FINAL - JUNE 2016

CITY OF SAN BRUNO

2015 Urban Water Management Plan

WEST YOST ASSOCIATES

City Of SAN BRUNO

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Final
2015 Urban Water Management Plan

Prepared for

City of San Bruno

June 2016

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List of Acronyms

°F	Degrees Fahrenheit
AB	Assembly Bill
Act	Urban Water Management Planning Act
AF	Acre-Feet
AFA	Acre-Feet Per Year
AMI	Advanced Metering Infrastructure
AWWA	American Water Works Association
BARDP	Bay Area Regional Desalination Project
BART	Bay Area Rapid Transit
Baseline GPCD	Baseline Gallons Per Capita Per Day
BAWSCA	Bay Area Water Supply and Conservation Agency
Bioterrorism Act	Security and Bioterrorism Preparedness and Response Act of 2002
BMPs	Best Management Practices
CCF	Hundred Cubic Feet
CDD	City Distribution Division
CDoF	California Department of Finance
CEQA	California Environmental Quality Act
CII	Commercial, Industrial, and Institutional
CIMIS	California Irrigation Management Information System
City/San Bruno	City of San Bruno
CUWCC	California Urban Water Conservation Council
CWC	California Water Code
Demand Study	Regional Water Demand and Conservation Projections Report
Department	San Bruno's Public Services Department
DMMs	Demand Management Measures
DRIP	Drought Implementation Plan
DWR	Department of Water Resources
DWR Guidebook	2015 Urban Water Management Plans Guidebook for Urban Water Suppliers
EBMUD	East Bay Municipal Utility District
EOP	Emergency Operations Plan
EPA	U.S. Environmental Protection Agency
ERP	Emergency Response Plan
ERRP	Emergency Response and Recovery Plan
ET	Evapotranspiration
ETo	Reference Evapotranspiration
FY	Fiscal Year
GPCD	Gallons Per Capita Per Day
GPF	Gallons Per Flush
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan

GSR	Groundwater Storage and Recovery
GWMP	Groundwater Management Plan
HET	High Efficiency Toilet
Housing Element	San Bruno Housing Element
in/mo	Inches Per Month
ISAs	Interim Supply Allocations
ISG	Individual Supply Guarantee
ISL	Interim Supply Limitation
MG	Million Gallons
MGD	Million Gallons Per Day
MWELO	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 Project	Regional Groundwater Storage and Recover Project
RMF	Residential Multifamily
RSF	Residential Single Family
RWS	Regional Water System
SB X7-7	Water Conservation Act of 2009
SBMC	San Bruno Municipal Code
SFPUC	San Francisco Public Utilities Commission
SGMA	Sustainable Groundwater Management Act of 2014
SMCWPPP	County of San Mateo's Water Pollution Prevention Program
Strategy	BAWSCA's Long-Term Reliable Water Supply Strategy
Surveys	San Bruno's Residential Surveys
SWRCB	State Water Resources Control Board
Transit Plan	Transit Corridors Area Plan
UAW	Unaccounted for Water
UWMP	Urban Water Management Plan
West Yost	West Yost Associates
WQB	Water Quality Bureau
WQCP	Water Quality Control Plant
WS&TD	Water Supply and Treatment Division
WSA	Water Supply Agreement
WSAP	Water Shortage Allocation Plan
WSIP	Water System Improvement Program

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EXECUTIVE SUMMARY

ES.1 INTRODUCTION

Over the last several years, Urban Water Management Plans (UWMPs) have assumed a very important role in water supply planning and management for communities in California. UWMPs have become the foundational documents which cities and water agencies use to develop water supply assessments and other key water supply reliability documents in support of providing water service to existing customers and future development in accordance with adopted General Plans and established Spheres of Influence.

With the current unprecedented water supply conditions in California, development of the 2015 UWMPs comes at a pivotal time. Current drought conditions have resulted in State mandates for water conservation and have led to the passage of the Sustainable Groundwater Management Act of 2014 (SGMA). These actions will impact all water suppliers and all water users in the State. With the improving economy statewide, the need for reliable water supplies to serve existing customers, as well as new development, is more critical than ever. Also, 2015 is the first compliance year for the interim water use targets required by the Water Conservation Act of 2009 (SB X7-7).

As described in this 2015 UWMP, the City of San Bruno's (City's) water customers have responded positively to the call for water conservation and the City continues to be committed to the implementation of good water management practices to ensure that adequate, reliable water supplies are available to meet existing and projected demands. The City has met its interim 2015 per capita water use target and is well positioned to meet the final 2020 per capita water use target.

ES.2 WATER CODE REQUIREMENTS

The Urban Water Management Planning Act (Act) requires water suppliers that provide over 3,000 acre-feet per year (AFA) or have over 3,000 connections to prepare and submit to the State Department of Water Resources (DWR) an Urban Water Management Plan every 5 years.

The UWMP 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 SB X7-7. This act required agencies to establish water use targets for 2015 and 2020 that would result in statewide water savings of 20 percent by 2020.

The primary objective of the UWMP Act is to direct "urban water suppliers" to develop an UWMP which 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.

In Fiscal Year (FY) 2014/15, the City supplied approximately 3.14 million gallons per day (MGD) (equivalent to 3,512 AFA of potable water to 11,425 water customers located within its service area. The City is therefore considered an urban water supplier and is required to submit an UWMP. This 2015 UWMP describes the City's water system, historical and projected water use, water supply sources, and a comparison of projected water supply to water demands during normal, single-dry, and multiple-dry years in five-year increments from 2020 to 2040. As required by

SB X7-7, this 2015 UWMP also confirms the City's 2015 and 2020 water use targets, verifies the City's compliance with the interim 2015 per capita water use target, and describes the City's implementation plan for meeting the City's final 2020 per capita water use target.

The City's 2015 UWMP (or Plan) has been prepared in accordance with the UWMP Act, as defined by the California Water Code, Division 6, Part 2.6, Sections 10610 through 10656 (Urban Water Management Planning), and the Water Conservation Act of 2009 (WC Act, also known as SB X7-7), as defined by California Water Code, Division 6, Part 2.55, Section 10608 (Sustainable Water Use and Demand Reduction). A copy of the relevant sections of the Water Code are included in Appendix A of this document.

A brief summary of this 2015 UWMP's contents and the public review and adoption process is provided below, following a discussion of the legislative changes that have been enacted since the 2010 UWMPs were prepared and adopted.

ES.3 LEGISLATIVE CHANGES FROM 2010 UWMP

The legislative changes to the UWMP Act are described in Chapter 1. Some highlighted changes include:

- Demand Management Measures: Address the nature and extent of each water demand management measure implemented over the past 5 years in narrative form.
- 2015 UWMP Submittal Date to DWR: Changed from December 31, 2015 to July 1, 2016.
- Water Loss: Requires water suppliers to quantify and report on distribution system water loss using the American Water Works Association (AWWA) Water Audit methodology.
- Voluntary Reporting of Passive Savings due to new water codes and requirements.
- Voluntary Reporting of Energy Intensity: Describe the water/energy nexus.
- Defining Water Features: Water Shortage Contingency Plans must distinguish between water features that are artificially supplied with water (including ponds, lakes, waterfalls, and fountains) and swimming pools and spas.

ES.4 PLAN ORGANIZATION

This 2015 UWMP contains the appropriate sections and tables required per California Water Code Division 6, Part 2.6 (Urban Water Management Planning Act), included in Appendix A of this 2015 UWMP, and has been prepared based on guidance provided by DWR in their March 2016 "2015 Urban Water Management Plans, Guidebook for Urban Water Suppliers" (DWR Guidebook).

DWR's Urban Water Management Plan Checklist, as provided in the 2015 UWMP Guidebook, has been completed to demonstrate the Plan's compliance with applicable requirements. A copy of the completed checklist is included in Appendix C.

This 2015 UWMP is organized into the following chapters:

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

Appendices (listed in Chapter 1) provide relevant supporting documents, including the 2015 UWMP tables and SB X7-7 Verification Form.

ES.5 PLAN REVIEW AND ADOPTION

The UWMP Act requires the water supplier to coordinate the preparation of its Plan with other appropriate agencies, 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 2015 UWMP. The coordination and outreach are described in Chapter 2.

A public hearing to discuss the Draft 2015 UWMP was held on June 28, 2016.

Public hearings provide an opportunity for the City's water customers and the general public to become familiar with the Plan and to ask questions about its water supply and the City's continuing plans for providing a reliable, safe, high-quality water supply. The adoption, implementation and economic impact of revised per capita water use targets (described in Chapter 5) was also discussed. Copies of the Draft 2015 UWMP were made available for public inspection at City Hall, the San Bruno Public Library, and the City's website (www.sanbruno.ca.gov).

Water Code Section 10621(b) requires agencies to notify the cities and counties to which they serve water that the Plan is being updated and reviewed. This notification must be sent out at least 60 days in advance of the public hearing. In early 2016, a notice of preparation was provided to San Mateo County, and other stakeholders, to inform them of the UWMP update process and schedule and to solicit input for the Plan update. The notifications to cities and counties, the public hearing notifications, and the public hearing and adoption are discussed in Chapter 10 and provided in Appendix D.

This 2015 UWMP was adopted by the San Bruno City Council on June 28, 2016. A copy of the adoption resolution is provided in Appendix P.

Within 30 days of Plan adoption, a copy of the Plan will be submitted to DWR, the California State Library and the cities and counties to which the urban water supplier provides water.

Within 30 days of submitting the adopted Plan to DWR, copies of this Plan will be made available during normal business hours at the following locations:

- City Hall, 567 El Camino Real, San Bruno, California; and
- San Bruno Public Library, 701 Angus Avenue West, San Bruno, California.

A copy of the adopted Plan will also be available for review and download on the City's website (www.sanbruno.ca.gov).

Should this Plan be amended or changed, copies of amendments or changes to the Plan shall be submitted to DWR, the California State Library, and any city or county within which the City provides water supplies within 30 days after adoption of the amendment(s).

CHAPTER 1
Introduction and Overview

This chapter provides an introduction and overview of the City of San Bruno (City, or San Bruno) 2015 Urban Water Management Plan (UWMP) including the importance and extent of the City's water management planning efforts, changes since the preparation of the City's 2010 UWMP, and organization of the City's 2015 UWMP. This 2015 UWMP has been prepared jointly by City staff and West Yost Associates (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 due to 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 an UWMP which 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 10610 through 10656 of the California Water Code (CWC), is provided in Appendix A of this document.

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 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 clean and reliable water to its mostly residential and commercial customers. Expanding local groundwater sources and imported supplies from the San Francisco Public Utility Commission (SFPUC) have met the needs for water in the community. To continue to meet the water needs of the community, the City carefully manages its available water resources. The City's UWMP is a comprehensive guide for planning for a safe and adequate water supply.

1.3 CHANGES FROM THE 2010 UWMP

The Urban Water Management Planning 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 SB X7-7. This act required agencies to establish water use targets for 2015 and 2020 that would result in statewide water savings of 20 percent by 2020.

There have been several additions and changes to the California Water Code since the City's 2010 UWMP was prepared. These are summarized below:

- AB 2067 (Weber 2014)
  - CWC Section 10631(f)(1) and (2): Demand Management Measures
    - Requires water suppliers to provide narratives describing their water demand management measures, as provided.

    - Requires retail water suppliers to address the nature and extent of each water demand management measure implemented over the past 5 years and describe the water demand management measures that the supplier plans to implement to achieve its water use targets.
    - See Chapter 9 of this 2015 UWMP for a description of the City's Demand Management Measures.
  - CWC Section 20621(d): Submittal Date
    - Requires each urban water supplier to submit its 2015 plan to the Department of Water Resources by July 1, 2016.

- SB 1420 (Wolk 2014)
  - CWC Section 10644(a)(2): Submittal Format
    - Requires the plan, or amendments to the plan, to be submitted electronically to the department.
  - CWC Section 10644(a)(2): Standardized Forms
    - Requires the plan, or amendments to the plan, to include any standardized forms, tables, or displays specified by the department.
  - CWC 10631(e)(1)(J) and (e)(3)(A) and (B): Water Loss
    - Requires a plan to quantify and report on distribution system water loss.
    - See Chapter 4 of this 2015 UWMP for a description of the City's distribution system water losses.
  - CWC 10631(e)(4): Voluntary Reporting of Passive Savings
    - Provides for water use projections to display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans, when that information is available and applicable to an urban water supplier.
    - As described in Chapter 4, the City's water demand projections include passive water savings.

- SB 1036 (Pavley 2014)
  - CWC 10631.2(a) and (b): Voluntary Reporting of Energy Intensity
    - Provides for an urban water supplier to include certain energy-related information, including, but not limited to, an estimate of the amount of the energy used to extract or divert water supplies.
    - The City has opted to not report on energy intensity in this 2015 UWMP.

- CWC 10632: Defining Water Features
  - Commencing with the UWMP update due July 1, 2016, for purposes of developing the water shortage contingency analysis, requires urban water suppliers to analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas.
  - See Chapter 8 of this 2015 UWMP for a discussion of the City's Water Shortage Contingency Plan.

1.4 PLAN ORGANIZATION

This 2015 UWMP contains the appropriate sections and tables required per California Water Code Division 6, Part 2.6 (Urban Water Management Planning Act), included in Appendix A of this 2015 UWMP, and has been prepared based on guidance provided by the California Department of Water Resources (DWR) in its March 2016 "Guidebook to Assist Urban Water Suppliers to Prepare a 2015 Urban Water Management Plan" (DWR Guidebook).

This 2015 UWMP is organized into the following chapters:

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

This 2015 UWMP also contains the following appendices of supplemental information and data related to the City's 2015 UWMP:

- Appendix A: Legislative Requirements
- Appendix B: DWR UWMP Tables
- Appendix C: DWR UWMP Checklist
- Appendix D: Agency and Public Notices
- Appendix E: Water Audit
- Appendix F: Demand Study
- Appendix G: SB X7-7 Verification Form
- Appendix H: Water Supply Agreements
- Appendix I: South Westside Groundwater Management Plan
- Appendix J: Annual 2014 Water Quality Report
- Appendix K: SFPUC Supply Reliability Information
- Appendix L: Summary of BAIRWMP Climate Change Vulnerability Assessment
- Appendix M: Water Conservation Section of San Bruno Municipal Code

- Appendix N: City Water Shortage Resolutions
- Appendix O: City of San Bruno Water Rate Schedule
- Appendix P: UWMP Adoption Resolution

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

DWR's UWMP 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 2015 UWMP, 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 Urban Water Management Planning 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 annually (AFA).

A public water system (PWS) is a system that provides drinking water for human consumption though pipes or other constructed conveyances. The City manages PWS #4110023. In Fiscal Year (FY) 2014/15, the City provided approximately 3.14 million gallons per day (MGD) (equivalent to 3,512 AFA) of potable water through 11,425 municipal service connections; therefore, the City is required to prepare an UWMP. The City's last UWMP, the 2010 UWMP, was adopted by the City Council in June 2011.

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 the SFPUC. Collectively, the BAWSCA member agencies deliver water to over 1.74 million residents and nearly 40,000 commercial, industrial and institutional accounts in Alameda, San Mateo and Santa Clara Counties.

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 (RWS).

As described below in Section 2.3, the City has prepared this 2015 UWMP on an individual basis, not as part of a regional planning process. However, BAWSCA has had a role in the development of the 2015 UWMP updates by working with its member agencies and the SFPUC to seek consistency among the multiple documents being developed.

2.3 INDIVIDUAL OR REGIONAL PLANNING AND COMPLIANCE

This 2015 UWMP has been prepared on an Individual Reporting basis, covering only the City's service area. As described below in Section 2.4, the City has notified and coordinated with appropriate regional agencies and constituents, including the SFPUC, 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 2015 UWMP has been prepared on a FY basis, with the FY starting on July 1 and ending on June 30 of each year.

The Water Code does not specify which units must be used to report water demand and supply in the 2015 UWMPs. The DWR Guidebook, however, states that the UWMP tables are to be completed in one of the following units: acre-feet per year (AFA), 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 contracts specify water supply volumes in MGD, the City's reporting of water volumes throughout the text of this 2015 UWMP is in MGD, representing the average daily water demand or supply. For clarity, where appropriate, the tables in the text of this 2015 UWMP show data in both MGD and CCF.

2.5 COORDINATION AND OUTREACH

2.5.1 Agency Coordination

> *Water Code §10620(d)(1)(2)*
>
> *(d) (1) An urban water supplier may satisfy the requirements of this part by participation in area-wide, regional, watershed, or basin-wide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use.*
>
> *(2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.*

As described in Section 2.2, the City is a member of BAWSCA. BAWSCA members are all contract customers of the SFPUC for the wholesale purchase of water. 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, as well as the public, participated in the coordination and preparation of this 2015 UWMP. The City's potable water demand projections were provided to the City's water wholesalers, the SFPUC, and North Coast County Water District (NCCWD), as part of this planning procedure.

In January 2016, at the beginning of the UWMP update process, a notice of preparation was sent to stakeholders to inform them of the UWMP update process and schedule and solicit input for the update (see Chapter 10). A copy of the notice is included in Appendix D.

Following completion of the Draft UWMP, a notification of public review was placed in the local newspaper (San Mateo County Times) about the 2015 UWMP update process and copies of the Draft UWMP were made available at City Hall and at the San Bruno Public Library, with an electronic version placed on the City's website. Copies of the Draft UWMP were also sent directly to key stakeholder agencies, including San Mateo County (see Table 10-1 in Chapter 10). During the public review period, San Mateo County and other stakeholders, as well as the general public, were encouraged to comment on the draft document.

A public hearing to discuss the Draft UWMP was held on June 28, 2016. Noticing for the public hearing was conducted pursuant to Section 6066 of the Government Code.

Copies of the public hearing notices and notices to city and county entities served by the City, as well as other agencies, are included in Appendix D.

2.5.2 Public Participation

> *Water Code §10642 Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area. After the hearing, the plan shall be adopted as prepared or as modified after the hearing.*

The City has actively encouraged 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 on-going projects and posts announcements of planned rate increases to fund these water projects.

As part of development of this 2015 UWMP update, the City allowed a public review period following noticing and prior to adoption to allow ample time for public comments to be developed and received. Public noticing, pursuant to Section 6066 of the Government Code, was conducted prior to commencement of the public comment period. Public hearing notices are included in Appendix D of this document. During the public comment period, the Draft UWMP update was made available at City Hall and at the San Bruno Public Library, as well as on the City's website.

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CHAPTER 3
System Description

This chapter provides a description of the City's water system and service area, including a description of the water system facilities, climate, population and housing within the City's service area.

3.1 GENERAL DESCRIPTION

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

The City's Water Service Area, which is also the City Limits, is shown on Figure 3-1. The City's water system consists of four groundwater supply wells, eleven pressure zones, eight booster pump stations, eight water storage tanks, one filtering plant, over 100 miles of water mains ranging from 2 to 16 inches in diameter, and 11,425 metered service connections. San Bruno has four connections to the SFPUC water supply system and one connection to the NCCWD water supply system.

The City's Public Services Department maintains and replaces portions of the water system on an as needed basis. The City's water supply facilities and pressure zones are shown on Figure 3-1.

3.2 SERVICE AREA

The City is located in northern San Mateo County just west of the San Francisco International Airport, as shown in Figure 3-1. The City is bounded on the east by Highway 101, and on the west by the northern-most portion of the Golden Gate National Recreation Area. To the north lies the City of South San Francisco and to the south, the City of Millbrae. The City is approximately 3.5 miles wide with elevations ranging from near sea level in the east, to almost 1,200 feet along its western edge. These changes in elevation correspond with different land uses, including low-density residential areas to the west and higher-density residential, commercial, and institutional land uses in the lower-lying eastern portion of the City. Major transportation corridors include Highway 101, Interstates 280 and 380, El Camino Real, and two public transit lines (Caltrain and Bay Area Rapid Transit (BART)).

3.3 SERVICE AREA 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 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 to January.

Table 3-1. Monthly Average Climate Data Summary

Month	Standard Monthly Average ETo, inches[a]	Average Total Rainfall, inches[b]	Average Temperature, degrees Fahrenheit[b]	
			Max	Min
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	47.7
December	1.24	3.73	56.4	43.3
Totals	39.0	19.94	65.2	49.3

(a) Source: California Irrigation Management Information System (CIMIS) data for Zone 2 (downloaded February 19, 2016)
(b) Source: Western Regional Climate Center (www.wrcc.dri.edu) data for San Francisco International Airport, California (period of record: July 1, 1945 to January 20, 2015)

3.4 SERVICE AREA POPULATION AND DEMOGRAPHICS

Historical and projected population demographics are discussed below.

3.4.1 Historical Population and Employment

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 through 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. The historical population from 1985 through 2015 is shown in Table 3-2. In recent years, the City's growth rate has increased as the economy recovers from the recession that began in 2007 and has risen from 41,157 in 2010 to 44,409 in 2015. During the City's most rapid growth period in the 1960's and 1970's, its population comprised 6.5 percent of the total San Mateo County population. Most recently, in 2015, the City's share of the County's population has been slightly less than 6 percent. As a result, residential and commercial infill projects have continued to develop smaller portions of the City and may continue to do so in the future.

Table 3-2. Historical Population[a]						
1985	1990	1995	2000	2005	2010	2015
36,200	38,900	39,472	40,078	39,655	41,157	44,409

[a] Source: California Department of Finance (CDoF)

3.4.2 Future Developments and Population Projections

Population projections for the City have increased since the 2010 UWMP. The City's General Plan, which was published in 2009, projected the City's population to increase to a total of 47,374 residents by 2025. As shown in Table 3-3, current projections forecast the City to reach a population of 51,200 in 2025. This increase in projected population is largely due to the City's adoption of the Transit Corridors Area Plan (Transit Plan) in 2013.

The 2013 Transit Plan focuses on the segment of El Camino Real between Interstate 380 and Crystal Springs Road, and the Downtown core along San Mateo Avenue between Interstate 380 and El Camino Real, San Bruno Avenue between Highway 101 and Acacia Avenue, and Huntington Avenue between San Bruno Avenue and the San Bruno BART Station. The Transit Corridors Area encompasses parcels fronting onto these streets and generally does not include the residential neighborhoods between the corridors. The Transit Plan would add 890 residential units, 19,100 retail square feet, 666,600 office square feet, and 190 hotel rooms to the 2009 General Plan projections.

Thus, the City projects a total of 18,670 housing units within San Bruno by 2040 (17,780 according to the 2009 General Plan plus an additional 890 housing units from the 2013 Transit Plan).

Using these changes to the City's growth plans, the September 2014 BAWSCA Regional Demand and Conservation Projections Final Report projected the City's population to grow to 51,200 by 2025 and increasing to 56,860 by 2040, as shown in Table 3-3.

Table 3-3. Current and Projected Population[a]					
2015	2020	2025	2030	2035	2040
44,409	48,600	51,200	53,400	55,800	56,860

[a] Source: BAWSCA Regional Water Demand and Conservation Projections Final Report, September 2014

3.4.3 Service Area Demographics

The City's proximity to San Francisco and Silicon Valley job centers make it a desirable residential location and the City remains primarily a residential community.

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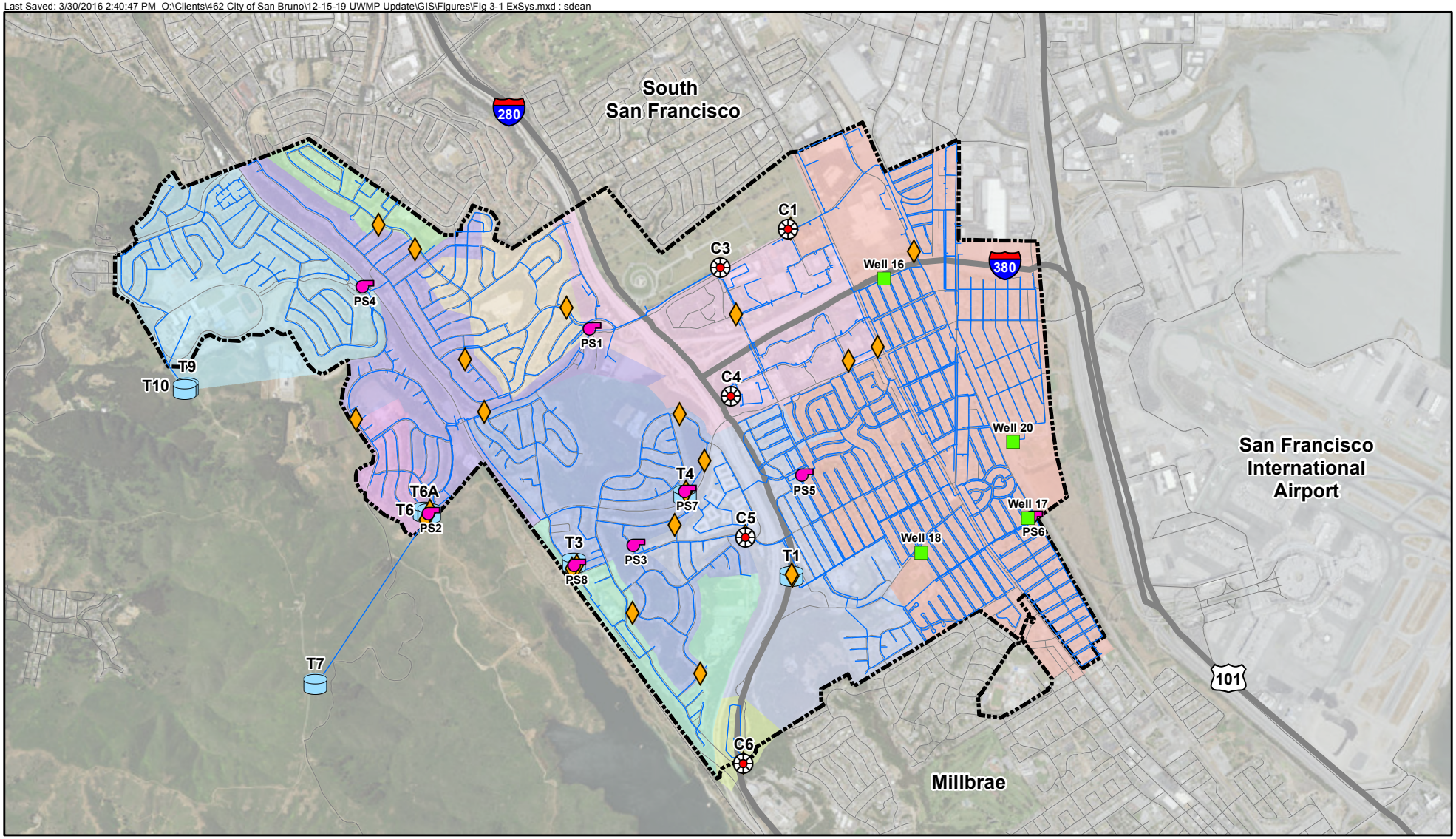

Symbology

- City Limits / Water Service Area
- Turnout
- Inactive Well
- Active Well
- Pressure Regulating Station
- Booster Pump Station
- Storage Tank
- Pipeline

Pressure Zones

1/4	9
2	10
3/5	11
6	12
7	13
8	

N

0 1,500 3,000

Scale in Feet

WEST YOST ASSOCIATES

Figure 3-1

City of San Bruno Current Water Service Area

City of San Bruno
2015 Urban Water Management Plan

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CHAPTER 4
System Water Use

This chapter describes and quantifies the City's past, current, and projected water use. Water demand projections are based on the selected SB X7-7 water use targets combined with the population projections according to BAWSCA. Accurately tracking and reporting current water demands allows the City to properly analyze the use of their water resources and conduct good resource planning.

4.1 RECYCLED VERSUS POTABLE AND RAW WATER DEMAND

The City currently provides only potable water (drinking water) to its customers. Potable water is water that has been treated to be safe to drink.

Recycled water is municipal wastewater that has been treated to a specified quality to enable it to be used again. As discussed in Chapter 6, the City does not currently receive or distribute any recycled water and has no plans to do so in the future.

Raw water is untreated water that is used in its natural state or with minimal treatment. The City does not deliver raw water to any customers in its service area.

4.2 WATER USES BY SECTOR

The definitions of each water use sector used in this UWMP are provided below, followed by the historical, current and projected water use by sector.

4.2.1 Water Use Sectors

Trends in water use within each customer sector are tracked based on meter code categories and grouped according to water use sectors described below.

- The *Residential* sector includes *Residential Single Family* (RSF) which includes all single family residential accounts within San Bruno's service area and *Residential Multifamily* (RMF) which includes apartments, boarding houses, multiple dwellings, and townhouse accounts.
- The *Commercial* sector includes businesses such as restaurants, hotels, hospitals, laundries, car washes, and other commercial operations. It also includes construction and food wholesale customers.
- The *City Parks and Facilities* sector includes government-related services, such as the police and fire departments, as well as religious and educational buildings. It also includes dedicated irrigation meters for commercial and institutional customers, as well as temporary meters and water main flushing.

4.2.2 Water Use by Sector

The historical and current City water demands are shown in Table 4-1. The water use sectors were grouped according to the City's customer sectors listed above. In FY 2014/15, residential water demands accounted for the majority (approximately 68 percent) of the City's water use, followed by commercial use (approximately 20 percent).

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

(a) Table 10, City of San Bruno 2005 UWMP, January 2007.
(b) Table 10, City of San Bruno 2010 UWMP, June 2011.

The City's projected water demands by use sector are shown in Table 4-2. The City's water demand is projected to increase by approximately 69 percent by 2040, from 3.14 to 5.31 MGD.

Table 4-2. Demands for Potable Water – Projected[a]					
Use Type[b]	Projected Water Use, MGD				
	2020	2025	2030	2035	2040
Residential	2.68	2.89	3.12	3.39	3.62
Commercial	0.78	0.84	0.91	0.99	1.06
City Parks and Facilities	0.16	0.17	0.18	0.20	0.21
Water Losses[c]	0.31	0.34	0.37	0.40	0.42
Total, MGD	3.93	4.24	4.58	4.98	5.31
Total, CCF	1,917,714	2,068,984	2,234,893	2,430,080	2,591,110

(a) Total demand based on Technical Memorandum #3 BAWSCA Regional Demand and Conservation Projections. Water Conservation Analysis - City of San Bruno, dated September 2014.
(b) The proportion of projected water demand for each use type is assigned based on the average proportions of water use during the period of FY 2008/09 through FY 2014/15.
(c) Future losses assumed to be 8 percent of total production.

The City's projected water demands by water type are shown in Table 4-3. As described in *Chapter 6 System Supplies*, the City does not project the future use of recycled water within its service area.

Table 4-3. Total Water Demands					
Demand Type	Projected Water Use, MGD				
	2020	2025	2030	2035	2040
Potable Water (from Table 4-2)	3.93	4.24	4.58	4.98	5.31
Recycled Water	0.00	0.00	0.00	0.00	0.00
Total, MGD	3.93	4.24	4.58	4.98	5.31
Total, CCF	1,917,714	2,068,984	2,234,893	2,430,080	2,591,110

4.3 DISTRIBUTION SYSTEM WATER LOSSES

System 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 such as fire protection and training, and system and street flushing. For FY 2014/15, the average unaccounted-for water comprised about 8 percent of the total water produced.

The City conducted a water audit using the method developed by the American Water Works Association (AWWA) and determined the volume of water losses in its distribution system, as summarized in Table 4-4. The complete AWWA Water Audit is included as Appendix E.

Table 4-4. 12-Month Water Loss Audit Reporting		
Reporting Period Start Date	Volume of Water Loss, MGD	Volume of Water Loss, CCF
July 2014	0.21[(a)]	102,791
[(a)] Does not include unbilled unmetered water demands of 0.04 MGD (19,124 CCF).		

4.4 ESTIMATING FUTURE WATER SAVINGS

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

Through the Demand Study process, BAWSCA and the wholesale customers coordinated to determine the following: (1) the total average-year water demand for each BAWSCA member agency through 2030; (2) passive and active conservation water savings potential for each individual wholesale customer through 2040; and (3) identified conservation programs for further consideration for regional implementation by BAWSCA. The Demand Study projected that by 2040 the collective active conservation efforts of the wholesale customers would yield an additional 16 MGD in savings beyond what has already been achieved for the BAWSCA service

area. Based on the revised water demand projections, the identified water conservation savings (including passive savings), and other actions, the collective purchases of the BAWSCA member agencies from the SFPUC are projected to stay below 184 MGD through 2018.

