPUC, April 2020).

Water levels within the drinking water aquifers of the South Westside Basin are depressed well below sea level in many areas (SFPUC, April 2020). Relatively thick bay mud deposits and a buried bedrock ridge within 50 to 300 feet of the ground surface provide protection from seawater intrusion from San Francisco Bay. To date, City drinking water wells have not shown any impacts from seawater intrusion, although the basin is considered at risk for seawater intrusion according to the South Westside Basin Groundwater Management Plan (GWMP). While the extent and nature of potential connections between the drinking water within the South Westside Basin and San Francisco Bay are not well understood, available data indicate that such connections could exist and seawater intrusion could occur given groundwater levels are below sea level. The City has a saltwater intrusion monitoring program for portions of the South Westside Basin near the City. The City's program complements efforts by the City of Daly City to monitor saltwater intrusion in the South Westside Basin. Both programs are aimed at protecting groundwater quality in the South Westside Basin to assure the reliability of future supplies. Monitoring well clusters have been installed in areas near the Bay where the depth to the bedrock ridge is the deepest. These wells provide water level and water quality data.

6.2.1.3 Basin Water Budget Analysis

According to the GWMP (described in Section 6.2.2.1 below), the South Westside Basin is in slight overdraft, resulting in a declining volume of storage. However, change of storage is within the margin of error associated with the data. Given the uncertainties and less than 2 percent change in storage, the GWMP concludes that the basin should be considered in balance.

6.2.2 Groundwater Management and Sustainability

6.2.2.1 South Westside Basin Groundwater Management Plan

In 2006, the City received a grant from DWR's Local Groundwater Assistance fund to develop a GWMP for the southern portion of the Westside Basin, which extends from Daly City to Burlingame (South Westside Basin). Municipalities that overlie the South Westside Basin include Daly City, Colma, South San Francisco, San Bruno, Millbrae and Burlingame. Groundwater within this portion of the basin generally flows toward pumping centers within Daly City, San Bruno and South San Francisco.

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

The goal of the GWMP is to ensure a sustainable, high quality, reliable water supply at a fair price for beneficial uses achieved through local groundwater management. The GWMP provides steps for monitoring water quality and quantity in the basin. Each groundwater well in the basin has defined triggers for overdraft, seawater intrusion, and various water quality measures. The GWMP identifies two levels of trigger thresholds for each groundwater well based on historical water levels, and actions to address the trigger that is met.

The GWMP indicates that the South Westside Basin is not in overdraft, and that the City can sustain a groundwater production rate of 2.1 MGD on a long-term basis. While not anticipated, groundwater production could be limited if local monitoring wells detect overdraft is occurring in the vicinity of the City's wells.

6.2.2.2 Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act of 2014 (SGMA), a three-bill legislative package composed of AB 1739 (Dickinson), SB 1168 (Pavley), and SB 1319 (Pavley), was passed in September 2014. The legislation provides a framework for sustainable management of groundwater supplies by local authorities, with a limited role for state intervention when necessary to protect the resource. The legislation lays out a process and a timeline for local authorities to achieve sustainable management of groundwater basins. It also provides tools, authorities and deadlines to take the necessary steps to achieve the goal. For local agencies involved in implementation, the requirements are significant and can be expected to take years to accomplish. The State Water Resources Control Board may intervene if local agencies do not form a Groundwater Sustainability Agency (GSA) and/or fail to adopt and implement a Groundwater Sustainability Plan (GSP).

The SGMA implementation steps and deadlines are shown in Table 6-1.

Table 6-1. Sustainable Groundwater Management Act Implementation Steps and Deadlines

Implementation Step	Implementation Measure	Deadline(s)
Step One	Local agencies in high-priority and medium-priority basins must form local GSAs within two years	Completed June 30, 2017
Step Two	Agencies in basins deemed high- or medium-priority must adopt GSPs within five to seven years, depending on whether a basin is in critical overdraft	Completed January 31, 2020 for critically overdrafted basins
		January 31, 2022 for high- and medium-priority basins not currently in overdraft
Step Three	Once GSPs are in place, local agencies have 20 years to fully implement them and achieve the sustainability goal	January 31, 2040 for critically overdrafted basins
		January 31, 2042 for high- and medium-priority basins not currently in overdraft

SGMA applies to basins or subbasins designated by the DWR as high or medium priority basins, based on a statewide ranking that uses criteria including population and extent of irrigated agriculture dependent on groundwater. The SGMA 2019 Basin Prioritization findings indicate that 94 of California's 515 groundwater basins and subbasins are high and medium priority basins (DWR, 2020). These high and medium priority basins, in combination with existing adjudicated areas, account for 98 percent of California's annual groundwater pumping and supply 83 percent of the population which resides over the groundwater basins (DWR, 2020). The Westside Basin has been ranked as a Very Low priority basin, as shown in Table 6-2. As a Very Low priority basin, the Westside Basin users are not mandated to form a GSA or develop a GSP at this time.

Table 6-2. Groundwater Basin Prioritization for Sustainable Groundwater Management Act[(a)]

Basin Number	Basin Name	Overall Basin Ranking Score	Overall Basin Priority
2-35	Westside	0	Very Low

(a) Department of Water Resources, May 2020, Sustainable Groundwater Management Act 2019 Basin Prioritization.

6.2.2.3 Regional Groundwater Storage and Recovery Project

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

The Regional GSR Project is an in-lieu groundwater recharge program that balances groundwater and RWS surface water supply to increase drought year water supplies. As a participant, the City has two supply modes. During wet and average years, (termed 'put' years, when in-lieu groundwater banking occurs), water from the RWS is delivered to the City, which reduces the City's need to pump groundwater and allows the basin to naturally recharge and store additional water supply. The amount of additional surface water delivered in-lieu of groundwater will be "banked" by SFPUC until it is needed during a drought or emergency. In dry years (termed 'take' years), the City will maximize its use of groundwater and supplement with surface water and SFPUC "banked" groundwater supply, as needed.

Each year, SFPUC will notify the City if SFPUC will be providing additional surface water supplies to offset the City's groundwater pumping. The City retains its full 2.1 MGD groundwater right, but a portion of that water right may be fulfilled by SFPUC in-lieu surface water. The City implemented the Regional GSR Project conjunctive use operations starting in 2016.

Imported water supply from SFPUC may also partially consist of groundwater during dry years. Under Phase 1 of the Regional GSR Project, 13 new groundwater production well facilities have been constructed in Northern San Mateo County. These new well facilities are connected to the SFPUC transmission system and may pump "banked" groundwater and deliver it as part of the SFPUC supply. Phase 2 of the Regional GSR Project includes the construction of three test wells, completion of the South San Francisco Main well and pipeline, and the installation of chemical system monitoring, sampling, and storage at various sites. Phase 2 is projected to be complete in 2022 (SFPUC, May 2020).

6.2.3 Historical Groundwater Use

Historical groundwater pumped from FY 2015/16 through FY 2019/20 is shown in Table 6-3. The City currently operates four groundwater wells. As shown in Table 6-3, prior to 2016, groundwater use comprised about 50 percent of the City's total water supply. In 2016, the City reduced its use of groundwater to about 10 percent of its total water supply in accordance with the Regional GSR Project.

Table 6-3. Groundwater Volume Pumped by the City

Water Source	Volume of Water Pumped, MGD					Average, MGD	Average, CCF
	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20		
South Westside Groundwater Basin, DWR Basin 2-35	1.63	0.27	0.32	0.29	0.23	0.55	267,406
Groundwater as a Percentage of Total Supply	53.6%	9.3%	10.5%	9.7%	7.4%	18.1%[a]	
						9.2%[b]	

(a) Average groundwater as a percentage of total supply from FY 2015/16 to FY 2019/20.
(b) Average groundwater as a percentage of total supply from FY 2016/17 to FY 2019/20 (i.e., after the City reduced its use of groundwater in accordance with the Regional GSR Project).

6.2.4 Projected Groundwater Use

The City intends to use its groundwater wells to meet as much of the City's future demands as possible without negatively impacting groundwater quality or sustainability of the aquifer. The quantity of groundwater available to the City will depend on multiple factors, including groundwater quality, potential effects on sea water intrusion, and the implementation of the Regional GSR Project.

Currently, groundwater continues to remain a reliable source of water supply to the City. The GWMP indicates that the South Westside Basin is not in overdraft, and that the City can sustain a groundwater production rate of 2.1 MGD on a long-term basis. As discussed above, the GWMP has triggers and mitigation measures if overdraft is detected in the basin. While not anticipated, groundwater production could be limited if local monitoring wells detect overdraft is occurring in the vicinity of the City's wells.

The City's projected maximum groundwater production from FY 2024/25 to FY 2044/45 in five-year increments is provided in Table 6-4. During 'put' years, the City will maximize surface water deliveries and reduce use from its wells. It should be noted that the City retains its full 2.1 MGD groundwater right, but a portion of that water right may be fulfilled by SFPUC in-lieu surface water.

Table 6-4. Projected Groundwater Production During 'Take' Years[a]

Water Source	FY 2024/25	FY 2029/30	FY 2034/35	FY 2039/40	FY 2044/45
Groundwater Production, MGD	2.10	2.10	2.10	2.10	2.10
Groundwater Production, CCF	1,024,733	1,024,733	1,024,733	1,024,733	1,024,733

(a) In 'put' years, a portion or all of the City's groundwater production may be offset by SFPUC surface water for in-lieu banking (see Section 6.2.2.3).

As shown in Table 6-4, the City projects future groundwater production at its current rate during 'take' years. However, the City is evaluating whether it can increase its production of groundwater to a rate of 2.7 MGD, which is consistent with a historical maximum annual production rate. The City will coordinate with other basin users to ensure the groundwater basin is managed sustainably and in a manner consistent with the consensus driven basin yield analysis based on the GWMP.

It should be noted that the SFPUC imported water supply may also partially consist of groundwater during dry years. Under the Regional GSR Project, new groundwater production well facilities are proposed in Northern San Mateo County. Up to 16 new groundwater well facilities would be constructed at 16 of the 19 proposed sites. These new well facilities would be connected to Daly City, San Bruno and/or Cal Water's water distribution systems and may pump "banked" groundwater and deliver it as part of the SFPUC supply.

6.3 SURFACE WATER

The City does not have any self-supplied surface water. As described in Section 6.1, the City is supplied treated surface water from SFPUC and NCCWD, whose supplies come from Sierra Nevada runoff and snowmelt, as well as water produced from local watersheds in Alameda and San Mateo counties.

6.4 STORMWATER

In 1989, Congress passed amendments to the Clean Water Act requiring states to address the increasing problem of stormwater pollution entering storm drains. The State of California requires a National Pollutant Discharge Elimination System (NPDES) permit to regulate stormwater discharges. The San Mateo County Water Pollution Prevention Program (SMCWPPP) was adopted by San Mateo County to share stormwater pollution prevention tasks among its cities. The SMCWPPP includes a stormwater management plan that consists of five major pollution prevention and control sections. The major pollution prevention and control sections are summarized below:

- Municipal maintenance activities: Reduce pollutant load into waterways through street sweeping, cleaning catch basins and storm lines, and removing material from drainage channels
- Industrial & illicit discharge: Control the releases of pollutants or non-stormwater to the storm drain system through response to calls from the public or discovered incidents in the field
- Public information/ participation: Inform the general public on what causes stormwater pollution and what simple things can be done to prevent pollutants from entering storm drains

- New development and construction: Inform contractors of the Best Management Practices (BMPs) required on all construction projects to address pollution during construction projects, including sediment and erosion control
- Watershed monitoring: Conduct special scientific studies in order to determine effective prevention techniques

Stormwater can be beneficially reused as a water supply source to meet local water supply demands. Beneficial reuses include blending with other water supplies for groundwater recharge, redirecting it into constructed wetlands or landscaping, and diverting it to a treatment facility for subsequent reuse. However, currently, the City does not have capability or plans to collect stormwater for use as a water supply.

The City's Streets and Stormwater Division of the Public Works Department is responsible for the maintenance of all of the City's storm drains and inlets throughout its 88.5 miles of streets.

6.5 WASTEWATER AND RECYCLED WATER

Recycling water involves treating wastewater to an acceptable level such that it can be reused for irrigation, cooling, and other non-potable applications. The regulatory requirements for recycled water are defined in the California Code of Regulations, Title 22, Article 3. In 2009, the City participated in a feasibility study examining the potential uses of recycled water in the San Bruno and South San Francisco area. The following sections describe these efforts to evaluate potential costs and benefits from recycled water and include a description of the City's wastewater treatment facilities, current and projected wastewater flows, and potential recycled water use.

6.5.1 Coordination

The City coordinates with adjacent municipalities, and water and wastewater agencies in managing its wastewater and studying potential recycled water uses in the area. Wastewater treatment is coordinated with the City of South San Francisco at a joint water quality control plant located in South San Francisco. Wastewater disposal is coordinated with South San Francisco, Burlingame, and Millbrae as effluent from all four cities is discharged together into the San Francisco Bay. Joint efforts to study the potential use of recycled water include coordination between San Bruno, South San Francisco, Cal Water, and SFPUC. These efforts are described in further detail below.

6.5.2 Wastewater Collection, Treatment, and Disposal

Wastewater collected by the City is treated at the South San Francisco-San Bruno Water Quality Control Plant (WQCP). The City meters its sewer collection system, and the volume of wastewater collected within the City during FY 2019/20 was 2.15 MGD.

6.5.2.1 Wastewater Collected Within Service Area

The City operates and maintains the wastewater collection system that conveys wastewater from San Bruno to a City of South San Francisco interceptor. The City system includes gravity pipelines, lift stations and force mains.

6.5.2.2 Wastewater Treatment and Disposal

The South San Francisco-San Bruno WQCP, located outside of the City's water service area, is a Class IV secondary treatment plant with activated sludge and aerobic biodegradation. The WQCP has a dry-weather flow design capacity of 13.0 MGD and a peak wet-weather flow design capacity of 61.8 MGD. Treatment processes at the WQCP include:

- Preliminary bar screens and grit chambers to remove rags, towels, paper, grit, sand, etc.;
- Primary clarifiers to remove grease, floatable and settleable solids;
- Secondary (activated sludge) treatment to remove dissolved organic matter by aerobic biochemical oxidation;
- Disinfection (chlorination) to kill pathogenic micro-organisms with sodium hypochlorite;
- Dechlorination to neutralize excess chlorine with sodium bisulfite; and
- Sludge (bio-solids) stabilization through anaerobic digestion at 95-98º F for an average of about 50 days (approximately 65,000 gallons per day).

Effluent from the WQCP is discharged into the San Francisco Bay through the North Bayside System Unit Outfall. Bio-solids are trucked to the Vasco Road Landfill in Livermore (approximately 35 tons per day), and methane gas produced by digesters during the sludge stabilization process is used to generate heat and electricity. The electricity generated from the digester gas meets one third of the WQCP's total electricity demand.

6.5.2.3 Wastewater Quantity and Current Uses

The City owns WQCP capacity rights to an average dry weather flow of 3.8 MGD. Since 1996, the City's dry weather flows have ranged from 2.15 MGD to 3.30 MGD. On average, the City's wastewater flows are equal to approximately 76 percent of total water consumed by the City. In FY 2019/20, the total volume of wastewater collected in the City's service area was approximately 2.15 MGD. The City does not produce wastewater that meets Title 22 standards for tertiary disinfected recycled water and does not currently use the WQCP's secondary disinfected effluent for beneficial uses (see results from the Recycled Water Feasibility Study discussed below).

6.5.3 Recycled Water System Description

The City does not currently have a recycled water system and does not intend to develop one, as described below.

6.5.4 Potential, Current, and Projected Recycled Water Uses

6.5.4.1 Potential Recycled Water

Accepted uses of recycled water are outlined by Title 22. These uses include specific types of irrigation, impoundment, cooling and air conditioning, and other uses such as groundwater recharge, dust control, and flushing toilets and urinals. All of the activities identified are allowed for disinfected, tertiary treated recycled water. A smaller subset of these activities is permitted for use with disinfected, secondary treated recycled water.

In 2009, a consortium of agencies with interests in the South San Francisco and San Bruno area developed a Recycled Water Feasibility Study (Feasibility Study) evaluating the feasibility of implementing a recycled water treatment and distribution system. The Feasibility Study compared decentralized treatment alternatives with the more traditional centralized treatment and distribution approach, and included the identification and screening of potential customers, analysis of water quality suitability, and preliminary project cost estimates.

The study area for the Feasibility Study encompassed the cities of South San Francisco, San Bruno, Brisbane and Colma. Overall, 106 potential recycled water customers were identified and separated into nine groupings based on customer location, potential quantity of recycled water use, and type of use (irrigation or commercial/industrial). Two of these groupings, the "South San Bruno Cluster" and the "West San Bruno Cluster" were identified within the City's service area and estimated to have a potential average annual recycled water use of 0.15 MGD and 0.14 MGD, respectively. Irrigation uses accounted for approximately 80 percent of the projected recycled water use over the entire study area.

Fifteen different alternatives were evaluated within the Feasibility Study. Each alternative included different variations of customer groupings, treatment technologies and wastewater sources (including disinfected secondary effluent from the South San Francisco-San Bruno WQCP, Burlingame/Millbrae secondary effluent, North Bayside System Unit Outfall secondary effluent, raw wastewater from a scalping plant, and blended with Crestmoor Creek water).

The City's (and other groupings') large percentage of potential recycled water use for irrigation had two major impacts on project feasibility:

- Because most irrigation occurs during an eight- or nine-hour period during the night-time hours, the distribution system must have the capacity to supply all of the irrigation users' daily use during an eight-hour period; and
- Since irrigation is unnecessary during the rainy season, the recycled water system is underutilized during the winter and spring months.

The preferred alternative recommends centralized treatment at the South San Francisco-San Bruno WQCP. Infrastructure to reach potential recycled water customers would be constructed in five phases, with the West San Bruno Cluster as Phase 5. The Feasibility Study estimates a cost of $8,823/AF for Phase 5, compared to $1,923/AF for Phase 1. The high cost of Phase 5 is due to the relative high amount of infrastructure requirements compared to the low projected recycled water demand, whereas Phase 1 is located in the vicinity of the WQCP. The total cost of the preferred alternative is projected at approximately $94 million dollars. In total, the preferred alternative is expected to offset only 0.14 MGD of potable water for the City, if implemented. Based on these results, recycled water is not a cost-effective water supply source for the City within the foreseeable future.

6.5.4.2 Projected Recycled Water

Based on the results of the Feasibility Study described above, the City has not included recycled water projects, or actions to encourage recycled water use, in this UWMP. However, the City does view an expansion of its water supply portfolio to include recycled water as potentially desirable, if not necessarily equivalent on a cost basis to potable water, due to the additional water supply reliability such a recycled water supply would provide the City. As a result, depending upon future water supplies, the City will continue to consider the option of implementing a recycled water program as one method of

diversifying and augmenting its water supply. Additionally, if economic factors change in the future such that recycled water is more cost-effective, the City could further evaluate the cost-effectiveness of a recycled water program.

The City of South San Francisco has begun assessing potential upgrades to the WQCP to produce recycled water. The City is listed as a potential consumer of recycled water to irrigate City parks, but the City currently does not have a strong interest in recycled water due to high costs.

6.6 DESALINATED WATER

Desalination is a process that removes dissolved minerals from seawater, brackish water or treated wastewater. At this time, the City is not contemplating development of a desalinated water program, because desalinated water is not deemed economically feasible for the City.

6.7 EXCHANGES AND TRANSFERS

Though the SFPUC WSA does permit water transfers, the City does not presently anticipate the need for water transfers during normal year conditions, other than the water that it purchases from NCCWD. However, should that condition change in the future, it is possible that the City could purchase water from another BAWSCA agency.

In the event that the City should need additional water in a future drought, the Drought Implementation Plan allows for voluntary transfers of shortage allocations between SFPUC and any wholesale customer and between wholesale customer agencies. Additionally, water "banked" by a wholesale customer, through reductions in usage greater than required, may also be transferred. In addition to the five turnouts to the SFPUC RWS and the NCCWD water system (described in Chapter 3), the City has additional connections available for use during emergency situations. These connections include two NCCWD emergency interties and one Cal Water South San Francisco District emergency intertie.

6.8 FUTURE WATER PROJECTS

As described in Section 6.2.2.3 above, the Regional GSR Project is ongoing and is intended to ensure long-term management and sustainability of the South Westside Basin. As indicated above, the City does not have any planned future recycled water projects.

6.9 SUMMARY OF EXISTING AND PLANNED SOURCES OF WATER

As described in Section 6.2.2.3, the City has two supply modes. During wet and average years ('put' years), additional surface water is delivered to the City by the SFPUC, in-lieu of the City pumping groundwater. During drought years ('take' years), the City will maximize its use of groundwater and supplement with surface water to minimize the use of SFPUC surface water. A summary of the City's existing sources of water during 'put' years and 'take' years is provided in Table 6-5 and compared with actual FY 2019/20 water use.

Table 6-5. Current Water Supply

Water Source	Available During 'Put' Years	Available During 'Take' -Years	FY 2019/20 Actual
SFPUC[(a)], MGD	5.35	3.25	2.86
NCCWD[(b)], MGD	0.05	0.05	0.03
Groundwater, MGD	0.00	2.10	0.23
Total Water Supply, MGD	**5.40**	**5.40**	**3.12**
Total Water Supply, CCF	**2,635,027**	**2,635,027**	**1,523,986**

(a) SFPUC imports are limited by the City's Individual Supply Guarantee. It is assumed that up to 2.1 MGD of in-lieu surface water will be available from SFPUC in average 'put' years, as part of the Regional GSR Project.
(b) NCCWD purchases are governed by the Intertie and Water Service agreement. There is no contractual maximum supply.

The City's projected water supplies during 'put' years and 'take' years are shown in Table 6-6 and Table 6-7, respectively.

Table 6-6. Projected Water Supply During 'Put' Years

Water Source	FY 2024/25	FY 2029/30	FY 2034/35	FY 2039/40	FY 2044/45
SFPUC[(a,b)], MGD	5.34	5.32	5.30	5.30	5.31
NCCWD[(c)], MGD	0.05	0.05	0.05	0.05	0.05
Groundwater[(b)], MGD	0.00	0.00	0.00	0.00	0.00
Total Projected Water Supply, MGD	**5.39**	**5.37**	**5.35**	**5.35**	**5.36**
Total Projected Water Supply, CCF	**2,630,147**	**2,620,388**	**2,610,628**	**2,610,628**	**2,615,508**

(a) Purchased surface water from BAWSCA Table A: Wholesale RWS Actual Purchases in 2020 and Projected Purchases for 2025, 2030, 2035, 2040, and 2045; provided by BAWSCA on April 1, 2021.
(b) During 'put' years, it is assumed that up to 2.1 MGD of the City's groundwater production may be offset by SFPUC surface water for in-lieu banking under the Regional GSR Project.
(c) NCCWD purchases assume that the City will purchase the same amount of water as it has historically purchased.

Table 6-7. Projected Water Supply During 'Take' Years					
Water Source	FY 2024/25	FY 2029/30	FY 2034/35	FY 2039/40	FY 2044/45
SFPUC[(a)], MGD	3.24	3.22	3.20	3.20	3.21
NCCWD[(b)], MGD	0.05	0.05	0.05	0.05	0.05
Groundwater[(c)], MGD	2.10	2.10	2.10	2.10	2.10
Total Projected Water Supply, MGD	**5.39**	**5.37**	**5.35**	**5.35**	**5.36**
Total Projected Water Supply, CCF	**2,630,147**	**2,620,388**	**2,610,628**	**2,610,628**	**2,615,508**

(a) From BAWSCA Table A: Wholesale RWS Actual Purchases in 2020 and Projected Purchases for 2025, 2030, 2035, 2040, and 2045; provided by BAWSCA on April 1, 2021.
(b) NCCWD purchases assume that the City will purchase the same amount of water as it has historically purchased.
(c) During 'take' years, the City will maximize its groundwater production.

6.10 CLIMATE CHANGE IMPACTS TO SUPPLY

The issue of climate change has become an important factor in water resources planning in the State and is frequently considered in urban water management planning purposes, though the extent and precise effects of climate change remain uncertain. As described by SFPUC in its 2009 Final Water Supply Availability Study for the City and County of San Francisco, there is convincing evidence that increasing concentrations of greenhouse gasses have caused and will continue to cause a rise in temperatures around the world, which will result in a wide range of changes in climate patterns. Moreover, there is evidence that a warming trend that occurred during the latter part of the 20th century will likely continue through the 21st century. These changes will have a direct effect on water resources in California, and numerous studies have been conducted to determine the potential impacts to water resources.

Based on these studies, climate change could result in the following types of water resources impacts, including impacts on the watersheds in the Bay Area (and those providing the City's local water supplies):

- Reductions in the average annual snowpack due to a rise in the snowline and a shallower snowpack in the low and medium elevation zones, such as in the Tuolumne River basin, and a shift in snowmelt runoff to earlier in the year
- Changes in the timing, intensity and variability of precipitation, and an increased amount of precipitation falling as rain instead of as snow
- Long-term changes in watershed vegetation and increased incidence of wildfires that could affect water quality and quantity
- Sea level rise and an increase in saltwater intrusion
- Increased water temperatures with accompanying potential adverse effects on some fisheries and water quality
- Increases in evaporation and concomitant increased irrigation need
- Changes in urban and agricultural water demand

Both SFPUC and BAWSCA participated in the 2013 update of the Bay Area Integrated Regional Water Management Plan (BAIRWMP), which includes an assessment of the potential climate change vulnerabilities of the region's water resources and identifies climate change adaptation strategies. In addition, SFPUC continues to study the effect of climate change on the RWS. These studies are summarized below.

6.10.1 Bay Area Integrated Regional Water Management Plan

Climate change adaptation was established as an overarching theme for the 2013 BAIRWMP update. As stated in the BAIRWMP, identification of watershed characteristics that could potentially be vulnerable to future climate change is the first step in assessing vulnerabilities of water resources in the Bay Area Region (Region). Vulnerability is defined as the degree to which a system is exposed to, susceptible to, and able to cope with or adjust to, the adverse effects of climate change. A vulnerability assessment was conducted in accordance with the DWR's *Climate Change Handbook for Regional Water Planning* and using the most current science available for the Region. The vulnerability assessment, summarized in Table 6-8, provides the main water planning categories applicable to the Region and a general overview of the qualitative assessment of each category with respect to anticipated climate change impacts.

Table 6-8. Summary of BAIRWMP Climate Change Vulnerability Assessment

Vulnerability Area	General Overview of Vulnerabilities
Water Demand	**Urban and Agricultural Water Demand** – Changes to hydrology in the Region as a result of climate change could lead to changes in total water demand and use patterns. Increased irrigation (outdoor landscape or agricultural) is anticipated to occur with temperature rise, increased evaporative losses due to warmer temperature, and a longer growing season. Water treatment and distribution systems are most vulnerable to increases in maximum day demand.
Water Supply	**Imported Water** – Imported water derived from the Sierra Nevada sources and Delta diversions provide 66 percent of the water resources available to the Region. Potential impacts on the availability of these sources resulting from climate change directly affect the amount of imported water supply delivered to the Region. **Regional Surface Water** – Although future projections suggest that small changes in total annual precipitation over the Region will not change much, there may be changes to when precipitation occurs with reductions in the spring and more intense rainfall in the winter. **Regional Groundwater** – Changes in local hydrology could affect natural recharge to the local groundwater aquifers and the quantity of groundwater that could be pumped sustainably over the long-term in some areas. Decreased inflow from more flashy or more intense runoff, increased evaporative losses and warmer and shorter winter seasons can alter natural recharge of groundwater. Salinity intrusion into coastal groundwater aquifers due to sea-level rise could interfere with local groundwater uses. Furthermore, additional reductions in imported water supplies would lead to less imported water available for managed recharge of local groundwater basins and potentially more groundwater pumping in-lieu of imported water availability.
Water Quality	**Imported Water** – For sources derived from the Delta, sea-level rise could result in increases in chloride and bromide (a disinfection by-product (DBP) precursor that is also a component of sea water), potentially requiring changes in treatment for drinking water. Increased temperature could result in an increase in algal blooms, taste and odor events, and a general increase in DBP formation. **Regional Surface Water** – Increased temperature could result in lower dissolved oxygen in streams and prolong thermocline stratification in lakes and reservoirs forming anoxic