As part of the Demand Study, each wholesale customer was provided with a demand model that can be used to support on-going demand and conservation planning efforts, including UWMP preparation. The water projections shown in Tables 4-2 and 4-3 are based on the demand model developed for the City.

4.5 WATER USE FOR LOWER INCOME HOUSEHOLDS

According to the San Bruno Housing Element[1] (Housing Element), in 2010, approximately 46 percent of the City's households were classified as low income. The Housing Element further breaks down the low income households as follows: 12 percent extremely low income, 11 percent very low income, and 23 percent low income. For purposes of this 2015 UWMP, it has been assumed that the percentage of low income households will remain the same through the UWMP planning horizon. Therefore, as shown in Table 4-5, by 2040, lower income households are projected to consume 1.66 MGD, 46 percent of the projected 2040 residential demand of 3.62 MGD.

Table 4-5. Projected Water Demands for Lower Income Households

	Projected Water Use, MGD				
	2020	2025	2030	2035	2040
Lower Income Households[(a)]	1.23	1.33	1.43	1.56	1.66

[(a)] Based on 46 percent lower income households in 2010 per the San Bruno Housing Element 2015-2023.

The water use for lower income households shown in Table 4-5 is included in the total water use and water use projections in Tables 4-2 and 4-3.

4.6 CLIMATE CHANGE

The City's water demand and use patterns may be impacted by climate change. 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.

The potential impacts of climate change on the City's water supplies are described in *Chapter 6 System Supplies*.

[1] Table 2.3-9 City of San Bruno Households by Income Category and Housing Tenure (2010), San Bruno Housing Element 2015-2023, adopted April 14, 2015.

CHAPTER 5
SB X7-7 Baselines and Targets

In November 2009, SB X7-7, the Water Conservation Act of 2009, was signed into law by Governor Arnold Schwarzenegger as part of a comprehensive water legislation package. The Water Conservation Act addresses both urban and agricultural water conservation. The legislation sets a goal of achieving a 20 percent statewide reduction in urban per capita water use by the year 2020 (i.e., "20 by 2020"), and directs urban retail water suppliers to establish an "interim" per capita water use target to be met by 2015 and a "final" per capita water use target to be met by 2020.

The City's compliance with SB X7-7 was first addressed in the City's 2010 UWMP. The City's baseline per capita water use was determined, and urban water use targets for 2015 and 2020 were established and adopted. SB X7-7 included a provision that an urban water supplier may update its 2020 urban water use 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 (as described below, the 2010 Census data was not finalized until 2012).

The DWR Guidebook indicates that there were significant discrepancies between the CDoF estimated 2010 population (based on 2000 U.S. Census data) and the actual 2010 population (based on 2010 U.S. Census data). Therefore, if a water supplier did not use 2010 Census data for their baseline population calculations in the 2010 UWMP, DWR has determined that these water suppliers must recalculate their service area population for the 2015 UWMP using 2000 and 2010 Census data, and baseline and 2015 and 2020 urban water use targets must be modified accordingly.

This chapter provides a review and update of the City's baseline per capita water use, 2015 interim per capita water use target, and 2020 final per capita water use target in accordance with the requirements described in the DWR Guidebook and based on the 2010 Census population data. The City calculated baselines and targets on an individual reporting basis in accordance with SBx7-7 legislation requirements and Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use (DWR, 2016). The City has achieved compliance with its 2015 interim target, as discussed below, and is well positioned to achieve its 2020 final target.

Additional information on the City's baselines, targets and compliance is provided in the SB X7-7 Verification Forms which are referenced throughout this chapter and included in Appendix G.

5.1 UPDATING CALCULATIONS FROM 2010 UWMP

> *CWC 10608.20 (g) An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6 (commencing with Section 10610).*
>
> *Methodologies DWR 2016, Methodology 2 Service Area Population Page 25 - Water suppliers may revise population estimates for baseline years between 2000 and 2010 when 2010 census information becomes available. DWR will examine discrepancy between the actual population estimate and DOF's projections for 2010; if significant discrepancies are discovered, DWR may require some or all suppliers to update their baseline population estimates.*
>
> *DWR Guidebook, Required Use of 2010 U.S. Census Data page 5-5 – if an agency did not use 2010 Census data for their baseline population calculations in the 2010 UWMP…DWR has determined that these agencies must recalculate their baseline populations for the 2015 UWMPs using 2000 and 2010 Census data. This may affect the baseline and target GPCD values calculated in the 2010 UWMP, which must be modified accordingly in the 2015 UWMP.*

Population data from the 2010 U.S. Census were not made available until 2012, after the City submitted its 2010 UWMP. Therefore, the City updated its service area population and baseline and target water use for this 2015 UWMP to reflect 2010 Census data. The following sections describe these updates.

5.2 BASELINE PERIODS

SB X7-7 requires each urban water retailer to determine their baseline daily per capita water use, measured in gallons per capita per day (Baseline GPCD), 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 defines that for those urban water retailers that met at least 10 percent of their 2008 water demand using recycled water, the urban water retailer 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 had no recycled water deliveries. Therefore, the City's Baseline GPCD has been calculated over a 10-year period.

SB X7-7 also requires each urban water retailer to determine a 5-year baseline per capita water demand, which DWR calls the Target Confirmation, calculated over a continuous 5-year period ending no earlier than December 31, 2007 and no later than December 31, 2010.

Based on these requirements, the City has selected the following baseline periods:

- 10-year Baseline Period: July 1, 2000 through June 30, 2010 (FY 2000/01 through FY 2009/10)
- 5-year Baseline Period: July 1, 2005 through June 30, 2010 (FY 2005/06 through FY 2009/10)

These baseline periods are listed in SB X7-7 Table 1 in Appendix G. The 10-year and 5-year periods are the same as reported in the City's 2010 UWMP.

5.3 SERVICE AREA POPULATION

> *DWR Guidebook, Required Use of 2010 U.S. Census Data page 5-5 – if an agency did not use 2010 Census data for their baseline population calculations in the 2010 UWMP…DWR has determined that these agencies must recalculate their baseline populations for the 2015 UWMPs using 2000 and 2010 Census data. This may affect the baseline and target GPCD values calculated in the 2010 UWMP, which must be modified accordingly in the 2015 UWMP.*

This section includes a discussion of the City's service area population including 2000 and 2010 U.S. Census data. Population reported in the City's 2010 UWMP did not include 2010 U.S. Census data because the full Census data set was not available until 2012.

CDoF population data was used to determine the City's service area population, as the service area boundary is identical to the City limits. The CDoF 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.

CDoF updated the estimated population from 2001 through 2010 following an analysis of 2010 U.S. Census data. Historical service area population during the 10- and 5-year baseline periods are shown in Table 5-1 (and in SB X7-7 Table 3 in Appendix G). A comparison to the population estimates used in the 2010 UWMP is also provided in Table 5-1. As shown in Table 5-1, the revised population estimates are consistently less than the previous population estimates.

Table 5-1. Service Area Population

Year	FY Ending	Population as reported in the 2010 UWMP	Revised Population[a]
10-Year Baseline Population			
Year 1	2001	40,165	39,948
Year 2	2002	40,277	39,476
Year 3	2003	40,139	39,870
Year 4	2004	40,853	39,566
Year 5	2005	40,858	39,655
Year 6	2006	41,301	39,474
Year 7	2007	41,451	39,592
Year 8	2008	41,828	40,773
Year 9	2009	43,286	40,993
Year 10	2010	43,798	41,157
5-Year Baseline Population			
Year 1	2006	41,301	39,474
Year 2	2007	41,451	39,592
Year 3	2008	41,828	40,773
Year 4	2009	43,286	40,993
Year 5	2010	43,798	41,157
2015 Compliance Year Population[b]			
	2015	N/A	44,409

(a) Revised population based on State of California, Department of Finance, *E-4 Population Estimates for Cities, Counties, and the State, 2001-2010, with 2000 & 2010 Census Counts.* Sacramento, California, November 2012.

(b) 2015 population based on State of California, Department of Finance, *E-1 Population Estimates for Cities, Counties and the State with Annual Percent Change — January 1, 2014 and 2015.* Sacramento, California, May 2015.

5.4 GROSS WATER USE

Annual gross water use is the water that enters the City's distribution system over a 12-month period (fiscal year) with certain exclusions. This section discusses the City's annual gross water use for each year in the baseline periods, as well as 2015, in accordance with Methodology 1: Gross Water of DWR's *Methodologies* document.

> *CWC 10608.12(g) "Gross Water Use" means the total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier, excluding all of the following:*
>
> *(1) Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier*
>
> *(2) The net volume of water that the urban retail water supplier places into long term storage*
>
> *(3) The volume of water the urban retail water supplier conveys for use by another urban water supplier*

(4) The volume of water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24.

California Code of Regulations Title 23 Division 2 Chapter 5.1 Article Section 596 (a) An urban retail water supplier that has a substantial percentage of industrial water use in its service area is eligible to exclude the process water use of existing industrial water customers from the calculation of its gross water use to avoid a disproportionate burden on another customer sector

The City's gross water use is based on the metered quantity of water purchased by the City from the SFPUC and NCCWD, and pumped from its groundwater supply wells. The City does not export water, conduct long-term system storage, use indirect recycled water, or deliver water for agricultural use. Accordingly, the annual gross water use equals the volume of water introduced into the distribution system. Annual gross water use for the baseline periods and 2015 are summarized in Table 5-2 (and in SB X7-7 Table 4 in Appendix G).

Table 5-2. Annual Gross Water Use

Year	FY Ending	Annual Gross Water Use, MGD
10-Year Baseline Gross Water Use		
Year 1	2001	4.41
Year 2	2002	4.19
Year 3	2003	4.02
Year 4	2004	4.11
Year 5	2005	3.61
Year 6	2006	3.83
Year 7	2007	3.69
Year 8	2008	3.91
Year 9	2009	3.85
Year 10	2010	3.65
	10-Year Baseline Gross Water Use	3.93
5-Year Baseline Gross Water Use		
Year 1	2006	3.83
Year 2	2007	3.69
Year 3	2008	3.91
Year 4	2009	3.85
Year 5	2010	3.65
	5-Year Baseline Gross Water Use	3.79
2015 Compliance Year Gross Water Use		
	2015	3.14

5.5 BASELINE DAILY PER CAPITA WATER USE

The calculation of the Baseline GPCD and the compliance year (2015) per capita water demand are shown in Table 5-3. Daily per capita water use is reported in gallons per capita per day (GPCD). 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 and for the compliance year. As discussed above, the City has used updated population data in this 2015 UWMP compared to the 2010 UWMP.

Table 5-3. Baseline and Compliance Per Capita Water Demands

Year	FY Ending	Service Area Population[a]	Annual Gross Water Use, MGD[b]	Daily Per Capita Water Use, GPCD
10-Year Baseline Gross Water Use				
Year 1	2001	39,948	4.41	110
Year 2	2002	39,476	4.19	106
Year 3	2003	39,870	4.02	101
Year 4	2004	39,566	4.11	104
Year 5	2005	39,655	3.61	91
Year 6	2006	39,474	3.83	97
Year 7	2007	39,592	3.69	93
Year 8	2008	40,773	3.91	96
Year 9	2009	40,993	3.85	94
Year 10	2010	41,157	3.65	89
			10-Year Average Baseline GPCD	98
5-Year Baseline Gross Water Use				
Year 1	2006	39,474	3.83	97
Year 2	2007	39,592	3.69	93
Year 3	2008	40,773	3.91	96
Year 4	2009	40,993	3.85	94
Year 5	2010	41,157	3.65	89
			5-Year Average Baseline GPCD	94
2015 Compliance Year Gross Water Use				
	2015	44,409	3.14	71

[a] Source: Table 5-1.
[b] Source: Table 5-2.

As shown in Table 5-3, the City's baseline daily per capita use has been calculated as follows:

- 10-year Base Daily Per Capita Water Use
  - 98 GPCD (for the period from FY 2000/01 to FY 2009/10).
  - This value is 3 GPCD greater than the value calculated in the 2010 UWMP (95 GPCD).
- 5-year Base Daily Per Capita Water Use
  - 94 GPCD (for the period from FY 2005/06 to FY 2009/10).
  - This value is 5 GPCD greater than the value calculated in the 2010 UWMP (89 GPCD).

The City's baseline GPCD increased because the revised 2010 U.S. Census population for the City's water service area is less than the population reported in the 2010 UWMP. The same water use divided by a smaller population results in a higher GPCD.

These values are shown in SB X7-7 Table 5 in Appendix G.

5.6 2015 AND 2020 TARGETS

SB X7-7 requires a state-wide average 20 percent reduction of urban per capita water use by the year 2020. In the 2010 UWMP, the City set an interim (2015) water use target and a final (2020) water use target using Method 3 of the four methods defined by SB X7-7 and DWR below. Three of these methods are defined in Water Code Section 10608.20(a)(1), and the fourth method was developed by DWR. The 2020 water use targets are to 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 2010 20x2020 Water Conservation Plan
- 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 2015 interim targets for each of the target methods were calculated based on the midpoint of the City's 10-year Base Daily Per Capita Water Use and the 2020 targets calculated for each of the respective target methods. The City's targets are summarized in Table 5-4.

The City's 2020 target is calculated using Method 3. The 2020 target is calculated as 95 percent of the hydrologic region water use, or 124 GPCD. The urban water suppliers must additionally verify that their 2020 final water use target is at least a 5 percent reduction from the 5-year Baseline GPCD, unless the 5-year baseline is less than 100 GPCD, which it is for the City. Therefore, the

minimum 5 percent reduction does not apply to the City and, as shown in Table 5-4, the City's confirmed 2020 Target is 124 GPCD, which equates to 95 percent of the hydrologic region water target using Target Method 3. Because the City's baseline water use is less than the 2020 target, it has been assumed that the 2015 target is the same as the 2020 target.

Table 5-4. Baselines and Targets Summary

Baseline Period	Start Year, FY Ending	End Year, FY Ending	Average Baseline, GPCD	2015 Interim Target, GPCD	Confirmed 2020 Target, GPCD
10-Year	2001	2010	98	124[a]	124
5-Year	2006	2010	94		

[a] Per the DWR Methodologies, the 2015 Interim Target is the average of the 10-year baseline water use and the 2020 target, which would be 111 GPCD. However, the DWR Methodologies assume that the 10-year baseline water use is higher than the 2020 target, so that the 2015 Interim Target requires a smaller reduction than the 2020 Final Target. Because the City's 10-year baseline water use is lower than the 2020 Target, this methodology does not work for the City. Therefore, the City's 2015 Interim Target is assumed to be the same as the 2020 Target as shown.

In summary, for this 2015 UWMP, the City has selected Target Method 3, as was used in the 2010 UWMP. The interim 2015 target of 124 GPCD and the confirmed 2020 target of 124 GPCD are both the same as was calculated in the City's 2010 UWMP. The City understands that the target method and resulting targets may not be changed in any amendments to the 2015 UWMP or in the 2020 UWMP.

5.7 2015 COMPLIANCE DAILY PER CAPITA WATER USE

As shown in Table 5-5, the City's 2015 per capita water demand is in compliance with the 2015 Interim Target. The City is also well positioned to meet its 2020 Target per capita water demand of 124 GPCD.

Table 5-5. 2015 Compliance

Actual 2015 Per Capita Water Use, GPCD[a]	2015 Interim Target, GPCD[b]	Did Supplier Achieve Targeted Reduction for 2015?
71	124	Yes

[a] See Table 5-3.
[b] See Footnote (a) in Table 5-4.

5.8 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
System Supplies

This chapter describes the sources of water available to the City. These sources include supplies from other agencies, groundwater, surface water, storm water, wastewater and recycled water, desalinated water, and exchanges or transfers. The origin of the water supply, water quality and quantity issues, as well as the anticipated actions to meet future demands for each water source, are discussed.

The City receives water from three supply sources:

- Treated surface water purchased on a wholesale basis from the SFPUC RWS;
- Treated surface water purchased from NCCWD; and
- Local groundwater pumped by the City from the South Westside Groundwater Basin.

The following sections describe each of these sources and quantify the historical, current, and projected availability of water from each source. The City's treated surface water supply is delivered through the RWS, originating from the Tuolumne River and the Alameda County and Peninsula watersheds. Water from the SFPUC is purchased in accordance with the 2009 Water Supply Agreement (WSA). Water purchased from the NCCWD is also from the RWS, but is served directly from NCCWD, and is used exclusively to meet the demands of the City's Treetop Apartments complex, located in Pressure Zone 13. Local groundwater is pumped by the City from the southern part of the Westside Basin (South Westside Basin). Groundwater from the South Westside Basin is also a supply source for the cities of Daly City and South San Francisco. Constraints that may affect water supply reliability, and the reliability of the water supplies, are discussed in *Chapter 7 Water Supply Reliability Assessment*.

6.1 PURCHASED OR IMPORTED WATER

The City purchases water from the SFPUC under the terms of the WSA between the SFPUC and its wholesale customers. According to the WSA, the City is entitled to purchase a maximum of 3.25 MGD (about 2,900 AFA), except in drought years when mandatory water rationing is in effect. The WSA states that this entitlement, called the City's Individual Supply Guarantee (ISG), will be reevaluated during a mid-term water supply planning milestone in 2018 based on projected water demands through 2030.

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".

Approximately 49 percent of the City's water supply is purchased from the SFPUC and NCCWD.

The full text of the SFPUC and NCCWD supply agreements is provided in Appendix H.

6.1.1 SFPUC Regional Water System

The water supply for the SFPUC is predominantly supplied from runoff and snowmelt from the Sierra Nevada, delivered through the Hetch Hetchy aqueducts, but also includes treated water from its local watersheds and facilities in Alameda and San Mateo Counties. The SFPUC serves its retail and wholesale water demands through integrated operation of local Bay Area water production and imported water from Hetch Hetchy. Local watershed facilities are primarily used to capture local runoff.

The amount of imported water available to the 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 firm-up its water supplies, especially during drought cycles.

6.1.1.1 2009 Water Supply Agreement

The business relationship between the SFPUC and its wholesale customers is largely defined by the WSA between the City and County of San Francisco and Wholesale Customers in Alameda County, San Mateo County and Santa Clara County entered into in July 2009. The 2009 WSA replaced the Settlement Agreement and Master Water Sales Contract that expired June 2009. The WSA addresses the rate-making methodology used by the City in setting wholesale water rates for its wholesale customers in addition to addressing water supply and water shortages for the SFPUC RWS. The WSA has a 25-year term.

In terms of water supply, the WSA provides for a 184 MGD (expressed on an annual average basis) "Supply Assurance" to the SFPUC's wholesale customers, subject to reduction, to the extent and for the period made necessary by reason of water shortage, due to drought, emergencies, or by malfunctioning or rehabilitation of the RWS. The WSA does not guarantee that the SFPUC will meet peak daily or hourly customer demands when their annual usage exceeds the Supply Assurance. SFPUC's wholesale customers have agreed to the allocation of the 184 MGD Supply Assurance among themselves, with each entity's share of the Supply Assurance set forth on Attachment C to the WSA. The Supply Assurance survives termination or expiration of the WSA and this agency's Individual Water Sales Contract with the SFPUC.

The Water Shortage Allocation Plan between the SFPUC and its wholesale customers, adopted as part of the WSA in July 2009, addresses shortages of up to 20 percent of system-wide use. The Tier 1 Shortage Plan allocates water from the RWS between SFPUC's retail customers in San Francisco and the wholesale customers during system-wide shortages of 20 percent or less. The WSA also anticipated a Tier 2 Shortage Plan adopted by the wholesale customers which would allocate the available water from the RWS among the wholesale customers.

6.1.1.2 Individual Supply Guarantee

The SFPUC 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 the SFPUC. The Supply Assurance is allocated among the 24 permanent wholesale customers

through ISGs, 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 Interim Supply Limitation

As part of its adoption of the Water System Improvement Program (WSIP) in October 2008, the SFPUC adopted a water supply limitation, the Interim Supply Limitation (ISL), which limits sales from RWS watersheds to an average annual of 265 MGD through 2018.

All 26 wholesale customers and the SFPUC are subject to the ISL. The wholesale customers' collective allocation under the ISL is 184 MGD and San Francisco's is 81 MGD. Although the wholesale customers did not agree to the ISL, as further discussed below, the WSA provides a framework for administering the ISL.

6.1.1.4 Interim Supply Allocations

The Interim Supply Allocations (ISAs) refer to each individual wholesale customer's share of the ISL. On December 14, 2010, the SFPUC established each agency's ISA through 2018. The City's ISA is 3.25 MGD.

In general, the SFPUC based the allocations on the lesser of the projected FY 2017/18 purchase projects or Individual Supply Guarantees. The ISAs are effective only until December 31, 2018 and do not affect the Supply Assurance or the Individual Supply Guarantees. As stated in the WSA, the wholesale customers do not concede the legality of the SFPUC's establishment of the ISAs and Environmental Enhancement Surcharge (described below), and expressly retain the right to challenge either or both, if and when imposed, in a court of competent jurisdiction.

6.1.1.5 Environmental Enhancement Surcharge

As an incentive to keep RWS deliveries below the ISL of 265 MGD, the SFPUC adopted an Environmental Enhancement Surcharge for collective deliveries in excess of the ISL effective at the beginning of FY 2011/12. This volume-based surcharge would be unilaterally imposed by the SFPUC on individual wholesale customers and the San Francisco retail customers, when an agency's use exceeds their ISA and when sales of water to the wholesale customers and the SFPUC retail customers, collectively, exceeds the ISL of 265 MGD. Actual charges would be determined based on each agency's respective amount(s) of excess use over their ISA. To date, no Environmental Enhancement Surcharges have been levied.

6.1.2 North Coast County Water District

The City purchases approximately 0.04 MGD of water from the NCCWD (Table 6-5). This water is served from the Crystal Springs turnout in Pressure Zone 13 (see Figure 3-1), and is used exclusively to meet the demands of the Treetop Apartments complex. The City does not anticipate any changes to its NCCWD water supply in the near future. The water purchased from NCCWD originates from the SFPUC RWS and is characterized and is subject to the same overview as the SFPUC imported supply detailed in this section.

6.2 GROUNDWATER

The City has used groundwater as a source of supply since the early 1900's. The City operates four production wells that extract groundwater from the South Westside Basin (Basin 2-35 as defined by DWR). On average, from FY 2010/11 through FY 2014/15, groundwater has comprised approximately 51 percent of the City's total water supply (see Section 6.2.3). The South Westside Basin has not been adjudicated.

The following sections provide a description of the South Westside Basin, current management efforts within the South Westside Basin and the City's historical and projected use of groundwater.

6.2.1 Groundwater Basin Description

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

The Westside Basin has been separated into two distinct areas for management purposes: 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. Further discussion regarding aquifer conditions in the South Westside Basin are provided below.

6.2.1.1 Aquifer Conditions and Properties in 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 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 muds in these areas, reduces the potential for sea water intrusion.

Within the two major water bearing zones in the 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 San Bruno, 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.

Groundwater within the South Westside Basin generally flows toward pumping centers within Daly City, San Bruno, 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 many areas of the South Westside Basin. Concerns regarding the potential for salt water intrusion have been raised and are further discussed below.

Water levels within the drinking water aquifers of the South Westside Basin are depressed well below sea level in many areas. 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, the City's wells have not shown any impacts from seawater intrusion, although the basin is considered at risk for seawater intrusion according to the 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 data could exist and seawater intrusion could occur given groundwater levels below sea level. The City was awarded approximately $250,000 from the DWR's Local Groundwater Assistance Program (AB 303) to institute 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 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.

6.2.1.2 Basin Water Budget Analysis

According to the GWMP (described below in Section 6.2.2), 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

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 Groundwater Management Plan was completed in July 2012 (Appendix I). 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.

6.2.3 Historical Groundwater Use

The City has used groundwater as a source of supply since the early 1900's, and rates of groundwater extraction by the City were over 2,000 AFA (1.79 MGD) by 1960. The City currently operates four groundwater supply wells: Wells 16, 17, 18, and 20 (see Figure 6-1). As shown in Table 6-1, the City's average groundwater production for FY 2009/10 through FY 2014/15 has averaged 1.79 MGD.

Table 6-1. Groundwater Volume Pumped by the City

Water Source	Volume of Water Pumped, MGD						
	FY 2010/11	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/15	Average, MGD	Average, CCF
South Westside Groundwater Basin, DWR Basin 2-35[(a)]	2.04	1.50	1.60	1.94	1.89	1.79	873,405
Groundwater as a Percentage of Total Supply	56.2%	41.3%	44.7%	54.2%	60.3%	51.3%	51.3%

[(a)] The South Westside Groundwater Basin is a colluvial basin.

As discussed in Section s 6.1 and 6.2, the City's water supply is met by a combination of groundwater from the South Westside Basin and surface water supplied from the SFPUC's RWS. In 2002, the SFPUC instituted a pilot project to evaluate the effects of in-lieu recharge on groundwater levels within the basin. As part of the Conjunctive Use Pilot Project, the SFPUC provided the cities of Daly City, South San Francisco (served by California Water Service Company, or "Cal Water"), and the City with additional surface water to supplement water that otherwise would have been pumped from their respective municipal water supply wells.

Between January 2003 and March 2005, the City received an average of 1.2 MGD of surface water from the SFPUC as part of the Conjunctive Use Pilot Project. During this time, the City ceased production in water supply wells 15, 16, 17, and 18, with the exception of November 2003 through January 2004, when the Conjunctive Use Pilot Project was interrupted because surplus SFPUC system water was not available to offset groundwater use. Results from the 2002 through 2005

Conjunctive Use Pilot Project showed that water can be successfully stored in the aquifer system through in-lieu recharge.

Subsequently, the City became a participant in the Regional Groundwater Storage and Recovery Project (Regional GSR Project), a regional partnership between SFPUC, California Water Service Company (serving South Francisco and Colma), and the cities of Daly City and San Bruno, that will balance groundwater and surface water supply to increase dry-year water supplies. The Regional GSR Project agreement was signed in December 2014 and is discussed further in Section 6.2.4.

6.2.4 Projected Groundwater Use

The City intends to use its water supply 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 groundwater production during normal and wet years from FY 2019/20 to FY 2039/40 in five-year increments is provided in Table 6-2.

Table 6-2. Projected Groundwater Production[(a)]

Water Source	FY 2019/20	FY 2024/25	FY 2029/30	FY 2034/35	FY 2039/40
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)] A portion of the City's groundwater production may be offset by SFPUC surface water for in-lieu banking.

As shown in Table 6-2, the City projects future groundwater production at its current rate. 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 South Westside Basin GWMP.

The City's projected future groundwater use may also vary according to the implementation of the Regional GSR Project. As a participant, the City will have two supply modes. In wetter years (termed 'put' years, when in-lieu groundwater banking occurs), the City will maximize surface water deliveries and reduce use from its wells. The amount of additional surface water delivered in-lieu of groundwater will be "banked" by the SFPUC. In dry years ('take' years), the City will maximize its use of groundwater and supplement with surface water and the SFPUC "banked" groundwater supply, as needed.

Each year, the SFPUC will notify the City if the 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 as shown in Table 6-2, but a portion of that water right may be fulfilled by SFPUC in-lieu surface water.

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.

6.2.5 Groundwater Sustainability

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 6-3.

Table 6-3. Sustainable Groundwater Management Act Implementation Steps and Deadlines

Implementation Step	Implementation Measure	Deadlines
Step One	Local agencies must form local GSAs within two years	• 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	• January 31, 2020 for critically overdrafted basins • January 31, 2022 for high- and medium-priority basins not currently in overdraft
Step Three	Once plans 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 final Basin Prioritization findings indicate that 127 of California's 515 groundwater basins and subbasins are high and medium priority basins. These high and medium priority basins account for 96 percent of California's annual groundwater pumping and supply 88 percent of the population which resides over the groundwater basins. The ranking for the Westside Basin is shown in Table 6-4. The Westside Basin has been ranked as a Very Low priority basin.

Table 6-4. Groundwater Basin Prioritization for Sustainable Groundwater Management Act[(a)]

Rank[(b)]	Basin Number	Basin Name	Overall Basin Ranking Score	Overall Basin Priority
247	2-35	Westside Basin	0	Very Low

(a) CASGEM Groundwater Basin Prioritization Results, run version May 26, 2014.
(b) Out of a total of 515 basins, of which 127 were high- or medium-priority basins.

As a Very Low priority basin, the Westside Basin users are not mandated to form a GSA or develop a GSP at this time. Several of the activities of SGMA, including adoption of regulations for GSPs, are not expected to be finalized until June 30, 2016. Therefore, new requirements for groundwater management under SGMA do not apply to this 2015 UWMP, but will be addressed in the 2020 UWMP as applicable.

6.3 SURFACE WATER

The City does not have a surface water supply except for the water imported from the SFPUC RWS as described in Section 6.1.

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 County of San Mateo's 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 and 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 & construction: Inform contractors of the Best Management Practices (BMPs) required on all construction projects in order 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 Services Department is responsible for the maintenance of all of the City's storm drains and inlets throughout its 89.4 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 the SFPUC. These efforts are described in further detail below.

6.5.2 Wastewater Quantity, Quality, and Current Uses

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. The volume of wastewater collected within the City during FY 2014/15 was 2.8 MGD.

6.5.2.1 Wastewater Collection System

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 forcemains.

6.5.2.2 Wastewater Treatment and Disposal

The South San Francisco-San Bruno WQCP 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 2.68 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 2014/15, the total volume of wastewater collected in the City's service area was 2.8 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 below).

6.5.3 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 "South San Bruno Cluster" was included in nine of these alternatives, while the "West San Bruno Cluster" was not included in any alternatives. However, after the initial alternatives were analyzed, the Feasibility Study group decided to substitute the West San Bruno Cluster into the preferred alternative in place of the South San Bruno Cluster, due to the West San Bruno Cluster having higher projected recycled water demands.

The City's (and other groupings') large percentage of use from 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 will 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 of San Bruno, 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 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, as described in Section 6.5.3.

6.6 DESALINATED WATER OPPORTUNITIES

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 OR TRANSFERS

Though the SFPUC WSA does permit water transfers, the City does not presently anticipate the need for water right 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 (DRIP) allows for voluntary transfers of shortage allocations between the 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 three additional connections available for use during emergency situations. These connections are to NCCWD, Cal Water in South San Francisco and the City of Millbrae.

6.8 FUTURE WATER PROJECTS

As described in Section 6.2.4 above, 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.

As indicated above, the City does not have any planned future recycled water projects.

6.9 SUMMARY OF EXISTING AND PLANNED SOURCES OF WATER

A summary of the City's existing sources of water is provided in Table 6-5.

Table 6-5. Current Water Supply, MGD

Water Source	Available	FY 2014/15 Actual
SFPUC[(a)]	3.25	1.20
NCCWD[(b)]	0.05	0.04
Groundwater	2.10	1.89
Total Water Supply, MGD	5.40	3.14
Total Water Supply, CCF	2,635,027	1,529,900

(a) SFPUC imports are limited by the City's Interim Supply Allocation (see Section 6.1.1.4).
(b) NCCWD purchases are governed by the Intertie and Water Service agreement. There is no contractual maximum supply (see Section 6.1.2).

The City's projected water supply is shown in Table 6-6. There are no anticipated future changes to the City's existing water supply, and as such the projected water supply does not change from the current water supply.

Table 6-6. Projected Water Supply, MGD

Water Source	FY 2019/20	FY 2024/25	FY 2029/30	FY 2034/35	FY 2039/40
SFPUC[(a)]	3.25	3.25	3.25	3.25	3.25
NCCWD[(b)]	0.05	0.05	0.05	0.05	0.05
Groundwater Production[(c)]	2.10	2.10	2.10	2.10	2.10
Total Projected Water Supply, MGD	5.40	5.40	5.40	5.40	5.40
Total Projected Water Supply, CCF	2,635,027	2,635,027	2,635,027	2,635,027	2,635,027

(a) SFPUC imports are limited by the City's Interim Supply Allocation (see Section 6.1.1.4). SFPUC supply may be imported surface water or banked in-lieu groundwater under the Regional GSR Project (see Section 6.2.4).
(b) NCCWD purchases assume that the City will purchase the same amount of water as it has historically purchased.
(c) A portion of the City's groundwater production may be offset by SFPUC surface water for in-lieu banking under the Regional GSR Project (see Section 6.2.4).

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 the SFPUC in its 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 and 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 resource 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; and
- Changes in urban and agricultural water demand.