Table 6-8. Summary of BAIRWMP Climate Change Vulnerability Assessment

Vulnerability Area	General Overview of Vulnerabilities
	bottom conditions and algal blooms. Decrease in annual precipitation could result in higher concentrations of contaminants in streams during droughts or in association with flushing rain events. Increased wildfire risk and flashier or more intense storms could increase turbidity loads for water treatment. **Regional Groundwater** – Sea-level rise could result in increases in chlorides and bromide for some coastal groundwater basins in the Region. Water quality changes in imported water used for recharge could also impact groundwater quality.
Sea-Level Rise	Sea-level rise is additive to tidal range, storm surges, stream flows, and wind waves, which together will increase the potential for higher total water levels, overtopping, and erosion. Much of the bay shoreline is comprised of low-lying diked baylands which are already vulnerable to flooding. In addition to rising mean sea level, continued subsidence due to tectonic activity will increase the rate of relative sea-level rise. As sea-level rise increases, both the frequency and consequences of coastal storm events, and the cost of damage to the built and natural environment, will increase. Existing coastal armoring (including levees, breakwaters, and other structures) is likely to be insufficient to protect against projected sea-level rise. Crest elevations of structures will have to be raised or structures relocated to reduce hazards from higher total water levels and larger waves.
Flooding	Climate change projections are not sensitive enough to assess localized flooding, but the general expectation is that more intense storms would occur thereby leading to more frequent, longer and deeper flooding. Changes to precipitation regimes may also increase flooding. Elevated Bay elevations due to sea-level rise will increase backwater effects exacerbating the effect of fluvial floods and storm drain backwater flooding.
Ecosystem and Habitat	Changes in the seasonal patterns of temperature, precipitation, and fire due to climate change can dramatically alter ecosystems that provide habitats for California's native species. These impacts can result in species loss, increased invasive species ranges, loss of ecosystem functions, and changes in vegetation growing ranges. Reduced rain and changes in the seasonal distribution of rainfall may alter timing of low flows in streams and rivers, which in turn would have consequences for aquatic ecosystems. Changes in rainfall patterns and air temperature may affect water temperatures, potentially affecting coldwater aquatic species. Bay Area ecosystems and habitat provide important ecosystem services, such as: carbon storage, enhanced water supply and quality, flood protection, food and fiber production. Climate change is expected to substantially change several of these services. The Region provides substantial aquatic and habitat-related recreational opportunities, including: fishing, wildlife viewing, and wine industry tourism (a significant asset to the region) that may be at risk due to climate change effects.
Hydropower	Currently, several agencies in the Region produce or rely on hydropower produced outside of the Region for a portion of their power needs. As the hydropower is produced in the Sierra, there may be changes in the future in the timing and amount of energy produced due to changes in the timing and amount of runoff as a result of climate change. Some hydropower is also produced within the region and could also be affected by changes in the timing and amount of runoff.

Source: 2019 Bay Area Integrated Regional Water Management Plan (BAIRWMP), Table 16-3.

6.10.2 SFPUC Climate Change Studies

SFPUC's assessment of the effects of climate change is an ongoing project requiring regular updating to reflect improvements in climate science, atmospheric/ocean modeling, and human response to the threat of greenhouse gas emissions. Climate change research by SFPUC began in 2009 and continues to be refined. In its 2012 report "Sensitivity of Upper Tuolumne River Flow to Climate Change Scenarios," SFPUC assessed the sensitivity of runoff into Hetch Hetchy Reservoir to a range of changes in temperature and precipitation due to climate change. Key conclusions from the report include the following:

- With differing increases in temperature alone, the median annual runoff at Hetch Hetchy would decrease by 0.7 to 2.1 percent from present day conditions by 2040 and by 2.6 to 10.2 percent from present day by 2100. Adding differing decreases in precipitation on top of temperature increases, the median annual runoff at Hetch Hetchy would decrease by 7.6 to 8.6 percent from present day conditions by 2040 and by 24.7 to 29.4 percent from present day conditions by 2100.
- In critically dry years, these reductions in annual runoff at Hetch Hetchy would be significantly greater, with runoff decreasing up to 46.5 percent from present day conditions by 2100 utilizing the same climate change scenarios.
- In addition to the total change in runoff, there will be a shift in the annual distribution of runoff. Winter and early spring runoff would increase and late spring and summer runoff would decrease.
- Under all scenarios, snow accumulation would be reduced and snow would melt earlier in the spring, with significant reductions in maximum peak snow water equivalent under most scenarios.

Currently, SFPUC is conducting a comprehensive assessment of the potential effects of climate change on water supply using a wide range of plausible increases in temperature and changes in precipitation to address the wide uncertainty in climate projections over the planning horizon 2020 to 2070. There are many uncertain factors such as climate change, changing regulations, water quality, growth and economic cycles that may create vulnerabilities for the RWS's ability to meet levels of service. The uncertainties associated with the degree to which these factors will occur and how much risk they present to the water system is difficult to predict, but nonetheless they need to be considered in SFPUC planning. To address this planning challenge, the project uses a vulnerability-based planning approach to explore a range of future conditions to identify vulnerabilities, assess the risks associated with these vulnerabilities, and develop an adaptation plan that is flexible and robust to a wide range of future outcomes.

6.11 ENERGY INTENSITY

In accordance with CWC Section 10631.2(a), the energy intensity to provide water service to the City's customers over a one-year period is presented in this section to the extent that the information is available. The amount of energy to receive, pump, and deliver the City's potable water supply within the system it owns and operates is included.

Water energy intensity is the total amount of energy, calculated on a whole-system basis, used to deliver water to the City's customers for use. Energy intensity is the total amount of energy in kilowatt hours (kWh) expended on a per million gallon basis to take water from the City's sources to its points of delivery. Understanding the whole-system energy intensity allows the City to develop the following water supply management and system operation strategies:

- Identify energy saving opportunities, as energy consumption is often a large portion of the cost of delivering water
- Calculate energy savings and GHG emissions reductions associated with water conservation programs
- Identify potential opportunities to obtain energy efficiency funding for water conservation programs
- Inform climate change mitigation strategies
- Benchmark energy use at each water extraction, treatment, and delivery step and compare energy use among similar agencies

In Table 6-9 below, the energy intensity of the City's water system is calculated for FY 2019/20. The total energy intensity for the City's water system is approximately 440 kWh/MG (0.33 kWh/CCF).

Table 6-9. Energy Intensity for FY 2019/20[(a)]

Water/Energy	Volume, MG	Volume, CCF
Water Entering Process	1,140	1,523,986
Energy Consumed, kWh	501,367	
Energy Intensity (kWh/volume)	**440**	**0.33**

(a) Energy consumption is based on the City's PG&E bills for its water system facilities for FY 2019/20.

Since the City does not manage the entire wastewater operations process (i.e., collection, treatment, discharge, and distribution) within the City's water service area, energy reporting for wastewater service does not apply to the City.

6.12 REFERENCES

California Department of Water Resources (DWR). 2003. *California's Department of Water Resources, Groundwater Bulletin 118*.

California Department of Water Resources (DWR). 2020. *Basin Prioritization*. Accessed at this Link on July 20, 2020.

Luhdroff & Scalmanini Consulting Engineers. 2002. *Conceptualization of the Lake-Aquifer System Westside Groundwater Basin, San Francisco and San Mateo Counties.*

Rogge. 2003. *Dimensions of the Westside Groundwater Basin San Francisco and San Mateo Counties, California, 2003.*

RMC. 2011. *Draft South Westside Basin Groundwater Management Plan.*

San Francisco Public Utilities Commission (SFPUC). April 2020. *2019 Annual Groundwater Monitoring Report, Westside Basin, San Francisco and San Mateo Counties, California*. Accessed at this Link on July 17, 2020.

San Francisco Public Utilities Commission (SFPUC). May 2020. *WSIP Regional Projects Quarterly Report, 3rd Quarter / Fiscal Year 2019-2020.* Accessed at this Link on July 18, 2020.

Amended and Restated Water Supply Agreement between the City and County of San Francisco and Wholesale Customers in Alameda County, San Mateo County, and Santa Clara County. November 2018.

West Yost Associates (WYA). June 2016. *City of San Bruno Urban Water Management Plan.*

Yates. 2003. *Westside Basin Unified Groundwater Model.*

CHAPTER 7
Water Service Reliability and Drought Risk Assessment

This chapter describes the City's water service reliability under various hydrologic conditions, including a severe drought for the next five years. The anticipated reliability of the City's water supplies from SFPUC is based on information provided by SFPUC and BAWSCA (provided in Appendix H of this plan). Responses to actual water shortage conditions are addressed in Chapter 8.

7.1 CONSTRAINTS ON WATER SOURCES

The amount of water supplies available to the City is constrained by numerous factors. The amount of imported water available to SFPUC's retail and wholesale customers, including the City, is constrained by hydrology, climate conditions, physical facilities, and the institutional parameters that allocate the water supply of the Tuolumne River. The amount of the City's groundwater supplies is constrained by the sustainable yield of the Westside Basin and the capacity of the City's physical facilities. This chapter describes the reliability of the City's supplies in normal years, single dry years and multiple dry years.

A new constraint on SFPUC supply, as of 2023, is the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan Amendment). The implementation of the Bay-Delta Plan Amendment comes with uncertainty due to pending lawsuits and efforts to have the SWRCB adopt the Tuolumne River Voluntary Agreement, as part of a Global Voluntary Agreement package. As presented by SFPUC and BAWSCA, the impacts of the Bay-Delta Plan Amendment will be significant (more than 50 percent cut back possible) in multiple drought years for wholesale customers of the RWS.

All of the City's water sources receive treatment in accordance with applicable Federal and State standards. Each year the City reports water quality results to its customers through the Consumer Confidence Report, also known as the Annual Water Quality Report. The 2019 report includes results of treated water tests from the RWS and the City's distribution system and shows that the City's water supplies meet all applicable water quality standards. At this time, the City does not anticipate any changes in supply availability as a result of water quality.

Climate change could constrain the City's long-term sustainability of water supplies by increasing variability in floods and droughts. Over the past several decades, the California water community as a whole has focused their attention on determining the effects of climate change, but there is no clear scientific consensus on exactly how climate change will quantitatively affect the State's water supplies. Therefore, being prepared for a wet water year, a critically dry water year, or somewhere in between, will give the City a better sense of the degree to which they may need to conserve or expand existing water supplies.

7.2 WATER SERVICE RELIABILITY ASSESSMENT

This section presents the water service reliability of the City's existing and planned water sources and describes the historical basis for projecting available supplies in various hydrologic conditions (i.e., normal year, single dry year, and five consecutive dry years). The City's water service reliability is then presented in five-year increments through 2045 based on earlier analysis of water use (discussed in Chapter 4) and supply (Chapter 6). Finally, this section discusses the City's water management tools and options to promote regional supply reliability and minimize the need to import water from other regions.

7.2.1 Reliability of SFPUC Supplies

As shown in Chapter 6, more than 90 percent of the City's water supply was provided by SFPUC in recent years, either as purchased water under the City's ISG or as in-lieu surface water to offset the City's groundwater production. The reliability of SFPUC's water supplies and the management strategies for addressing these reliabilities are discussed below based on information provided by SFPUC and BAWSCA (provided in Appendix H of this plan).

7.2.1.1 SFPUC Regional Water System Level of Service Goals and Objectives

In 2008, SFPUC adopted Level of Service (LOS) Goals and Objectives in conjunction with the adoption of a Water System Improvement Program (WSIP). The SFPUC updated the LOS Goals and Objectives in February 2020.

The SFPUC LOS Goal for water supply is "to meet customer water needs in non-drought and drought periods."

The SFPUC LOS Objectives related to water supply are as follows:

- Meet all Federal and State regulations to support the proper operation of the water system and related power facilities
- Meet average annual water demand of 265 MGD from the SFPUC watersheds for retail and Wholesale Customers during non–drought years for system demands consistent with the 2009 Water Supply Agreement
- Meet dry-year delivery needs while limiting rationing to a maximum 20 percent system-wide reduction in water service during extended droughts
- Diversify water supply options during non-drought and drought periods
- Improve use of new water sources and drought management, including groundwater, recycled water, conservation, and transfers

7.2.1.2 Adoption of the 2018 Bay-Delta Plan Amendment

7.2.1.2.1 Background

In December 2018, the 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 30 to 50 percent of the "unimpaired flow"[1] on the three tributaries from February through June in every year type. In SFPUC modeling of the new flow standard, it is assumed that the required release is 40 percent

[1] "Unimpaired flow represents the natural water production of a river basin, unaltered by upstream diversions, storage, or by export or import of water to or from other watersheds." (Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (December 12, 2018) p.17, fn. 14, available at https://www.waterboards.ca.gov/plans_policies/docs/2018wqcp.pdf.

of unimpaired flow. 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.

There is much uncertainty surrounding implementation of the Bay-Delta Plan Amendment. Since adoption of the Bay-Delta Plan Amendment, over a dozen lawsuits have been filed in both State and Federal courts, challenging the SWRCB's adoption of the Bay-Delta Plan Amendment, including a legal challenge filed by the Federal government, at the request of the U.S. Department of Interior, Bureau of Reclamation. This litigation is in the early stages and there have been no dispositive court rulings as of this date.

The Bay-Delta Plan Amendment is not self-implementing and does not automatically allocate responsibility for meeting its new flow requirements to SFPUC or any other water rights holders. Rather, the Bay-Delta 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, may be implemented through the water quality certification process set forth in Section 401 of the Clean Water Act as part of the Federal Energy Regulatory Commission's licensing proceedings for the Don Pedro and La Grange hydroelectric projects. It is currently unclear when the license amendment process is expected to be completed. 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 impact on SFPUC water supply).

In recognition of the obstacles to implementation of the Bay-Delta Plan Amendment, the 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, 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.[2]

7.2.1.2.2 Impacts of the Bay-Delta Plan Amendment on SFPUC Regional Water System Supplies

The adoption of the Bay-Delta Plan Amendment may significantly impact the supply available from the RWS. SFPUC recognizes that the Bay-Delta Plan Amendment has been adopted and that, given that it is now State law, it must be assumed that it will be fully implemented. SFPUC also acknowledges that the plan is not self-implementing and therefore does not automatically go into effect. As noted above, the SFPUC is currently pursuing an alternative voluntary agreement as well as a lawsuit which would limit implementation of the Bay-Delta Plan Amendment. With both of these processes occurring on an unknown timeline, SFPUC does not know at this time when the Bay-Delta Plan Amendment is likely to go into effect. As a result, it

[2] California Natural Resources Agency, "Voluntary Agreements to Improve Habitat and Flow in the Delta and its Watersheds," available at https://files.resources.ca.gov/voluntary-agreements/.

makes sense to conduct future supply modeling for a scenario that does not include implementation of the Bay-Delta Plan Amendment, as that represents a potential supply reliability scenario.

Because of the uncertainty surrounding implementation of the Bay-Delta Plan Amendment, SFPUC conducted a water service reliability assessment that included: (1) a scenario in which the Bay-Delta Plan Amendment is fully implemented in 2023, and (2) a scenario that considers the SFPUC system's current situation without the Bay-Delta Plan Amendment. The two scenarios provide a bookend for the possible future scenarios regarding RWS supplies. However, SFPUC presented the scenario with the Bay-Delta Plan Amendment as the primary scenario in its 2020 UWMP.

Although the SWRCB has stated it intends to implement the Bay-Delta Plan Amendment on the Tuolumne River by the year 2022, given the current level of uncertainty, it is assumed for the purposes of SFPUC's 2020 UWMP that the Bay-Delta Plan Amendment will be fully implemented starting in 2023.

7.2.1.3 SFPUC Dry Year Supply Projects

SFPUC historically has met demand in its service area in all year types from its watersheds, which consist of:

- Tuolumne River watershed
- Alameda Creek watershed
- San Mateo County watersheds

In general, 85 percent of the supply comes from the Tuolumne River through Hetch Hetchy Reservoir and the remaining 15 percent comes from the local watersheds through the San Antonio, Calaveras, Crystal Springs, Pilarcitos and San Andreas Reservoirs. The adopted WSIP retains this mix of water supply for all year types.

The WSIP includes 52 projects in the RWS. Forty-two of the WSIP regional projects have been completed, including: improvements at the Calaveras and Crystal Springs Reservoirs; construction of the Tesla disinfection facility and improvements at the Sunol Valley and Harry Tracy water treatment plants; Bay Division Region pipeline replacements, interties and crossovers; construction of a new Crystal Springs Bypass Tunnel; rehabilitation of Pulgas Balancing Reservoir; and, Peninsula Region pipeline replacements and valve lot improvements. The only major regional WSIP projects still under construction are the Regional GSR and the Alameda Creek Recapture Projects.

In order to achieve its target of meeting at least 80 percent of its customer demand during droughts with a system demand of 265 MGD, SFPUC must successfully implement the dry-year water supply projects included in the WSIP.

Furthermore, the permitting obligations for the Calaveras Dam Replacement Project and the Lower Crystal Springs Dam Improvements include a combined commitment of 12.8 MGD for in-stream flows on average. When this is reduced for an assumed Alameda Creek Recapture Project recovery of 9.3 MGD, the net loss of water supply is 3.5 MGD.

7.2.1.4 SFPUC Alternative Water Supply Planning Program

The SFPUC has initiated, and is increasing and accelerating its efforts, to implement an Alternative Water Supply Planning Program to ensure that San Francisco can meet its Retail and Wholesale Customer water needs, address projected dry years shortages, and limit rationing to a maximum 20 percent system-wide in accordance with adopted SFPUC policies. This program is in its early planning stages and is intended to meet future water supply challenges and vulnerabilities such as environmental flow needs and other regulatory changes; earthquakes, disasters, and emergencies; increases in population and employment; and climate change. As the region faces future challenges – both known and unknown – SFPUC is considering this suite of diverse non-traditional supplies and leveraging regional partnerships to meet Retail and Wholesale Customer needs through 2045.

The drivers for the Alternative Water Supply Planning Program include:

- The adoption of the Bay-Delta Plan Amendment and the resulting potential limitations to RWS supply during dry years
- The net supply shortfall following the implementation of WSIP
- San Francisco's perpetual obligation to supply 184 MGD to the Wholesale Customers
- Adopted Level of Service Goals to limit rationing to no more than 20 percent system-wide during droughts
- The potential need to identify water supplies that would be required to offer permanent status to interruptible customers

Developing additional supplies through this program would reduce water supply shortfalls and reduce rationing associated with such shortfalls. The planning priorities guiding the framework of the Alternative Water Supply Planning Program are as follows:

- Offset in-stream flow needs and meet regulatory requirements
- Meet existing obligations to existing permanent customers
- Make interruptible customers permanent
- Meet increased demands of permanent and interruptible customers

In conjunction with these planning priorities, SFPUC considers how the program fits within the LOS Goals and Objectives related to water supply and sustainability when considering new water supply opportunities. The key LOS Goals and Objectives relevant to this effort can be summarized as:

- Meet dry-year delivery needs while limiting rationing to a maximum of 20 percent system-wide reduction in water service during extended droughts
- Diversify water supply options during non-drought and drought periods
- Improve use of new water sources and drought management, including groundwater, recycled water, conservation, and transfers
- Meet, at a minimum, all current and anticipated legal requirements for protection of fish and wildlife habitat

- Maintain operational flexibility (although this LOS Goal was not intended explicitly for the addition of new supplies, it is applicable here)

Together, the planning priorities and LOS Goals and Objectives provide a lens through which SFPUC considers water supply options and opportunities to meet all foreseeable water supply needs.

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. 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 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. State and Federal grants and other financing opportunities would be pursued for eligible projects, to the extent feasible, to offset costs borne by ratepayers.

- **Daly City Recycled Water Expansion (Regional, Normal and Dry-Year Supply):** This project can produce up to 3 MGD of tertiary recycled water during the irrigation season (~7 months). On an average annual basis, this production is equivalent to 1.25 MGD or 1,400 acre-feet per year. The project is envisioned to provide recycled water to 13 cemeteries and other smaller irrigation customers, offsetting existing groundwater pumping from the South Westside Basin, thereby reducing groundwater use and enhancing the reliability of the Basin. The project is a regional partnership between SFPUC and Daly City. The irrigation customers are located largely within Cal Water's service area. RWS customers will benefit from the increased reliability of the South Westside Basin for additional drinking water supply during droughts. In this way, this project supports the Regional GSR Project, which is expected to finish construction in 2022.
- **ACWD-USD Purified Water Partnership (Regional, Normal and Dry-Year Supply):** This project could provide a new purified water supply utilizing Union Sanitary District's (USD) treated wastewater. Purified water produced by advanced water treatment at USD could be transmitted to the Quarry Lakes Groundwater Recharge Area to supplement recharge into the Niles Cone Groundwater Basin or put to other uses in the Alameda County Water District (ACWD) service area. With the additional water supply to ACWD, an in-lieu exchange with SFPUC would result in more water left in the RWS. Additional water supply could also be directly transmitted to SFPUC through a new intertie between ACWD and SFPUC.
- **Crystal Springs Purified Water (Regional, Normal and Dry-Year Supply):** The Crystal Springs Purified Water Project is a purified water project that could provide 6 to 12 MGD of water supply through reservoir water augmentation at Crystal Springs Reservoir, which is a facility of the RWS. Treated wastewater from Silicon Valley Clean Water (SVCW) and/or the City of San Mateo would go through an advanced water treatment plant to produce purified water that meets State and Federal drinking water quality standards. The purified water would then be transmitted 10 to 20 miles (depending on the alignment) to Crystal Springs Reservoir, blended with regional surface water supplies and treated again at Harry Tracy Water Treatment Plant. Project partners include SFPUC, BAWSCA, SVCW, Cal Water,

Redwood City, Foster City, and the City of San Mateo. Partner agencies are contributing financial and staff resources towards the work effort.

- **Los Vaqueros Reservoir Expansion (Regional, Dry-Year Supply):** The Los Vaqueros Reservoir Expansion (LVE) Project is a storage project that will enlarge the existing reservoir located in northeastern Contra Costa County from 160,000 acre-feet to 275,000 acre-feet. While the existing reservoir is owned and operated by the Contra Costa Water District, the expansion will have regional benefits and will be managed by a Joint Powers Authority (JPA) that will be set up prior to construction. Meanwhile, Contra Costa Water District is leading the planning, design and environmental review efforts. Contra Costa Water District's Board certified the Environmental Impact Statement (EIS)/EIR and approved the LVE Project on May 13, 2020. The additional storage capacity from the LVE Project would provide a dry year water supply benefit to SFPUC. BAWSCA is working in concert with SFPUC to support their work effort on the LVE project.
  - Conveyance Alternatives: SFPUC is considering two main pathways to move water from storage in a prospective LVE Project to SFPUC's service area, either directly to RWS facilities or indirectly via an exchange with partner agencies. SFPUC is evaluating potential alignments for conveyance.
  - Bay Area Regional Reliability Shared Water Access Program: As part of the Bay Area Regional Reliability Partnership[3] (BARR), a consortium of eight Bay Area water utilities (including ACWD, BAWSCA, Contra Costa Water District, EBMUD, Marin Municipal Water District, SFPUC, Valley Water, and Zone 7 Water Agency) are exploring opportunities to move water across the region as efficiently as possible, particularly during times of drought and emergencies. The BARR agencies are proposing two separate pilot projects in 2020-2021 through the Shared Water Access Program to test conveyance pathways and identify potential hurdles to better prepare for sharing water during a future drought or emergency. A strategy report identifying opportunities and considerations will accompany these pilot transfers and will be completed in 2021.
- **Bay Area Brackish Water Desalination (Regional, Normal and Dry-Year Supply):** The Bay Area Brackish Water Desalination (Regional Desalination) Project is a partnership between Contra Costa Water District, SFPUC, Valley Water, and Zone 7 Water Agency. EBMUD and ACWD may also participate in the project. The project could provide a new drinking water supply to the region by treating brackish water from Contra Costa Water District's existing Mallard Slough intake in Contra Costa County. While this project has independent utility as a water supply project, for the current planning effort SFPUC is considering it as a source of supply for storage in LVE. While the allocations remain to be determined among partners, SFPUC is considering a water supply benefit of between 5 and 15 MGD during drought conditions when combined with storage at LVE.
- **Calaveras Reservoir Expansion (Regional, Dry-Year Supply):** Calaveras Reservoir would be expanded to create 289,000 acre-feet of additional capacity to store excess RWS 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.

[3] https://www.bayareareliability.com/

- **Groundwater Banking:** Groundwater banking in the Modesto Irrigation District and Turlock Irrigation District service areas could be used to provide some additional water supply to meet in-stream releases in dry years reducing water supply impacts to the SFPUC service area. For example, additional surface water could be provided to irrigators in wet years, which would offset the use of groundwater, thereby allowing the groundwater to remain in the basin rather than be consumptively used. The groundwater that remains in the basin can then be used in a subsequent dry year for irrigation, freeing up surface water that would have otherwise been delivered to irrigators to meet in-stream flow requirements.

  A feasibility study of this option is included in the proposed Tuolumne River Voluntary Agreement. Progress on this potential water supply option will depend on the negotiations of the Voluntary Agreement.

- **Inter-Basin Collaborations:** Inter-Basin Collaborations could provide net water supply benefits in dry years by sharing responsibility for in-stream flows in the San Joaquin River and Delta more broadly among several tributary reservoir systems. One mechanism by which this could be accomplished would be to establish a partnership between interests on the Tuolumne River and those on the Stanislaus River, which would allow responsibility for streamflow to be assigned variably based on the annual hydrology.

  As is the case with Groundwater Banking, feasibility of this option is included in the proposed Tuolumne River Voluntary Agreement.

If all the projects identified through the current planning process can be implemented, there would still be a supply shortfall to meet projected needs. Furthermore, each of the supply options being considered has its own inherent challenges and uncertainties that may affect SFPUC's ability to implement it.

Given the limited availability of water supply alternatives - unless the supply risks are significantly reduced or the needs change significantly - SFPUC will continue to plan, develop and implement all project opportunities that can help bridge the anticipated water supply gaps during droughts. In 2019, SFPUC completed a survey among water and wastewater agencies within the service area to identify additional opportunities for purified water. Such opportunities remain limited, but SFPUC continues to pursue all possibilities.

7.2.1.5 Bay Area Water Conservation and Supply Agency

As discussed in Chapter 6, the City is a member of BAWSCA. The following sections discuss BAWSCA's Long-Term Reliable Water Supply Strategy and conservation activities.

7.2.1.5.1 Long-Term Reliable Water Supply Strategy

BAWSCA's Long-Term Reliable Water Supply Strategy (Strategy), completed in February 2015, quantified the water supply reliability needs of the BAWSCA member agencies through 2040, identified the water supply management projects and/or programs (projects) that could be developed to meet those needs, and prepared an implementation plan for the Strategy's recommendations.

When the 2015 Demand Study concluded it was determined that while there is no longer a regional normal year supply shortfall, there was a regional drought year supply shortfall of up to 43 MGD. In addition, key findings from the Strategy's project evaluation analysis included the following:

- Water transfers represent a high priority element of the Strategy
- Desalination potentially provides substantial yield, but its high effective costs and intensive permitting requirements make it a less attractive drought year supply alternative
- Other potential regional projects provide tangible, though limited, benefit in reducing dry-year shortfalls given the small average yields in drought years

Since 2015, BAWSCA has completed a comprehensive update of demand projections and engaged in significant efforts to improve regional reliability and reduce the dry-year water supply shortfall.

- **Water Transfers.** BAWSCA successfully facilitated two transfers of portions of ISG between BAWSCA agencies in 2017 and 2018. Such transfers benefit all BAWSCA agencies by maximizing use of existing supplies. BAWSCA is currently working on an amendment to the Water Supply Agreement between SFPUC and BAWSCA agencies to establish a mechanism by which member agencies that have an ISG may participate in expedited transfers of a portion of ISG and a portion of a Minimum Annual Purchase Requirement. In 2019, BAWSCA participated in a pilot water transfer that, while ultimately unsuccessful, surfaced important lessons learned and produced interagency agreements that will serve as a foundation for future transfers. BAWSCA is currently engaged in the BARR, described above, to identify opportunities to move water across the region as efficiently as possible, particularly during times of drought and emergencies.
- **Regional Projects.** Since 2015, BAWSCA has coordinated with local and State agencies on regional projects with potential dry-year water supply benefits for BAWSCA's agencies. These efforts include storage projects, indirect/direct water reuse projects, and studies to evaluate the capacity and potential for various conveyance systems to bring new supplies to the region.

BAWSCA continues to implement the Strategy recommendations in coordination with BAWSCA member agencies. Strategy implementation will be adaptively managed to account for changing conditions and to ensure that the goals of the Strategy are met in an efficient and cost-effective manner. On an annual basis, BAWSCA will reevaluate Strategy recommendations and results in conjunction with development of the BAWSCA's FY 2021/22 Work Plan. In this way, actions can be modified to accommodate changing conditions and new developments.