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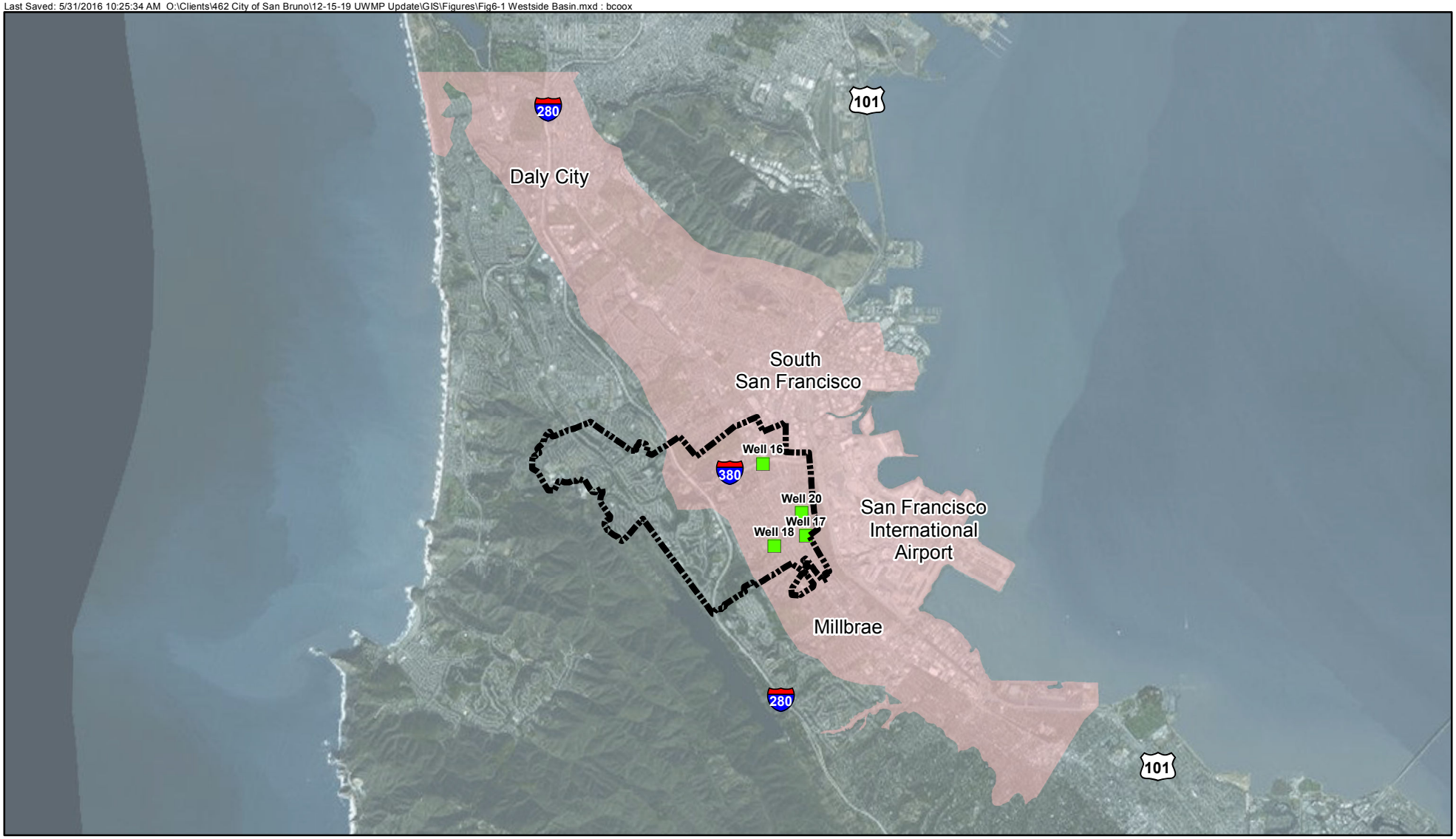

Symbology

- City Limits / Water Service Area
- City Groundwater Wells
- South Westside Groundwater Basin

N

0 5,000 10,000

Scale in Feet

WEST YOST ASSOCIATES

Figure 6-1

City of San Bruno South Westside Groundwater Basin

City of San Bruno
2015 Urban Water
Management Plan

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CHAPTER 7
Water Supply Reliability Assessment

This chapter describes the long-term reliability and vulnerability of the City's water supplies. The City's implemented, or planned to be implemented, water management tools for increasing the reliability of water supplies are also addressed.

7.1 CONSTRAINTS ON WATER SOURCES

Each year the City reports water quality test results to its customers through the Consumer Confidence Report, also known as the Annual Water Quality Report (Appendix J). The report includes results of treated water tests from the SFPUC water supply sources and the City's groundwater wells. As indicated in the Annual Water Quality Report, the SFPUC water supply and the City's groundwater supplies meet all drinking water quality requirements. The City does not anticipate any changes in supply availability as a result of water quality. However, climate change could pose another constraint on the City's long term sustainability of water supplies by increasing water supply variability during periods of floods and droughts. Potential effects of climate change on the City's water sources are summarized in Section 6.10.

7.1.1 SFPUC Supplies

As stated in Chapter 6, approximately 50 percent of the City's water supply is purchased from the SFPUC. The vulnerability of the SFPUC water supplies to the previously mentioned constraints and the management strategies for addressing these vulnerabilities are discussed below.

7.1.1.1 Reliability of the SFPUC Regional Water System

The SFPUC's WSIP provides goals and objectives to improve the delivery reliability of the RWS, including water supply reliability. The goals and objectives of the WSIP related to water supply are:

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

The adopted WSIP had several water supply elements to address the WSIP water supply goals and objectives. The following provides the water supply elements for all year types and the dry-year projects of the adopted WSIP to augment all year type water supplies during drought.

The SFPUC historically has met demand in its service area in all year types from the following watersheds:

- Tuolumne River watershed;
- Alameda Creek watershed; and
- 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 adopted WSIP includes the following water supply projects to meet dry-year demands with no greater than 20 percent system-wide rationing in any one year:

- **Calaveras Dam Replacement Project.** Calaveras Dam is located near a seismically active fault zone and was determined to be seismically vulnerable. To address this vulnerability, the SFPUC is constructing a new dam of equal height downstream of the existing dam. The Environmental Impact Report was certified by the San Francisco City Planning Commission in 2011, and construction is now ongoing. Construction of the new dam is slated for completion in 2018; the entire project should be completed in 2019.
- **Alameda Creek Recapture Project.** The Alameda Creek Recapture Project will recapture the water system yield lost due to instream flow releases at Calaveras Reservoir or bypassed around the Alameda Creek Diversion Dam and return this yield to the RWS through facilities in the Sunol Valley. Water that naturally infiltrates from Alameda Creek will be recaptured into an existing quarry pond known as SMP (Surface Mining Permit)-24 Pond F2. The project will be designed to allow the recaptured water to be pumped to the Sunol Valley Water Treatment Plant or to San Antonio Reservoir. The project's Draft Environmental Impact Report will be released in the spring of 2016, and construction will occur from spring 2017 to fall 2018.
- **Lower Crystal Springs Dam Improvements.** The Lower Crystal Springs Dam Improvements were substantially completed in November 2011. While the project has been completed, permitting issues for reservoir operation have become significant. While the reservoir elevation was lowered due to Division of Safety of Dams restrictions, the habitat for the Fountain Thistle, an endangered plant, followed the lowered reservoir elevation. Raising the reservoir elevation now requires that new plant populations be restored incrementally before the reservoir elevation is raised. The result is that it may be several years before the original reservoir elevation can be restored.

- **Regional Groundwater Storage and Recovery Project.** The Groundwater Storage and Recovery Project is a strategic partnership between the SFPUC and three San Mateo County agencies: the California Water Service Company (serving South San Francisco and Colma), the City of Daly City, and the City of San Bruno. The project seeks to balance the management of groundwater and surface water resources in a way that safeguards supplies during times of drought. During years of normal or heavy rainfall, the project would provide additional surface water to the partner agencies in San Mateo County, allowing them to reduce the amount of groundwater that they pump from the South Westside Groundwater Basin. Over time, the reduced pumping would allow the aquifer to recharge and result in increased groundwater storage of up to 20 billion gallons. The project's Final Environmental Impact Report was certified in August 2014, and the project also received Commission approval that month. The well station construction contract Notice to Proceed was issued in April 2015, and construction is expected to be completed in spring 2018.
- **2 MGD Dry-Year Water Transfer.** In 2012, the dry-year transfer was proposed between the Modesto Irrigation District and the SFPUC. Negotiations were terminated because an agreement could not be reached. Subsequently, the SFPUC is having ongoing discussions with the Oakdale Irrigation District for a one-year transfer agreement with the SFPUC for 2 MGD (2,240 AF).

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

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

7.1.1.2 Projected SFPUC System Supply Reliability

The SFPUC has provided a table presenting the projected RWS supply reliability (Appendix K). The table assumes that the wholesale customers purchase 184 MGD from the RWS through 2040 and the implementation of the dry-year water supply projects included in the WSIP. The numbers represent the wholesale share of available supply during historical year types per the Tier One Water Shortage Allocation Plan. The table does not reflect any potential impact to RWS yield from the additional fishery flows required as part of Calaveras Dam Replacement Project and the Lower Crystal Springs Dam Improvements Project.

7.1.1.3 Impact of Recent SFPUC Actions on Dry Year Reliability of SFPUC Supplies

As noted earlier, in adopting the Calaveras Dam Replacement Project and the Lower Crystal Springs Dam Improvements Project, the SFPUC committed to providing fishery flows below Calaveras Dam and Lower Crystal Springs Dam, as well as bypass flows below Alameda Creek Diversion Dam. The fishery flow schedules for Alameda Creek and San Mateo Creek represent a potential decrease in available water supply of an average annual 9.3 MGD and 3.5 MGD, respectively with a total of 12.8 MGD average annually. The Alameda Creek Recapture Project, described above, will replace the 9.3 MGD of supply lost to Alameda Creek fishery flows. Therefore, the remaining 3.5 MGD of fishery flows for San Mateo Creek will potentially create a shortfall in meeting the SFPUC demands of 265 MGD and slightly increase the SFPUC's dry-year water supply needs.

The adopted WSIP water supply objectives include: (1) meeting a target delivery of 265 MGD through 2018; and (2) rationing at no greater than 20 percent system-wide in any one year of a drought. As a result of the fishery flows, the SFPUC may not be able to meet these objectives between 2015 and 2018. Participation in the BARDP and additional water transfers, as described earlier, may help manage the water supply loss associated with the fishery flows.

As a result of the Individual Supply Guarantees described above, the SFPUC has a responsibility to provide 184 MGD to its wholesale customers in perpetuity, regardless of demand. Therefore, the current projections for purchase requests through 2018 remain at 265 MGD, which includes wholesale and retail demand. However, in the last decade including the current drought, the SFPUC deliveries have been below this level, as illustrated in Table 7-1 below.

Table 7-1. Water Deliveries in San Francisco Regional Water System Service Area

Fiscal Year	Total Deliveries, MGD
2005/06	247.5
2006/07	257.0
2007/08	254.1
2008/09	243.4
2009/10	225.2
2010/11	219.9
2011/12	220.5
2012/13	223.9
2013/14	222.3
2014/15	196.0

Under the current drought to date, the SFPUC has called for, but has not mandated, a 10 percent system-wide reduction since January 2014. The SFPUC has not yet been compelled to declare a water shortage emergency and impose mandatory system-wide rationing because its customers have exceeded the 10 percent voluntary system-wide reduction in conjunction with the state-wide mandatory reductions assigned by the State Water Resources Control Board. If current drought

conditions worsen between 2016 and 2018, and the SFPUC determines that system-wide rationing would need to be imposed, then the SFPUC would issue a declaration of a water shortage emergency in accordance with Water Code Section 350 and implement rationing in accordance with the WSA and Water Shortage Allocation Plan (WSAP) as described above.

7.1.1.4 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 DWR's *Climate Change Handbook for Regional Water Planning* and using the most current science available for the Region. The vulnerability assessment 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.

A table of the BAIRWMP Climate Change Vulnerability Assessment vulnerability areas is provided in Appendix L.

7.1.1.5 SFPUC Climate Change Studies

The SFPUC views assessment of the effects of climate change as 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 the SFPUC began in 2009 and continues to be refined. In its 2012 report "Sensitivity of Upper Tuolumne River Flow to Climate Change Scenarios," the 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, the SFPUC is planning to conduct a comprehensive assessment of the potential effects of climate change on water supply. The assessment will incorporate an investigation of new research on the current drought and is anticipated to be completed in late 2016 or early 2017.

7.1.1.6 Regional Water Demand and Conservation Projections

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

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

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

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

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

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

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

- Water transfers score consistently high across the various performance measures and within various portfolio constructs and thus represent a high priority element of the Strategy.
- Desalination also potentially provides substantial yield, but its high effective costs and intensive permitting requirements make it a less attractive drought year supply alternative. However, given the limited options for generating significant yield for the region, desalination warrants further investment in information as a hedge against the loss of local or other imported supplies.
- The other potential regional projects provide tangible, though limited, benefit in reducing dry year shortfalls given the small average yields in drought years[1].

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

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

7.1.1.7 Tier One Drought Allocations

In July 2009, the wholesale customers and San Francisco adopted the WSA, which includes a WSAP to allocate water from the RWS to retail and wholesale customers during system-wide shortages of 20 percent or less (the Tier One Plan). The WSAP has two components:

- The Tier One Plan, which allocates water between San Francisco and the wholesale customers collectively; and
- The Tier Two Plan, which allocates the collective wholesale customer share among the wholesale customers.

The Tier One Plan allocates water between San Francisco and the wholesale customers collectively based on the level of shortage, shown in Table 7-2.

[1] While specific projects were not developed or evaluated for the Strategy, regional discussions on indirect/direct potable reuse have accelerated dramatically in the last year, making this a water supply management project BAWSCA is tracking closely.

Table 7-2. Share of Available Water		
Level of System-Wide Reduction in Water Use Required	SFPUC Share, percent	Wholesale Customers Share, percent
5 percent or less	35.5%	64.5%
6 percent through 10 percent	36.0%	64.0%
11 percent through 15 percent	37.0%	63.0%
16 percent through 20 percent	37.5%	62.5%

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

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.

The Tier One Plan applies only when the 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, the SFPUC may opt to request voluntary cutbacks from San Francisco and the wholesale customers to achieve necessary water use reductions during drought periods. During the current drought to date, the SFPUC has requested, but has not mandated, a 10 percent system-wide reduction since January 2014. The SFPUC has not yet been compelled to declare a water shortage emergency and implement the Tier One Plan because its customers have exceeded the 10 percent voluntary system-wide reduction in conjunction with the state-wide mandatory reductions assigned by the State Water Resources Control Board.

7.1.1.8 Tier Two Drought Allocations

In 2010, the wholesale customers negotiated and adopted the Tier Two Drought Implementation Plan (Tier Two Plan), which allocates the collective wholesale customer share among each of the 26 wholesale customers. This Tier Two Plan allocation is 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; and
- Residential per capita use.

The water supplies made available from the SFPUC will be allocated to the individual wholesale customers 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 fixed wholesale customer's Individual Supply Guarantee as stated in the WSA. The second component is the Base/Seasonal Component, which is variable and is calculated using each wholesale customers total monthly water use from all available water supplies during the three consecutive years prior

to the onset of the drought. The second component is accorded twice the weight of the first 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 minimum level of supply to meet health and safety needs for certain wholesale customers.

Each wholesale customer's Allocation Factor, which represents its percentage allocation of the total available water supplies, is calculated from its proportionate share of the total of all wholesale customers' Allocation Bases. 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 the 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.

For long-term planning purposes, each wholesale customer has been provided with the Tier Two Allocation Factors calculated by BAWSCA based upon the most recent normal year to determine its share of available RWS supplies. However, actual allocations to each wholesale customer during a future shortage event will be calculated in accordance with the Tier Two plan at the onset of the shortage.

The current Tier Two Plan will expire in 2018 unless extended by the wholesale customers. The SFPUC's Tier Two Allocations are provided in Appendix K.

7.1.2 NCCWD Reliability

Water received within the San Bruno service area from NCCWD originates from the SFPUC Regional System and is thus subject to the same reliability as described above (see Section 7.1.1).

7.1.3 Groundwater Reliability

The reliability of San Bruno's groundwater supply (Westside Basin) is dependent on the quantity of water that is recharged and extracted each year and quality of those supplies. Historically, the South Westside Basin has received sufficient recharge such that it has maintained relatively stable groundwater levels in recent years. The groundwater recharge and descriptions of the combined efforts to maintain the integrity of the basin and its supplies are further explained in Section 6.2.2.

San Bruno is concerned about the effect of saltwater intrusion on the quality of its groundwater supplies. To protect the quality of its groundwater source, the City is actively monitoring the effects of groundwater extraction on saltwater intrusion, as described in Section 6.2.1. To date however, there is no indication that saltwater intrusion has occurred in San Bruno, and the potential for seawater intrusion in the future is being studied and monitored.

7.2 RELIABILITY BY TYPE OF YEAR

In average years, in accordance with the Regional GSR Project, additional SFPUC imported surface water is assumed to be delivered to the City to offset the City's groundwater use. As described in Chapter 6, this in-lieu delivery of surface water will allow the groundwater to be banked for use in dry years.

In dry years, the City's water supplies from the SFPUC may be reduced, and the City will maximize its use of groundwater and supplement with surface water and SFPUC "banked" groundwater as needed to meet demands.

The projected supply reductions during these supply conditions are shown in Table 7-3.

Table 7-3. Basis of Water Year Data

Year Type	Base Year	Volume of Supply, MGD	Volume of Supply, CCF	Portion of Average Supply, percent
SFPUC Imported Surface Water[a,b]				
Average Year	1920-2007	5.35[c]	2,610,629[c]	100[c]
Single-Dry Year	1977	2.93	1,427,306	90
Multiple-Dry Years 1st Year	1988	2.93	1,427,306	90
Multiple-Dry Years 2nd Year	1989	2.54	1,236,999	78
Multiple-Dry Years 3rd Year	1990	2.54	1,326,999	78
South Westside Basin Groundwater Production[d]				
Average Year	1920-2007	0[c]	0[c]	100[c]
Single-Dry Year	1977	2.10	1,024,733	100
Multiple-Dry Years 1st Year	1988	2.10	1,024,733	100
Multiple-Dry Years 2nd Year	1989	2.10	1,024,733	100
Multiple-Dry Years 3rd Year	1990	2.10	1,024,733	100

(a) Source: SFPUC Projections. Does not include anticipated deliveries from NCCWD.
(b) A portion of the SFPUC supply may be banked groundwater per the Regional GSR Project.
(c) During an average year, the City's groundwater production will be offset by the SFPUC imported surface water as part of the Regional GSR Project. The quantity of groundwater offset may vary each year, up to a maximum of the City's entire groundwater production of 2.10 MGD.
(d) The South Westside Basin GWMP indicates that the City's current groundwater production rate is sustainable.

The SFPUC has projected its forecasted supply reductions as listed in Table 7-3. The same percentage supply reductions would be applied to water imported from NCCWD to the City, as their water originates from the SFPUC as well.

7.3 SUPPLY AND DEMAND ASSESSMENT

San Bruno's projected potable water demands were compared to projected potable water supplies based on information provided by the SFPUC and the South Westside Basin GWMP. As discussed in Chapter 4, BAWSCA developed the City's potable water demand projections. For the purposes of this analysis, non-potable demands and supplies are not expected to change with time or climatic conditions. Potable water demand projections and wholesale (or potable) water supplies, however, are expected to vary as a function of time and hydrologic conditions and are therefore the focus of this UWMP's supply and demand analysis.

Based on the SFPUC and City projections of future potable water demands, San Bruno is not expected to exceed its available water supply by FY 2039/40.

As shown in Table 7-4, during a normal year the total SFPUC supply and the local groundwater pumping capacity are not expected to change through 2040, although as described above the Regional GSR Project may change the City's use of surface water in relation to groundwater use.

Table 7-4. Normal Year Supply and Demand Comparison, MGD

	2020	2025	2030	2035	2040
Supply Total[(a)]	5.40	5.40	5.40	5.40	5.40
Demand Total[(b)]	3.93	4.24	4.58	4.98	5.31
Difference	1.47	1.16	0.82	0.42	0.09

(a) Source: Table 6-6
(b) Source: Table 4-3

The projected supply and demands during a single dry year are shown in Table 7-5. During a single dry year, the SFPUC supplies will be reduced by 10 percent, while the City's groundwater pumping will not be reduced. The demand totals will be reduced by 10 percent, assuming the City activates Stage I of its WSCP.

Table 7-5. Single Dry Year Supply and Demand Comparison, MGD

	2020	2025	2030	2035	2040
Supply Total[(a)]	5.07	5.07	5.07	5.07	5.07
Demand Total[(b)]	3.54	3.82	4.12	4.48	4.78
Difference	1.53	1.25	0.95	0.59	0.29

(a) Source: SFPUC supplies will be reduced by 10 percent during a single-dry year. The NCCWD supply is assumed to be reduced by 10 percent accordingly. City groundwater supplies will not be affected.
(b) Source: Assumes the City implements Stage I of the WSCP and saves 10 percent of the projected values from Table 7-4.

The projected supply and demand during multiple dry years is shown in Table 7-6. During multiple dry years, the SFPUC supplies will be reduced by 10 percent for the first year, and 22 percent for the second and third years. The City's groundwater use will not be reduced. The demand totals will be reduced by 10 percent the first year under a Stage I conservation, and 20 percent for the second and third years under a Stage II conservation.

Table 7-6. Multiple Dry Year Supply and Demand Comparison, MGD

	2020	2025	2030	2035	2040
First Year					
Supply totals[(a)]	5.07	5.07	5.07	5.07	5.07
Demand totals[(b)]	3.54	3.82	4.12	4.48	4.78
Difference	1.53	1.25	0.95	0.59	0.29
Second Year					
Supply totals[(a)]	4.67	4.67	4.67	4.67	4.67
Demand totals[(b)]	3.14	3.39	3.66	3.98	4.25
Difference	1.53	1.28	1.01	0.69	0.43
Third Year					
Supply totals[(a)]	4.67	4.67	4.67	4.67	4.67
Demand totals[(b)]	3.14	3.39	3.66	3.98	4.25
Difference	1.53	1.28	1.01	0.69	0.43

(a) Source: The SFPUC supplies will be cutback 10 percent during the first year, and 22 percent during the second and third years. The NCCWD supply is assumed to be reduced accordingly. City groundwater supplies will not be affected.

(b) Source: Assumes the City implements Stage I water shortage and reduces water demand by 10 percent of the projected values in Table 7-4 in the first year and implements a Stage II water shortage and reduces water use by 20 percent in the second and third years.

7.4 REGIONAL SUPPLY RELIABILITY

The City's water supply is approximately half from local sources and half imported from the SFPUC. The reliability of each source of water is discussed within this chapter. The City has been optimizing its water supply through the implementation of Demand Management Measures listed in Chapter 9, enhanced groundwater management through its participation in the GWMP discussed in Chapter 6, and regional cooperation through partnerships with BAWSCA and the SFPUC.

CHAPTER 8
Water Shortage Contingency Planning

The San Bruno Municipal Code (SBMC) authorizes the City Council to declare a water supply emergency and impose mandatory water conservation measures and/or water rationing as they see fit. The following section describes the components of the City's conservation measures, including staged reductions in the City's water use in response to supply cutbacks, emergency response plans to catastrophic supply interruption, and water use prohibitions and enforcement mechanisms.

The City's mandatory conservation policy, regulations, and enforcement are codified in the "Water Conservation" Chapter 10.16 of the SBMC (see Appendix M).

8.1 STAGES OF ACTION

The City has four Stages of Action to be followed during a water shortage. These stages were developed as part of San Bruno's 2001 UWMP to meet water supply cutbacks ranging from 5 percent to 50 percent. Each of the four stages describes actions to be taken by the City to achieve the stated cutback for that particular stage. All of the stages allow for adequate water to protect public health and to safety and to satisfy the fire protection needs of the City.

Each of the four stages corresponds to a specific City-wide water use reduction goal of 10 percent, 20 percent, 35 percent, and 50 percent. These water use reduction goals are based on San Bruno's potential supply cutbacks during times of drought, with up to a 50 percent water supply reduction as mandated by the UWMP Act. The four stages and their associated cutbacks are listed in Table 8-1.

Table 8-1. Water Conservation Stages of Action

Stage	Percent Supply Reduction	Water Supply Condition
I	10%	Voluntary Stage
II	20%	Mandatory Conservation Stage
III	35%	Rationing Stage
IV	50%	Intense Rationing Stage

The first stage, Stage I, aims at reducing the City's water use by 10 percent in response to a reduction in supply ranging from 5 percent to 10 percent. Stage I reflects a scenario, such as that described in Section 7.1.1.7, where the SFPUC is forced to reduce wholesale water deliveries to customers of the Regional Water System by 10 percent. Stage I includes voluntary water conservation measures that are promoted through a public information campaign aimed at increasing awareness through the distribution of literature and bill inserts, newspaper advertisements, and educational speakers for schools and other groups.

The actions outlined in Stage II are to be implemented when the City requires a 20 percent reduction in water use. The City may be faced with such cutbacks during multiple dry year periods when the Regional Water System experiences a 20 percent reduction in water supply. Stage II calls for mandatory conservation measures as determined necessary by the City Council and the Public Services Director, an aggressive public information campaign, and voluntary water allocations. Conservation measures may include the nonessential water uses listed in SBMC §10.16, shown in Table 8-2, or any additional measured deemed necessary to meet the target use reduction.

Stage III water conservation and rationing measures are geared toward a 35 percent reduction in City-wide water use. The steps to achieve a Stage III reduction include all of the steps outlined in Stage II, as well as mandatory water allotments for all accounts, increased monitoring of water use, and increased rates and penalties for excess water use.

Stage IV identifies mechanisms by which the City could reduce total water use by up to 50 percent, as required by the UWMP Act. To achieve a reduction in water use of 50 percent, the City would adjust mandatory allotments and reductions from Stage III as necessary to reach a City-wide water use reduction of 50 percent. If necessary, the City may prohibit all water use except as required for public health and safety (50 GPCD). Increased enforcement mechanisms would be instituted to enforce the Stage IV cutbacks.

8.2 PROHIBITIONS ON END USES

SBMC §10.16 authorizes the City Council to impose water conservation and rationing measures described in the municipal code (or elsewhere appropriate) to reduce water consumption during a water shortage emergency. Conservation measures include, among other things, the prohibition of the following:

- Excess landscape watering;
- Irrigation more than two days a week according to the address of service;
- Irrigation between the hours of nine a.m. and four p.m.;
- Daytime watering (when evapotranspiration rates are highest);
- Unattended leaks or breaks;
- Washing vehicles with any hose not having an automatic shut-off device;
- The use of a hose for cleaning buildings, sidewalks, or other hard surfaces;
- The operation of a car wash unless the used water is recycled;
- Use of water from a fire hydrant unless specifically authorized;
- The filling of decorative lakes, fountains, or swimming pools;
- Service of water in restaurants unless requested by the customer;
- Fire hydrant or main flushing unless determined necessary by the Public Services Director;

- The indiscriminate running of water resulting in runoff;
- Substantial planting or replanting of new landscaping;
- The use of potable water for dust control or soil compaction unless reclaimed water is not available; and
- Any other use of domestic water as deemed to be wasteful by the Public Services Director.

A more complete explanation of these prohibitions is included in Table 8-2.

8.3 PENALTIES, CHARGES, OTHER ENFORCEMENT OF PROHIBITIONS

To help ensure compliance with conservation measures during a water shortage, SBMC §10.16 also includes enforcement and penalty measures, including the installation of water flow restriction device, disconnection of water service, or the removal of water service connection. Violation of any provision under SBMC §10.16 is subject to an infraction punishable by a fine, not to exceed $50 for the first offense, $100 for the second violation within the same year, and $250 for each additional violation within one year. Additionally, each day that any such violation is committed constitutes a separate offense and is punishable as such ($250). If necessary, violations may even be prosecuted by criminal complaint, filed by San Bruno's City Attorney, or by citation from the police department, or neighborhood improvement representative.

8.4 CONSUMPTION REDUCTION METHODS

In accordance with California Water Code Section 10632(a)(5), the City may implement consumption reduction methods during water emergency stages. These methods, to be used by the City to reduce water demand, are summarized in Table 8-3.

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Table 8-2. Restrictions and Prohibitions on End Uses[(a),(b)]		
Stage[(c)]	Category of Restriction	Description
II	Landscape - Restrict or prohibit runoff from landscape irrigation	The watering of grass, lawn, groundcover, shrubbery, open ground crops and trees, in a manner that results in runoff into sidewalks, gutters and streets or during periods of precipitation, or to an extent which allows excess water to run to waste.
II	Landscape - Limit landscape irrigation to specific times	Restricted between 9:00 am and 4:00 pm. Odd addresses may water Monday and Thursday, even addresses may water Tuesday and Friday, and non-numerical addresses may water Monday and Thursday. Irrigation shall be limited to 15 minutes per irrigation station. Outdoor irrigation during and 48 hour following measurable precipitation is prohibited.
II	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Customer will have 10 days after leak discovery.
II	Other - Require automatic shut of hoses	The use of hoses not having automatic shut-off devices for the washing of cars, boats, trailers or other vehicles.
II	Other - Prohibit use of potable water for washing hard surfaces	The use of water from a hose for the cleaning of buildings, structures, walkways, sidewalks, driveways, patios, parking lots or hard-surfaced areas. The washing of windows or structures with a bucket and squeegee is not prohibited
II	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	The operation of a car wash using water from the city's domestic water system, unless water for such use is recycled.
II	Other	Restrict use of water from any fire hydrant unless for fire protection or with an authorized permit from director of public services.
II	Water Features - Restrict water use for decorative water features, such as fountains	The use of water to fill, clean or maintain artificial or decorative lakes, fountains or ponds with a capacity of one thousand gallons or more.
II	Other water feature or swimming pool restriction	Customer may not fill swimming pool without approval of director of public services.
II	CII - Restaurants may only serve water upon request	The service of water in restaurants except upon request by the customer.
II	Other	Hydrant Flushing restricted unless approved by Public Services Director, San Bruno Fire Chief, or City Manager
II	Other	The indiscriminate running of water or washing with water than results in flooding or runoff in or on sidewalks, gutters and streets not otherwise prohibited above.
II	Landscape - Other landscape restriction or prohibition	Substantial planting or replanting of new landscaping which is not drought tolerant will be prohibited until such time the San Bruno city council has determined that the emergency has passed. For new developments in which water dependent (not drought tolerant) landscaping is required as a use permit condition, the city shall require a cash bond or other form of security subject to approval of the city from the developer in an amount specified which will be placed in an account in which the interest shall accrue to the developer. "Substantial" planting or replanting is hereby defined as planting or replanting in excess of ten percent of the total planted area of the development, parcel, site or lot.
II	Other - Prohibit use of potable water for construction and dust control	Using potable water from whatever source, in construction for dust control, or soil compaction unless reclaimed (or "nonpotable") water is not available. Vehicles hauling and spraying such water must have standardized signs indicating "reclaimed" or "nonpotable" water.
II	Other	Any other use of domestic water as deemed to be wasteful as determined by the director of public services. (Ord. 1533 § 2, 1991; Ord. 1522 § 3, 1990)

(a) Restrictions are listed in Section 10.16.050 of the San Bruno Municipal Code

(b) All restrictions are subject to enforcement according to Section 10.16 of the San Bruno Municipal Code.

(c)) Stage II calls for mandatory conservation measures as determined necessary by the City Council and the Public Services Director, and is not limited to the measures identified in this table. If Stage III is enacted, all of the above measures will be in force.

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Table 8-3. Consumption Reduction Methods		
Stage	Consumption Reduction Method	Description
All	Expand Public Information Campaign	Already implemented as a Demand Management Measure (see Chapter 9)
All	Provide Rebates on Plumbing Fixtures and Devices	Already implemented as a Demand Management Measure (see Chapter 9)
All	Provide Rebates for Turf Replacement	Already implemented as a Demand Management Measure (see Chapter 9)
I	Increase Frequency of Meter Reading	Metering will be increased to measure the effectiveness of the implemented water conservation measures.
II	Decrease Line Flushing	See Table 8-2

8.5 DETERMINING WATER SHORTAGE REDUCTIONS

In February 2016, the City completed the installation of an Advanced Metering Infrastructure (AMI) system that reads water consumption to an accuracy of 1 cubic foot of water. The City has upgraded 11,000 of its residential meters with the AMI system. The cost of the AMI project was $5 million. The AMI system allows for real-time monitoring of customer water use. City water customers can now easily monitor their own water use using an on-line portal and can set up alerts to better manage their water use.