7.2.1.5.2 Making Conservation a Way of Life Strategic Plan

Following the 2014-2016 drought, the State developed the "Making Water Conservation a California Way of Life" framework to address the long-term water use efficiency requirements called for in executive orders issued by Governor Brown. In May of 2018, AB 1668 and SB 606 went into effect, building upon the executive orders implementing new urban water use objectives for urban retail water suppliers.

BAWSCA led its member agencies in a multi-year effort to develop and implement a strategy to meet these new legislative requirements. BAWSCA's Making Conservation a Way of Life Strategic Plan (Strategic Plan) provided a detailed roadmap for member agencies to improve water efficiency. BAWSCA has implemented the following elements of the Strategic Plan:

- Conducted an assessment of the agencies' current practices and water industry best practices for three components of the efficiency legislation that, based on a preliminary review, present the greatest level of uncertainty and potential risk to the BAWSCA agencies. The three components were:
  1. Development of outdoor water use budgets in a manner that incorporates landscape area, local climate, and new satellite imagery data.
  2. Commercial, Industrial, and Institutional water use performance measures.
  3. Water loss minimization requirements.
- Organized an Advanced Metering Infrastructure symposium to enable information exchange, including case studies, implementation strategies, and data analysis techniques.
- Initiated a regional Commercial, Institutional and Industrial (CII) audit pilot program, which BAWSCA aims to complete in 2021[4].
- Implemented a regional program for water loss control to help BAWSCA agencies comply with regulatory requirements and implement cost-effective water loss interventions.
- Engaged with SFPUC to audit meter testing and calibration practices for SFPUC's meters at BAWSCA agency turnouts.

Finally, BAWSCA's Demand Study developed water demand and conservation projections through 2045 for each BAWSCA agency. These projects are designed to provide valuable insights on long-term water demand patterns and conservation savings potential to support regional efforts, such as implementation of BAWSCA's Long-Term Reliable Water Supply Strategy.

7.2.1.5.3 BAWSCA Conservation Programs

BAWSCA manages a Regional Water Conservation Program comprised of several programs and initiatives that support and augment member agencies' and customers' efforts to use water more efficiently. These efforts extend limited water supplies that are available to meet both current and future water needs; increase drought reliability of the existing water system; and save money for both the member agencies and their customers.

The implementation of the Regional Water Conservation Program builds upon both the Water Conservation Implementation Plan (WCIP, completed in September 2009) and the Regional Demand and Conservation Projections Project (Demand Study, completed in June of 2020). These efforts include both Core Programs (implemented regionally throughout the BAWSCA service area) and Subscription Programs (funded by individual member agencies that elect to participate and implement them within their respective service areas).

[4] Efforts on the CII audit pilot program stalled in March 2020 due to the COVID-19 pandemic and related shelter-in-place orders.

BAWSCA's Core Conservation Programs include organizing classes open to the public on topics such as water efficient landscape education and water-wise gardening, assistance related to advanced metering infrastructure, and other associated programs that work to promote smart water use and practices. BAWSCA's Subscription Programs include numerous rebate programs, educational programs that can be offered to area schools, technical assistance to member agencies in evaluating water loss, and programs to train and certify contractors employed to install water efficient landscape. In total, BAWSCA offers 22 programs to its member agencies and that number continues to grow over time.

Each fiscal year, BAWSCA prepares an Annual Water Conservation Report that documents how all of BAWSCA's 26 member agencies have benefitted from the Core Conservation Programs. Additionally, the report highlights how all 26 member agencies participate in one or more of the Subscription Programs offered by BAWSCA, such as rebates, water loss management and large landscape audits. The Demand Study indicates that through a combination of active and passive conservation, 37.3 MGD will be conserved by BAWSCA's member agencies by 2045.

7.2.1.6 SFPUC Supply Allocations

As described in Chapter 6, the WSA between the SFPUC and wholesale customers includes a WSAP that describes the method for allocating water from the RWS between Retail and Wholesale Customers during system-wide shortages of 20 percent or less. The WSAP, also known as the Tier One Plan, was amended in the 2018 Amended and Restated WSA. The Wholesale Customers' share is apportioned among the individual Wholesale Customers based on a separate methodology adopted by the Wholesale Customers, known as the Tier Two Plan. Discussion of the Tier One and Tier Two drought allocation plans are provided below.

7.2.1.6.1 Tier One Drought Allocations

In July 2009, San Francisco and its Wholesale Customers in Alameda County, Santa Clara County, and San Mateo County (Wholesale Customers) adopted the WSA, which includes a WSAP that describes the method for allocating water from the RWS between Retail and Wholesale Customers during system-wide shortages of 20 percent or less. The WSAP, also known as the Tier One Plan, was amended in the 2018 Amended and Restated WSA.

SFPUC allocates water under the Tier One Plan when it determines that the projected available water supply is up to 20 percent less than projected system-wide water purchases. Table 7-1 shows the SFPUC (i.e., Retail Customers) share and the Wholesale Customers' share of the annual water supply available during shortages depending on the level of system-wide reduction in water use that is required. The Wholesale Customers' share will be apportioned among the individual Wholesale Customers based on a separate methodology adopted by the Wholesale Customers, known as the Tier Two Plan, discussed further below.

Table 7-1. Share of Available SFPUC Supplies Under Various Shortages		
Level of System-Wide Reduction in Water Use Required	Share of Available Water	
	Retail Customers	Wholesale Customers
5% or less	35.5%	64.5%
6% through 10%	36.0%	64.0%
11% through 15%	37.0%	63.0%
16% through 20%	37.5%	62.5%
Source: SFPUC Common Language for BAWSCA Member Agencies' 2020 UWMPs, February 3, 2021.		

The Tier One Plan allows for voluntary transfers of shortage allocations between SFPUC and any Wholesale Customer as well as between Wholesale Customers themselves. In addition, water "banked" by a Wholesale Customer, through reductions in usage greater than required, may also be transferred.

As amended in 2018, the Tier One Plan requires Retail Customers to conserve a minimum of 5 percent during droughts. If Retail Customer demands are lower than the Retail Customer allocation (resulting in a "positive allocation" to Retail[5]) then the excess percentage would be re-allocated to the Wholesale Customers' share. The additional water conserved by Retail Customers up to the minimum 5 percent level is deemed to remain in storage for allocation in future successive dry years.

The Tier One Plan applies only when SFPUC determines that a system-wide water shortage exists and issues a declaration of a water shortage emergency under California Water Code Section 350. Separate from a declaration of a water shortage emergency, SFPUC may opt to request voluntary cutbacks from its Retail and Wholesale Customers to achieve necessary water use reductions during drought periods.

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

7.2.1.6.2 Tier Two Drought Allocations

The Wholesale Customers have negotiated and adopted the Tier Two Plan, referenced above, which allocates the collective Wholesale Customers share from the Tier One Plan among each of the 26 Wholesale Customers. These Tier Two allocations are based on a formula that takes into account multiple factors for each Wholesale Customer including:

- Individual Supply Guarantee
- Seasonal use of all available water supplies
- Residential per capita use

The water made available to the Wholesale Customers collectively will be allocated among them in proportion to each Wholesale Customer's Allocation Basis, expressed in MGD, which in turn is the weighted average of two components. The first component is the Wholesale Customer's Individual Supply

[5] See Water Supply Agreement, Water Shortage Allocation Plan (Attachment H), Section 2.1.

Guarantee, as stated in the WSA, 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 accorded twice the weight of the first, fixed component in calculating the Allocation Basis. Minor adjustments to the Allocation Basis are then made to ensure a minimum cutback level, a maximum cutback level, and a sufficient supply for certain 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 One Plan, by the Wholesale Customer's Allocation Factor.

The Tier Two Plan requires that the Allocation Factors be calculated by BAWSCA each year in preparation for a potential water shortage emergency. As the Wholesale Customers change their water use characteristics (e.g., increases or decreases in SFPUC 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 will also change. However, for long-term planning purposes, each Wholesale Customer shall use as its Allocation Factor, the value identified in the Tier Two Plan when adopted.

The Tier Two Plan, which initially expired in 2018, has been extended by the BAWSCA Board of Directors every year since for one additional calendar year. In November 2020, the BAWSCA Board voted to extend the Tier Two Plan through the end of 2021.

It should be noted that with the implementation of the Bay-Delta Plan Amendment, the estimated water shortages for the RWS in a multiple year drought period would be greater than 20 percent and the Tier Two Plan would not be applicable.

7.2.1.6.3 Allocations for Supply Shortages Greater than 20 Percent

Per WSA Article 3.11, the Tier One and Tier Two Plans will be used to allocate water from the RWS between Retail and Wholesale Customers during system-wide shortages of 20 percent or less.

For RWS shortages in excess of 20 percent, San Francisco shall: (a) follow the Tier One Plan allocations up to the 20 percent reduction, (b) meet and discuss with the Wholesale Customers how to implement incremental reductions above 20 percent, and (c) make a final determination of allocations above the 20 percent reduction. After SFPUC has made the final allocation decision, the Wholesale Customers shall be free to challenge the allocation on any applicable legal or equitable basis.

For purposes of the 2020 UWMPs, for RWS shortages in excess of 20 percent, the allocations among the Wholesale Customers are assumed to be equivalent among them and to equal the drought cutback to each Wholesale Customer by SFPUC.

7.2.1.7 Projected Supplies from SFPUC Regional Water System

SFPUC has a Level of Service objective of meeting average annual water demand of 265 MGD from the SFPUC watersheds for retail and wholesale customers during non-drought years, as well as a contractual obligation to supply 184 MGD to the wholesale customers. These projected supplies are summarized in Table 7-2.

Table 7-2. SFPUC Regional Water System Supply Capacity[a]

Customer Type	2020	2025	2030	2035	2040	2045
SFPUC Retail Supply, MGD	81	81	81	81	81	81
SFPUC Wholesale Supply, MGD	184	184	184	184	184	184
Total, MGD	**265**	**265**	**265**	**265**	**265**	**265**

(a) From SFPUC Table 2: Projected Wholesale Supply from Regional Water System, provided by SFPUC on January 22, 2021.

For SFPUC's water supply reliability evaluation in its 2020 UWMP, it is assumed that demand is equivalent to the sum of the projected retail demands on the Regional Water System and wholesale customer purchase request projections provided to SFPUC by BAWSCA in January 2021. These projected water demands are summarized in Table 7-3.

Table 7-3. Projected Retail and Wholesale Demand Assumptions for the SFPUC Regional Water System[a]

Customer Type	2020	2025	2030	2035	2040	2045
SFPUC Retail Customers, MGD	66.5	67.2	67.5	68.6	70.5	73.7
SFPUC Wholesale Customers, MGD[b,c]	132.1	146.0	147.9	151.9	156.3	162.8
Total, MGD	**198.6**	**213.2**	**215.4**	**220.5**	**226.8**	**236.5**

(a) From SFPUC Table 1: Retail and Wholesale RWS Demand Assumptions Used for Additional Supply Reliability Modeling, provided by SFPUC on March 30, 2021.
(b) Wholesale purchase request projections provided to SFPUC by BAWSCA on January 21, 2021.
(c) Includes demands for cities of San Jose and Santa Clara at 4.5 MGD each.

The City's water supply availability from the RWS under normal (average), single dry and multiple dry year conditions is described in Tables 7-4 and 7-5. Because the RWS water demands vary over the period evaluated, in addition to supply conditions (with and without the Bay-Delta Plan Amendment), the estimated availability of RWS supplies varies by year and by assumed conditions.

This variation in the City's SFPUC supply availability is shown in Table 7-4 with the Bay-Delta Plan Amendment and in Table 7-5 without the Bay-Delta Plan Amendment. As shown in Table 7-4, with the Bay-Delta Plan Amendment, SFPUC supply availability is reduced to as low as 46 percent of projected purchases in some dry years. As shown in Table 7-5, without the Bay-Delta Plan Amendment, supply availability is projected to be at least 81 percent of projected purchases.

Table 7-4. Projected SFPUC Supply Availability for the City of San Bruno in Years 2025 to 2045 with Bay-Delta Plan Amendment[a,b]

Year Type	2025	2030	2035	2040	2045
Average Year	100%	100%	100%	100%	100%
Single Dry Year	64%	64%	63%	63%	55%
Consecutive 1st Dry Year	64%	64%	63%	63%	55%
Consecutive 2nd Dry Year	55%	55%	54%	54%	55%
Consecutive 3rd Dry Year	55%	55%	54%	54%	55%
Consecutive 4th Dry Year	55%	55%	54%	48%	46%
Consecutive 5th Dry Year	55%	55%	50%	48%	46%

(a) Average year reliability derived from BAWSCA Table A: Wholesale RWS Actual Purchases in 2020 and Projected Purchases for 2025, 2030, 2035, 2040, and 2045; provided by BAWSCA on April 1, 2021.

(b) Dry year reliability derived from BAWSCA Tables G2, H2, I2, J2 and K2: Individual Agency Drought Allocations, Base Years 2025, 2030, 2035, 2040 and 2045; Single Dry Year is based on the 1st Year of five consecutive dry years; provided by BAWSCA on April 1, 2021.

Table 7-5. Projected SFPUC Supply Availability for the City of San Bruno in Years 2025 to 2045 without Bay-Delta Plan Amendment[a,b]

Year Type	2025	2030	2035	2040	2045
Average Year	100%	100%	100%	100%	100%
Single Dry Year	100%	100%	100%	100%	100%
Consecutive 1st Dry Year	100%	100%	100%	100%	100%
Consecutive 2nd Dry Year	100%	100%	100%	100%	100%
Consecutive 3rd Dry Year	100%	100%	100%	100%	100%
Consecutive 4th Dry Year	100%	100%	100%	100%	81%
Consecutive 5th Dry Year	100%	100%	100%	100%	81%

(a) Average year reliability derived from BAWSCA Table A: Wholesale RWS Actual Purchases in 2020 and Projected Purchases for 2025, 2030, 2035, 2040, and 2045; provided by BAWSCA on April 1, 2021.

(b) Dry year reliability derived from BAWSCA Tables N, O1 and O2 showing Percent Cutback to the Wholesale Customers without the Bay-Delta Plan Amendment and Individual Agency Drought Allocations, Base Year 2045, without the Bay-Delta Plan Amendment; Single Dry Year is based on the 1st Year of five consecutive dry years; provided by BAWSCA on April 1, 2021. The City's Tier 2 Drought Cutback is 19.1%.

7.2.2 Reliability of NCCWD Supplies

Because water purchased by the City from NCCWD originates from the RWS, the City's purchases of NCCWD supplies are subject to the same SFPUC reliability constraints as the City's supplies purchased directly from SFPUC. Therefore, it is assumed that supply reliability from the NCCWD will be the same as that presented in Tables 7-4 and 7-5.