Through the City's on-going monitoring of water production and water consumption, the City will ensure compliance with water shortage rationing measures and be able to impose penalties on those who are not complying with the directed mandatory water conservation measures or water allocations. Non-compliance with the required water conservation will result in the penalties described in Section 8.3, potentially including fines, flow restriction devices, and termination of service.

8.6 REVENUE AND EXPENDITURE IMPACTS

Because San Bruno bills its customers per unit volume of water consumed, the City would experience a reduction in revenue upon implementation of the water conservation and/or rationing plan. To compensate for the expected revenue reduction cause by water conservation, the City Council reserves the authority to adopt a temporary rate increase and institute an excess water surcharge (SBMC §10.16.140). Such rate increases would be based on a variety of components (including the change in quantity of sales, and fiscal impacts to the City and to customers) and evaluated at the time of drought. In addition to rate increases, capital reserves could potentially be used but would require approval from the City Council.

8.7 RESOLUTION OR ORDINANCE

In July 2014, the City adopted Resolution No. 2014-91 declaring a state of water emergency as outlined in the San Bruno Municipal Code and Activating the City's Water Shortage Contingency Plan. The City also adopted a Resolution 2015-29 amending Stage II of the City's Water Shortage Contingency Plan. Restrictions were extended and expanded to restrict outdoor watering to two days a week according to the customer's address. The resolution also limited irrigation to 15 minutes per irrigation station and prohibited outdoor irrigation during and 48 hours following measurable precipitation. Both ordinances are provided in Appendix N.

8.8 CATASTROPHIC SUPPLY INTERRUPTION

Catastrophic supply interruptions may be caused by a regional power outage, an earthquake, or other disaster. In the event of a catastrophic supply interruption, the response procedures that the City would follow are described in:

- SFPUC Emergency Operations Plan;
- San Mateo County's Emergency Operation Plan; and
- City of San Bruno's Emergency Response Plan.

Actions described in these plans focus on maintaining flow within the regional and local water system pipelines. In the event that this water is unsafe for consumption (e.g., only available for fire flow), the City plans to distribute potable water to residents at emergency distribution centers. The following sections summarize the information presented in the aforementioned plans, including measures to be taken to ensure the reliability of the water supply.

8.8.1 Capital Projects for Seismic Reliability and Overall System Reliability

As discussed previously in Section 7.1.1, the SFPUC is also undertaking a WSIP to enhance the ability of the SFPUC water supply system to meet identified service goals for water quality, seismic reliability, delivery reliability, and water supply. The WSIP projects include several projects located in San Francisco to improve the seismic reliability of the in-city distribution system, as well as many projects related to the SFPUC RWS to address both seismic reliability and overall system reliability. According to the WSIP Regional Projects Quarterly Report dated February 2016, all WSIP projects are expected to be completed by 2019.

In addition to the improvements that will come from the WSIP, San Francisco has already constructed the following system interties for use during catastrophic emergencies, short-term facility maintenance and upgrade activities, and in times of water shortages:

- A 40 MGD system intertie between the SFPUC and the Santa Clara Valley Water District (Milpitas Intertie); and
- One permanent and one temporary intertie to the South Bay Aqueduct, which would enable the SFPUC to receive State Water Project water.

The WSIP includes intertie projects, such as the East Bay Municipal Utility District (EBMUD)-Hayward-SFPUC Intertie. The SFPUC and EBMUD have completed construction of this 30 MGD intertie between their two systems in the City of Hayward, as part of the WSIP.

The WSIP also includes projects related to standby power facilities at various locations. These projects, which have been completed, provide for either an emergency generator or electrical receptacles to accommodate a portable emergency generator at the following sites: Alameda West Portal, San Antonio Reservoir and Dam, Harry Tracy Water Treatment Plant, Millbrae Yard, San Pedro Valve Lot and Capuchino Valve Lot.

8.8.2 SFPUC Emergency Operations Plan

Following San Francisco's experience with the 1989 Loma Prieta Earthquake, the SFPUC created a departmental SFPUC Emergency Operations Plan (EOP). The SFPUC EOP, originally released in 1992, and has been updated on average every two years. The EOP addresses a broad range of potential emergency situations that may affect the SFPUC and that supplements the City and County of San Francisco's Emergency Operations Plan prepared by the Department of Emergency Management. Specifically, the purpose of the SFPUC EOP is to describe the department's emergency management organization, roles and responsibilities and emergency policies and procedures.

In addition, the SFPUC divisions and bureaus have their own EOPs that are in alignment with the SFPUC EOP and describe each division's/bureau's specific emergency management organization, roles and responsibilities and emergency policies and procedures. The SFPUC tests its emergency plans on a regular basis by conducting emergency exercises. Through these exercises the SFPUC learns how well the plans will or will not work in response to an emergency. Plan improvements are based on exercise and sometime real world event response and evaluation. Also, the SFPUC has an emergency response training plan that is based on federal, state and local standards and exercise and incident improvement plans. The SFPUC employees have emergency training requirements that are based on their emergency response role.

8.8.2.1 Emergency Planning

With respect to emergency response for the SFPUC Regional Water System, the SFPUC prepared the *SFPUC Regional Water System Emergency Response and Recovery Plan* (ERRP), completed in 2003 and regularly updated. The purpose of this plan is to describe the SFPUC RWS emergency management organizations, roles and responsibilities within those organizations, and emergency management procedures. This contingency plan addresses how to respond and recover from a major RWS seismic event, or other major disaster.

The SFPUC has also prepared an SFPUC-Suburban Customer Water Supply Emergency Operations and Notification Plan. The plan was first prepared in 1996 and is regularly updated. The purpose of this plan is to provide contact information, procedures and guidelines to be implemented by the following entities when a potential or actual water supply problem arises: the SFPUC Water Supply and Treatment Division (WS&TD), Water Quality Bureau (WQB), and the SFPUC wholesale customers, BAWSCA, and City Distribution Division (CDD). For the purposes of this plan, water quality issues are treated as potential or actual supply problems.

8.8.2.2 Power Outage Preparedness and Response

The SFPUC's water transmission system is primarily gravity fed. Although water conveyance throughout the RWS would not be greatly impacted by power outages because it is gravity fed, the SFPUC has prepared for potential regional power outages as follows:

- The Tesla disinfection facility, the Sunol Valley Water Treatment Plant, and the San Antonio Pump Station have back-up power in place in the form of generators or diesel powered pumps. Additionally, both the Sunol Valley Water Treatment Plant and the San Antonio Pump Station would not be impacted by a failure of the regional power grid because they run off of the SFPUC hydro-power generated by the RWS.
- Both the Harry Tracy Water Treatment Plant and the Baden Pump Station have back-up generators in place.
- Additionally, the WSIP includes projects which will expand the SFPUC's ability to remain in operation during power outages and other emergency situations.

8.8.3 San Bruno's Emergency Response Plan

In response to the requirements of the Public Health, Security and Bioterrorism Preparedness and Response Act of 2002 (Bioterrorism Act), Section 1433 amendment to the Safe Drinking Water Act, the City prepared a Water System Emergency Response Plan (ERP), completed in 2004 and regularly updated. The City's ERP provides a framework for emergency response by the City's Public Services Department (Department) and:

- Describes the Department's emergency management organization;
- Outlines the roles and responsibilities the Department and its staff during emergency response and recover;
- Compiles and organizes water system emergency response protocols and procedures; and,
- Identifies contingency plans to be implemented in the event that one or more of San Bruno's water supplies were to become unusable.

San Bruno's ERP also includes procedures for emergency chloramination at the City's four groundwater supply wells, a plan for distributing emergency water quality information, and a drinking water contamination response plan. These components provide guidance in response to disasters and attacks, both natural and man-made. For example, San Bruno's ERP is designed to be implemented in the event of structural damage triggered by an earthquake, and to provide emergency standby generators at wells and pump stations in the event of a power outage. Though San Bruno currently uses portable generators as a backup power supply, the City's long-term goal is to install backup power supply to each well and pump station.

8.8.3.1 SFPUC Service Interruption

In the event that service is interrupted from any of San Bruno's SFPUC metered connections, personnel are instructed to shut down the affected connection and reroute water from the remaining connections where possible, as described for each particular connection in the ERP Contingency Plan. If necessary, groundwater may be routed to higher pressure zones via booster stations and then back-fed through pressure reducing valves from the higher to lower zones within the distribution system.

8.8.3.2 Emergency Inter-ties to Adjacent Distribution Systems

Emergency inter-ties with NCCWD, the City of Millbrae, and Cal Water – South San Francisco have also been established to provide additional options for emergency water supplies in the event that neighboring agencies' SFPUC connections remain intact. San Bruno maintains two interties with NCCWD, one with the City of Millbrae, and two with Cal Water – South San Francisco.

8.9 MINIMUM SUPPLY NEXT THREE YEARS

The driest three-year historic sequence on record that impacted the City's potable water supply since 1920 occurred between 1990 and 1992. Based on the water supply information provided to the City by the SFPUC, the Tier Two water supply for the next three years (2016 to 2018) will be 1.75 MGD. The South Westside Basin GWMP estimates that no groundwater supply reduction is anticipated in the coming years, and the City will still have its 2.10 MGD supply. The estimated minimum available supply over the next three years of 3.85 MGD exceeds the FY 2014/15 water consumption of 2.89 MGD. The estimated minimum supply available to San Bruno for the next three years is shown in Table 8-4.

Table 8-4. Minimum Supply for the Next Three Years[(a)]

	2016	2017	2018
Available Water Supply, MGD	3.85	3.85	3.85
Available Water Supply, CCF	1,878,679	1,878,679	1,878,679

(a) According to the SFPUC's Tier Two Allocation Scenario, San Bruno's Total Available Supply under a Tier Two scenario would be 1.75 MGD.

(a) The City's groundwater supply is assumed to not be reduced in the minimum supply scenario. It is assumed to remain 2.10 MGD.

The minimum supply for the next three years shown in Table 8-4 is less than the projected multiple-dry year supplies presented in Table 7-3. The SFPUC projections in Table 7-3 are based on percentage reductions of the City's contracted water supply of 3.25 MGD. The SFPUC Tier Two minimum supply of 1.75 MGD is based on a 20 percent reduction of the City's FY 2013/14 base year water consumption of 1.94 MGD. See Section 7.1.1.8 for discussion of the Tier Two Drought Allocations.

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CHAPTER 9
Demand Management Measures

This chapter describes the City's historical and existing water conservation program, status of implementation of Demand Management Measures (DMMs), and projected future conservation implementation. The CWC requires that UWMPs include a comprehensive description of historical, current, and projected water conservation programs.

> *CWC 10631(f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:*
>
> *(1)(A) … a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years. The narrative shall describe the water demand management measure that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.*
>
> *(B)The narrative pursuant to this paragraph shall include descriptions of the following water demand management measures:*
>
> *(i) Water waste prevention ordinances.*
>
> *(ii) Metering.*
>
> *(iii) Conservation pricing.*
>
> *(iv) Public education and outreach.*
>
> *(v) Programs to assess and manage distribution system real loss.*
>
> *(vi) Water conservation program coordination and staffing support.*
>
> *(vii) Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented.*

In previous UWMPs, a substantial amount of data was required to document a water supplier's progress in implementing fourteen specific DMMs. In 2014, Assembly Bill 2067 simplified, clarified, and updated reporting requirements for DMMs. Starting with this 2015 UWMP, focus has turned away from detailed descriptions of each of the fourteen DMMs and has turned to key water conservation measures that are being implemented to achieve compliance with SB X7-7. For retail agencies, the number of DMMs has been reduced from fourteen to six (plus an "other" category). A narrative description of the status of the DMMs and how the DMMs will help the water supplier achieve its SB X7-7 water use targets is required. Detailed data are not required.

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 recent drought conditions. The City's customers have responded positively to these programs, resulting in savings exceeding water use reduction goals. From June 2015 through March 2016, the City's cumulative water savings was 24.5 percent as compared to 2013 water use, exceeding the City's conservation standard of 8 percent by 16.5 percent[1].

[1] March 2016 Supplier Conservation Compliance, SWRCB Water Conservation webpage, data as of April 21, 2016.

9.2 DEMAND MANAGEMENT MEASURES

The six DMMs required to be discussed in the 2015 UWMP include the following:

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

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 planned implementation to achieve the water use targets required by SB X7-7 (see *Chapter 5 SB X7-7 Baselines and Targets*).

9.2.1 Water Waste Prevention Ordinances

San Bruno'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 Planning* 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).

Implementation of this DMM 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

San Bruno meters all of its water customers. The City 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. Meter service charges range from $19.49 per month for a 3/4-inch diameter meter, to $1,404.30 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 O).

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

As described in Section 9.2.2, all of the City's water customers are billed based on a monthly service charge based on the size of the water meter, plus a usage charge for all metered water consumption. The water consumption usage charges are charged 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, 2015) are included in Appendix O.

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).

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.

9.2.4 Public Education and Outreach

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 high-efficiency toilets and clothes washers and 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.

The City participates in BAWSCA's 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 the concepts of sustainable landscaping, focusing on creating beautiful, water-efficient gardens.

The City will continue to promote water conservation using the methods described in this section.

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 $11,000 for the EarthCapades program in FY 2015/16. The City is continuing the EarthCapades assembly program as its primary means of school education.

Implementation of this DMM is expected to help the City achieve its water use targets by educating water users about 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, San Bruno'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.

As described in *Chapter 4 System Water Use*, the City conducts annual system water audits to determine the quantity of water lost (unaccounted for water, UAW) by comparing the City's total water supplies with its metered water consumption. San Bruno's total water supplies are recorded by the City's Public Services Department, while water consumption is recorded by the City's Finance Department. The average City's UAW for FY 2010/11 through FY 2014/15 is 8.2 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 expected to help the City achieve its water use targets by identifying sources of water loss quickly so repairs can be made and losses minimized.

9.2.6 Water Conservation Program Coordination and Staffing Support

The City's Water Conservation Coordinator position is currently filled by Mr. Mark Reinhardt. Mr. Reinhardt performs system audits, maintains water conservation materials, and coordinates the BAWSCA conservation programs and other City water conservation programs. The City does not maintain any additional staffing support for the Water Conservation Program.

San Bruno's residential surveys (surveys) are performed on request or when triggered by abnormally high bills or leak investigations. The survey consists of a personal visit to the residence by the Water Conservation Coordinator or other Public Services Department staff member aimed at determining 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 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.

9.3 OTHER DEMAND MANAGEMENT MEASURES

9.3.1 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.

As discussed in Chapter 8, in February 2016, the City completed the installation of an Advanced Metering Infrastructure (AMI) system that reads water consumption to an accuracy of 1 cubic foot of water. The City has upgraded 11,000 of its residential meters with the AMI system. The cost of the AMI project was $5 million. The AMI system allows for real-time monitoring of customer water use and allows City water 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.

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. The City has allocated up to $16,500 for the Lawn Be Gone! program.

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

9.3.2 Large Landscape Program

San Bruno 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 on-going monitoring/tracking of actual water use and estimated water savings for the sites surveyed. The City will continue to offer the large landscape program, and has $5,000 budgeted for FY 2015/16.

The City complies with the 2015 Updated State Model Water Efficient Landscape Ordinance (MWELO). The Governor's Executive Order B-29-15 called for revising the Model 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 ordinance is overseen by the City Planning Department.

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

9.3.3 High-Efficiency Clothes Washer Rebate Program

San Bruno has participated in BAWSCA's regional high-efficiency clothes washer rebate program since 2004. Through a partnership with PG&E and BAWSCA, the City currently offers a combined water and energy rebate of $150 per washing machine if a resident purchases a qualifying efficient clothes washer. Guidelines and applications for the City's High-Efficiency clothes washer rebates can be found on BAWSCA's website. In FY 2015/16, the City has $46,250 budgeted for clothes washer rebates. The City will reevaluate each year how much budget to allocate for the high-efficiency clothes washer rebate.

9.3.4 Commercial, Industrial, Institutional Programs

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

The City joined BAWSCA's regional program to offer rebates for purchase of high efficiency commercial clothes washers. The program is designed to encourage the replacement of inefficient, top-loading washers in commercial settings with more efficient washers.

Since FY 2008/09, San Bruno has participated in two other regional programs that address water use at CII accounts: (1) BAWSCA's large landscape program targets the highest landscape water users in the City and provide site surveys, monthly water use reporting, and water use budgets to help customers reduce water use; and (2) BAWSCA's high efficiency toilet rebate program is also open to CII customers, as described in Section 9.3.5 below

9.3.5 High Efficiency Toilet Rebate Program

Since August 2009, San Bruno has participated in BAWSCA's regional water conservation program for water-efficient toilets. In conjunction with the BAWSCA program, the City currently offers a rebate of $75 per toilet if the resident replaces a toilet that uses 3.5 gallons per flush (GPF) or more with an 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. Guidelines and applications for the City's HET rebate program can be found on BAWSCA's website. BAWSCA's regional rebate program is applicable to both residential and CII customers.

The City has $46,250 budgeted for toilet rebates in FY 2015/16. The City will reevaluate each year how much budget to allocate for the toilet rebate.

9.4 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. As described, in *Chapter 5 SB X7-7 Baselines and Targets*, the City met its per capita water use target for 2015 and continues to conserve water in response to the on-going drought conditions.

9.5 MEMBERS OF THE CALIFORNIA URBAN WATER CONSERVATION COUNCIL

The City is not a member of the California Urban Water Conservation Council (CUWCC) and will not be submitting a CUWCC Best Management Practices Report.

CHAPTER 10
Plan Adoption, Submittal, and Implementation

This chapter provides information regarding the notification, public hearing and adoption of the Plan.

10.1 INCLUSION OF ALL 2015 DATA

Because 2015 is the first compliance year for SB X7-7, the 2015 UWMPs must contain data through the end of 2015. If a water supplier bases its accounting on a fiscal year (July through June) the data must be through the end of the 2015 fiscal year (June 2015). If the water supplier bases its accounting on a calendar year, the data must be through the end of the 2015 calendar year (December 2015).

As indicated in Chapter 1, the City uses a fiscal year for water supply and demand accounting, and therefore this 2015 UWMP includes data through June 2015.

10.2 NOTICE OF PUBLIC HEARING

The City provided 60-day notice of the preparation of its 2015 UWMP, and notice of the 2015 UWMP Public Hearing to the cities and counties listed in Table 10-1.

Table 10-1. Notification to Cities and Counties

Name of Cities	60 Day Notice	Notice of Public Hearing
City of San Bruno	☒	☒
Name of Counties	**60 Day Notice**	**Notice of Public Hearing**
County of San Mateo	☒	☒

In addition, the City also notified the following agencies:

- San Francisco Public Utilities Commission (SFPUC);
- Bay Area Water Supply and Conservation Agency (BAWSCA); and
- South San Francisco Water Quality Control Plant.

Public hearing notifications for adoption of the UWMP were published in the local newspaper (San Mateo County Times) and on the City's website. Copies of the published Notice of Public Hearing are included in Appendix D.

10.3 PUBLIC HEARING AND ADOPTION

The City has encouraged community and public interest involvement in the Plan update through the use of mailings, public meetings, and web-based communication. Copies of the City's outreach efforts are included in Appendix D.

The public hearing provided an opportunity for all City water users and the general public to become familiar with the UWMP and ask questions about its water supply, in addition to the City's continuing plans for providing a reliable, safe, high-quality water supply. The adoption, implementation and economic impact of revised per capita water use targets (described in *Chapter 5 SB X7-7 Baselines and Targets*) was also discussed at the public hearing. Copies of the Draft UWMP were made available for public inspection at City Hall and at the San Bruno Public Library, as well as on the City's website.

This Plan was adopted by the San Bruno City Council on June 28, 2016. A copy of the adoption resolution is provided in Appendix P.

10.4 PLAN SUBMITTAL

A copy of this 2015 UWMP will be submitted to DWR within 30 days of adoption and by July 1, 2016. The adopted 2015 UWMP will be submitted electronically to DWR using the WUEdata submittal tool. A CD or hardcopy of the adopted 2015 UWMP will also be submitted to the California State Library.

No later than 30 days after adoption, a copy of the adopted 2015 UWMP, including the Water Shortage Contingency Plan, 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 2015 UWMP will be available at City Hall and the San Bruno Public Library for public review during normal business hours. An electronic copy of this 2015 UWMP will also be available for review and download on the City's website (https://www.sanbruno.ca.gov/).

10.6 PLAN IMPLEMENTATION

Following adoption, this 2015 UWMP will be the source document for any SB 610 Water Supply Assessments or Senate Bill 221 Water Supply Verifications required for any proposed projects in the City's service area between 2016 and 2020 that are subject to the California Environmental Quality Act (CEQA) and would demand an amount of water equivalent or greater than the amount of water required by a 500 dwelling unit project. Lastly, this 2015 UWMP will provide guidance and direction on development of new local supplies and implementation of water conservation programs to meet the requirements of SB X7-7.

10.7 AMENDING AN ADOPTED UWMP

If the City amends its 2015 UWMP, copies of amendments or changes to the plans will be submitted to DWR, the California State Library, San Mateo County, and other agencies and stakeholders within 30 days after adoption.

APPENDIX A

Legislative Requirements

- California Water Code – Urban Water Management Planning
- California Water Code – Sustainable Water Use and Demand Reduction

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California Water Code
Urban Water Management Planning

California Water Code Division 6, Part 2.6.
Chapter 1. General Declaration and Policy §10610-10610.4
Chapter 2. Definitions §10611-10617
Chapter 3. Urban Water Management Plans
Article 1. General Provisions §10620-10621
Article 2. Contents of Plans §10630-10634
Article 2.5. Water Service Reliability §10635
Article 3. Adoption And Implementation of Plans §10640-10645
Chapter 4. Miscellaneous Provisions §10650-10656

Chapter 1. General Declaration and Policy

SECTION 10610-10610.4

10610. This part shall be known and may be cited as the "Urban Water Management Planning Act."

10610.2. (a) The Legislature finds and declares all of the following:

(1) The waters of the state are a limited and renewable resource subject to ever-increasing demands.

(2) The conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level.

(3) A long-term, reliable supply of water is essential to protect the productivity of California's businesses and economic climate.

(4) As part of its long-range planning activities, every urban water supplier should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry water years.

(5) Public health issues have been raised over a number of contaminants that have been identified in certain local and imported water supplies.

(6) Implementing effective water management strategies, including groundwater storage projects and recycled water projects, may require specific water quality and salinity targets for meeting groundwater basins water quality objectives and promoting beneficial use of recycled water.

(7) Water quality regulations are becoming an increasingly important factor in water agencies' selection of raw water sources, treatment alternatives, and modifications to existing treatment facilities.

(8) Changes in drinking water quality standards may also impact the usefulness of water supplies and may ultimately impact supply reliability.

(9) The quality of source supplies can have a significant impact on water management strategies and supply reliability.

(b) This part is intended to provide assistance to water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies to meet existing and future demands for water.

10610.4. The Legislature finds and declares that it is the policy of the state as follows:

(a) The management of urban water demands and efficient use of water shall be actively pursued to protect both the people of the state and their water resources.

(b) The management of urban water demands and efficient use of urban water supplies shall be a guiding criterion in public decisions.

(c) Urban water suppliers shall be required to develop water management plans to actively pursue the efficient use of available supplies.

Chapter 2. Definitions

SECTION 10611-10617

10611. Unless the context otherwise requires, the definitions of this chapter govern the construction of this part.

10611.5. “Demand management" means those water conservation measures, programs, and incentives that prevent the waste of water and promote the reasonable and efficient use and reuse of available supplies.

10612. "Customer" means a purchaser of water from a water supplier who uses the water for municipal purposes, including residential, commercial, governmental, and industrial uses.

10613. "Efficient use" means those management measures that result in the most effective use of water so as to prevent its waste or unreasonable use or unreasonable method of use.

10614. "Person" means any individual, firm, association, organization, partnership, business, trust, corporation, company, public agency, or any agency of such an entity.

10615. "Plan" means an urban water management plan prepared pursuant to this part. A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses,

reclamation and demand management activities. The components of the plan may vary according to an individual community or area's characteristics and its capabilities to efficiently use and conserve water. The plan shall address measures for residential, commercial, governmental, and industrial water demand management as set forth in Article 2 (commencing with Section 10630) of Chapter 3. In addition, a strategy and time schedule for implementation shall be included in the plan.

10616. "Public agency" means any board, commission, county, city and county, city, regional agency, district, or other public entity.

10616.5. "Recycled water" means the reclamation and reuse of wastewater for beneficial use.

10617. "Urban water supplier" means 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 annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems subject to Chapter 4 (commencing with Section 116275) of Part 12 of Division 104 of the Health and Safety Code.

Chapter 3. Urban Water Management Plans

Article 1. General Provisions

SECTION 10620-10621

10620. (a) Every urban water supplier shall prepare and adopt an urban water management plan in the manner set forth in Article 3 (commencing with Section 10640).

(b) Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.

(c) An urban water supplier indirectly providing water shall not include planning elements in its water management plan as provided in Article 2 (commencing with Section 10630) that would be applicable to urban water suppliers or public agencies directly providing water, or to their customers, without the consent of those suppliers or public agencies.

(d) (1) An urban water supplier may satisfy the requirements of this part by participation in areawide, regional, watershed, or basinwide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use.

(2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that

share a common source, water management agencies, and relevant public agencies, to the extent practicable.

(e) The urban water supplier may prepare the plan with its own staff, by contract, or in cooperation with other governmental agencies.

(f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

10621. (a) Each urban water supplier shall update its plan at least once every five years on or before December 31, in years ending in five and zero, except as provided in subdivision (d).

(b) Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days before the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.

(c) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).

(d) Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.

Article 2. Contents of Plan

SECTION 10630-10634

10630. It is the intention of the Legislature, in enacting this part, to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied.

10631. A plan shall be adopted in accordance with this chapter that shall do all of the following:

(a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a). If groundwater is identified as an existing or planned source of

water available to the supplier, all of the following information shall be included in the plan:

(1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.

(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For basins that a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(c) (1) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:

(A) An average water year.

(B) A single-dry water year.

(C) Multiple-dry water years.

(2) For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.

(d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

(e) (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses:

(A) Single-family residential.

(B) Multifamily.

(C) Commercial.

(D) Industrial.

(E) Institutional and governmental.

(F) Landscape.

(G) Sales to other agencies.

(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.

(I) Agricultural.

(J) Distribution system water loss.

(2) The water use projections shall be in the same five-year increments described in subdivision (a).

(3) (A) For the 2015 urban water management plan update, the distribution system water loss shall be quantified for the most recent 12-month period available. For all subsequent updates, the distribution system water loss shall be quantified for each of the five years preceding the plan update.

(B) The distribution system water loss quantification shall be reported in accordance with a worksheet approved or developed by the department through a public process. The water loss quantification worksheet shall be based on the water system balance methodology developed by the American Water Works Association.

(4) (A) If available and applicable to an urban water supplier, water use projections may display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area.

(B) To the extent that an urban water supplier reports the information described in subparagraph (A), an urban water supplier shall do both of the following:

(i) Provide citations of the various codes, standards, ordinances, or transportation and land use plans utilized in making the projections.

(ii) Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall be noted of that fact.

(f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1) (A) For an urban retail water supplier, as defined in Section 10608.12, a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years. The narrative shall describe the water demand management measures that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.

(B) The narrative pursuant to this paragraph shall include descriptions of the following water demand management measures:

(i) Water waste prevention ordinances.

(ii) Metering.

(iii) Conservation pricing.

(iv) Public education and outreach.

(v) Programs to assess and manage distribution system real loss.

(vi) Water conservation program coordination and staffing support.

(vii) Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented.

(2) For an urban wholesale water supplier, as defined in Section 10608.12, a narrative description of the items in clauses (ii), (iv), (vi), and (vii) of subparagraph (B) of paragraph (1), and a narrative description of its distribution system asset management and wholesale supplier assistance programs.

(g) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water

use, as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

(h) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

(i) For purposes of this part, urban water suppliers that are members of the California Urban Water Conservation Council shall be deemed in compliance with the requirements of subdivision (f) by complying with all the provisions of the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated December 10, 2008, as it may be amended, and by submitting the annual reports required by Section 6.2 of that memorandum.

(j) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).

10631.1. (a) The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier.

(b) It is the intent of the Legislature that the identification of projected water use for single-family and multifamily residential housing for lower income households will assist a supplier in complying with the requirement under Section 65589.7 of the Government Code to grant a priority for the provision of service to housing units affordable to lower income households.

10631.2. (a) In addition to the requirements of Section 10631, an urban water management plan may, but is not required to, include any of the following information:

(1) An estimate of the amount of energy used to extract or divert water supplies.

(2) An estimate of the amount of energy used to convey water supplies to the water treatment plants or distribution systems.

(3) An estimate of the amount of energy used to treat water supplies.

(4) An estimate of the amount of energy used to distribute water supplies through its distribution systems.

(5) An estimate of the amount of energy used for treated water supplies in comparison to the amount used for nontreated water supplies.

(6) An estimate of the amount of energy used to place water into or withdraw from storage.

(7) Any other energy-related information the urban water supplier deems appropriate.

(b) The department shall include in its guidance for the preparation of urban water management plans a methodology for the voluntary calculation or estimation of the energy intensity of urban water systems. The department may consider studies and calculations conducted by the Public Utilities Commission in developing the methodology.

10631.5. (a) (1) Beginning January 1, 2009, the terms of, and eligibility for, a water management grant or loan made to an urban water supplier and awarded or administered by the department, state board, or California Bay-Delta Authority or its successor agency shall be conditioned on the implementation of the water demand management measures described in Section 10631, as determined by the department pursuant to subdivision (b).

(2) For the purposes of this section, water management grants and loans include funding for programs and projects for surface water or groundwater storage, recycling, desalination, water conservation, water supply reliability, and water supply augmentation. This section does not apply to water management projects funded by the federal American Recovery and Reinvestment Act of 2009 (Public Law 111-5).

(3) Notwithstanding paragraph (1), the department shall determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if the urban water supplier has

submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for implementation of the water demand management measures. The supplier may request grant or loan funds to implement the water demand management measures to the extent the request is consistent with the eligibility requirements applicable to the water management funds.

(4) (A) Notwithstanding paragraph (1), the department shall determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if an urban water supplier submits to the department for approval documentation demonstrating that a water demand management measure is not locally cost effective. If the department determines that the documentation submitted by the urban water supplier fails to demonstrate that a water demand management measure is not locally cost effective, the department shall notify the urban water supplier and the agency administering the grant or loan program within 120 days that the documentation does not satisfy the requirements for an exemption, and include in that notification a detailed statement to support the determination.

(B) For purposes of this paragraph, "not locally cost effective" means that the present value of the local benefits of implementing a water demand management measure is less than the present value of the local costs of implementing that measure.

(b) (1) The department, in consultation with the state board and the California Bay-Delta Authority or its successor agency, and after soliciting public comment regarding eligibility requirements, shall develop eligibility requirements to implement the requirement of paragraph (1) of subdivision (a). In establishing these eligibility requirements, the department shall do both of the following:

(A) Consider the conservation measures described in the Memorandum of Understanding Regarding Urban Water Conservation in California, and alternative conservation approaches that provide equal or greater water savings.

(B) Recognize the different legal, technical, fiscal, and practical roles and responsibilities of wholesale water suppliers and retail water suppliers.

(2) (A) For the purposes of this section, the department shall determine whether an urban water supplier is implementing all of the water demand management measures described in Section 10631 based on either, or a combination, of the following:

(i) Compliance on an individual basis.

(ii) Compliance on a regional basis. Regional compliance shall require participation in a regional conservation program consisting of two or more urban water suppliers that achieves the level of conservation or water efficiency savings equivalent to the amount of conservation or savings achieved if each of the participating urban water suppliers implemented the water demand management measures. The urban water supplier administering the regional program shall provide participating urban water suppliers and the department with data to demonstrate that the regional program is consistent with this clause. The department shall review the data to determine whether the urban water suppliers in the regional program are meeting the eligibility requirements.

(B) The department may require additional information for any determination pursuant to this section.