7.2.3 Reliability of City's Groundwater Supplies

The South Westside Basin has received sufficient recharge such that it has maintained relatively stable groundwater levels in recent years. Because the availability of groundwater is more dependent on long-term climate than year-to-year hydrology, and because the Regional GSR Project has been implemented to increase recharge of the South Westside Basin in wet and normal years, the City's groundwater supplies are not subject to reductions in dry years so long as the City does not exceed the estimated sustainable groundwater yield of 2.1 MGD.

The City is concerned about the effect of saltwater intrusion on the quality of its groundwater supplies. To date however, regional groundwater monitoring has detected no indication that saltwater intrusion has occurred in the City. Therefore, it is assumed that the City will be able to produce 2.1 MGD of groundwater from its wells during average, single dry, and multiple dry year droughts.

The estimated availability of the City's groundwater supplies is summarized in Table 7-6.

Table 7-6. Estimated Availability of the City's Groundwater Supplies[(a)]

Year Type	Available Groundwater Supply
Average Year	0%[(b)]
Single Dry Year	100%
Consecutive 1st Dry Year	100%
Consecutive 2nd Dry Year	100%
Consecutive 3rd Dry Year	100%
Consecutive 4th Dry Year	100%
Consecutive 5th Dry Year	100%

(a) The City's estimated sustainable groundwater yield is equal to 2.1 MGD.
(b) It is assumed that the City will not operate its groundwater wells during an average year, and this supply will be replaced with in-lieu surface water from SFPUC as part of the Regional GSR Project.

7.2.4 Regional Supply Reliability

The City has been optimizing its water supply through the implementation of Demand Management Measures summarized in Chapter 9, enhanced groundwater management through its participation in the GWMP discussed in Chapter 6, and regional cooperation through partnerships with BAWSCA and SFPUC.

7.3 BASIS OF WATER SUPPLY DATA

As described above, the quantity of supply available from different water supply sources can vary from one year to the next depending on hydrologic conditions. Historical data, where available, were therefore used to develop a projected yield for each water supply source under three conditions: (1) average water year, (2) single dry year, and (3) multiple dry years. In accordance with the DWR Guidebook, each condition was defined as follows:

- **Average Water Year***:* This condition represents the water supplies a Supplier considers available during normal conditions. This could be a single year or averaged range of years that most closely represents the average water supply available to the Supplier. In the DWR Guidebook, DWR uses the terms 'average' and 'normal' interchangeably when addressing this water year type.
- **Single Dry Year**: The single dry year is recommended to be the year that represents the lowest water supply available to the Supplier.
- **Five-Consecutive Year Drought**: The five-consecutive year drought for the DRA would be the driest five-year historical sequence for the Supplier (CWC Section 10612). Suppliers are encouraged to use the same historical five-year sequence for their DRA and Water Service Reliability Assessment. However, they may choose to use a different five-consecutive year dry period such as the lowest average water supply available to the Supplier for five years in a row. Suppliers are encouraged to characterize the five-consecutive year drought in a manner that is best suited for understanding and managing their water service reliability.

The following basis of water supply data for each supply source are presented assuming with and without the Bay-Delta Plan Amendment to provide a comparison for worst and best-case supply conditions.

7.3.1 Basis of Water Supply Data for SFPUC Supplies

Based on SFPUC's estimated availability of wholesale RWS supplies, Table 7-7 shows the basis of water supply data for the City's surface water supplies from SFPUC with the Bay-Delta Plan Amendment. It is assumed that the Regional GSR Project will operate in 'put' mode in average years, and that the City will receive up to a maximum of 2.1 MGD of surface water from SFPUC in-lieu of utilizing groundwater supplies. Therefore, available SFPUC supplies in an average year are equal to available surface water for the City to purchase under its ISG, plus an additional 2.1 MGD of in-lieu water. In dry years, it is assumed that the Regional GSR Project will operate in 'take' mode, and that the City will not receive any in-lieu surface water from SFPUC.

As shown in Table 7-7, available SFPUC supply in dry years with the Bay-Delta Plan Amendment are significantly less than the City's full ISG of 3.25 MGD. Reductions in available SFPUC supplies are as high as 54 percent from projected purchases. These values are used for the remainder of the analysis in this plan because the Bay-Delta Plan Amendment has been adopted by the SWRCB as described above. However, this data is not compatible with DWR Table 7-1; as such, DWR Table 7-1 has not been completed for the City's supplies from the SFPUC.

Table 7-7. Basis of Water Supply Data for the City's Supplies from SFPUC with the Bay-Delta Plan Amendment

Year Type, MGD	2025	2030	2035	2040	2045
Average Year[a,b]	5.34	5.32	5.30	5.30	5.31
Single Dry Year[c]	2.07	2.05	2.03	2.03	1.75
Consecutive 1st Dry Year[c]	2.07	2.05	2.03	2.03	1.75
Consecutive 2nd Dry Year[c]	1.77	1.76	1.74	1.74	1.75
Consecutive 3rd Dry Year[c]	1.77	1.76	1.74	1.74	1.75
Consecutive 4th Dry Year[c]	1.77	1.76	1.74	1.54	1.49
Consecutive 5th Dry Year([c]	1.77	1.76	1.60	1.54	1.49

(a) Purchased surface water from BAWSCA Table A: Wholesale RWS Actual Purchases in 2020 and Projected Purchases for 2025, 2030, 2035, 2040, and 2045; provided by BAWSCA on April 1, 2021.

(b) In addition to purchased surface water, it is assumed that up to 2.1 MGD of in-lieu surface water will be available from SFPUC during average years as part of the Regional GSR Project.

(c) From BAWSCA Tables G2, H2, I2, J2 and K2: Individual Agency Drought Allocations, Base Years 2025, 2030, 2035, 2040 and 2045; Single Dry Year is based on the 1st Year of five consecutive dry years; provided by BAWSCA on April 1, 2021.

For comparison purposes, Table 7-8 shows the basis of water supply data for the City's supplies from SFPUC without the Bay-Delta Plan Amendment. As shown, without the Bay-Delta Plan Amendment, the only reduction in available SFPUC supplies occurs in the fourth and fifth dry years of the 2045 base year.

Table 7-8. Basis of Water Supply Data for the City's Supplies from SFPUC without the Bay-Delta Plan Amendment

Year Type, MGD	2025	2030	2035	2040	2045
Average Year[a,b]	5.34	5.32	5.30	5.30	5.31
Single Dry Year[c]	3.24	3.22	3.20	3.20	3.21
Consecutive 1st Dry Year[c]	3.24	3.22	3.20	3.20	3.21
Consecutive 2nd Dry Year[c]	3.24	3.22	3.20	3.20	3.21
Consecutive 3rd Dry Year[c]	3.24	3.22	3.20	3.20	3.21
Consecutive 4th Dry Year[c]	3.24	3.22	3.20	3.20	2.60
Consecutive 5th Dry Year[c]	3.24	3.22	3.20	3.20	2.60

(a) Purchased surface water from BAWSCA Table A: Wholesale RWS Actual Purchases in 2020 and Projected Purchases for 2025, 2030, 2035, 2040, and 2045; provided by BAWSCA on April 1, 2021.

(b) In addition to purchased surface water, it is assumed that up to 2.1 MGD of in-lieu surface water will be available from SFPUC during average years as part of the Regional GSR Project.

(c) From BAWSCA Tables N, O1 and O2 showing Percent Cutback to the Wholesale Customers without the Bay-Delta Plan Amendment and Individual Agency Drought Allocations, Base Year 2045, without the Bay-Delta Plan Amendment; Single Dry Year is based on the 1st Year of five consecutive dry years; provided by BAWSCA on April 1, 2021.

7.3.2 Basis of Water Supply Data for NCCWD Supplies

Because water purchased by the City from NCCWD originates from the RWS, NCCWD supplies are subject to the same reliability constraints as SFPUC supply. Therefore, based on SFPUC's estimated availability of wholesale RWS supplies, Table 7-9 shows the basis of water supply data for the City's surface water supplies from NCCWD with the Bay-Delta Plan Amendment.

Table 7-9. Basis of Water Supply Data for the City's Supplies from NCCWD with the Bay-Delta Plan Amendment

Year Type, MGD	2025	2030	2035	2040	2045
Average Year[(a)]	0.05	0.05	0.05	0.05	0.05
Single Dry Year[(b)]	0.03	0.03	0.03	0.03	0.03
Consecutive 1st Dry Year[(b)]	0.03	0.03	0.03	0.03	0.03
Consecutive 2nd Dry Year[(b)]	0.03	0.03	0.03	0.03	0.03
Consecutive 3rd Dry Year[(b)]	0.03	0.03	0.03	0.03	0.03
Consecutive 4th Dry Year[(b)]	0.03	0.03	0.03	0.02	0.02
Consecutive 5th Dry Year[(b)]	0.03	0.03	0.03	0.02	0.02

(a) Purchased surface water from NCCWD in an average year is assumed to be equal to the historical maximum NCCWD supply received.
(b) Dry year NCCWD supply is assumed to be subject to the same level of reduction as the City's SFPUC supply.

Table 7-10 shows the basis of water supply data for the City's supplies from NCCWD without the Bay-Delta Plan Amendment.

Table 7-10. Basis of Water Supply Data for the City's Supplies from NCCWD without the Bay-Delta Plan Amendment

Year Type, MGD	2025	2030	2035	2040	2045
Average Year[(a)]	0.05	0.05	0.05	0.05	0.05
Single Dry Year[(b)]	0.05	0.05	0.05	0.05	0.05
Consecutive 1st Dry Year[(b)]	0.05	0.05	0.05	0.05	0.05
Consecutive 2nd Dry Year[(b)]	0.05	0.05	0.05	0.05	0.05
Consecutive 3rd Dry Year[(b)]	0.05	0.05	0.05	0.05	0.05
Consecutive 4th Dry Year[(b)]	0.05	0.05	0.05	0.05	0.04
Consecutive 5th Dry Year[(b)]	0.05	0.05	0.05	0.05	0.04

(a) Purchased surface water from NCCWD in an average year is assumed to be equal to the historical maximum NCCWD supply received.
(b) Dry year NCCWD supply is assumed to be subject to the same level of reduction as the City's SFPUC supply.

7.3.3 Basis of Water Supply Data for City's Groundwater Supplies

Table 7-11 presents the City's basis of water supply data for its groundwater supplies. It is assumed that the Regional GSR Project will operate in 'put' mode in average years, and that the City will receive up to a maximum of 2.1 MGD of surface water from SFPUC in-lieu of utilizing groundwater supplies. Therefore, groundwater supply is shown as 0 MGD in average years. In dry years, it is assumed that the Regional GSR Project will operate in 'take' mode, and that the City can utilize the full sustainable groundwater yield of 2.1 MGD.

Table 7-11. Basis of Water Supply Data for the City's Groundwater Supplies

Year Type, MDG	2025	2030	2035	2040	2045
Average Year[(a)]	0	0	0	0	0
Single Dry Year	2.10	2.10	2.10	2.10	2.10
Consecutive 1st Dry Year	2.10	2.10	2.10	2.10	2.10
Consecutive 2nd Dry Year	2.10	2.10	2.10	2.10	2.10
Consecutive 3rd Dry Year	2.10	2.10	2.10	2.10	2.10
Consecutive 4th Dry Year	2.10	2.10	2.10	2.10	2.10
Consecutive 5th Dry Year	2.10	2.10	2.10	2.10	2.10

(a) It is assumed that the City will not operate its groundwater wells during an average year. Instead, up to 2.1 MGD of in-lieu surface water will be available from SFPUC during average years as part of the Regional GSR Project.

7.3.4 Summary of Basis of Water Supply for the City

Table 7-12 and Table 7-13 present a summary of available City water supplies in normal, single dry, and multiple dry years with and without the Bay-Delta Plan Amendment, respectively.

Table 7-12. Summary of Basis of City Water Supplies with the Bay-Delta Plan Amendment

Year Type, MGD	2025	2030	2035	2040	2045
Average Year	5.39	5.37	5.35	5.35	5.36
Single Dry Year	4.20	4.18	4.16	4.16	3.88
Consecutive 1st Dry Year	4.20	4.18	4.16	4.16	3.88
Consecutive 2nd Dry Year	3.90	3.89	3.87	3.87	3.88
Consecutive 3rd Dry Year	3.90	3.89	3.87	3.87	3.88
Consecutive 4th Dry Year	3.90	3.89	3.87	3.66	3.61
Consecutive 5th Dry Year	3.90	3.89	3.73	3.66	3.61

Table 7-13. Summary of Basis of City Water Supplies without the Bay-Delta Plan Amendment					
Year Type, MGD	2025	2030	2035	2040	2045
Average Year	5.39	5.37	5.35	5.35	5.36
Single Dry Year	5.39	5.37	5.35	5.35	5.36
Consecutive 1st Dry Year	5.39	5.37	5.35	5.35	5.36
Consecutive 2nd Dry Year	5.39	5.37	5.35	5.35	5.36
Consecutive 3rd Dry Year	5.39	5.37	5.35	5.35	5.36
Consecutive 4th Dry Year	5.39	5.37	5.35	5.35	4.74
Consecutive 5th Dry Year	5.39	5.37	5.35	5.35	4.74

7.4 SUPPLY AND DEMAND ASSESSMENT

The City's projected supply and demand assessment for normal, single dry, and multiple dry years (five-year droughts) are quantified and discussed below. It is assumed for the purposes of this evaluation that the Bay-Delta Plan Amendment will be implemented to provide a more conservative supply and demand assessment. Demands for single dry and multiple dry years are assumed to be equal to demands in normal years. Where available supplies cannot meet normal year demands, the level of demand reduction and associated WSCP Stage needed to achieve that reduction are listed.

7.4.1 Normal Year

As shown in Table 7-14, the City's normal year supplies are adequate to meet projected normal year demands.

Table 7-14. Normal Year Supply and Demand Comparison, MGD					
Supply/Demand	2025	2030	2035	2040	2045
Supply Total	5.39	5.37	5.35	5.35	5.36
Demand Total	3.53	3.95	4.37	4.78	4.78
Surplus (Deficit)	1.86	1.42	0.98	0.57	0.58

7.4.2 Single Dry Year

As shown in Table 7-15, the City's single dry year supplies are not adequate to meet projected single dry year demands. Supply shortfalls ranging from 5 to 19 percent are projected after 2030. This shortfall is primarily due to significant cutbacks in the City's supply from SFPUC which is significantly reduced in dry years due to the Bay-Delta Plan Amendment.

In years with a supply shortfall, the City can implement its WSCP to reduce demands to the level of available supply. Implementation of WSCP Stage 1 in 2035 and of WSCP Stage 2 in 2040 and 2045 should achieve the necessary demand reductions required to meet available single dry year supplies.

It should be noted that without the Bay-Delta Plan Amendment, no supply shortfall would be anticipated as no cutbacks would be anticipated in the City's supply from SFPUC.

Table 7-15. Single Dry Year Supply and Demand Comparison, MGD

Supply/Demand	2025	2030	2035	2040	2045
Supply Total	4.20	4.18	4.16	4.16	3.88
Demand Total	3.53	3.95	4.37	4.78	4.78
Surplus (Deficit)	0.67	0.23	(0.21)	(0.62)	(0.90)
Supply Deficit, %	--	--	5%	13%	19%
WSCP Stage	--	--	1	2	2

7.4.3 Multiple Dry Years (Five-Year Droughts)

As shown in Table 7-16, the City's multiple dry year supplies are not adequate to meet projected multiple dry year demands. Significant supply shortfalls, ranging from 5 to 19 percent in the first year of the five-year dry period to 2 to 24 percent in the fifth year of the five-year dry period, are projected. This shortfall is primarily due to significant cutbacks in the City's supply from SFPUC which is significantly reduced in dry years due to the Bay-Delta Plan Amendment.

In years with a supply shortfall, the City can implement its WSCP to reduce demands to the level of available supply. The WSCP Stages required to achieve the necessary demand reductions range from Stage 1 to Stage 3 and are shown in Table 7-16.

It should be noted that without the Bay-Delta Plan Amendment, supply shortfalls would be nearly eliminated. A cutback of approximately 19 percent in the City's supply from the SFPUC would only occur in the fourth and fifth dry years of the 2045 base year. The only anticipated supply shortage would be less than 1 percent in the fourth and fifth dry years of the five-year dry period in 2045.

Table 7-16. Multiple Dry Year Supply and Demand Comparison, MGD

Supply/Demand	2025	2030	2035	2040	2045
First Year					
Supply Total	4.20	4.18	4.16	4.16	3.88
Demand Total	3.53	3.95	4.37	4.78	4.78
Difference	0.67	0.23	(0.21)	(0.62)	(0.90)
Supply Deficit, %	--	--	5%	13%	19%
WSCP Stage	--	--	1	2	2
Second Year					
Supply Total	3.90	3.89	3.87	3.87	3.88
Demand Total	3.53	3.95	4.37	4.78	4.78
Difference	0.37	(0.06)	(0.50)	(0.91)	(0.90)
Supply Deficit, %	--	2%	11%	19%	19%
WSCP Stage	--	1	2	2	2
Third Year					
Supply Total	3.90	3.89	3.87	3.87	3.88
Demand Total	3.53	3.95	4.37	4.78	4.78
Difference	0.37	(0.06)	(0.50)	(0.91)	(0.90)
Supply Deficit, %	--	2%	11%	19%	19%
WSCP Stage	--	1	2	2	2
Fourth Year					
Supply Total	3.90	3.89	3.87	3.66	3.61
Demand Total	3.53	3.95	4.37	4.78	4.78
Difference	0.37	(0.06)	(0.50)	(1.12)	(1.17)
Supply Deficit, %	--	2%	11%	23%	24%
WSCP Stage	--	1	2	3	3
Fifth Year					
Supply Total	3.90	3.89	3.73	3.66	3.61
Demand Total	3.53	3.95	4.37	4.78	4.78
Difference	0.37	(0.06)	(0.64)	(1.12)	(1.17)
Supply Deficit, %	--	2%	15%	23%	24%
WSCP Stage	--	1	2	3	3

7.5 DROUGHT RISK ASSESSMENT

In accordance with CWC Section 10612, urban water suppliers must conduct a DRA, which evaluates the risk of a severe drought occurring for the next five consecutive years (2021-2025). Supply conditions for the DRA are based on the five driest consecutive years on record, with adjustments to consider plausible changes in climate, regulations, and other locally applicable criteria.

This section reviews the data and methods used to define the DRA water shortage condition and evaluates each water source's reliability under the proposed drought condition. Finally, total water supplies during the five-year drought are compared to projected demands, accounting for any applicable supply augmentation or demand reduction measures available to the City.

7.5.1 Data, Methods, and Basis for Water Shortage Condition

The DRA assumes the projected reductions in SFPUC supplies with the Bay-Delta Plan Amendment in effect by 2023, resulting in significantly reduced imported supplies, particularly in 2023, 2024 and 2025. Availability of City groundwater supplies is projected to remain constant in each year of a five-year drought assuming that the City does not exceed the sustainable yield of 2.1 MGD.

7.5.2 Drought Risk Assessment Water Source Reliability

Table 7-17 summarizes the City's available supplies for each year of the DRA.

Table 7-17. Projected Water Supplies for Drought Risk Assessment

Supply Source	2021	2022	2023	2024	2025
SFPUC Surface Water[(a)], MGD	3.39	3.40	1.80	1.80	1.80
NCCWD Surface Water[(b)], MGD	0.05	0.05	0.03	0.03	0.03
Groundwater[(c)], MGD	2.10	2.10	2.10	2.10	2.10
Total Supplies, MGD	**5.54**	**5.55**	**3.93**	**3.93**	**3.93**
Total Supplies, CCF	**2,703,342**	**2,708,222**	**1,917,714**	**1,917,714**	**1,917,714**

(a) Based on April 1, 2021 BAWSCA tables showing SFPUC drought cutbacks. Values shown are based on Table F2: Individual Agency Drought Allocations, Base Year 2020 with Bay-Delta Plan Amendment assumed to take effect in 2023.
(b) Dry year NCCWD supply is assumed to be subject to the same level of reduction as the City's SFPUC supply.
(c) Refer to Table 7-11.

7.5.3 Total Water Supply and Use Comparison

As shown in Table 7-18, during a five-year drought beginning in 2021, the City's supplies are adequate to meet projected demands through 2025, despite the significant cutbacks in SFPUC supplies resulting from the impacts of the Bay-Delta Plan Amendment which is assumed to take effect in 2023.

Table 7-18. Five-Year Drought Risk Assessment Tables to Address Water Code Section 10635(b)

Water Use/Supplies	2021	2022	2023	2024	2025
MGD					
Total Water Use[a]	3.20	3.28	3.37	3.45	3.53
Total Supplies[b]	5.54	5.55	3.93	3.93	3.93
Surplus (Deficit)	**2.34**	**2.27**	**0.56**	**0.48**	**0.40**
CCF					
Total Water Use[a]	1,560,478	1,601,446	1,642,414	1,683,381	1,724,349
Total Supplies[b]	2,703,342	2,708,222	1,917,714	1,917,714	1,917,714
Surplus (Deficit)	**1,142,864**	**1,106,776**	**275,300**	**234,333**	**193,365**

(a) Refer to Table 4-4 for the projected demand for each year of the DRA.
(b) Refer to Table 7-17.

CHAPTER 8
Water Shortage Contingency Plan

This chapter discusses the City's WSCP, seismic risk to the City's facilities, and WSCP adoption procedures. To allow for WSCP updates to be made independently of the UWMP preparation process, the City's WSCP is included in this plan as Appendix I.

8.1 WATER SHORTAGE CONTINGENCY PLANNING BACKGROUND

Water shortages occur whenever the available water supply cannot meet the normally expected customer water use. This can be due to several reasons, including climate change, drought, and catastrophic events. Drought, regulatory action constraints, and natural and manmade disasters may occur at any time. A Water Shortage Contingency Plan presents how an urban water supplier plans to respond to a water shortage condition and helps prevent catastrophic service disruptions.

In 2018, the California State Legislature enacted two policy bills, SB 606 (Hertzberg) and AB 1668 (Friedman) (2018 Water Conservation Legislation), to establish a new foundation for long-term improvements in water conservation and drought planning to adapt to climate change and the resulting longer and more intense droughts in California. The 2018 Water Conservation Legislation set new requirements for water shortage contingency planning; the City's WSCP has been updated to be consistent with these requirements.

8.2 WATER SHORTAGE CONTINGENCY PLAN

The City's WSCP is included in this plan as Appendix I. The WSCP describes the City's strategic plan for preparing and responding to water shortages. San Bruno Municipal Code (SBMC) Chapter 10.16 *Water Conservation* supports the City's WSCP actions.

The WSCP includes water shortage levels and associated actions that will be implemented in the event of a water supply shortage. Descriptions for the City's legal authorities, communication protocols, compliance and enforcement, and monitoring and reporting are also included.

The City intends for its WSCP to be an adaptive management plan so that it may assess response action effectiveness and adapt to foreseeable and unforeseeable events. It may also be updated to conform to State legislative and regulatory requirements. The City's WSCP is included as an appendix to this plan so that it may be updated independently of the UWMP preparation process. When an update to the WSCP is proposed, the revised WSCP will undergo the process described in Section 8.4.

8.3 SEISMIC RISK ASSESSMENT AND MITIGATION PLAN

CWC Section 10632.5(a) requires that UWMPs include a seismic risk assessment and mitigation plan to assess and mitigate a water system's vulnerabilities. Details about the City's seismic risk assessment and mitigation plan are provided in Appendix I, Section 4.6.

8.4 WATER SHORTAGE CONTINGENCY PLAN ADOPTION, SUBMITTAL, AND AVAILABILITY

The City's WSCP (Appendix I) is adopted concurrently with this plan, by separate resolution. Prior to adoption, a duly noticed public hearing was conducted. An electronic copy of the WSCP will be submitted to DWR within 30 days of adoption.

No later than 30 days after adoption, a copy of the WSCP will be available at the City's offices. A copy will also be provided to San Mateo County. An electronic copy of the WSCP will also be available for public review and download on the City's website.

When a revised WSCP is proposed, the revised WSCP will undergo the process described in this section for adoption by City Council and distribution to San Mateo County, its customers, and the general public.

CHAPTER 9
Demand Management Measures

This chapter describes the City's historical and existing water conservation efforts, status of implementation of the Demand Management Measures (DMMs), and projected future conservation implementation.

In previous UWMPs, a substantial amount of data was required to document a water supplier's progress in implementing specific DMMs. In 2014, AB 2067 simplified, clarified, and updated reporting requirements for DMMs. Focus turned away from detailed descriptions of each of the DMMs and turned to key water conservation measures that are being implemented to achieve compliance with SB X7-7 water use targets. For retail agencies, the number of DMMs was reduced to six specific measures (plus an "other" category). A narrative description of the status of the DMMs and how the DMMs will help the water supplier achieve its water efficiency goals is required. Detailed data are not required.

The following sections discuss current and planned implementation efforts for the various DMMs by the City.

9.1 WATER CONSERVATION PROGRAM OVERVIEW

The City has long been committed to reducing the demand for potable water through the implementation of various water conservation programs, and as described in this chapter, have increased their water conservation efforts in response to historical drought conditions. The City's customers have responded positively to these programs, resulting in savings exceeding water use reduction goals.

9.2 DEMAND MANAGEMENT MEASURES

The six DMMs required to be discussed in this plan include the following:

- Water waste prevention ordinances
- Metering
- Conservation pricing
- Public education and outreach
- Programs to assess and manage distribution system real loss
- Water conservation program coordination and staffing support
- Other demand management measures

For each DMM, the current program is described, followed by a description of how the DMM was implemented over the previous five years and the City's plans for continued implementation.

9.2.1 Water Waste Prevention Ordinances

The City's Water Conservation Plan, outlined in the City's Municipal Code (SBMC §10.16), defines and prohibits "non-essential" water uses during times of drought. These prohibitions are discussed in *Chapter 8 Water Shortage Contingency Plan* in further detail. The City's Municipal Code identifies a variety of activities related to indoor and outdoor water use (e.g., excess landscape watering, indiscriminate running of water that results in runoff into the street or gutter) and empowers City staff to enforce these prohibitions with both civil and criminal penalties (see discussion in Chapter 8).

The effectiveness of this DMM is evaluated based on the number of violations observed. Over the past five years, the City received and responded to a single complaint/violation.

Implementation of this DMM is ongoing. Although water savings from this program cannot be directly quantified, it is expected to help the City achieve its water use targets by minimizing the nonessential uses of water so that water is available to be used for human consumption, sanitation, and fire protection.

9.2.2 Metering

The City meters all of its water customers and charges its customers based on the size of their meter, type of customer account (e.g., single family home versus commercial establishment), and the quantity of water used as described in Section 9.2.3.

In February 2016, the City completed the installation of an Advanced Metering Infrastructure system that reads water consumption to an accuracy of 1 cubic foot of water. The Advanced Metering Infrastructure system allows for real-time monitoring of customer water use and allows customers to easily monitor their own water use using an on-line portal where they can set up alerts to better manage their water use. It also helps the City in assisting customers improve their water use efficiency.

Implementation of this DMM is expected to help the City achieve its water use targets by providing accurate water use information to the customer and the City.

9.2.3 Conservation Pricing

All of the City's water customers are billed with a monthly service charge based on the size of the water meter, plus a usage charge for all metered water consumption. Meter service charges range from $25.58 per month for a 3/4-inch diameter meter to $1,961.13 for a 10-inch meter. Service charges based on meter size and account type are listed in the City's Water Rate Schedule (included in Appendix J).

The water consumption usage charges are based on every unit of water used (where one unit of water equals 100 cubic feet or 748 gallons). Rates are based on wholesale water prices from the SFPUC and the cost of groundwater production and water distribution by the City. Single-family customers are billed based on a tiered rate structure, with the unit price of water increasing as consumption increases. All other customers are billed based on a uniform rate. The City's current water rates (effective July 1, 2020) are included in Appendix J. Volumetric rates provide the City's water customers financial incentive for water conservation.

Additionally, to compensate for revenue losses and the resulting fiscal impacts during periods of water conservation, the City Council maintains the authority to adopt conservation pricing and water use surcharges in times of drought (SBMC §10.16.140). However, the City elected to not implement conservation pricing during the most recent 2012-2016 drought.

Implementation of this DMM is expected to help the City achieve its water use targets by ensuring water customers pay the true cost of water and to adequately fund water system operations and maintenance, including repair and replacement programs, and water conservation programs. The City will evaluate the effectiveness of its rates by tracking changes in unit water use resulting from rate increases.

9.2.4 Public Education and Outreach

To promote water conservation, the City seeks to foster sustainable changes in behavior, not just temporary responses to drought, through public outreach and school education.