(3) The department shall not deny eligibility to an urban water supplier in compliance with the requirements of this section that is participating in a multiagency water project, or an integrated regional water management plan, developed pursuant to Section 75026 of the Public Resources Code, solely on the basis that one or more of the agencies participating in the project or plan is not implementing all of the water demand management measures described in Section 10631.

(c) In establishing guidelines pursuant to the specific funding authorization for any water management grant or loan program subject to this section, the agency administering the grant or loan program shall include in the guidelines the eligibility requirements developed by the department pursuant to subdivision (b).

(d) Upon receipt of a water management grant or loan application by an agency administering a grant and loan program subject to this section, the agency shall request an eligibility determination from the department with respect to the requirements of this section. The department shall respond to the request within 60 days of the request.

(e) The urban water supplier may submit to the department copies of its annual reports and other relevant documents to assist the department in determining whether the urban water supplier is implementing or scheduling the implementation of water demand management activities. In addition, for urban water suppliers that are signatories to the Memorandum of Understanding Regarding Urban Water Conservation in California and submit biennial reports to the California Urban Water Conservation Council in accordance with the memorandum, the department may use these reports to assist in tracking the implementation of water demand management measures.

(f) This section shall remain in effect only until July 1, 2016, and as of that date is repealed, unless a later enacted statute, that is enacted before July 1, 2016, deletes or extends that date.

10631.7. The department, in consultation with the California Urban Water Conservation Council, shall convene an independent technical panel to provide information and recommendations to the department and the Legislature on new demand management measures, technologies, and approaches. The panel shall consist of no more than seven members, who shall be selected by the department to reflect a balanced representation of experts. The panel shall have at least one, but no more than two, representatives from each of the following: retail water suppliers, environmental organizations, the business community, wholesale water suppliers, and academia. The panel shall be convened by January 1, 2009, and shall report to the Legislature no later than January 1, 2010, and every five years thereafter. The department shall review the panel report and include in the final report to the Legislature the department's recommendations and comments regarding the panel process and the panel's recommendations.

10632. (a) The plan shall provide an urban water shortage contingency analysis that includes each of the following elements that are within the authority of the urban water supplier:

(1) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions that are applicable to each stage.

(2) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.

(3) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.

(4) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.

(5) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are

appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.

(6) Penalties or charges for excessive use, where applicable.

(7) An analysis of the impacts of each of the actions and conditions described in paragraphs (1) to (6), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

(8) A draft water shortage contingency resolution or ordinance.

(9) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

(b) Commencing with the urban water management plan update due July 1, 2016, for purposes of developing the water shortage contingency analysis pursuant to subdivision (a), the urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following:

(a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

(b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

(c) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.

(d) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

(e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

(f) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.

(g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

10634. The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.

Article 2.5. Water Service Reliability

SECTION 10635

10635. (a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

(b) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.

(c) Nothing in this article is intended to create a right or entitlement to water service or any specific level of water service.

(d) Nothing in this article is intended to change existing law concerning an urban water supplier's obligation to provide water service to its existing customers or to any potential future customers.

Article 3. Adoption and Implementation of Plans

SECTION 10640-10645

10640. Every urban water supplier required to prepare a plan pursuant to this part shall prepare its plan pursuant to Article 2 (commencing with Section 10630). The supplier shall likewise periodically review the plan as required by Section 10621, and any amendments or changes required as a result of that review shall be adopted pursuant to this article.

10641. An urban water supplier required to prepare a plan may consult with, and obtain comments from, any public agency or state agency or any person who has special expertise with respect to water demand management methods and techniques.

10642. Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area.

After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

10643. An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan.

10644. (a) (1) An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.

(2) The plan, or amendments to the plan, submitted to the department pursuant to paragraph (1) shall be submitted electronically and shall include any standardized forms, tables, or displays specified by the department.

(b) (1) Notwithstanding Section 10231.5 of the Government Code, the department shall prepare and submit to the Legislature, on or before December 31, in the years ending in six and one, a report summarizing the status of the plans adopted pursuant to this part.

The report prepared by the department shall identify the exemplary elements of the individual plans. The department shall provide a copy of the report to each urban water supplier that has submitted its plan to the department. The department shall also prepare reports and provide data for any legislative hearings designed to consider the effectiveness of plans submitted pursuant to this part.

(2) A report to be submitted pursuant to paragraph (1) shall be submitted in compliance with Section 9795 of the Government Code.

(c) (1) For the purpose of identifying the exemplary elements of the individual plans, the department shall identify in the report water demand management measures adopted and implemented by specific urban water suppliers, and identified pursuant to Section 10631, that achieve water savings significantly above the levels established by the department to meet the requirements of Section 10631.5.

(2) The department shall distribute to the panel convened pursuant to Section 10631.7 the results achieved by the implementation of those water demand management measures described in paragraph (1).

(3) The department shall make available to the public the standard the department will use to identify exemplary water demand management measures.

10645. Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

Chapter 4. Miscellaneous Provisions

SECTION 10650-10656

10650. Any actions or proceedings to attack, review, set aside, void, or annul the acts or decisions of an urban water supplier on the grounds of noncompliance with this part shall be commenced as follows:

(a) An action or proceeding alleging failure to adopt a plan shall be commenced within 18 months after that adoption is required by this part.

(b) Any action or proceeding alleging that a plan, or action taken pursuant to the plan, does not comply with this part shall be commenced within 90 days after filing of the plan or amendment thereto pursuant to Section 10644 or the taking of that action.

10651. In any action or proceeding to attack, review, set aside, void, or annul a plan, or an action taken pursuant to the plan by an urban water supplier on the grounds of noncompliance with this part, the inquiry shall extend only to whether there was a prejudicial abuse of discretion. Abuse of discretion is established if the supplier has not proceeded in a manner required by law or if the action by the water supplier is not supported by substantial evidence.

10652. The California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) does not apply to the preparation and adoption of plans pursuant to this part or to the implementation of actions taken pursuant to Section 10632. Nothing in this part shall be interpreted as exempting from the California Environmental Quality Act any project that would significantly affect water supplies for fish and wildlife, or any project for implementation of the plan, other than projects implementing Section 10632, or any project for expanded or additional water supplies.

10653. The adoption of a plan shall satisfy any requirements of state law, regulation, or order, including those of the State Water Resources Control Board and the Public Utilities Commission, for the preparation of water management plans or conservation plans; provided, that if the State Water Resources Control Board or the Public Utilities Commission requires additional information concerning water conservation to implement its existing authority, nothing in this part shall be deemed to limit the board or the commission in obtaining that information. The requirements of this part shall be satisfied by any urban water demand management plan prepared to meet federal laws or regulations after the effective date of this part, and which substantially meets the requirements of this part, or by any existing urban water management plan which includes the contents of a plan required under this part.

10654. An urban water supplier may recover in its rates the costs incurred in preparing its plan and implementing the reasonable water conservation measures included in the plan. Any best water management practice that is included in the plan that is identified in the "Memorandum of Understanding Regarding Urban Water Conservation in California" is deemed to be reasonable for the purposes of this section.

10655. If any provision of this part or the application thereof to any person or circumstances is held invalid, that invalidity shall not affect other provisions or applications of this part which can be given effect without the invalid provision or application thereof, and to this end the provisions of this part are severable.

10656. An urban water supplier that does not prepare, adopt, and submit its urban water management plan to the department in accordance with this part, is ineligible to receive funding pursuant to Division 24 (commencing with Section 78500) or Division 26

(commencing with Section 79000), or receive drought assistance from the state until the urban water management plan is submitted pursuant to this article.

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California Water Code
Sustainable Water Use and Demand Reduction

California Water Code Division 6, Part 2.55.

Chapter 1. General Declarations and Policy §10608-10608.8
Chapter 2. Definitions §10608.12
Chapter 3. Urban Retail Water Suppliers §10608.16-10608.44
Chapter 4. Agricultural Water Suppliers §10608.48
Chapter 5. Sustainable Water Management §10608.50
Chapter 6 Standardized Data Collection §10608.52
Chapter 7 Funding Provisions §10608.56-10608.60
Chapter 8 Quantifying Agricultural Water Use Efficiency §10608.64

Chapter 1. General Declarations and Policy

SECTION 10608-10608.8

10608. The Legislature finds and declares all of the following:

(a) Water is a public resource that the California Constitution protects against waste and unreasonable use.

(b) Growing population, climate change, and the need to protect and grow California's economy while protecting and restoring our fish and wildlife habitats make it essential that the state manage its water resources as efficiently as possible.

(c) Diverse regional water supply portfolios will increase water supply reliability and reduce dependence on the Delta.

(d) Reduced water use through conservation provides significant energy and environmental benefits, and can help protect water quality, improve streamflows, and reduce greenhouse gas emissions.

(e) The success of state and local water conservation programs to increase efficiency of water use is best determined on the basis of measurable outcomes related to water use or efficiency.

(f) Improvements in technology and management practices offer the potential for increasing water efficiency in California over time, providing an essential water management tool to meet the need for water for urban, agricultural, and environmental uses.

(g) The Governor has called for a 20 percent per capita reduction in urban water use statewide by 2020.

(h) The factors used to formulate water use efficiency targets can vary significantly from location to location based on factors including weather, patterns of urban and suburban development, and past efforts to enhance water use efficiency.

(i) Per capita water use is a valid measure of a water provider's efforts to reduce urban water use within its service area. However, per capita water use is less useful for measuring relative water use efficiency between different water providers. Differences in weather, historical patterns of urban and suburban development, and density of housing in a particular location need to be considered when assessing per capita water use as a measure of efficiency.

10608.4. It is the intent of the Legislature, by the enactment of this part, to do all of the following:

(a) Require all water suppliers to increase the efficiency of use of this essential resource.

(b) Establish a framework to meet the state targets for urban water conservation identified in this part and called for by the Governor.

(c) Measure increased efficiency of urban water use on a per capita basis.

(d) Establish a method or methods for urban retail water suppliers to determine targets for achieving increased water use efficiency by the year 2020, in accordance with the Governor's goal of a 20-percent reduction.

(e) Establish consistent water use efficiency planning and implementation standards for urban water suppliers and agricultural water suppliers.

(f) Promote urban water conservation standards that are consistent with the California Urban Water Conservation Council's adopted best management practices and the requirements for demand management in Section 10631.

(g) Establish standards that recognize and provide credit to water suppliers that made substantial capital investments in urban water conservation since the drought of the early 1990s.

(h) Recognize and account for the investment of urban retail water suppliers in providing recycled water for beneficial uses.

(i) Require implementation of specified efficient water management practices for agricultural water suppliers.

(j) Support the economic productivity of California's agricultural, commercial, and industrial sectors.

(k) Advance regional water resources management.

10608.8. (a) (1) Water use efficiency measures adopted and implemented pursuant to this part or Part 2.8 (commencing with Section 10800) are water conservation measures subject to the protections provided under Section 1011.

(2) Because an urban agency is not required to meet its urban water use target until 2020 pursuant to subdivision (b) of Section 10608.24, an urban retail water supplier's failure to meet those targets shall not establish a violation of law for purposes of any state administrative or judicial proceeding prior to

January 1, 2021. Nothing in this paragraph limits the use of data reported to the department or the board in litigation or an administrative proceeding. This paragraph shall become inoperative on January 1, 2021.

(3) To the extent feasible, the department and the board shall provide for the use of water conservation reports required under this part to meet the requirements of Section 1011 for water conservation reporting.

(b) This part does not limit or otherwise affect the application of Chapter 3.5 (commencing with Section 11340), Chapter 4 (commencing with Section 11370), Chapter 4.5 (commencing with Section 11400), and Chapter 5 (commencing with Section 11500) of Part 1 of Division 3 of Title 2 of the Government Code.

(c) This part does not require a reduction in the total water used in the agricultural or urban sectors, because other factors, including, but not limited to, changes in agricultural economics or population growth may have greater effects on water use. This part does not limit the economic productivity of California's agricultural, commercial, or industrial sectors.

(d) The requirements of this part do not apply to an agricultural water supplier that is a party to the Quantification Settlement Agreement, as defined in subdivision (a) of Section 1 of Chapter 617 of the Statutes of 2002, during the period within which the Quantification Settlement Agreement remains in effect. After the expiration of the Quantification Settlement Agreement, to the extent conservation water projects implemented as part of the Quantification Settlement Agreement remain in effect, the conserved water created as part of those projects shall be credited against the obligations of the agricultural water supplier pursuant to this part.

Chapter 2 Definitions

SECTION 10608.12

10608.12. Unless the context otherwise requires, the following definitions govern the construction of this part:

(a) "Agricultural water supplier" means a water supplier, either publicly or privately owned, providing water to 10,000 or more irrigated acres, excluding recycled water. "Agricultural water supplier" includes a supplier or contractor for water, regardless of the basis of right, that distributes or sells water for ultimate resale to customers. "Agricultural water supplier" does not include the department.

(b) "Base daily per capita water use" means any of the following:

(1) The urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous 10-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

(2) For an urban retail water supplier that meets at least 10 percent of its 2008 measured retail water demand through recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier, the urban retail water supplier may extend the calculation described in paragraph (1) up to an additional five years to a maximum of a continuous 15-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

(3) For the purposes of Section 10608.22, the urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous five-year period ending no earlier than December 31, 2007, and no later than December 31, 2010.

(c) "Baseline commercial, industrial, and institutional water use" means an urban retail water supplier's base daily per capita water use for commercial, industrial, and institutional users.

(d) "Commercial water user" means a water user that provides or distributes a product or service.

(e) "Compliance daily per capita water use" means the gross water use during the final year of the reporting period, reported in gallons per capita per day.

(f) "Disadvantaged community" means a community with an annual median household income that is less than 80 percent of the statewide annual median household income.

(g) "Gross water use" means the total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier, excluding all of the following:

(1) Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier.

(2) The net volume of water that the urban retail water supplier places into long-term storage.

(3) The volume of water the urban retail water supplier conveys for use by another urban water supplier.

(4) The volume of water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24.

(h) "Industrial water user" means a water user that is primarily a manufacturer or processor of materials as defined by the North American Industry Classification System code sectors 31 to 33, inclusive, or an entity that is a water user primarily engaged in research and development.

(i) "Institutional water user" means 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.

(j) "Interim urban water use target" means the midpoint between the urban retail water supplier's base daily per capita water use and the urban retail water supplier's urban water use target for 2020.

(k) "Locally cost effective" means that the present value of the local benefits of implementing an agricultural efficiency water management practice is greater than or equal to the present value of the local cost of implementing that measure.

(l) "Process water" means water used for producing a product or product content or water used for research and development, including, but not limited to, continuous manufacturing processes, water used for testing and maintaining equipment used in producing a product or product content, and water used in combined heat and power facilities used in producing a product or product content. Process water does not mean incidental water uses not related to the production of a product or product content, including, but not limited to, water used for restrooms, landscaping, air conditioning, heating, kitchens, and laundry.

(m) "Recycled water" means recycled water, as defined in subdivision (n) of Section 13050, that is used to offset potable demand, including recycled water supplied for direct use and indirect potable reuse, that meets the following requirements, where applicable:

(1) For groundwater recharge, including recharge through spreading basins, water supplies that are all of the following:

(A) Metered.

(B) Developed through planned investment by the urban water supplier or a wastewater treatment agency.

(C) Treated to a minimum tertiary level.

(D) Delivered within the service area of an urban retail water supplier or its urban wholesale water supplier that helps an urban retail water supplier meet its urban water use target.

(2) For reservoir augmentation, water supplies that meet the criteria of paragraph (1) and are conveyed through a distribution system constructed specifically for recycled water.

(n) "Regional water resources management" means sources of supply resulting from watershed-based planning for sustainable local water reliability or any of the following alternative sources of water:

(1) The capture and reuse of stormwater or rainwater.

(2) The use of recycled water.

(3) The desalination of brackish groundwater.

(4) The conjunctive use of surface water and groundwater in a manner that is consistent with the safe yield of the groundwater basin.

(o) "Reporting period" means the years for which an urban retail water supplier reports compliance with the urban water use targets.

(p) "Urban retail water supplier" means a water supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre-feet of potable water annually at retail for municipal purposes.

(q) "Urban water use target" means the urban retail water supplier's targeted future daily per capita water use.

(r) "Urban wholesale water supplier," means a water supplier, either publicly or privately owned, that provides more than 3,000 acre-feet of water annually at wholesale for potable municipal purposes.

Chapter 3 Urban Retail Water Suppliers

SECTION 10608.16-10608.44

10608.16.(a) The state shall achieve a 20-percent reduction in urban per capita water use in California on or before December 31, 2020.

(b) The state shall make incremental progress towards the state target specified in subdivision (a) by reducing urban per capita water use by at least 10 percent on or before December 31, 2015.

10608.20.(a) (1) Each urban retail water supplier shall develop urban water use targets and an interim urban water use target by July 1, 2011. Urban retail water suppliers may elect to determine and report progress toward achieving these targets on an individual or regional basis, as provided in subdivision (a) of Section 10608.28, and may determine the targets on a fiscal year or calendar year basis.

(2) It is the intent of the Legislature that the urban water use targets described in paragraph (1) cumulatively result in a 20-percent reduction from the baseline daily per capita water use by December 31, 2020.

(b) An urban retail water supplier shall adopt one of the following methods for determining its urban water use target pursuant to subdivision (a):

(1) Eighty percent of the urban retail water supplier's baseline per capita daily water use.

(2) The per capita daily water use that is estimated using the sum of the following performance standards:

(A) For indoor residential water use, 55 gallons per capita daily water use as a provisional standard. Upon completion of the department's 2016 report to the Legislature pursuant to Section 10608.42, this standard may be adjusted by the Legislature by statute.

(B) For landscape irrigated through dedicated or residential meters or connections, water efficiency equivalent to the standards of the Model Water Efficient Landscape Ordinance set forth in Chapter 2.7 (commencing with Section 490) of Division 2 of Title 23 of the California Code of Regulations, as in effect the later of the year of the landscape's installation or 1992. An urban retail water supplier using the approach specified in this subparagraph shall use satellite imagery, site visits, or other best available technology to develop an accurate estimate of landscaped areas.

(C) For commercial, industrial, and institutional uses, a 10-percent reduction in water use from the baseline commercial, industrial, and institutional water use by 2020.

(3) Ninety-five percent of the applicable state hydrologic region target, as set forth in the state's draft 20x2020 Water Conservation Plan (dated April 30, 2009). If the service area of an urban water supplier includes more than one hydrologic region, the supplier shall apportion its service area to each region based on population or area.

(4) A method that shall be identified and developed by the department, through a public process, and reported to the Legislature no later than December 31, 2010. The method developed by the department shall identify per capita targets that cumulatively result in a statewide 20-percent reduction in urban daily per capita water use by December 31, 2020. In developing urban daily per capita water use targets, the department shall do all of the following:

(A) Consider climatic differences within the state.

(B) Consider population density differences within the state.

(C) Provide flexibility to communities and regions in meeting the targets.

(D) Consider different levels of per capita water use according to plant water needs in different regions.

(E) Consider different levels of commercial, industrial, and institutional water use in different regions of the state.

(F) Avoid placing an undue hardship on communities that have implemented conservation measures or taken actions to keep per capita water use low.

(c) If the department adopts a regulation pursuant to paragraph (4) of subdivision (b) that results in a requirement that an urban retail water supplier achieve a reduction in daily per capita water use that is greater than 20 percent by December 31, 2020, an urban retail water supplier that adopted the method

described in paragraph (4) of subdivision (b) may limit its urban water use target to a reduction of not more than 20 percent by December 31, 2020, by adopting the method described in paragraph (1) of subdivision (b).

(d) The department shall update the method described in paragraph (4) of subdivision (b) and report to the Legislature by December 31, 2014. An urban retail water supplier that adopted the method described in paragraph (4) of subdivision (b) may adopt a new urban daily per capita water use target pursuant to this updated method.

(e) An urban retail water supplier shall include in its urban water management plan due in 2010 pursuant to Part 2.6 (commencing with Section 10610) the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

(f) When calculating per capita values for the purposes of this chapter, an urban retail water supplier shall determine population using federal, state, and local population reports and projections.

(g) An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6 (commencing with Section 10610).

(h) (1) The department, through a public process and in consultation with the California Urban Water Conservation Council, shall develop technical methodologies and criteria for the consistent implementation of this part, including, but not limited to, both of the following:

(A) Methodologies for calculating base daily per capita water use, baseline commercial, industrial, and institutional water use, compliance daily per capita water use, gross water use, service area population, indoor residential water use, and landscaped area water use.

(B) Criteria for adjustments pursuant to subdivisions (d) and (e) of Section 10608.24.

(2) The department shall post the methodologies and criteria developed pursuant to this subdivision on its Internet Web site, and make written copies available, by October 1, 2010. An urban retail water supplier shall use the methods developed by the department in compliance with this part.

(i) (1) The department shall adopt regulations for implementation of the provisions relating to process water in accordance with subdivision (l) of Section 10608.12, subdivision (e) of Section 10608.24, and subdivision (d) of Section 10608.26.

(2) The initial adoption of a regulation authorized by this subdivision is deemed to address an emergency, for purposes of Sections 11346.1 and 11349.6 of the Government Code, and the department is hereby exempted for that purpose from the requirements of subdivision (b) of Section 11346.1 of the

Government Code. After the initial adoption of an emergency regulation pursuant to this subdivision, the department shall not request approval from the Office of Administrative Law to readopt the regulation as an emergency regulation pursuant to Section 11346.1 of the Government Code.

(j) (1) An urban retail water supplier is granted an extension to July 1, 2011, for adoption of an urban water management plan pursuant to Part 2.6 (commencing with Section 10610) due in 2010 to allow the use of technical methodologies developed by the department pursuant to paragraph (4) of subdivision (b) and subdivision (h). An urban retail water supplier that adopts an urban water management plan due in 2010 that does not use the methodologies developed by the department pursuant to subdivision (h) shall amend the plan by July 1, 2011, to comply with this part.

(2) An urban wholesale water supplier whose urban water management plan prepared pursuant to Part 2.6 (commencing with Section 10610) was due and not submitted in 2010 is granted an extension to July 1, 2011, to permit coordination between an urban wholesale water supplier and urban retail water suppliers.

10608.22. Notwithstanding the method adopted by an urban retail water supplier pursuant to Section 10608.20, an urban retail water supplier's per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use as defined in paragraph(3) of subdivision (b) of Section 10608.12. This section does not apply to an urban retail water supplier with a base daily per capita water use at or below 100 gallons per capita per day.

10608.24.(a) Each urban retail water supplier shall meet its interim urban water use target by December 31, 2015.

(b) Each urban retail water supplier shall meet its urban water use target by December 31, 2020.

(c) An urban retail water supplier's compliance daily per capita water use shall be the measure of progress toward achievement of its urban water use target.

(d) (1) When determining compliance daily per capita water use, an urban retail water supplier may consider the following factors:

(A) Differences in evapotranspiration and rainfall in the baseline period compared to the compliance reporting period.
(B) Substantial changes to commercial or industrial water use resulting from increased business output and economic development that have occurred during the reporting period.

(C) Substantial changes to institutional water use resulting from fire suppression services or other extraordinary events, or from new or expanded operations, that have occurred during the reporting period.

(2) If the urban retail water supplier elects to adjust its estimate of compliance daily per capita water use due to one or more of the factors described in

paragraph (1), it shall provide the basis for, and data supporting, the adjustment in the report required by Section 10608.40.

(e) When developing the urban water use target pursuant to Section 10608.20, an urban retail water supplier that has a substantial percentage of industrial water use in its service area may exclude process water from the calculation of gross water use to avoid a disproportionate burden on another customer sector.

(f) (1) An urban retail water supplier that includes agricultural water use in an urban water management plan pursuant to Part 2.6 (commencing with Section 10610) may include the agricultural water use in determining gross water use. An urban retail water supplier that includes agricultural water use in determining gross water use and develops its urban water use target pursuant to paragraph (2) of subdivision (b) of Section 10608.20 shall use a water efficient standard for agricultural irrigation of 100 percent of reference evapotranspiration multiplied by the crop coefficient for irrigated acres.

(2) An urban retail water supplier, that is also an agricultural water supplier, is not subject to the requirements of Chapter 4 (commencing with Section 10608.48), if the agricultural water use is incorporated into its urban water use target pursuant to paragraph (1).

10608.26.(a) In complying with this part, an urban retail water supplier shall conduct at least one public hearing to accomplish all of the following:

(1) Allow community input regarding the urban retail water supplier's implementation plan for complying with this part.

(2) Consider the economic impacts of the urban retail water supplier's implementation plan for complying with this part.

(3) Adopt a method, pursuant to subdivision (b) of Section 10608.20, for determining its urban water use target.

(b) In complying with this part, an urban retail water supplier may meet its urban water use target through efficiency improvements in any combination among its customer sectors. An urban retail water supplier shall avoid placing a disproportionate burden on any customer sector.

(c) For an urban retail water supplier that supplies water to a United States Department of Defense military installation, the urban retail water supplier's implementation plan for complying with this part shall consider the conservation of that military installation under federal Executive Order 13514.

(d) (1) Any ordinance or resolution adopted by an urban retail water supplier after the effective date of this section shall not require existing customers as of the effective date of this section, to undertake changes in product formulation, operations, or equipment that would reduce process water use, but may provide technical assistance and financial incentives to those customers to implement efficiency measures for process water. This section shall not limit

an ordinance or resolution adopted pursuant to a declaration of drought emergency by an urban retail water supplier.

(2) This part shall not be construed or enforced so as to interfere with the requirements of Chapter 4 (commencing with Section 113980) to Chapter 13 (commencing with Section 114380), inclusive, of Part 7 of Division 104 of the Health and Safety Code, or any requirement or standard for the protection of public health, public safety, or worker safety established by federal, state, or local government or recommended by recognized standard setting organizations or trade associations.

10608.28.(a) An urban retail water supplier may meet its urban water use target within its retail service area, or through mutual agreement, by any of the following:

(1) Through an urban wholesale water supplier.

(2) Through a regional agency authorized to plan and implement water conservation, including, but not limited to, an agency established under the Bay Area Water Supply and Conservation Agency Act (Division 31 (commencing with Section 81300)).

(3) Through a regional water management group as defined in Section 10537.

(4) By an integrated regional water management funding area.

(5) By hydrologic region.

(6) Through other appropriate geographic scales for which computation methods have been developed by the department.

(b) A regional water management group, with the written consent of its member agencies, may undertake any or all planning, reporting, and implementation functions under this chapter for the member agencies that consent to those activities. Any data or reports shall provide information both for the regional water management group and separately for each consenting urban retail water supplier and urban wholesale water supplier.

10608.32. All costs incurred pursuant to this part by a water utility regulated by the Public Utilities Commission may be recoverable in rates subject to review and approval by the Public Utilities Commission, and may be recorded in a memorandum account and reviewed for reasonableness by the Public Utilities Commission.

10608.36. Urban wholesale water suppliers shall include in the urban water management plans required pursuant to Part 2.6 (commencing with Section 10610) an assessment of their present and proposed future measures, programs, and policies to help achieve the water use reductions required by this part.

10608.40. Urban water retail suppliers shall report to the department on their progress in meeting their urban water use targets as part of their urban water management plans

submitted pursuant to Section 10631. The data shall be reported using a standardized form developed pursuant to Section 10608.52.

10608.42.(a) The department shall review the 2015 urban water management plans and report to the Legislature by July 1, 2017, on progress towards achieving a 20-percent reduction in urban water use by December 31, 2020. The report shall include recommendations on changes to water efficiency standards or urban water use targets to achieve the 20-percent reduction and to reflect updated efficiency information and technology changes.

(b) A report to be submitted pursuant to subdivision (a) shall be submitted in compliance with Section 9795 of the Government Code.

10608.43. The department, in conjunction with the California Urban Water Conservation Council, by April 1, 2010, shall convene a representative task force consisting of academic experts, urban retail water suppliers, environmental organizations, commercial water users, industrial water users, and institutional water users to develop alternative best management practices for commercial, industrial, and institutional users and an assessment of the potential statewide water use efficiency improvement in the commercial, industrial, and institutional sectors that would result from implementation of these best management practices. The taskforce, in conjunction with the department, shall submit a report to the Legislature by April 1, 2012, that shall include a review of multiple sectors within commercial, industrial, and institutional users and that shall recommend water use efficiency standards for commercial, industrial, and institutional users among various sectors of water use. The report shall include, but not be limited to, the following:

(a) Appropriate metrics for evaluating commercial, industrial, and institutional water use.

(b) Evaluation of water demands for manufacturing processes, goods, and cooling.

(c) Evaluation of public infrastructure necessary for delivery of recycled water to the commercial, industrial, and institutional sectors.

(d) Evaluation of institutional and economic barriers to increased recycled water use within the commercial, industrial, and institutional sectors.

(e) Identification of technical feasibility and cost of the best management practices to achieve more efficient water use statewide in the commercial, industrial, and institutional sectors that is consistent with the public interest and reflects past investments in water use efficiency.

10608.44. Each state agency shall reduce water use at facilities it operates to support urban retail water suppliers in meeting the target identified in Section 10608.16.

Chapter 4 Agricultural Water Suppliers

SECTION 10608.48

10608.48.(a) On or before July 31, 2012, an agricultural water supplier shall implement efficient water management practices pursuant to subdivisions (b) and (c).

(b) Agricultural water suppliers shall implement all of the following critical efficient management practices:

(1) Measure the volume of water delivered to customers with sufficient accuracy to comply with subdivision (a) of Section 531.10 and to implement paragraph (2).

(2) Adopt a pricing structure for water customers based at least in part on quantity delivered.

(c) Agricultural water suppliers shall implement additional efficient management practices, including, but not limited to, practices to accomplish all of the following, if the measures are locally cost effective and technically feasible:

(1) Facilitate alternative land use for lands with exceptionally high water duties or whose irrigation contributes to significant problems, including drainage.

(2) Facilitate use of available recycled water that otherwise would not be used beneficially, meets all health and safety criteria, and does not harm crops or soils.

(3) Facilitate the financing of capital improvements for on-farm irrigation systems.

(4) Implement an incentive pricing structure that promotes one or more of the following goals:

(A) More efficient water use at the farm level.

(B) Conjunctive use of groundwater.

(C) Appropriate increase of groundwater recharge.

(D) Reduction in problem drainage.

(E) Improved management of environmental resources.

(F) Effective management of all water sources throughout the year by adjusting seasonal pricing structures based on current conditions.

(5) Expand line or pipe distribution systems, and construct regulatory reservoirs to increase distribution system flexibility and capacity, decrease maintenance, and reduce seepage.

(6) Increase flexibility in water ordering by, and delivery to, water customers within operational limits.

(7) Construct and operate supplier spill and tailwater recovery systems.

(8) Increase planned conjunctive use of surface water and groundwater within the supplier service area.

(9) Automate canal control structures.

(10) Facilitate or promote customer pump testing and evaluation.

(11) Designate a water conservation coordinator who will develop and implement the water management plan and prepare progress reports.

(12) Provide for the availability of water management services to water users. These services may include, but are not limited to, all of the following:

(A) On-farm irrigation and drainage system evaluations.

(B) Normal year and real-time irrigation scheduling and crop evapotranspiration information.

(C) Surface water, groundwater, and drainage water quantity and quality data.

(D) Agricultural water management educational programs and materials for farmers, staff, and the public.

(13) Evaluate the policies of agencies that provide the supplier with water to identify the potential for institutional changes to allow more flexible water deliveries and storage.

(14) Evaluate and improve the efficiencies of the supplier's pumps.

(d) Agricultural water suppliers shall include in the agricultural water management plans required pursuant to Part 2.8 (commencing with Section 10800) a report on which efficient water management practices have been implemented and are planned to be implemented, an estimate of the water use efficiency improvements that have occurred since the last report, and an estimate of the water use efficiency improvements estimated to occur five and 10 years in the future. If an agricultural water supplier determines that an efficient water management practice is not locally cost effective or technically feasible, the supplier shall submit information documenting that determination.

(e) The data shall be reported using a standardized form developed pursuant to Section 10608.52.

(f) An agricultural water supplier may meet the requirements of subdivisions (d) and (e) by submitting to the department a water conservation plan submitted to the United States Bureau of Reclamation that meets the requirements described in Section 10828.

(g) On or before December 31, 2013, December 31, 2016, and December 31, 2021, the department, in consultation with the board, shall submit to the Legislature a report on the agricultural efficient water management practices that have been implemented and are planned to be implemented and an assessment of the manner in which the implementation of those efficient water management practices has affected and will affect agricultural operations, including estimated water use efficiency improvements, if any.