9.2.4.1 Public Outreach

The City distributes information about water conservation to the public through bill inserts and brochures. The City also maintains a website providing water conservation tips and rebate applications for turf replacement. Information provided by the City includes tips for both indoor water use (e.g., toilets, washers, showers, and leak detection), as well as outdoor water use (e.g., irrigation, xeriscape, ET controllers, etc.). This site is maintained by the Water Conservation Coordinator. At the Public Services Department Counter at City Hall, the City offers free drought information, low-flow showerheads, faucet aerators, and 5-minute shower timers to the public. Between 2016 and 2020, 1,250 shower heads, 1,750 faucet aerators, and 801 5-minute shower timers were distributed.

The City participates in the BAWSCA free landscaping classes as described on BAWSCA's website. BAWSCA Landscape Class Series is designed to introduce homeowners, commercial property managers, landscape service providers, and others to the concepts of sustainable landscaping, focusing on creating beautiful, water-efficient gardens.

9.2.4.2 School Education

Starting in FY 2009/10, the EarthCapades assembly program was implemented throughout the City. EarthCapades performances combine age-appropriate state science standards with circus skills, juggling, music, storytelling, comedy, and audience participation to teach environmental awareness, water science and conservation. The EarthCapades Assembly Program is designed to include local water source and watershed education and information. The City has budgeted $10,000 for the EarthCapades program in FY 2020/21. The City is continuing the EarthCapades assembly program as its primary means of school education.

9.2.4.3 Implementation

Implementation of public education and outreach is ongoing and expected to help the City achieve its water use targets by educating water users about the value of water and the importance of improving water use efficiency and avoiding water waste.

9.2.5 Programs to Assess and Manage Distribution System Real Loss

To help minimize water loss within the system, the City's Public Services Department staff conduct leak investigations and repair leaks on a regular basis. Leak investigations are triggered by abnormally high water bills (e.g., a 20 percent increase in water use from the previous month or from the same billing cycle of the previous year). When leaks in the system are detected, they are repaired by the City. Approximately 100 water system leaks are fixed each year. Leaks on the customer's side of the meter are reported to the customer and the City advises them on repair.

The City conducts annual system water audits to determine the quantity of water lost (i.e., non-revenue water) by comparing the City's total water supplies with its metered water consumption. Total water supplies are recorded by the City's Public Services Department, while water consumption is recorded by

the City's Finance Department. The City's average non-revenue water for FY 2015/16 through FY 2019/20) is 8.0 percent.

The City will continue to monitor its potable water distribution system efficiency with a goal to maintain it above 90 percent efficient (with system losses being no more than 10 percent).

Implementation of this DMM is ongoing and expected to help the City achieve its water use targets by quickly identifying sources of water loss so repairs can be made and losses minimized.

9.2.6 Water Conservation Program Coordination and Staffing Support

The City's water conservation program is staffed by a Water Conservation Coordinator, who performs system audits, maintains water conservation materials, and coordinates the BAWSCA conservation programs and other City water conservation programs. The position is supported by other Public Services Department staff, as needed.

The City's residential surveys (surveys) are performed on request or when triggered by abnormally high bills or leak investigations. The survey consists of an in-person visit to the residence by the Water Conservation Coordinator or other Public Services Department staff member to determine the source of increased water use (e.g., leaks, swimming pools, guests, etc.). This site visit includes checks for leaks in toilets and faucets, showerhead flow rates and replacement recommendations, as well as checks on irrigation and landscape systems.

Implementation of this DMM is ongoing and expected to help the City achieve its water use targets by making water conservation and implementation of the City's water conservation program a priority.

9.2.7 Other Demand Management Measures

In addition to the six DMMs described above, the City also implements the following programs:

- Residential retrofits
- Large landscape program
- Commercial, industrial, institutional programs
- High-efficiency toilet rebate program

These programs are described in detail below.

9.2.7.1 Residential Retrofits

Information regarding residential plumbing water saving fixtures and retrofits is available at the City's Public Services Department and on the City's Water Conservation website. As described above, the City has free conservation giveaways (faucet aerators, low-flow showerheads and 5-minute shower timers) and provides information on water saving tips for residential plumbing fixtures in the form of brochures, pamphlets, and on the City's website.

Since FY 2010/11, the City has implemented a "Cash for Grass" buyback program for residential customers. This program was subsequently renamed to the "Lawn Be Gone!" program. Through the program, the City will pay $1.00 per square foot of grass that is removed and replaced with drought-resistant plants and a drip irrigation system. The total rebate amount per customer is up to $1,000. At least 200 square feet of grass must be replaced. Between 2016 and 2020, the City has allocated an average annual budget of $9,000 for the Lawn Be Gone! program.

A new rain garden rebate was added to the Lawn Be Gone! Program for FY 2020/21. This rebate encourages the installation of rain gardens to help capture, clean, and absorb rainwater. Approved rain garden design plans are eligible for a $300 rebate.

Implementation of this DMM is ongoing and expected to help the City achieve its water use targets by reducing the amount of water consumed by its residential customers.

9.2.7.2 Large Landscape Program

The City offers BAWSCA's Large Landscape Program to its landscape customers. This program includes the development and monthly distribution of landscape water budgets for selected accounts and actual large landscape surveys to assess landscape watering needs. A key component of the program is ongoing monitoring/tracking of actual water use and estimated water savings for the sites surveyed. Between 2016 and 2020, 26 sites took advantage of the program. The City will continue to offer the Large Landscape Program and has $5,000 budgeted for FY 2020/21.

The City complies with the State's updated 2015 Model Water Efficient Landscape Ordinance (MWELO). The Governor's Executive Order B-29-15 called for revising the Ordinance to increase water efficiency standards for new and retrofitted landscapes through more efficient irrigation systems, graywater usage, on-site storm water capture, and by limiting the portion of landscapes that can be covered in turf. Compliance with the MWELO is overseen by the Planning Department.

Implementation of this DMM is ongoing and expected to help the City achieve its water use targets by preventing planting of landscaping that misuse or waste water.

9.2.7.3 Commercial, Industrial, Institutional Programs

In January 2006, the City switched to a new accounting software that facilitates easier tracking of individual CII accounts and enables the City to target these accounts for water conservation purposes.

The City participated in BAWSCA's regional program to offer rebates for purchase of high efficiency commercial clothes washers up until 2019. The program was designed to encourage the replacement of inefficient, top-loading washers in commercial settings with more efficient washers. The City also participated in BAWSCA's high efficiency toilet rebate program until 2020.

In addition, since FY 2008/09, the City has participated in BAWSCA's large landscape program described in Section 9.2.7.2, which targets the highest landscape water users in the City and provides site surveys, monthly water use reporting, and water use budgets to help customers reduce water use.

Implementation of this DMM is ongoing and expected to help the City achieve its water use targets by reducing the amount of water consumed by its CII customers.

9.2.7.4 High-Efficiency Toilet Rebate Program

Between 2009 and 2020, San Bruno participated in BAWSCA's regional water conservation program for water-efficient toilets. In conjunction with the BAWSCA program, the City offered a rebate of $75 per toilet if the customer replaced a toilet that uses 3.5 gallons per flush (GPF) or more with a U.S. Environmental Protection Agency (EPA) WaterSense Labeled High Efficiency Toilet (HET) using 1.28 GPF or less (Standard HET), or $125 per toilet if replaced with a Premium HET using 1.06 GPF or less. Between 2016 and 2020, the City maintained an annual average budget of $8,000 for toilet rebates.

9.3 PLANNED IMPLEMENTATION TO ACHIEVE WATER USE TARGETS

Water conservation measures are a vital part of the City's overall plan to achieve, reliable, high quality, and cost-effective water supply for its customers. The City has implemented a number of water conservation measures to educate its water customers and encourage the efficient use of available water supplies. The City plans to continue implementing the DMMs described above to help achieve its water use targets.

9.4 WATER USE OBJECTIVES (FUTURE REQUIREMENTS)

In 2018, the Legislature enacted two policy bills, (SB 606 (Hertzberg) and AB 1668 (Friedman)), to establish In 2018, the Legislature enacted two policy bills, (SB 606 (Hertzberg) and AB 1668 (Friedman)), to establish a new foundation for long-term water conservation and drought planning to adapt to climate change and the associated longer and more intense droughts in California. These two policy bills build on SB X7-7 and expands authorities and requirements for urban water use efficiency. The legislation sets standards for indoor residential water use and requires the State Water Board, in coordination with DWR, to adopt efficiency standards for outdoor residential water use, CII outdoor water use with dedicated irrigation meters, and water loss. At the time of preparation of this plan, DWR and the State Water Board are in the process of developing new standards for water loss, indoor (non-residential) water use, and outdoor water use. These standards will require urban water retailers to develop agency-wide water use objectives and provide annual reports to DWR.

The Legislature established indoor residential water use standards as 55 gpcd until January 2025, 52.5 gpcd from 2025 to 2029, and 50 gpcd in January 2030, or a greater standard recommended by DWR and the State Water Board. By June 30, 2022, the State Water Board is anticipated to adopt an outdoor residential water use standard, a standard for CII outdoor water use with dedicated irrigation meters, and performance measures for CII water uses. At that time, the State Water Board will adopt guidelines and methodologies for calculating the water use objectives. In accordance with CWC §10609.20(c), the water use objectives for urban water retailers will be based on the estimated efficient indoor and outdoor residential water use, efficient outdoor irrigation of CII landscaped areas, estimated water losses, and estimated water use for variances approved by the State Water Board aggregated across the population in its water service area.

By January 1, 2024, and January 1 of every year thereafter, the City will need to calculate its urban water use objectives and actual water use and provide an annual report to DWR.

CHAPTER 10
Plan Adoption, Submittal, and Implementation

This chapter provides information regarding the notification, public hearing, adoption, and submittal of the City's 2020 UWMP and WSCP. It also includes discussion on plan implementation and the process of amending the UWMP and the WSCP.

10.1 INCLUSION OF ALL 2020 DATA

Because 2020 is the final compliance year for SB X7-7, the 2020 UWMPs must contain data through the end of 2020. If a water supplier bases its accounting on a fiscal year (July through June), the data must be presented through the end of the 2020 fiscal year (June 2020). If the water supplier bases its accounting on a calendar year, the data must be presented through the end of the 2020 calendar year (December 2020).

As indicated in Section 2.4 of this plan, the City uses a fiscal year for water supply and demand accounting, so therefore this plan includes data through June 2020.

10.2 NOTICE OF PUBLIC HEARING

In accordance with the Act, the City must provide an opportunity for the public to provide input on this plan. The City must consider all public input prior to its adoption. There are two audiences to be notified for the public hearing: cities/counties and the public.

10.2.1 Notices to Cities and Counties

The City provided greater than a 60-day notice regarding the preparation of its 2020 UWMP and WSCP to cities (City of San Bruno) and counties (San Mateo County) in its service area as discussed in Section 2.5 of this plan. In addition, the City also provided notices to the following adjacent agencies and stakeholders:

- San Francisco Public Utilities Commission (SFPUC)
- Bay Area Water Supply and Conservation Agency (BAWSCA)
- South San Francisco Water Quality Control Plant
- North Coast County Water District (NCCWD)

The City coordinated the preparation of this plan internally and with the above listed agencies. The notices of preparation are included as Appendix D. Upon substantial completion of this plan, the City also provided the agencies listed above, including internally within the City and San Mateo County, notice of public hearing (Appendix D).

10.2.2 Notice to the Public

The City issued a notice of public hearing to the public and provided a public review period following the notice, and prior to adoption of the 2020 UWMP and WSCP, to allow ample time for public comments to be prepared and received.

A notice of public hearing was issued in accordance with Government Code Section 6066 and was published twice in the local newspaper (San Mateo Daily Journal). In addition, the notice was posted on the City's website, www.sanbruno.ca.gov. A copy of the published Notice of Public Hearing is included in Appendix D.

10.3 PUBLIC HEARING AND ADOPTION

The City encouraged community participation in the development of this plan, including its WSCP, using public notices and web-based communication. Notices included the time and place of the public hearing, as well as the location where the plan is available for public inspection.

The public hearing provided an opportunity for City water users and the general public to become familiar with the 2020 UWMP and WSCP and ask questions about the City's continued plans for providing a reliable, safe, high-quality water supply and mitigating potential water shortage conditions. Copies of the Draft 2020 UWMP were made available for public inspection at City Hall, the San Bruno Public Library, and on the City's website.

10.3.1 Public Hearing

A public hearing was held on October 26, 2021. As part of the public hearing, the City provided a report on the City's compliance with the Water Conservation Act of 2009. The report included information on the City's baseline per capita water use, water use targets and compliance, WSCP, and implementation of the UWMP. The 2020 UWMP will be the source document for any SB 610 Water Supply Assessments or SB 221 Water Supply Verifications required for any proposed projects in the City's water service area between 2021 and 2025 that are subject to the California Environmental Quality Act and would demand an amount of water equivalent to or greater than the amount of water required by a 500 dwelling unit project.

10.3.2 Adoption

Subsequent to the public hearing, this 2020 UWMP and WSCP were adopted by the City Council on October 26, 2021. The City adopted the updated WSCP separately so that it may be updated independently of the UWMP if needed. A copy of the adopted resolutions is included in Appendix K.

10.4 PLAN SUBMITTAL

This 2020 UWMP will be submitted to DWR within 30 days of adoption . The adopted 2020 UWMP will be submitted electronically to DWR using the Water Use Efficiency (WUE) data submittal tool. A CD or hardcopy of the adopted 2020 UWMP will also be submitted to the California State Library.

No later than 30 days after adoption, a copy of the adopted 2020 UWMP, including the WSCP, will be provided to the cities and counties to which the City provides water.

10.5 PUBLIC AVAILABILITY

No later than 30 days after submittal to DWR, copies of this plan, including the adopted WSCP, will be available for public review during normal business hours at City Hall and the San Bruno Public Library. An electronic copy of the adopted plan will also be available for review and download on the City's website (www.sanbruno.ca.gov).

10.6 AMENDING AN ADOPTED UWMP OR WATER SHORTAGE CONTINGENCY PLAN

The City may amend its 2020 UWMP and WSCP jointly or separately. If the City amends one or both documents, the City will follow the notification, public hearing, adoption, and submittal process described in Sections 10.2 through 10.4 above. In addition to submitting amendments to DWR through the WUE data portal, copies of amendments or changes to the plans will be submitted to the California State Library, and any city or county within which the supplier provides water supplies, within 30 days after adoption.