(h) The department may update the efficient water management practices required pursuant to subdivision (c), in consultation with the Agricultural Water Management Council, the United States Bureau of Reclamation, and the board. All efficient water management practices for agricultural water use pursuant to this chapter shall be adopted or revised by the department only after the department conducts public hearings to allow participation of the diverse geographical areas and interests of the state.

(i) (1) The department shall adopt regulations that provide for a range of options that agricultural water suppliers may use or implement to comply with the measurement requirement in paragraph (1) of subdivision (b).

(2) The initial adoption of a regulation authorized by this subdivision is deemed to address an emergency, for purposes of Sections 11346.1 and 11349.6 of the Government Code, and the department is hereby exempted for that purpose from the requirements of subdivision (b) of Section 11346.1 of the Government Code. After the initial adoption of an emergency regulation pursuant to this subdivision, the department shall not request approval from the Office of Administrative Law to readopt the regulation as an emergency regulation pursuant to Section 11346.1 of the Government Code.

Chapter 5 Sustainable Water Management

Section 10608.50

10608.50.(a) The department, in consultation with the board, shall promote implementation of regional water resources management practices through increased incentives and removal of barriers consistent with state and federal law. Potential changes may include, but are not limited to, all of the following:

(1) Revisions to the requirements for urban and agricultural water management plans.

(2) Revisions to the requirements for integrated regional water management plans.

(3) Revisions to the eligibility for state water management grants and loans.

(4) Revisions to state or local permitting requirements that increase water supply opportunities, but do not weaken water quality protection under state and federal law.

(5) Increased funding for research, feasibility studies, and project construction.

(6) Expanding technical and educational support for local land use and water management agencies.

(b) No later than January 1, 2011, and updated as part of the California Water Plan, the department, in consultation with the board, and with public input, shall propose new statewide targets, or review and update existing statewide targets, for regional water resources management practices, including, but not limited to, recycled water, brackish groundwater desalination, and infiltration and direct use of urban stormwater runoff.

Chapter 6 Standardized Data Collection

SECTION 10608.52

10608.52.(a) The department, in consultation with the board, the California Bay-Delta Authority or its successor agency, the State Department of Public Health, and the Public Utilities Commission, shall develop a single standardized water use reporting form to meet the water use information needs of each agency, including the needs of urban water suppliers that elect to determine and report progress toward achieving targets on a regional basis as provided in subdivision (a) of Section 10608.28.

(b) At a minimum, the form shall be developed to accommodate information sufficient to assess an urban water supplier's compliance with conservation targets pursuant to Section 10608.24 and an agricultural water supplier's compliance with implementation of efficient water management practices pursuant to subdivision (a) of Section 10608.48. The form shall accommodate reporting by urban water suppliers on an individual or regional basis as provided in subdivision (a) of Section 10608.28.

Chapter 7 Funding Provisions

Section 10608.56-10608.60

10608.56.(a) On and after July 1, 2016, an urban retail water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier complies with this part.

(b) On and after July 1, 2013, an agricultural water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier complies with this part.

(c) Notwithstanding subdivision (a), the department shall determine that an urban retail water supplier is eligible for a water grant or loan even though the supplier has not met the per capita reductions required pursuant to Section 10608.24, if the urban retail water supplier has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for achieving the per capita reductions. The supplier may request grant or loan funds to achieve the per capita reductions to the extent the request is consistent with the eligibility requirements applicable to the water funds.

(d) Notwithstanding subdivision (b), the department shall determine that an agricultural water supplier is eligible for a water grant or loan even though the supplier is not implementing all of the efficient water management practices described in Section 10608.48, if the agricultural water supplier has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for implementation of the efficient water management practices. The supplier may request grant or loan funds to implement the efficient water management practices to the extent the request is consistent with the eligibility requirements applicable to the water funds.

(e) Notwithstanding subdivision (a), the department shall determine that an urban retail water supplier is eligible for a water grant or loan even though the supplier has not met the per capita reductions required pursuant to Section 10608.24, if the urban retail water supplier has submitted to the department for approval documentation demonstrating that its entire service area qualifies as a disadvantaged community.

(f) The department shall not deny eligibility to an urban retail water supplier or agricultural water supplier in compliance with the requirements of this part and Part 2.8 (commencing with Section 108~~0~~0), that is participating in a multiagency water project, or an integrated regional water management plan, developed pursuant to Section 75026 of the Public Resources Code, solely on the basis that one or more of the agencies participating in the project or plan is not implementing all of the requirements of this part or Part 2.8 (commencing with Section 10800).

10608.60.(a) It is the intent of the Legislature that funds made available by Section 75026 of the Public Resources Code should be expended, consistent with Division 43 (commencing with Section 75001) of the Public Resources Code and upon appropriation by the Legislature, for grants to implement this part. In the allocation of funding, it is the intent of the Legislature that the department give consideration to disadvantaged communities to assist in implementing the requirements of this part.

(b) It is the intent of the Legislature that funds made available by Section 75041 of the Public Resources Code, should be expended, consistent with Division 43 (commencing with Section 75001) of the Public Resources Code and upon appropriation by the Legislature, for direct expenditures to implement this part.

Chapter 8 Quantifying Agricultural Water Use Efficiency

SECTION 10608.64

10608.64. The department, in consultation with the Agricultural Water Management Council, academic experts, and other stakeholders, shall develop a methodology for quantifying the efficiency of agricultural water use. Alternatives to be assessed shall include, but not be limited to, determination of efficiency levels based on crop type or irrigation system distribution uniformity. On or before December 31, 2011, the department shall report to the Legislature on a proposed methodology and a plan for implementation. The plan shall include the estimated implementation costs and the types of data needed to support the methodology. Nothing in this section authorizes the department to implement a methodology established pursuant to this section.

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APPENDIX B

DWR UWMP Tables

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Table 2-1 Retail Only: Public Water Systems			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2015	Volume of Water Supplied 2015
CA4110023	City of San Bruno	11,425	1,529,900
	TOTAL	11,425	1,529,900
NOTES: Volumes are in CCF.			

Table 2-2: Plan Identification			
Select Only One	**Type of Plan**		**Name of RUWMP or Regional Alliance** *if applicable*
☑	**Individual UWMP**		
	☐	Water Supplier is also a member of a RUWMP	
	☐	Water Supplier is also a member of a Regional Alliance	
☐	**Regional Urban Water Management Plan (RUWMP)**		
NOTES:			

Table 2-3: Agency Identification	
Type of Agency (select one or both)	
☐	Agency is a wholesaler
☑	Agency is a retailer
Fiscal or Calendar Year (select one)	
☐	UWMP Tables Are in Calendar Years
☑	UWMP Tables Are in Fiscal Years
If Using Fiscal Years Provide Month and Date that the Fiscal Year Begins (mm/dd)	
7/1	
Units of Measure Used in UWMP (select from Drop down)	
Unit	CCF
NOTES: The City's UWMP tables have been completed in CCF; however, the text of the City's UWMP presents the City's data in both million gallons per day (MGD) and CCF.	

Table 2-4 Retail: Water Supplier Information Exchange
The retail supplier has informed the following wholesale supplier(s) of projected water use in accordance with CWC 10631.
Wholesale Water Supplier Name
San Francisco Public Utilities Commission
North Coast County Water District
NOTES:

Table 3-1 Retail: Population - Current and Projected						
Population Served	2015	2020	2025	2030	2035	2040*(opt)*
	44,409	48,600	51,200	53,400	55,800	56,860
NOTES: Source: BAWSCA Regional Water Demand and Conservation Projections Final Report, September 2014.						

Table 4-1 Retail: Demands for Potable and Raw Water - Actual			
Use Type	2015 Actual		
	Additional Description *(as needed)*	Level of Treatment When Delivered	Volume
Other	Residential	Drinking Water	1,041,948
Commercial		Drinking Water	304,363
Other	City Parks and Facilities	Drinking Water	61,674
Losses		Drinking Water	102,791
Other	Unbilled/unmetered	Drinking Water	19,124
		TOTAL	1,529,900
NOTES: Volumes are in CCF.			

Table 4-2 Retail: Demands for Potable and Raw Water - Projected						
Use Type	Additional Description *(as needed)*	Projected Water Use *Report To the Extent that Records are Available*				
		2020	2025	2030	2035	2040-opt
Other	Residential	1,306,005	1,409,024	1,522,011	1,654,938	1,764,603
Commercial		381,497	411,589	444,594	483,423	515,457
Other	City Parks and Facilities	77,304	83,402	90,089	97,958	104,449
Losses		152,908	164,969	178,198	193,761	206,601
	TOTAL	1,917,714	2,068,984	2,234,893	2,430,080	2,591,110

NOTES: Volumes are in CCF. Total demand based on Technical Memorandum #3 BAWSCA Regional Demand and Conservation Projections. Water Conservation Analysis - City of San Bruno, dated September 2014.

Table 4-3 Retail: Total Water Demands						
	2015	2020	2025	2030	2035	2040 *(opt)*
Potable and Raw Water *From Tables 4-1 and 4-2*	1,529,900	1,917,714	2,068,984	2,234,893	2,430,080	2,591,110
Recycled Water Demand* *From Table 6-4*	0	0	0	0	0	0
TOTAL WATER DEMAND	1,529,900	1,917,714	2,068,984	2,234,893	2,430,080	2,591,110
**Recycled water demand fields will be blank until Table 6-4 is complete.*						
NOTES: Volumes are in CCF.						

Table 4-4 Retail: 12 Month Water Loss Audit Reporting	
Reporting Period Start Date	Volume of Water Loss*
07/2014	102,791
** Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.*	
NOTES: From AWWA Audit (Appendix E). Volumes are in CCF.	

Table 4-5 Retail Only: Inclusion in Water Use Projections	
Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook)	Yes
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, etc… utilized in demand projections are found.	Section 4.4, Page 4-3
Are Lower Income Residential Demands Included In Projections?	Yes
NOTES:	

Table 5-1 Baselines and Targets Summary
Retail Agency or Regional Alliance Only

Baseline Period	Start Year	End Year	Average Baseline GPCD*	2015 Interim Target *	Confirmed 2020 Target*
10-15 year	*2001*	*2010*	*98*	*124*	*124*
5 Year	*2006*	*2010*	*94*		

*All values are in Gallons per Capita per Day (GPCD)

NOTES: Because the City's Baseline GPCD is lower than the Confirmed 2020 Target, the City has interpreted that the appropriate 2015 Interim Target would be the same as the Confirmed 2020 Target, not the midpoint of the Baseline GPCD and the Confirmed 2020 Target (see footnote (a) to Table 5-4 on page 5-8 of the City's UWMP).

Table 5-2: 2015 Compliance
Retail Agency or Regional Alliance Only

Actual 2015 GPCD*	2015 Interim Target GPCD*	**Optional Adjustments to 2015 GPCD** *From Methodology 8*					2015 GPCD* *(Adjusted if applicable)*	Did Supplier Achieve Targeted Reduction for 2015? Y/N
		Extraordinary Events*	Economic Adjustment*	Weather Normalization*	TOTAL Adjustments*	Adjusted 2015 GPCD*		
70.6	124	0	0	0	0	70.6	70.6	Yes

**All values are in Gallons per Capita per Day (GPCD)*

NOTES: Because the City's Baseline GPCD is lower than the Confirmed 2020 Target, the City has interpreted that the appropriate 2015 Interim Target would be the same as the Confirmed 2020 Target, not the midpoint of the Baseline GPCD and the Confirmed 2020 Target (see footnote (a) to Table 5-4 on page 5-8 of the City's UWMP). However, regardless of how the 2015 Interim Target is calculated, the City has met the 2015 Interim Target.

Table 6-1 Retail: Groundwater Volume Pumped						
☐	Supplier does not pump groundwater. The supplier will not complete the table below.					
Groundwater Type	Location or Basin Name	2011	2012	2013	2014	2015
Alluvial Basin	South Westside Groundwater Basin (DWR Basin 2-35)	995,130	730,179	782,455	948,253	922,147
	TOTAL	995,130	730,179	782,455	948,253	922,147
NOTES: Volumes are in CCF. Basin is technically a colluvial basin, not an alluvial basin.						

Table 6-2 Retail: Wastewater Collected Within Service Area in 2015						
☐	There is no wastewater collection system. The supplier will not complete the table below.					
	Percentage of 2015 service area covered by wastewater collection system *(optional)*					
	Percentage of 2015 service area population covered by wastewater collection system *(optional)*					
Wastewater Collection			**Recipient of Collected Wastewater**			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated?	Volume of Wastewater Collected from UWMP Service Area 2015	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area?	Is WWTP Operation Contracted to a Third Party? *(optional)*
Add additional rows as needed						
City of San Bruno	Metered	1,366,487	City of South San Francisco	South San Francisco/ San Bruno Water Quality Control Plant	No	Yes
Total Wastewater Collected from Service Area in 2015:		1,366,487				

Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2015										
☑	No wastewater is treated or disposed of within the UWMP service area. The supplier will not complete the table below.									
							2015 volumes			
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number *(optional)*	Method of Disposal	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level	Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area
						Total	0	0	0	0
NOTES:										

Table 6-4 Retail: Current and Projected Recycled Water Direct Beneficial Uses Within Service Area

☑	Recycled water is not used and is not planned for use within the service area of the supplier. The supplier will not complete the table below.
Name of Agency Producing (Treating) the Recycled Water:	
Name of Agency Operating the Recycled Water Distribution System:	
Supplemental Water Added in 2015	
Source of 2015 Supplemental Water	

Beneficial Use Type	General Description of 2015 Uses	Level of Treatment	2015	2020	2025	2030	2035	2040 (opt)
Agricultural irrigation								
Landscape irrigation (excludes golf courses)								
Golf course irrigation								
Commercial use								
Industrial use								
Geothermal and other energy production								
Seawater intrusion barrier								
Recreational impoundment								
Wetlands or wildlife habitat								
Groundwater recharge (IPR)*								
Surface water augmentation (IPR)*								
Direct potable reuse								
Other *(Provide General Description)*								
		Total:	0	0	0	0	0	0

**IPR - Indirect Potable Reuse*

NOTES:

Table 6-5 Retail: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual			
☑	Recycled water was not used in 2010 nor projected for use in 2015. The supplier will not complete the table below.		
Use Type		**2010 Projection for 2015**	**2015 Actual Use**
Agricultural irrigation			
Landscape irrigation (excludes golf courses)			
Golf course irrigation			
Commercial use			
Industrial use			
Geothermal and other energy production			
Seawater intrusion barrier			
Recreational impoundment			
Wetlands or wildlife habitat			
Groundwater recharge (IPR)			
Surface water augmentation (IPR)			
Direct potable reuse			
Other	*Type of Use*		
	Total	0	0
NOTES:			

Table 6-6 Retail: Methods to Expand Future Recycled Water Use			
☑	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
Page 6-12	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use
		Total	0
NOTES:			

Table 6-7 Retail: Expected Future Water Supply Projects or Programs						
☑	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
☐	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
Page 6-14	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other agencies?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type	Expected Increase in Water Supply to Agency
NOTES:						

Table 6-8 Retail: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2015		
		Actual Volume	Water Quality	Total Right or Safe Yield *(optional)*
Purchased or Imported Water	SFPUC Imported	586,244	Drinking Water	
Purchased or Imported Water	NCCWD Imported	21,509	Drinking Water	
Groundwater	Local wells	922,147	Drinking Water	
	Total	1,529,900		0
NOTES: Volumes are in CCF.				

Table 6-9 Retail: Water Supplies — Projected											
Water Supply	Additional Detail on Water Supply	**Projected Water Supply** *Report To the Extent Practicable*									
		2020		**2025**		**2030**		**2035**		**2040** *(opt)*	
		Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*
Purchased or Imported Water	SFPUC	1,585,896		1,585,896		1,585,896		1,585,896		1,585,896	
Purchased or Imported Water	NCCWD	24,398		24,398		24,398		24,398		24,398	
Groundwater	South Westside Groundwater Basin	1,024,733		1,024,733		1,024,733		1,024,733		1,024,733	
	Total	2,635,027	0	2,635,027	0	2,635,027	0	2,635,027	0	2,635,027	0
NOTES: Volumes are in CCF.											

Table 7-1 Retail: Basis of Water Year Data			
Year Type	**Base Year** *If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 1999-2000, use 2000*	**Available Supplies if Year Type Repeats**	
		☐ Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____	
		☑ Quantification of available supplies is provided in this table as either volume only, percent only, or both.	
		Volume Available	**% of Average Supply**
Average Year	1920-2007	2,610,629	100%
Single-Dry Year	1977	1,427,306	90%
Multiple-Dry Years 1st Year	1988	1,427,306	90%
Multiple-Dry Years 2nd Year	1989	1,236,999	78%
Multiple-Dry Years 3rd Year	1990	1,236,999	78%

NOTES: Volumes are in CCF. During an average year, the City's groundwater production will be offset by the SFPUC imported surface water as part of the Regional GSR Project. The quantity of groundwater offset may vary each year, up to a maximum of the City's entire groundwater production of 2.10 MGD. The Average Year base year is taken as the average of the years from 1920 to 2007.

Table 7-1 Retail: Basis of Water Year Data			
Year Type	**Base Year** *If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 1999-2000, use 2000*	**Available Supplies if Year Type Repeats**	
		☐ Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____	
		☑ Quantification of available supplies is provided in this table as either volume only, percent only, or both.	
		Volume Available	**% of Average Supply**
Average Year	1920-2007	0	100%
Single-Dry Year	1977	1,024,733	100%
Multiple-Dry Years 1st Year	1988	1,024,733	100%
Multiple-Dry Years 2nd Year	1989	1,024,733	100%
Multiple-Dry Years 3rd Year	1990	1,024,733	100%
NOTES: Volumes are in CCF. During an average year, the City's groundwater production will be offset by the SFPUC imported surface water as part of the Regional GSR Project. The quantity of groundwater offset may vary each year, up to a maximum of the City's entire groundwater production of 2.10 MGD.			

Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 *(Opt)*
Supply totals *(autofill from Table 6-9)*	2,635,027	2,635,027	2,635,027	2,635,027	2,635,027
Demand totals *(autofill from Table 4-3)*	1,917,714	2,068,984	2,234,893	2,430,080	2,591,110
Difference	717,313	566,043	400,134	204,947	43,917
NOTES: Volumes are in CCF.					

Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 (Opt)
Supply totals	2,473,997	2,473,997	2,473,997	2,473,997	2,473,997
Demand totals	1,725,943	1,862,086	2,011,404	2,187,072	2,331,999
Difference	748,054	611,911	462,593	286,925	141,998
NOTES: Volumes are in CCF. Demand totals assume 10% demand reduction from normal year water demand.					

Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2020	2025	2030	2035	2040 (Opt)
First year	Supply totals	2,473,997	2,473,997	2,473,997	2,473,997	2,473,997
	Demand totals	1,725,943	1,862,086	2,011,404	2,187,072	2,331,999
	Difference	748,054	611,911	462,593	286,925	141,998
Second year	Supply totals	2,280,762	2,280,762	2,280,762	2,280,762	2,280,762
	Demand totals	1,534,171	1,655,187	1,787,914	1,944,064	2,072,888
	Difference	746,591	625,575	492,848	336,698	207,874
Third year	Supply totals	2,280,762	2,280,762	2,280,762	2,280,762	2,280,762
	Demand totals	1,534,171	1,655,187	1,787,914	1,944,064	2,072,888
	Difference	746,591	625,575	492,848	336,698	207,874
NOTES: Volumes are in CCF. Demand totals assume 10% demand reduction in the first year and 20% demand reductions in the second and third years.						

Table 8-1 Retail Stages of Water Shortage Contingency Plan		
Stage	Complete Both	
	Percent Supply Reduction[1] *Numerical value as a percent*	Water Supply Condition (*Narrative description)*
I	10%	Voluntary Stage
II	20%	Mandatory Conservation Stage
III	35%	Rationing Stage
IV	50%	Intense Rationing Stage
[1] *One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.*		
NOTES:		

Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses			
Stage	Restrictions and Prohibitions on End Uses	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement?
II	Landscape - Restrict or prohibit runoff from landscape irrigation	The watering of grass, lawn, groundcover, shrubbery, open ground crops and trees, in a manner that results in runoff into sidewalks, gutters and streets or during periods of precipitation, or to an extent which allows excess water to run to waste.	Yes
II	Landscape - Limit landscape irrigation to specific times	Restricted between 9:00 am and 4:00 pm	Yes
II	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Customer will have 10 days after leak discovery	Yes
II	Other - Require automatic shut of hoses	The use of hoses not having automatic shut-off devices for the washing of cars, boats, trailers or other vehicles.	Yes
II	Other - Prohibit use of potable water for washing hard surfaces	The use of water from a hose for the cleaning of buildings, structures, walkways, sidewalks, driveways, patios, parking lots or hard-surfaced areas. The washing of windows or structures with a bucket and squeegee is not prohibited	Yes
II	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water		Yes
II	Other	Restrict use of water from any fire hydrant unless for fire protection or with an authorized permit from director of public works.	Yes
II	Water Features - Restrict water use for decorative water features, such as fountains	The use of water to fill, clean or maintain artificial or decorative lakes, fountains or ponds with a capacity of one thousand gallons or more.	Yes
II	Other water feature or swimming pool restriction	Customer may not fill swimming pool without approval of director of public works.	Yes
II	CII - Restaurants may only serve water upon request	The service of water in restaurants except upon request by the customer.	Yes
II	Other	Hydrant Flushing restricted unless approved by director of public work, San Bruno fire chief, or City Manager	Yes
II	Other	The indiscriminate running of water or washing with water than results in flooding or runoff in or on sidewalks, gutters and streets not otherwise prohibited above.	Yes
II	Landscape - Other landscape restriction or prohibition	Substantial planting or replanting of new landscaping which is not drought tolerant will be prohibited until such time the San Bruno city council has determined that the emergency has passed. For new developments in which water dependent (not drought tolerant) landscaping is required as a use permit condition, the city shall require a cash bond or other form of security subject to approval of the city from the developer in an amount specified which will be placed in an account in which the interest shall accrue to the developer. "Substantial" planting or replanting is hereby defined as planting or replanting in excess of ten percent of the total planted area of the development, parcel, site or lot.	Yes
II	Other - Prohibit use of potable water for construction and dust control	Using potable water from whatever source, in construction for dust control, or soil compaction unless reclaimed (or "nonpotable") water is not available. Vehicles hauling and spraying such water must have standardized signs indicating "reclaimed" or "nonpotable" water.	Yes
II	Other	Any other use of domestic water as deemed to be wasteful as determined by the director of public works. (Ord. 1533 § 2, 1991; Ord. 1522 § 3, 1990)	Yes
NOTES: Stage 2 calls for mandatory conservation measures as determined necessary by the City Council and the Director of Public Works, and is not limited to the measures identified in this table. If Stage 3 is enacted, all of the above measures will be in force.			

Table 8-3 Retail Only: Stages of Water Shortage Contingency Plan - Consumption Reduction Methods		
Stage	Consumption Reduction Methods by Water Supplier	Additional Explanation or Reference *(optional)*
All	Expand Public Information Campaign	Already implemented as a Demand Management Measure. See Chapter 9.
I	Increase Frequency of Meter Reading	
All	Provide Rebates on Plumbing Fixtures and Devices	Already implemented as a Demand Management Measure. See Chapter 9.
All	Provide Rebates for Turf Replacement	Already implemented as a Demand Management Measure. See Chapter 9.
II	Decrease Line Flushing	See Table 8-2
NOTES:		

Table 8-4 Retail: Minimum Supply Next Three Years			
	2016	2017	2018
Available Water Supply	1,878,679	1,878,679	1,878,679
NOTES: Volumes are in CCF.			

Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
San Bruno	☑	☑
County Name	60 Day Notice	Notice of Public Hearing
San Mateo County	☑	☑
Notes:		

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APPENDIX C

DWR UWMP Checklist

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Appendix C. Urban Water Management Plan Checklist
Checklist Arranged by Subject

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location
10620(b)	Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.	Plan Preparation	Section 2.1	**Section 2.1 (page 2-1)**
10620(d)(2)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan Preparation	Section 2.5.2	**Section 2.5.1 (page 2-2)**
10642	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	Plan Preparation	Section 2.5.2	**Section 2.5.2 (page 2-3)**
10631(a)	Describe the water supplier service area.	System Description	Section 3.1	**Section 3.2 (page 3-1)**
10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.3	**Section 3.3 (page 3-1)**
10631(a)	Provide population projections for 2020, 2025, 2030, and 2035.	System Description	Section 3.4	**Section 3.4.2 (page 3-3)**
10631(a)	Describe other demographic factors affecting the supplier's water management planning.	System Description	Section 3.4	**Section 3.4.3 (page 3-3)**
10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Sections 3.4 and 5.4	**Section 3.4.1 (page 3-2)**
10631(e)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Section 4.2	**Section 4.2 (page 4-2)**
10631(e)(3)(A)	Report the distribution system water loss for the most recent 12-month period available.	System Water Use	Section 4.3	**Section 4.3 (page 4-3); Appendix E**
10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Section 4.5	**Section 4.5 (page 4-4);**
10608.20(b)	Retail suppliers shall adopt a 2020 water use target using one of four methods.	Baselines and Targets	Section 5.7 and App E	**Section 5.6 (page 5-7); Appendix G**
10608.20(e)	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	Baselines and Targets	Chapter 5 and App E	**Section 5.5, 5.6, 5.7 (page 5-6); Appendix G**
10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply is the suppliers base GPCD is at or below 100.	Baselines and Targets	Section 5.7.2	**Section 5.6 (page 5-7)**
10608.24(a)	Retail suppliers shall meet their interim target by December 31, 2015.	Baselines and Targets	Section 5.8 and App E	**Section 5.7 (page 5-8); Appendix G**
1608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	Section 5.8.2	**Appendix G Table 5-2; no adjustments made**
10608.36	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	Section 5.1	**N/A; City is not a wholesale supplier**
10608.40	Retail suppliers shall report on their progress in meeting their water use targets. The data shall be reported using a standardized form.	Baselines and Targets	Section 5.8 and App E	**Section 5.7 (page 5-8); Appendix G**
10631(b)	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, 2030, and 2035.	System Supplies	Chapter 6	**Section 6.9 (page 6-14)**
10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2	**Section 6.2 (page 6-4)**
10631(b)(1)	Indicate whether a groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	Section 6.2.2	**Section 6.2.2 (page 6-5)**
10631(b)(2)	Describe the groundwater basin.	System Supplies	Section 6.2.1	**Section 6.2.1 (page 6-4)**
10631(b)(2)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	Section 6.2.2	**Section 6.2 (page 6-4)**
10631(b)(2)	For unadjudicated basins, indicate whether or not the department has identified the basin as overdrafted, or projected to become overdrafted. Describe efforts by the supplier to eliminate the long-term overdraft condition.	System Supplies	Section 6.2.3	**Section 6.2.1.2 (page 6-5)**

Appendix C. Urban Water Management Plan Checklist Checklist Arranged by Subject				
CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location
10631(b)(3)	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years.	System Supplies	Section 6.2.4	**Section 6.2.3 (page 6-6)**
10631(b)(4)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Sections 6.2 and 6.9	**Section 6.2.4 (page 6-7)**
10631(d)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System Supplies	Section 6.7	**Section 6.7 (page 6-14)**
10631(g)	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years.	System Supplies	Section 6.8	**Section 6.8 (page 6-14)**
10631(i)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6	**Section 6.6 (page 6-14)**
10631(j)	Retail suppliers will include documentation that they have provided their wholesale supplier(s) – if any - with water use projections from that source.	System Supplies	Section 2.5.1	**Section 2.5.1 (page 2-2)**
10631(j)	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	Section 2.5.1	**N/A; City is not a wholesale supplier**
10633	For wastewater and recycled water, coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.1	**Section 6.5.1 (page 6-11)**
10633(a)	Describe the wastewater collection and treatment systems in the supplier's service area. Include quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	System Supplies (Recycled Water)	Section 6.5.2	**Section 6.5.2 (page 6-11)**
10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System Supplies (Recycled Water)	Section 6.5.2.2	**Section 6.5.2.3 (page 6-12)**
10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.3 and 6.5.4	**Section 6.5.3 (page 6-12)**
10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	Section 6.5.4	**Section 6.5.3 (page 6-12)**
10633(e)	Describe the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	System Supplies (Recycled Water)	Section 6.5.4	**Section 6.5.4 (page 6-13)**
10633(f)	Describe the actions which may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System Supplies (Recycled Water)	Section 6.5.5	**Section 6.5.4 (page 6-13)**
10633(g)	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.5	**Section 6.5.4 (page 6-13)**
10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Section 7.4	**Section 7.4 (page 7-12)**
10631(c)(1)	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage.	Water Supply Reliability Assessment	Section 7.1	**Section 7.1.1 (page 7-1)**
10631(c)(1)	Provide data for an average water year, a single dry water year, and multiple dry water years	Water Supply Reliability Assessment	Section 7.2	**Section 7.2 (page 7-10)**
10631(c)(2)	For any water source that may not be available at a consistent level of use, describe plans to supplement or replace that source.	Water Supply Reliability Assessment	Section 7.1	**Section 7.1 (page 7-4, page 7-9)**
10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	Section 7.1	**Section 7.1 (page 7-1)**
10635(a)	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.3	**Section 7.3 (page 7-11)**
10632(a) and 10632(a)(1)	Provide an urban water shortage contingency analysis that specifies stages of action and an outline of specific water supply conditions at each stage.	Water Shortage Contingency Planning	Section 8.1	**Section 8.1 (page 8-1); Appendix M**
10632(a)(2)	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency.	Water Shortage Contingency Planning	Section 8.9	**Section 8.9 (page 8-9)**

Appendix C. Urban Water Management Plan Checklist Checklist Arranged by Subject				
CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location
10632(a)(3)	Identify actions to be undertaken by the urban water supplier in case of a catastrophic interruption of water supplies.	Water Shortage Contingency Planning	Section 8.8	**Section 8.8 (page 8-6)**
10632(a)(4)	Identify mandatory prohibitions against specific water use practices during water shortages.	Water Shortage Contingency Planning	Section 8.2	**Section 8.2 (page 8-2)**
10632(a)(5)	Specify consumption reduction methods in the most restrictive stages.	Water Shortage Contingency Planning	Section 8.4	**Section 8.4 (page 8-3)**
10632(a)(6)	Indicated penalties or charges for excessive use, where applicable.	Water Shortage Contingency Planning	Section 8.3	**Section 8.3 (page 8-3)**
10632(a)(7)	Provide an analysis of the impacts of each of the actions and conditions in the water shortage contingency analysis on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts.	Water Shortage Contingency Planning	Section 8.6	**Section 8.6 (page 8-5)**
10632(a)(8)	Provide a draft water shortage contingency resolution or ordinance.	Water Shortage Contingency Planning	Section 8.7	**Section 8.7 (page 8-6); Appendix N**
10632(a)(9)	Indicate a mechanism for determining actual reductions in water use pursuant to the water shortage contingency analysis.	Water Shortage Contingency Planning	Section 8.5	**Section 8.5 (page 8-5)**
10631(f)(1)	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	Sections 9.2 and 9.3	**Section 9.2 (page 9-2)**
10631(f)(2)	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	Sections 9.1 and 9.3	**N/A; City is not a wholesale supplier**
10631(j)	CUWCC members may submit their 2013-2014 CUWCC BMP annual reports in lieu of, or in addition to, describing the DMM implementation in their UWMPs. This option is only allowable if the supplier has been found to be in full compliance with the CUWCC MOU.	Demand Management Measures	Section 9.5	**Section 9.5 (page 9-6) (City is not a CUWCC member)**
10608.26(a)	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets.	Plan Adoption, Submittal, and Implementation	Section 10.3	**Section 10.3 (page 10-1); Appendix D**
10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.	Plan Adoption, Submittal, and Implementation	Section 10.2.1	**Section 10.2 (page 10-1); Appendix D**
10621(d)	Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.	Plan Adoption, Submittal, and Implementation	Sections 10.3.1 and 10.4	**Section 10.4 (page 10-2)**
10635(b)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 60 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	**Section 10.4 (page 10-2)**
10642	Provide supporting documentation that the urban water supplier made the plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan.	Plan Adoption, Submittal, and Implementation	Sections 10.2.2, 10.3, and 10.5	**Section 10.3 (page 10-1); Appendix D**
10642	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Sections 10.2.1	**Section 10.2 (page 10-1)**
10642	Provide supporting documentation that the plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.3.1	**Section 10.3 (page 10-1); Appendix P**
10644(a)	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	Section 10.4.3	**Section 10.4 (page 10-2)**
10644(a)(1)	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	**Section 10.4 (page 10-2)**
10644(a)(2)	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Sections 10.4.1 and 10.4.2	**Section 10.4 (page 10-2)**
10645	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.5	**Section 10.5 (page 10-2)**

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APPENDIX D

Agency and Public Notices

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CITY OF SAN BRUNO
PUBLIC SERVICES

January 11, 2016

SF Public Utilities Commission
Water Resources Management
1145 Market Street, 4th Floor
San Francisco, CA 94103

SSF Water Quality Control Plant
Public Works Director
195 Belle Aire Road
South San Francisco, CA 94080

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

County of San Mateo
Building and Planning Director
455 County Center, 2nd Floor
Redwood City, CA 94063

Subject: Urban Water Management Plan Update, 60-Day Notice

The City of San Bruno (City) is currently in the process of updating its Urban Water Management Plan ("UWMP"). The Urban Water Management Planning Act, Water Code Section 10610 et seq., requires every urban water supplier 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 annually to prepare and adopt a UWMP and periodically update that plan at least every five years. The UWMP is a planning document and a source document which reports, describes and evaluates water deliveries and uses, water supply sources and conservation efforts.

As an urban water supplier, the City coordinates with water management agencies, relevant public agencies and other water suppliers on the preparation of the UWMP update. The City will be reviewing the UWMP and will make amendments and updates, as appropriate. If you wish to contact the City about its review process, you may do so in writing or by email to jtan@sanbruno.ca.gov, or by telephone at (650) 616-7075.

Sincerely,

Jimmy Tan
Public Services Acting Director

cc: Jim Burch, Deputy Director, Utilities and Operations
Mark Reinhardt, Water System and Conservation Manager

567 El Camino Real, San Bruno, CA 94066-4299
Voice: (650) 616-7065 • Fax: (650) 794-1443
https://sanbruno.ca.gov/

CITY OF SAN BRUNO
PUBLIC SERVICES

June 7, 2016

SF Public Utilities Commission
Water Resources Management
1145 Market Street, 4th Floor
San Francisco, CA 94103

SSF Water Quality Control Plant
Public Works Director
195 Belle Aire Road
South San Francisco, CA 94080

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

County of San Mateo
Building and Planning Director
455 County Center, 2nd Floor
Redwood City, CA 94063

SUBJECT: Review Draft of City of San Bruno 2015 Urban Water Management Plan Update

In accordance with the Urban Water Management Planning Act (California Water Code Section 10610 et seq.), the City of San Bruno is required to update its Urban Water Management Plan (UWMP) to meet the California Department of Water Resources (DWR) requirements for a 2015 UWMP. The City's last UWMP was adopted in June 2011.

The City has completed its draft 2015 UWMP update and has scheduled a public hearing for the review of the updated UWMP and method for determining its urban water use targets at the City Council Meeting 7:00 pm, Tuesday, June 28, 2016 at the 94066. It is anticipated that the draft 2015 UWMP, and the method for determining the urban water use targets, will be formally adopted that day as well.

At this time we invite your agency to review the draft 2015 UWMP located on the City's website at https://sanbruno.ca.gov/gov/city_departments/public_services/about_us.htm, with a hard copy available at the Public Services Customer Service Desk located at San Bruno City Hall. Please forward your comments to me no later than end of day Friday, June 24, 2016 at:

City of San Bruno
567 El Camino Real
San Bruno, CA 94066
Phone: (650) 616-7179
Email: jtan@sanbruno.ca.gov

Sincerely,

Jimmy Tan
Public Services Director/City Engineer

NOTICE OF PUBLIC HEARING
SAN BRUNO URBAN WATER MANAGEMENT PLAN - 2015 UPDATE
INCLUDING URBAN WATER USE TARGETS

In compliance with the California Urban Water Management Planning Act, urban water suppliers that serve either 3,000 or more customers, or provide over 3,000 acre-feet of water annually, are required every five years to prepare, update and adopt a management plan for providing a reliable water supply to their service area. Additionally, California law requires that the community be given an opportunity to give input on the urban water use target, impacts to the local economy, and the method of determining the urban water use target included in San Bruno's Urban Water Management Plan.

The City of San Bruno (City) is preparing an update of the 2010 Urban Water Management Plan. The 2015 draft is available for public review on the City's website at: https://sanbruno.ca.gov/gov/city_departments/public_services/about_us.htm, with a hard copy available to review at San Bruno City Hall, Public Works Customer Service Desk, located at 567 El Camino Real, San Bruno.

The City will hold a public hearing to adopt an urban water use target and updates to its Urban Water Management Plan for 2015-2020. Comments on the draft plan should be submitted in writing to Jim Burch, Public Services Deputy Director, at the address below, or made in person at the public hearing scheduled as part of the June 28, 2016 City Council meeting at 7:00 PM at the San Bruno Senior Center located at 1555 Crystal Springs Avenue, San Bruno, CA. If you have any questions regarding the draft Urban Water Management Plan, please contact:

Jim Burch
City of San Bruno
567 El Camino Real
San Bruno, CA 94066
Tel: (650) 616-7179
Fax: (650) 794-1443
Email: jburch@sanbruno.ca.gov

SMCT#5752022; June 15, 22, 2016

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APPENDIX E

Water Audit

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AWWA Free Water Audit Software v5.0

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This spreadsheet-based water audit tool is designed to help quantify and track water losses associated with water distribution systems and identify areas for improved efficiency and cost recovery. It provides a "top-down" summary water audit format, and is not meant to take the place of a full-scale, comprehensive water audit format.

Auditors are strongly encouraged to refer to the most current edition of AWWA M36 Manual for Water Audits for detailed guidance on the water auditing process and targetting loss reduction levels

The spreadsheet contains several separate worksheets. Sheets can be accessed using the tabs towards the bottom of the screen, or by clicking the buttons below.

Please begin by providing the following information

Name of Contact Person:	Mark Reinhardt
Email Address:	mreinhardt@sanbruno.ca.gov
Telephone (incl Ext.):	650 616-7167
Name of City / Utility:	City of San Bruno
City/Town/Municipality:	San Bruno
State / Province:	California (CA)
Country:	USA
Year:	2015
Start Date:	07/2014 Enter MM/YYYY numeric format
End Date:	06/2015 Enter MM/YYYY numeric format
Audit Preparation Date:	3/1/2016
Volume Reporting Units:	Million gallons (US)
PWSID / Other ID:	CA4110023

The following guidance will help you complete the Audit

All audit data are entered on the ***Reporting Worksheet***

- Value can be entered by user
- Value calculated based on input data
- These cells contain recommended default values

Use of Option (Radio) Buttons: Pcnt: 0.25% Value:

Select the default percentage by choosing the option button on the left

To enter a value, choose this button and enter a value in the cell to the right

The following worksheets are available by clicking the buttons below or selecting the tabs along the bottom of the page

Instructions
The current sheet. Enter contact information and basic audit details (year, units etc)

Reporting Worksheet
Enter the required data on this worksheet to calculate the water balance and data grading

Comments
Enter comments to explain how values were calculated or to document data sources

Performance Indicators
Review the performance indicators to evaluate the results of the audit

Water Balance
The values entered in the Reporting Worksheet are used to populate the Water Balance

Dashboard
A graphical summary of the water balance and Non-Revenue Water components

Grading Matrix
Presents the possible grading options for each input component of the audit

Service Connection Diagram
Diagrams depicting possible customer service connection line configurations

Definitions
Use this sheet to understand the terms used in the audit process

Loss Control Planning
Use this sheet to interpret the results of the audit validity score and performance indicators

Example Audits
Reporting Worksheet and Performance Indicators examples are shown for two validated audits

Acknowledgements
Acknowledgements for the AWWA Free Water Audit Software v5.0

If you have questions or comments regarding the software please contact us via email at: wlc@awwa.org

AWWA Free Water Audit Software:
Reporting Worksheet

WAS v5.0

American Water Works Association.
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? Click to access definition
+ Click to add a comment

Water Audit Report for: City of San Bruno (CA4110023)
Reporting Year: 2015 | 7/2014 - 6/2015

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: MILLION GALLONS (US) PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

Master Meter and Supply Error Adjustments

WATER SUPPLIED

<---------- Enter grading in column 'E' and 'J' ---------->

Volume from own sources:	+ ?	9	689.766	MG/Yr	+ ?	7	Pcnt:	Value:	MG/Yr
Water imported:	+ ?	9	454.599	MG/Yr	+ ?	7			MG/Yr
Water exported:	+ ?	n/a	0.000	MG/Yr	+ ?				MG/Yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 1,144.365 MG/Yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

					Pcnt:	Value:	
Billed metered:	+ ?	9	1,053.173	MG/Yr			
Billed unmetered:	+ ?	n/a	0.000	MG/Yr			
Unbilled metered:	+ ?	n/a	0.000	MG/Yr			
Unbilled unmetered:	+ ?	7	14.305	MG/Yr	1.25%		MG/Yr

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

AUTHORIZED CONSUMPTION: ? 1,067.477 MG/Yr

Use buttons to select percentage of water supplied **OR** value

WATER LOSSES (Water Supplied - Authorized Consumption) 76.888 MG/Yr

Apparent Losses

					Pcnt:	Value:	
Unauthorized consumption:	+ ?		2.861	MG/Yr	0.25%		MG/Yr
Customer metering inaccuracies:	+ ?	7	0.000	MG/Yr			MG/Yr
Systematic data handling errors:	+ ?	7	2.633	MG/Yr	0.25%		MG/Yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: ? 5.494 MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: ? 71.394 MG/Yr

WATER LOSSES: 76.888 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: ? 91.192 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	+ ?	9	118.0	miles
Number of active AND inactive service connections:	+ ?	8	11,425	
Service connection density:	?		97	conn./mile main

Are customer meters typically located at the curbstop or property line? Yes

Average length of customer service line: + ? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure: + ? 8 60.0 psi

COST DATA

Total annual cost of operating water system:	+ ?	7	$8,878,350	$/Year
Customer retail unit cost (applied to Apparent Losses):	+ ?	7	$8.50	$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	+ ?	7	$2,792.50	$/Million gallons

☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 78 out of 100 ***

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Unauthorized consumption
2: Systematic data handling errors
3: Customer metering inaccuracies

APPENDIX F

Demand Study

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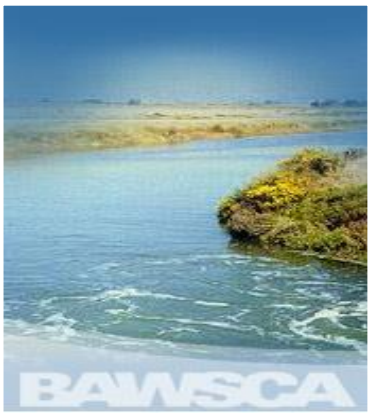
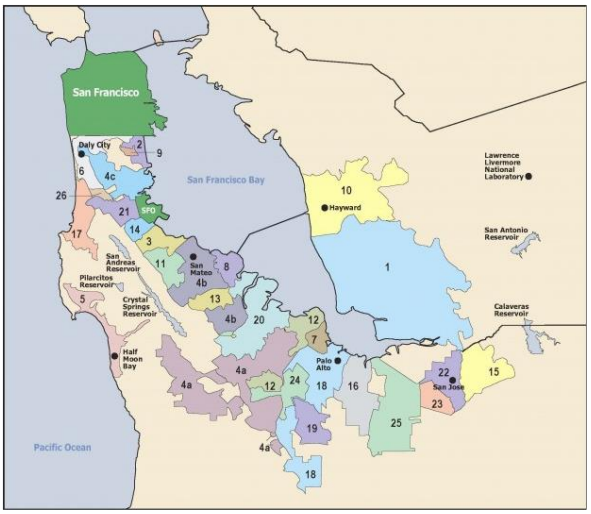
BAWSCA

Bay Area Water Supply & Conservation Agency



Regional Water Demand and Conservation Projections

Final Report
September 2014



WESTERN
POLICY
RESEARCH

MADDAUS
WATER
MANAGEMENT INC.

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LIST OF ACRONYMS

AB	Assembly Bill
ABAG	Association of Bay Area Governments
AF	acre-foot/acre-feet
AMI	Automatic Metering Infrastructure
BAWSCA	Bay Area Water Supply and Conservation Agency
BC	Brown and Caldwell
BLS	U.S. Buearu of Labor Statistics
BMP	best management practice
C&S Study	Cost & Savings Study
CII	commercial, industrial, institutional
CUWCC	California Urban Water Conservation Council
DMM	demand management measure
DOF	Department of Finance
DP	dwelling property
DSS	Demand Side Management Least Cost Planning Decision Support System
DWR	California Department of Water Resources
EBMUD	East Bay Municipal Utilities District
EDD	Economic Development Department
ETo	reference evapotranspiration
FY	Fiscal Year
GPCD	Gallons Per Capita per Day
GPF	gallon per flush
GPM	gallon per minute
HE	high-efficiency
HET	high-efficiency toilet
HEU	high-efficiency urinal
HEW	high-efficiency washer
ILI	Infrastructure Leakage Index
MG	million gallons
MGD	million gallons per day
MOU	Memorandum of Understanding Regarding Urban Water Conservation
MWM	Maddaus Water Management
MWD	Municipal Water District
NOAA	National Oceanic and Atmospheric Administration
PUB	public
PV	present value
PWSS	Public Water System Statistics
RMF	residential multi-family
RSF	residential single family
SB	Senate Bill
SCVWD	Santa Clara Valley Water District
SFPUC	San Francisco Public Utilities Commission
Sq Ft	square feet
Strategy	Long Term Reliable Water Supply Strategy
Tech Memo	Technical Memorandum
TPF	transformed peaking factor
ULF	ultra low flow
URS	URS Corporation
UWMP	Urban Water Management Plan
WBIC	Weather Based Irrigation Controller
WCDB	Water Conservatin Data Base
WCIP	Water Conservation and Recycling Implementation Plan
WSIP	Water System Improvement Program
WUE	Water Use Efficiency

EXECUTIVE SUMMARY

In March 2013, the Bay Area Water Supply and Conservation Agency (BAWSCA) initiated the Regional Demand and Conservation Projections Project (Project) to support the development of its Long-Term Reliable Water Supply Strategy (Strategy). The goal of the Project was to develop transparent, defensible, and uniform demand and conservation projections for each BAWSCA member agency using a common methodology to support regional planning efforts as well as individual agency efforts. Pursuant to this goal, the specific objectives of the Project were as follows:

(1) Quantify the total average-year water demand for each BAWSCA member agency through the year 2040;
(2) Quantify the passive and active conservation water savings potential for each individual BAWSCA member agency through 2040;
(3) Identify conservation programs for further consideration for regional implementation by BAWSCA; and
(4) Provide each BAWSCA member agency with a user-friendly model that can be used to support ongoing demand and conservation planning efforts.

Background

BAWSCA is currently developing the Strategy to identify potential cost effective projects, programs and/or additional studies to increase the water supply reliability of the BAWSCA member agencies. In September 2012 the BAWSCA Board unanimously approved the Strategy Phase IIA Report recommendations, including the recommendation to update the water demand and conservation projections for the BAWSCA member agencies using a common methodology. The Project was initiated to implement this recommendation and provides a critical input to the Final Phase of the Strategy. In addition, the updated demand estimates may be used by individual BAWSCA member agencies in their 2015 Urban Water Management Plans (UWMP) and 20x2020 Plans mandated as a result of Senate Bill X7-7 (SBX7-7) (Steinberg/Pavley).

Demand and Conservation Projections Development Process

The Project was completed as a collaborative effort between the BAWSCA staff and the BAWSCA member agencies. The Santa Clara Valley Water District (SCVWD) also provided input on technical items associated with the conservation analysis, given its role as the wholesale water agency to eight member agencies in Santa Clara County. Over the course of the Project, input was solicited from the aforementioned groups through multiple forums, including workshops, one-on-one meetings, and web-based meetings.

Service Area Profiles

The initial phase of the Project was the updating of each member agency's population and employment projections using Association of Bay Area Governments (ABAG) 2013 data and other data sources. The total BAWSCA service area population and employment projections are presented in Table ES-1. In addition, historical demographic, economic, weather, and conservation data for each member agency was also collected for use in both the demand and conservation analysis.

Table ES-1. Total BAWSCA Service Area Population and Employment Projections

	2012 (Actual)	2015	2020	2025	2030	2035	2040
Population	1,724,772	1,780,800	1,874,100	1,951,500	2,032,300	2,120,300	2,217,800
Employment (Jobs)	1,069,156	1,116,300	1,212,300	1,270,400	1,332,700	1,389,900	1,443,800

Demand Projections

Next, each BAWSCA member agency's baseline water demand (i.e., average year demand before additional active conservation savings was incorporated) was forecasted through 2040 using a combination of two different models – an econometric (or statistical) model developed particularly for each agency and the Demand Side Management Least Cost Planning Decision Support System (DSS Model). The demand analysis process included three distinct parts summarized below and described in detail in Section 3.

- **Historical View:** Analysis of historical data between 1995 and 2012 (or a shorter period if an agency's historical data was incomplete) was done to assess the impacts of factors such as water rates, economic conditions, and weather on water demands.
- **Short Term Future:** The short-term future demand (2013 through 2020) was forecasted using each agency's econometric model, assuming normal weather, while incorporating economic recovery predictions as well as water rate forecasts and population growth.
- **Long Term Future:** Long-term water demand (2021-2040) by customer category was forecasted based upon forecasted increases in population and employment.

The econometric model was used to project short-term future demands based upon historical water use patterns and the projected future rebound in water demand associated with forecasts for economic recovery. An econometric model was constructed for each BAWSCA member agency using up to 18 years of monthly production data (where available, data from 1995 through 2012 were used). Each BAWSCA member agency's model utilizes agency-specific data to analyze the impacts of a number of variables including employment, retail water rates, population, and weather on water demands.

The DSS Model was used to project both long-range water demands and conservation savings. To forecast water demands, the DSS Model relies on demographic and employment projections, combined with the effects of natural fixture replacement due to the implementation of plumbing codes to forecast future demands. Based upon this analysis, total average year water demands in the BAWSCA service area, before considering future conservation savings from passive (plumbing and building code) active conservation programs, are projected to reach 259 million gallons per day (MGD) in 2020 and 304 MGD in 2040.

Water Conservation Savings Projections

The final phase of the Project involved the estimation of both passive and active conservation savings through 2040. First, the analysis estimated water savings resulting from the installation of water-efficient fixtures required by current plumbing code and building code standards, termed passive conservation. Then, the water conservation savings analysis (1) defined how much conservation could reasonably contribute to additional water supply reliability for each BAWSCA member agency and (2) incorporated projected conservation savings from active conservation programs into the demand projections for each agency.

Passive Conservation Savings

Passive conservation refers to water savings resulting from actions and activities that do not depend on direct financial assistance or educational programs from water agencies. These savings result primarily from (1) the natural replacement of existing plumbing fixtures with water-efficient models required under current plumbing code standards and (2) the installation of water-efficient fixtures and equipment in new buildings and retrofits as required under CalGreen Building Code Standards. The DSS Model evaluated water savings associated with these codes and standards to project passive conservation savings. By 2040, passive conservation savings were projected to yield an additional 7 percent reduction in demands beyond what has been achieved to date, resulting in a baseline demand of 254 MGD in 2020 and 284 MGD in 2040.

Active Conservation Savings

Water savings from a variety of water use efficiency measures were analyzed to facilitate the development of individual agency's active conservation savings estimates through 2040. A total of 25 conservation measures were selected for evaluation based on input from the BAWSCA member agencies. These measures were incorporated into each agency's DSS Model for cost-benefit analysis and eventual selection of a conservation program to meet the agency's conservation savings goals. Each BAWSCA member agency was provided a copy of its DSS Model to review the conservation program options, tailor the programs to meet its needs, and select the program that fit its individual water savings goals and budgets.

The active conservation savings analysis projected that by 2040 the combined effect of each agency's planned conservation savings activities would yield an additional 16 MGD in active conservation savings beyond what has already been achieved for the BAWSCA service area, resulting in a total water demand of 246 MGD in 2020 and 269 MGD in 2040.

Through this analysis, several conservation programs with high water savings potential and/or member agency interest were identified. These programs will be further evaluated by BAWSCA for potential future implementation. These programs include:

- Water Sense Fixtures Giveaway
- Weather-Based Irrigation Controller (WBIC) Giveaway and/or Incentives
- Small Irrigation Hardware Incentives
- Gray Water Retrofits Rebates for SFR Customers
- High-Efficiency Clothes Washer Commercial, Industrial, and Institutional (CII) Rebates
- High-Efficiency Urinal CII Rebates
- Focused School Retrofit Program
- Rotating Sprinkler Nozzle Incentive Program

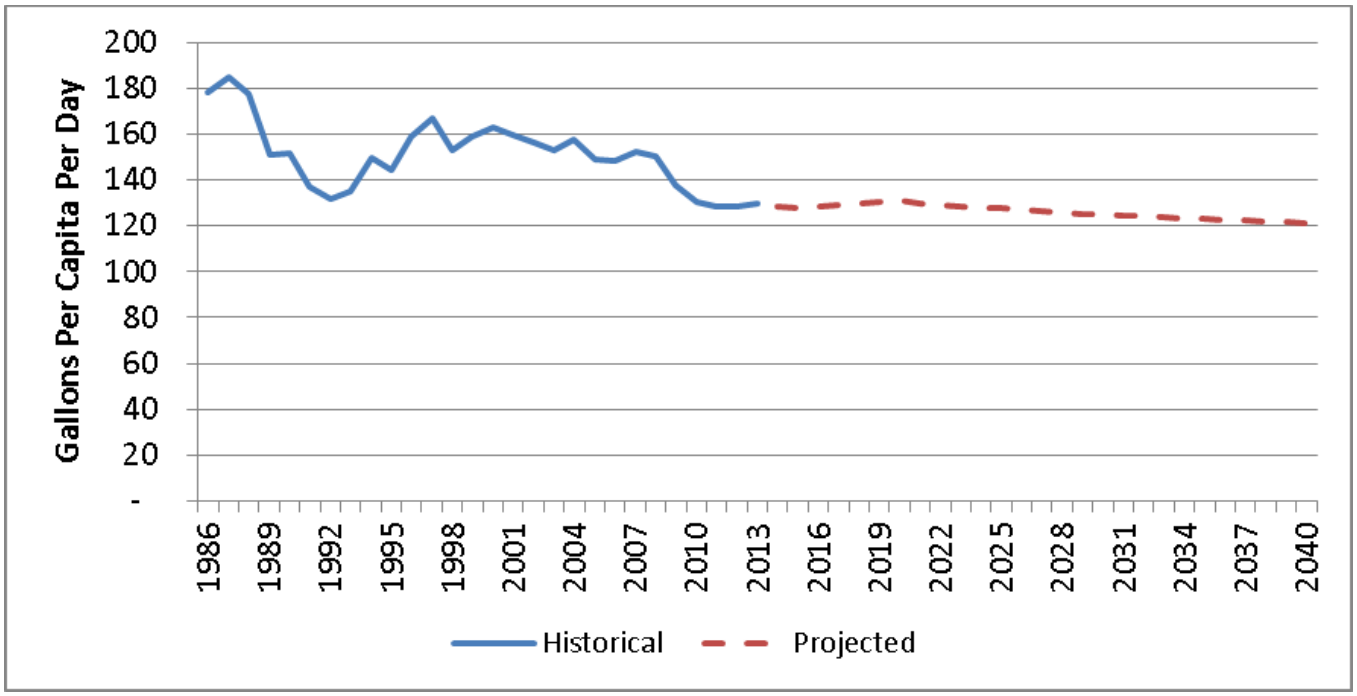
Regional Results

Based upon the analyses conducted as part of this effort, water demands are projected to increase 19 percent by 2040 after accounting for the effects of the existing plumbing code and future active conservation savings. These results are shown in Table ES-2. By comparison, the population and employment projections noted in Table ES-1 above show growth rates of 27 percent and 31 percent respectively between 2014 and 2040. Historical and projected BAWSCA gross per capita demands are presented in Figure ES-1.

Table ES-2. Total BAWSCA Demand Projections (MGD)

Demand Forecast	2012 (Actual)	2015	2020	2025	2030	2035	2040
Total Water Demand with No Plumbing Code Savings	NA	234	259	270	281	292	304
Total Water Demand With Plumbing Code Savings	NA	233	254	261	267	275	284
Total Water Demand With Active Conservation Measure Savings	222	228	246	250	255	260	269

Figure ES-1. Total BAWSCA Gross Per Capita Demands (Gallons per Capita per Day)



Conclusions and Next Steps

The demand projections developed through the Project will be used the final phase of the Strategy. BAWSCA will work with the member agencies to determine each agency's planned water supply portfolio for meeting its projected demands to identify any new water supply needs. Identification of water supply needs will be used in the evaluation of potential new supply options to meet the water demands of the BAWSCA member agencies through 2040.

The majority of the BAWSCA member agencies are required to prepare UWMPs, which are due to DWR by July 2016. Member agencies may elect to utilize the demand and conservation savings projections developed through this Project as inputs to their respective UWMPs. Member agencies may also update the individual DSS Models for the UWMPs, if necessary, to incorporate new information for their respective service areas. These demand projections have not been formally adopted by individual agencies. It is anticipated that agencies will be adopting updated demand projections as part of the UWMP process.

In addition, BAWSCA will work with the member agencies to further evaluate the conservation programs that were identified through the Project as having high water savings potential and agency interest for regional implementation. BAWSCA recognizes that actual implementation of water conservation to achieve the identified water savings goals must be managed in an adaptive fashion, making both small and large program changes as needed over time.

1. INTRODUCTION

This Regional Water Demand and Conservation Projections Project (Project) Final Report summarizes the water demand and conservation savings projections for each individual BAWSCA member agency and for the BAWSCA region as a whole.

1.1 Goals and Objectives

The goal of the Project was to develop transparent, defensible, and uniform demand and conservation projections for each BAWSCA member agency, using a common methodology that can be used to support regional planning efforts as well as individual agency work. Pursuant to this goal, the specific objectives of the Project were as follows:

(1) Quantify the total average-year water demand for each BAWSCA member agency to the year 2040;
(2) Quantify the passive and active conservation water savings potential for each individual BAWSCA member agency through 2040;
(3) Identify conservation programs for further consideration for regional implementation by BAWSCA; and
(4) Provide each BAWSCA member agency with a user-friendly model that can be used to support ongoing demand and conservation planning efforts.

1.2 Approach and Methodology

To accomplish the above goal and objectives, each BAWSCA member agency's water demands and conservation savings was forecasted throughout 2040 using a combination of two different models – an econometric model and the Demand Side Management Least Cost Planning Decision Support System (DSS Model). The purpose of using two tools is to leverage the strengths of each tool to obtain the best forecast through the year 2040. The econometric modeling was initially done outside of the DSS Model and was then incorporated as a feature in each member agency's individual DSS Model.

Econometric modeling is a statistical approach used to determine the impact of factors such as economic conditions, weather, rates, and conservation on water demands. The Econometric Model is used to project, based upon historical patterns, the future rebound in water demand associated with economic recovery, while also taking into account other factors such as water rate increases and weather. The Econometric Model was used to forecast each agency's baseline demand through 2020.

The DSS Model prepares long-range, detailed water demand and conservation savings projections to enable a more accurate assessment of the impact of water efficiency programs on demand. The DSS Model can use either a statistical approach to forecast demands (e.g., an econometric model), or it can use forecasted increases in population and employment to evaluate future demands. Furthermore, the DSS Model evaluates conservation measures using benefit cost analysis with the present value of the cost of water saved and benefit-to-cost ratio as economic indicators. The analysis is performed from various perspectives including the utility and community. The DSS Model was also used to forecast demands for the BAWSCA member agencies in prior planning efforts in 2004 and 2009.

1.3 Collaboration between BAWSCA, Member Agencies and Santa Clara Valley Water District

The Project was completed as a collaborative effort between the BAWSCA staff and the BAWSCA member agencies. Over the course of the Project, input was solicited from the aforementioned groups through multiple forums, including workshops, one-on-one meetings, and web-based meetings.

In addition, a conservation working group, which consisted of representatives from the Project team, BAWSCA, Santa Clara Valley Water District (SCVWD), and BAWSCA member agencies, collaborated on technical features associated with the conservation measure analysis and design. All BAWSCA member agencies were invited to participate in this group. SCVWD was invited to participate given its role as the wholesale water agency to eight member agencies and its role in implementing water conservation programs in Santa Clara County.

Each BAWSCA member agency held a critical role in the development of its individual demand and conservation projections. BAWSCA member agency roles in the Project included the submission of technical information for use in individual agency DSS Models and the review and sign-off on interim work products. More details on the involvement of the member agencies in the completion of each Project task can be found in the following sections.

1.4 Relationship to Other Planning Efforts

BAWSCA is currently developing the Long-Term Reliable Water Supply Strategy (Strategy) to identify potential cost effective projects, programs and/or additional studies to increase the water supply reliability of the BAWSCA member agencies. In September 2012 the BAWSCA Board unanimously approved the Strategy Phase IIA Report's recommendations, including the recommendation to update the water demand and conservation projections for the BAWSCA member agencies using a common methodology. The Project results will provide critical input to the final phase of the Strategy.

In addition to providing a critical input for the Strategy, the updated demand estimates may be used by individual BAWSCA member agencies in the development of their 2015 Urban Water Management Plans (UWMPs) and 20x2020 Plans which are mandated as a result of Senate Bill X-7 (SBX 7-7) (Steinberg/Pavley).

Prior efforts have developed regional demand and conservation projections for the BAWSCA region using the DSS Model, including:

- San Francisco Public Utilities Commission (SFPUC) Wholesale Customer Water Demand Projections – URS Corporation (URS) and MWM, 2004;
- SFPUC Wholesale Customer Water Conservation Potential – URS and MWM, 2004;
- Projected Water Usage for BAWSCA Agencies – BC / MWM, 2006; and BAWSCA Water Conservation Implementation Plan – MWM and BC, 2009.

These prior efforts proved to be a robust means to support environmental documents (e.g., the Water System Improvement Program - Program Environmental Impact Report) and conservation planning (e.g., the BAWSCA Regional Water Conservation Program and development of the BAWSCA Water Conservation Database [WCDB]).

1.5 Content of Final Report

The following sections provide a summary of the content of this Report:

- Section 2 –Data Collection and Verification Process
- Section 3 –Demand Projections
- Section 4 –Water Conservation Projections
- Section 5 –Projected Regional Water Demand and Conservation Savings Results

DEVELOPMENT OF REGIONAL WATER DEMAND AND CONSERVATION PROJECTIONS FINAL REPORT

2. DATA COLLECTION AND VERIFICATION PROCESS

The purpose of Section 2 is to document the data collection and verification process for the Project. This section describes (1) the types of data that were collected for the Project and (2) the steps taken to obtain and verify the data. The documentation and verification step was critical to the modeling process to ensure that the best available information was used to develop each member agency's water demand and conservation savings projections.

2.1 Data Collection Process Overview

The data collection was conducted through two key methods, each of which is briefly described below. The preliminary survey was a primarily qualitative review of data from the agencies, whereas the Data Collection and Verification File (Data File) was a quantitative, data intensive spreadsheet.

2.1.1 Preliminary Survey

In April 2013, each of the BAWSCA member agencies was asked to complete a 23 question survey via Survey Monkey (an internet based electronic survey platform). The survey collected the following information:

- Key agency contact(s) information for the Project
- Agency's desired objectives or results for the Project
- Source of most recent water demand projections
- Description of water use trends within the agency's service area
- Perspective on future water demand trends
- Availability of water and sewer rate history by customer class
- Billing system components and capabilities
- California Urban Water Conservation Council (CUWCC) member status
- Conservation target driving agency's conservation program goals
- Indications of saturation with respect to particular conservation measures
- Interest in regional and individual conservation measures
- Specific changes or idea of interest for conservation measures
- Additional comments or questions on the project on planning process

Each member agency participated in the survey, which served as an efficient method of gathering agency feedback. The survey provided initial service-area background information, perspective on future water demand trends, agency feedback on the desired project outcomes, and initial interest in different types of conservation measures. The survey responses were also used to identify data items to include in the Data File. Two figures representing the results of this survey can be found in Appendix A. A list of the measures selected for the cost-effectiveness analysis based on this survey can be found in Appendix B.

2.1.2 Data Collection and Verification File

The Data File was developed in Microsoft Excel to collect, organize, and verify the necessary input data for the two tools in the DSS Model. The data required for the demand and conservation projections was organized into the Data Files (one per agency). This task was streamlined by populating the Data File using a variety of existing data sources

(Table 1) prior to distributing the files to the individual agencies. Each member agency was then asked to verify that the information in the Data File was accurate. A key source for existing data was the BAWSCA WCDB, which was specifically designed to capture much of the required data. Other significant data sources included BAWSCA Annual Surveys, 2010 UWMPs, Department of Water Resources Public Water System Statistics (DWR PWSS) Reports and the 2013 Association of Bay Area Governments (ABAG) Projections (population and employment forecasts).

The Data File was completed and verified by the member agencies through the following steps:

(1) **Distribution of Files to Individual Agencies**: The files were distributed to the individual agencies in July 2013 via the WCDB.
(2) **Instructional Webinars**: Webinars with the member agencies were held in July 2013 and October 2013 to disseminate information related to the data collection process to the member agencies. Each of the webinars was offered on two separate dates to maximize participation by the agencies. During the webinars, the Project team reviewed the Data File contents with the member agencies and provided instructions for completing the files.
(3) **Data File Completion by Agencies**: Each member agency reviewed and completed its individual Data File, which required:
    - Verification of the data that was pre-populated in the file by the Project team
    - Data entry of missing information into the Data File as needed
(4) **Data File Submission by Agencies**: Agencies submitted the files via the WCDB between August and October 2013 after completing Step 3.
(5) **Data File Review and Refinement**: The Project team reviewed the individual data files in the order submitted. If further data and refinement were required, the Project team contacted the individual member agency to obtain the necessary information.

2.2 Types of Data Collected

Data needs of the two tools in the DSS Model drove the data collection effort. The data collected can be broadly categorized into five main categories, each of which is discussed below. The individual data elements within each category are documented in Table 1.

Service Area Data

Data including water rates and total employment (jobs) were collected to evaluate the historical growth and future growth in the service area. The service area data was used for both of the demand forecasting tools in the DSS Model and for the conservation analysis.

Service Area Demographics

Service area demographic data such as the number of dwelling units were collected from the 2010 U.S. Census data. Population sources include the 2010 UWMPs, the 2013 ABAG Projections (population and employment forecasts), WCDB, prior DSS Models, and agency provided projections. The service area demographics were used both for the econometric analysis of historical demand and also for future demand forecasting.

Economy

Data from the Bureau of Labor Statistics on historical unemployment were collected for the individual service areas (at the city level) to attempt to capture the change in work force during the period from 1995 to 2012. The economic data was used for the econometric analysis of historical water demand.

Weather

Data from the local National Oceanic and Atmospheric Administration (NOAA) weather stations closest to each individual agency was collected. Data types included temperature maximum, temperature minimum, and precipitation for the years 1995 to 2012. The weather data was used for the econometric analysis of historical water demand.

Conservation

Select conservation data from the WCDB back to 2004 was also incorporated into the econometric models. The WCDB was designed as a recommendation of the 2009 BAWSCA Water Conservation Implementation Plan (WCIP) to capture much of the required data for any future demand and conservation projections update. For the Project, the conservation data was used for the historical demand analysis, for a review of future conservation program levels of saturation, and as a benchmark of reasonable levels of implementation for future conservation programs.

Table 1. Data Collected for Member Agencies

Model Input Parameter	Time Period	Units	Source(s)
		Service Area Data	
Water Production by Supply Source	1995-2012 or longer if provided	Volume	Previous DSS Models Conservation Database BAWSCA Annual Survey 2010 UWMPs DWR PWSS Reports
Consumption and Accounts	1995-2012 or longer if provided	Volume	
Avoided Operational Costs	Varies	$ / Volume	Agency provided
Maximum Day Demand	Varies	Date & Volume	Agency provided
Capital Improvement Plans	Varies	Planned Date and Volume	Agency provided
Top 100 CII Users	2012	CII Type and Volume	Agency provided
Single Family Water Rates	1995-2012	$/Volume	WCDB Agency Provided
Commercial Water Rates	1995-2012	$/Volume	WCDB Agency Provided
Single Family Sewer Rates	1995-2012	$/Volume	WCDB Agency Provided
Commercial Account Closures	2001-2012	Number of Closures	Agency Provided
Single Family Lot Sizes	1985-2012	Sq. Ft.	Agency Provided
Water System Audits	2005 to 2012 if available	NA	Agency Provided American Water Works Association (AWWA) or International Water Association (IWA)Methodology
Abnormal Years	Varies	Years	Agency Provided
Agency Info	Current	NA	Agency Provided
Contact Info	Current	Name, number, email	Agency Provided
Planning Documents	Varies	NA	2010 UWMP Agency Provided
Customer Classes	Varies	NA	Agency Provided
B25033 Population in Housing Units	2010	Dwelling units	2010 US Census

Water Supply Projections	2015-2035	Volume	WCDB
		Service Area Demographics	
Historical Service Area Population	1995-2012	People	Agency Provided
Projected Population	2013-2040	People	ABAG 2013 2010 UWMP Conservation Database Prior DSS Models Agency Provided
DP-1 General Profile and Housing Characteristics	2010	Various units	2010 US Census
DP04 Selected Housing Characteristics	2010	Various units	2010 US Census
		Economy	
Historical Service Area Employment	1995-2012	Jobs	ABAG 2013 2010 UWMP WCDB Prior DSS Models Agency Provided
Projected Jobs	2013-2040	Jobs	ABAG 2013 DSS Models Agency Provided
Unemployment Rates	1995-2012	%	California Economic Development Department/ US Bureau
DP03 Selected Economic Characteristics	2010	Median income $	2010 US Census
College and University Growth	2015-2022	Student, dwelling units, facilities	Agency Provided Master Plans
		Weather	
Historical Weather Data	1995-2012	Various units	ABAG 2013 Prior DSS Models Agency Provided
		Conservation	
Historical Conservation	2004-2012	Various units	WCDB Prior DSS Models Agency Provided
Conservation Targets	2015, 2020 or other	GPCD	CUWCC or agency provided

DEVELOPMENT OF REGIONAL WATER DEMAND AND CONSERVATION PROJECTIONS FINAL REPORT

3. DEMAND PROJECTIONS

The purpose of Section 3 is to document the demand projections developed for the Project. This section describes (1) the demand projection analysis methodology and (2) the demand analysis results that consist of BAWSCA member agency baseline demand projections through 2040 (demand before incorporating planned water savings from future active conservation efforts).

3.1 Demand Methodology Overview

The demand projection for each BAWSCA member agency used a combination of two different tools – an Econometric Model and the DSS Model. The purpose of using two tools was to leverage the strengths of each tool to obtain the best forecast through the year 2040. The Econometric Model for each member agency was initially run outside the DSS Model. The resulting values were then incorporated into each member agency's individual DSS Model.

The demand analysis for each agency included three distinct parts, as presented in Figure 1:

(1) Historical View: Analysis of historical data between 1995 and 2012 (or a shorter window if an agency could not provide complete data going back to 1995). The purpose of this analysis was to identify the impacts of factors such as water rates, economic conditions, and weather on water demands. Data analyzed included historical system production, water rates, weather (rainfall and temperature), employment, population, unemployment rate, and other data as approved and verified by each BAWSCA member agency.

(2) Short Term Future: Forecast of demands between 2013 through 2020 assuming normal weather, incorporating economic recovery predictions as well as water rate forecasts and population growth. Normal weather is defined as average temperature and rainfall between 1995 and 2006, corresponding roughly to the baseline that water suppliers will choose for testing compliance with SB X7-7)[1]. The analysis incorporated the federal government's and local projections[2] that the US economy will return to its long-term growth path by 2020, reaching a national unemployment rate of 5.2%, or roughly the average of the US unemployment rate between 1993 and 2000. The unemployment rate differs considerably across member agencies at any given point in time. However, movements in this metric for any given agency over time parallels movement in the national unemployment rate quite well. To account for the unique conditions that exist within each member agency, it was assumed that each member agency will reach an unemployment rate that reflects the average of its unemployment rate during the 1993-2000 period (for example, this average was 1.3% for Hillsborough and 8.8% for East Palo Alto). Projections of expected water rate increases and population growth that feed into these short-term forecasts come from the same source as are used for generating the long-term forecasts. These data sources are discussed later.

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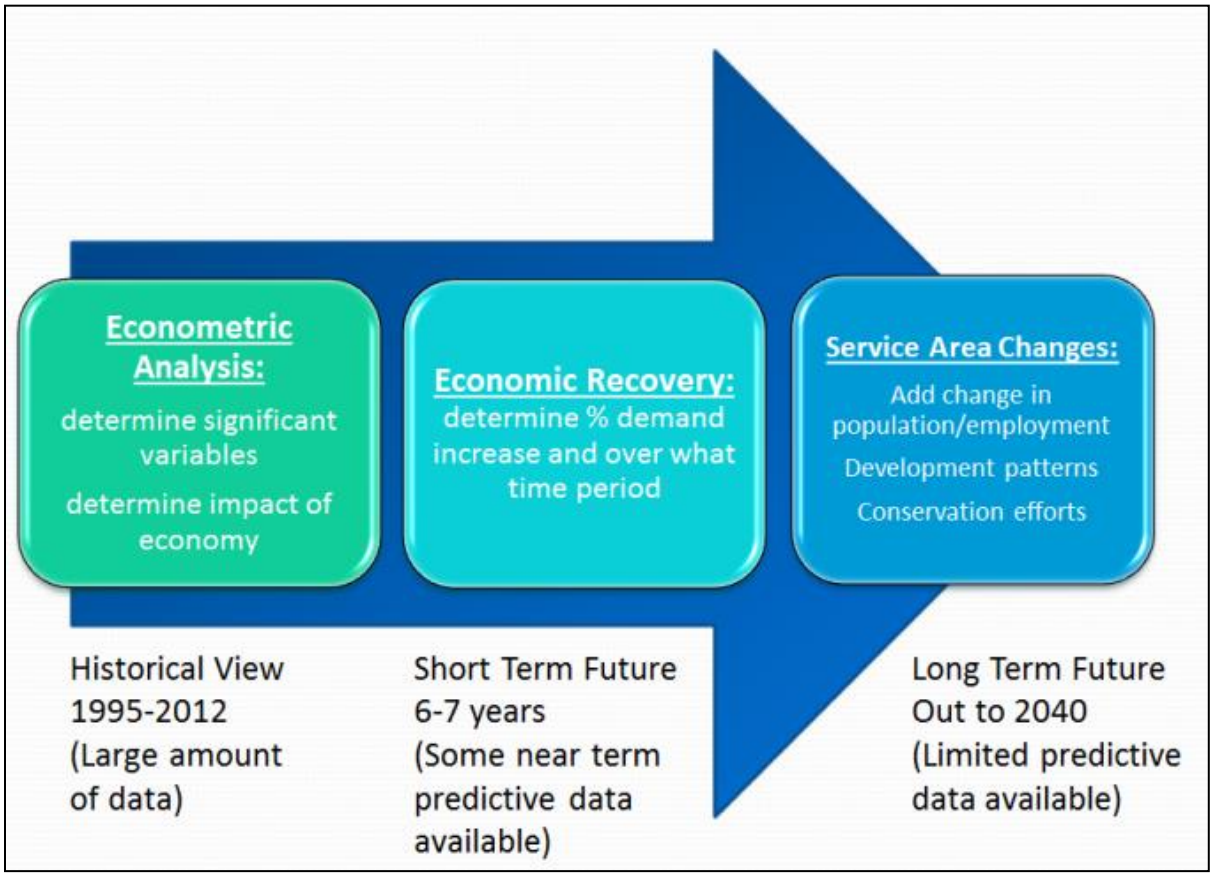
[1] Senate Bill X7-7 (SB X7-7) or "The Water Conservation Act of 2009" was enacted to ensure California continues to have reliable water supplies, requiring urban water agencies to collectively reduce statewide per capita water use by 20% before December 31, 2020.

[2] Congressional Budget Office: *Testimony - The Budget and Economic Outlook: Fiscal Years 2013 to 2023*
Douglas W. Elmendorf, Director Before the Committee on the Budget, United States Senate, February 12, 2013.
Bay Area Council Economic Institute, *Recession and Recovery: An Economic Reset*, April 2010.

(3) Long Term Future: Each agency's long term water demand (2021-2040) was forecasted by customer category based upon forecasted increases in population and employment.

Figure 1. Demand Forecasting Methodology



3.1.1 Econometric Analysis Methodology

An Econometric Model estimates the impact of economic conditions on water demand. The model is then used to estimate, based upon historical patterns, the future rebound in demand associated with economic recovery, while also taking into account other factors such as rate increases and weather. Since the Econometric Model is calibrated using historical data, its reliability depends on historical relationships between water demand and its influencing factors remaining unchanged between the calibration and forecasting periods. Further into the future, changes in demographics, living patterns, housing stock, and industrial structure can alter these historical relationships. The DSS Model can accommodate data and assumptions reflecting how future service area and water use characteristics may differ from the past in each BAWSCA member service area. To accommodate all of these considerations, the Econometric Model was used to forecast baseline demand through 2020, and the DSS Model from 2021 through 2040.

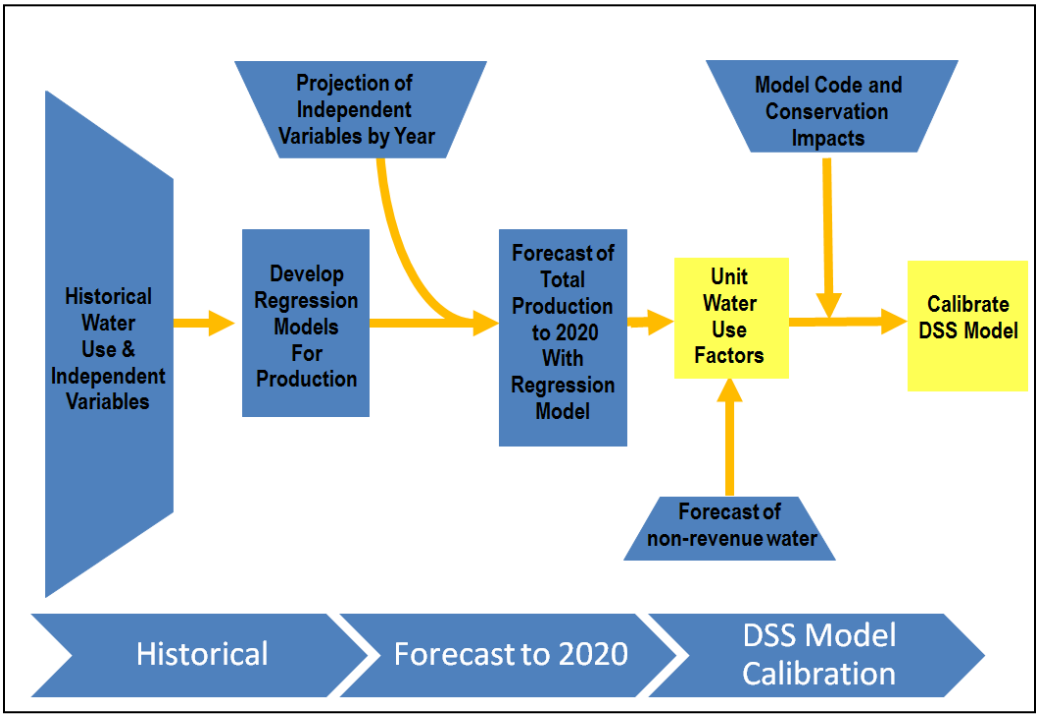
The Econometric Model was used to project demand from 2013 to 2020. This tool was incorporated into the demand analysis to estimate the relationship between water demand and factors that may be impacting it, such as price, economic conditions, and weather.

An Econometric Model of water demand was constructed for each BAWSCA member agency using up to 18 years of monthly production data (where available, data from 1995 through 2012 were used). Each BAWSCA member agency's Econometric Model utilizes agency-specific data to depict economic conditions, retail water rates, population, and the impact of conservation programs implemented through the last year of the model calibration period. Weather data were assigned to each agency from the closest of one of eight NOAA stations located throughout the Bay Area. These data were submitted and verified by each BAWSCA member agency through the data collection process described in Section 2. The econometric model took each piece of agency-specific data and multiplied it by a coefficient, and the coefficients were adjusted until the modeled demand from 1995-2012 was fit to the observed agency demand during that time period. The value of the coefficients in the calibrated model estimate how significant each piece of agency data is to the calculation of water demands. Then these same relationships between the data (represented by the coefficients) are carried forward to generate future short-term future water demands. The Econometric Model and resulting regional coefficients are further described in Appendix C.

The calibrated Econometric Models were then used to generate water demand forecasts out to the year 2020. The estimated model coefficient associated with each variable included in the models, such as precipitation, temperature, water rates, and the unemployment rate, were also incorporated into individual agency DSS Models. The coefficients resulting from the econometric analysis were included in the DSS Model, so agencies could use them to project demands within the DSS Models, by selecting the "regression model" method of projecting demands.

The demands generated with the Econometric Models were reviewed and calibrated with the DSS Model to capture and reflect previous knowledge of the service area from both the 2004 and 2008 forecasting projects. The DSS Model was then used to generate water demands from 2021-2040. This process generated one complete model for each agency with data between 2013 and 2040. A flow diagram of the econometric modeling process is presented in Figure 2 below.

Figure 2. BAWSCA Econometric Model Flow Diagram



For each BAWSCA member agency, the econometric analysis estimated the relative impact of various factors on water demand. A more detailed description of the Econometric Modeling framework can be found in Appendix C.

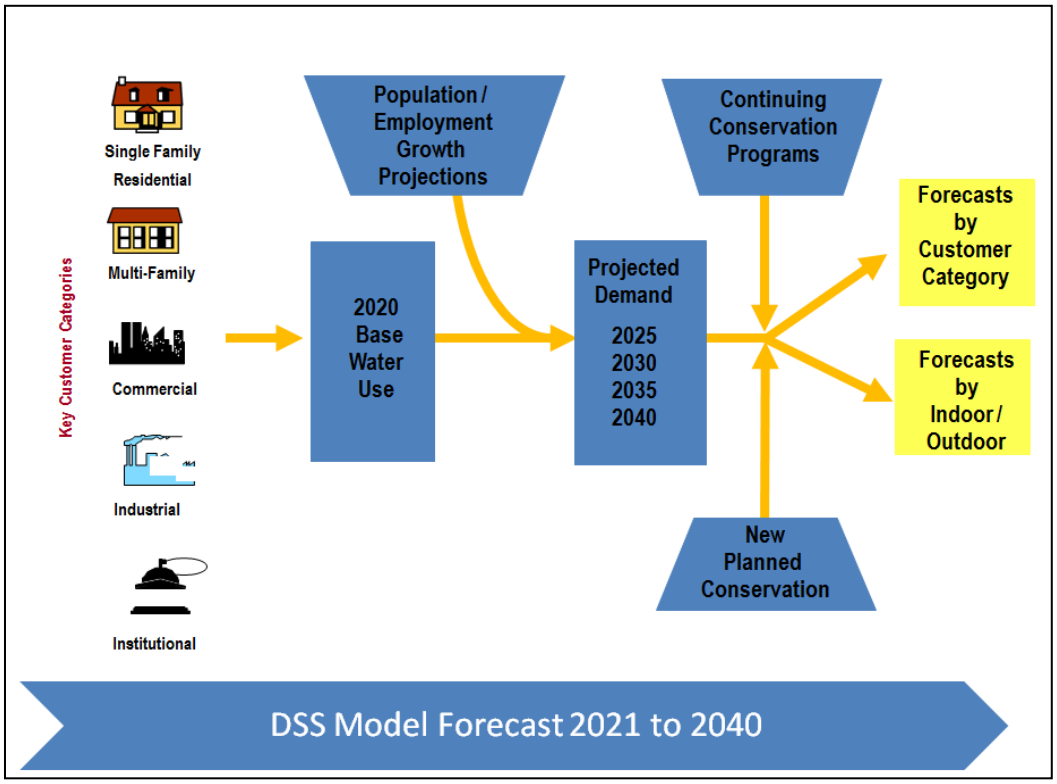
3.1.2 DSS Model Methodology

For the long-term projections (2021 through 2040), the DSS Model was used to forecast water demand for each BAWSCA member agency. The DSS Model also includes a conservation component that quantifies savings from passive conservation (e.g. plumbing codes) and active conservation programs. The DSS Model's conservation component covers the entire forecast period, 2013-2040. Quantification of savings potential from active conservation programs is presented in Section 4.

The DSS Model prepares long-range, water demand and conservation water savings projections. The DSS Model is an end-use model that breaks down total water production (i.e., water demand in the service area) into specific water end uses such as (e.g., toilets, faucets, or irrigation). This "bottom-up" approach allows for detailed criteria to be considered when estimating future demands, such as the effects of natural fixture replacement, plumbing codes, and conservation efforts. The purpose of using end use data is to enable a more accurate assessment of the impact of water efficiency programs on demand and to provide a rigorous and defensible modeling approach necessary for projects subject to regulatory or environmental review.

Section 3 of this report presents the DSS Model's demand estimates taking into account savings only from passive conservation. Passive conservation refers to water savings resulting from customer actions and activities that do not depend on direct assistance from water agency conservation programs. This includes water savings resulting from 1) the natural replacement of existing plumbing fixtures with water-efficient models required under current plumbing code standards and 2) the installation of water-efficient fixtures in new buildings and retrofits as required under CalGreen Building Code Standards. Quantification of water savings from active conservation programs is presented in Section 4.

Figure 3. BAWSCA DSS Model Flow Diagram



As shown in Figure 3, the first step for forecasting water demands using the DSS Model was to gather customer category billing data from each BAWSCA member agency. The next step was to check the model by comparing water use data with available demographic data to characterize water usage for each customer category (single family, multifamily, commercial, industrial, and institutional) in terms of number of users per account and per capita water use. During the model calibration process data were further analyzed to approximate the indoor/outdoor split by customer category. The indoor/outdoor water usage was also further divided into typical end uses for each customer category. Published data on average per-capita indoor water use and average per-capita end use were combined with the number of water users to verify that the volume of water allocated to specific end uses in each customer category is consistent with social norms from end use studies on water use behavior (e.g., for flushes per person per day).

3.1.3 Agency Input and Review

As part of the Project's collaborative approach, instructional webinar conference calls and a Demands Workshop were held to facilitate BAWSCA member agency understanding of and involvement in the development of the demand projections:

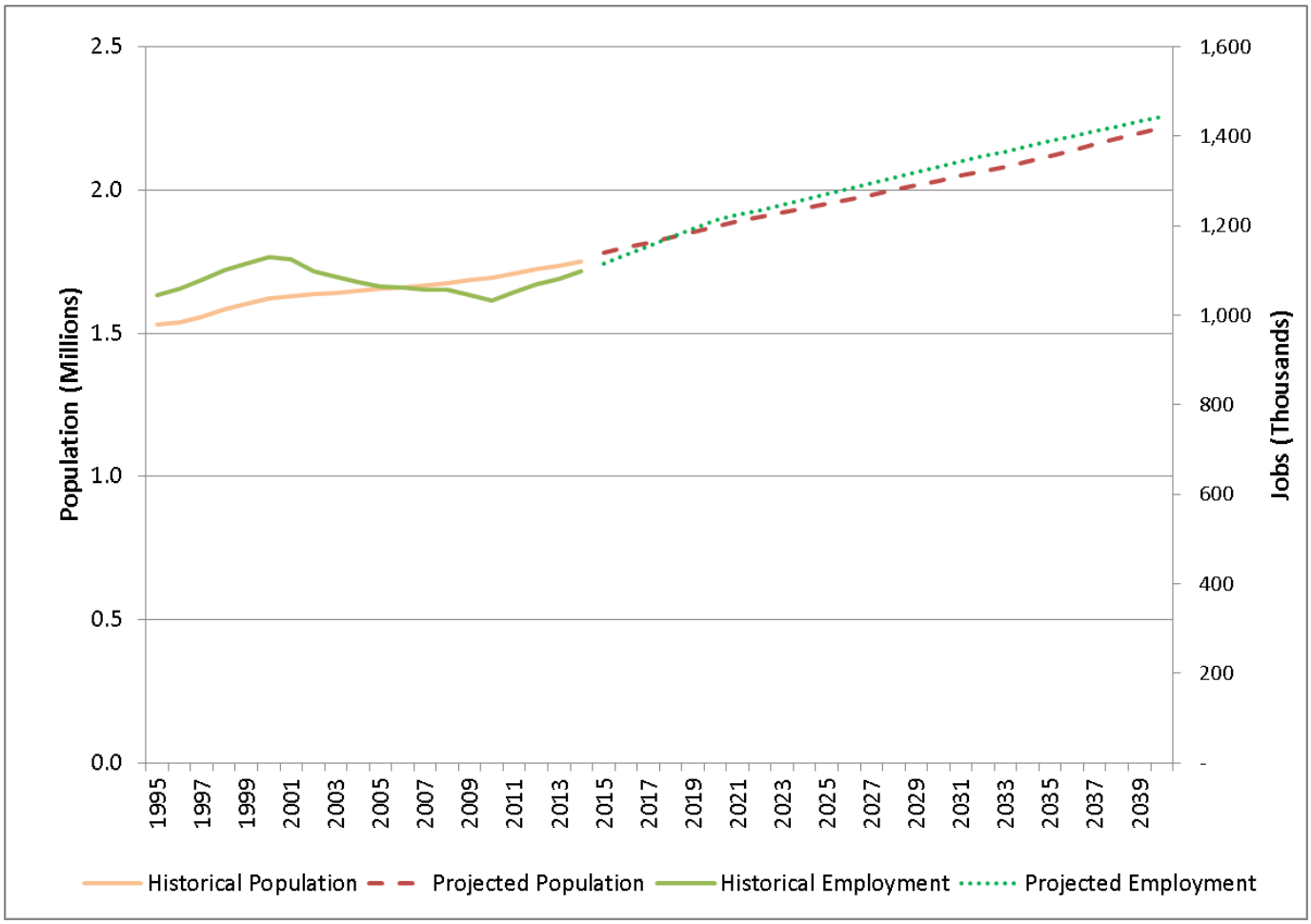
- **Instructional Webinars:** Webinars with the member agencies were held in October 2013 and November 2013 to disseminate information related to demand forecasting and econometric modeling methodology. Webinars were offered on two separate dates to maximize participation by the agencies. During the webinars, the Project team reviewed the methodology using a real example with preliminary results from one of the BAWSCA agencies.
- **Demands Workshop:** On March 11, 2014 a workshop was held for BAWSCA agencies to (1) review the demand modeling approach and results and to (2) answer agency questions.

Agencies had the opportunity to review the demand modeling results and to provide questions and comments at the Demands Workshop and via agency coordination with the Project team. In addition, individual meetings were held between MWM modeling staff, BAWSCA staff and BAWSCA member agency representatives to review the draft demand projections in March 2014.

3.2 Future Population and Employment

Each agency's future population and employment projections were incorporated into each DSS Model to project future demand. Population and employment projections through 2040 were confirmed by each BAWSCA member agency through the data collection process described in Section 2. These growth projections were used to develop a projected demand for the years 2021 to the year 2040. Population projections were obtained from one of the following sources: Plan Bay Area - ABAG Projections 2013, individual agency 2010 UWMPs, California Department of Finance, the United States Census Bureau, or agency planning documents. Figure 4 presents the BAWSCA service area population and employment projections.

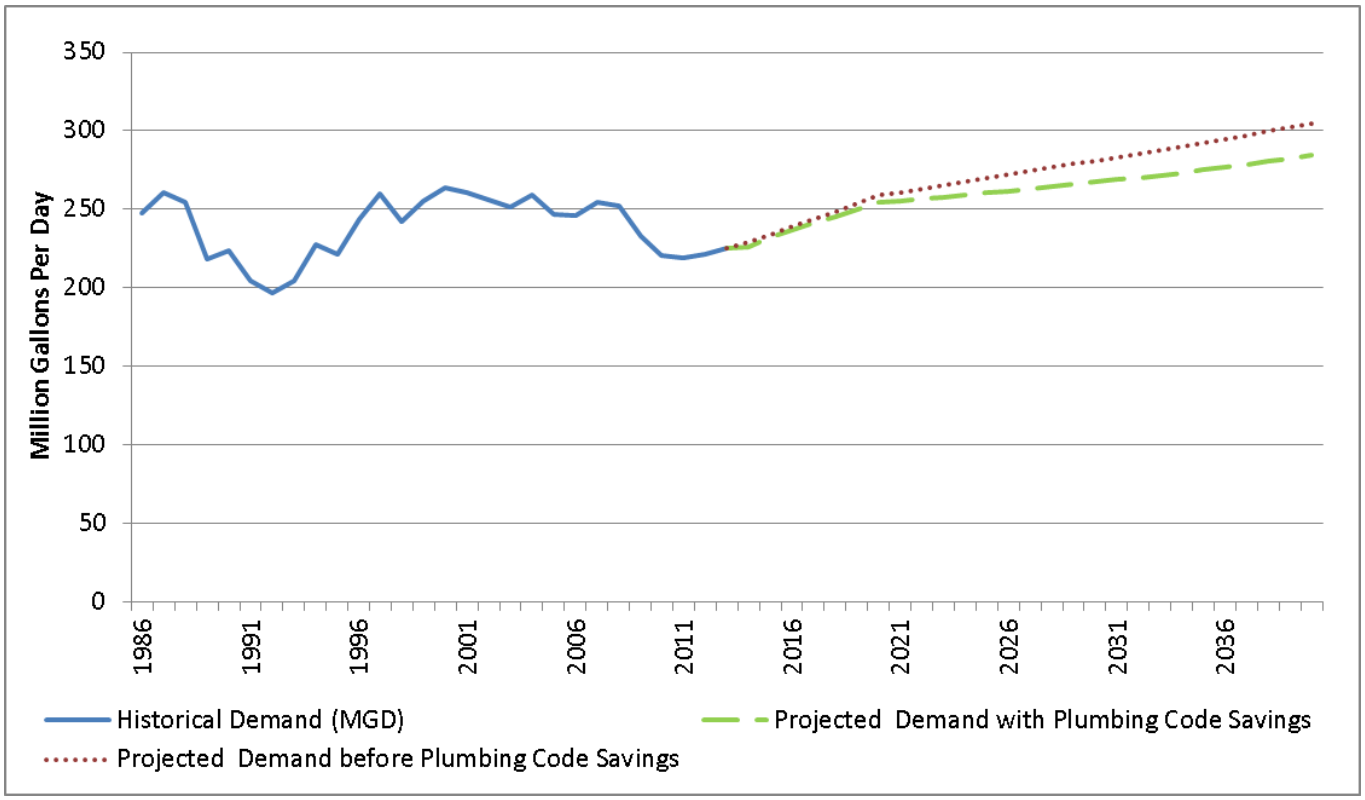
Figure 4. Historical and Projected Population and Employment



3.3 Baseline Water Demand Projections

The Econometric Model and DSS Model were used to generate baseline water demand projections (demands before active conservation savings) for each BAWSCA member agency. As previously described, the Econometric Model generated water demand projections for the years 2013 to 2020 and the DSS Model generated water demand projections for the years 2021 to 2040. Figure 5 presents the BAWSCA service area baseline demand projections through 2040.

Figure 5. BAWSCA Region Wide Baseline Demands to 2040



Demand projections with plumbing code savings for each BAWSCA member agency through 2040 can be found in Section 5. More details on the estimated impacts on historical water demands of the factors identified in the econometric analysis can be found in Appendix C.

DEVELOPMENT OF REGIONAL WATER DEMAND AND CONSERVATION PROJECTIONS FINAL REPORT

4. WATER CONSERVATION SAVINGS PROJECTIONS

The purpose of this section is to document the conservation savings projections for each BAWSCA member agency and for the BAWSCA region as a whole. This section describes the conservation analysis methodology and results.

4.1 Conservation Analysis Goals and Objectives

The Project included two goals related to water conservation: (1) to define how much conservation can reasonably contribute to more supply reliability for all BAWSCA member agencies and (2) to incorporate projected conservation savings into the demand projections for each agency. Pursuant to this goal, the specific objectives of the conservation analysis for the Project were:

- Assist BAWSCA member agencies in evaluating the potential water savings and cost-effectiveness associated with implementing a variety of existing and potential new water conservation measures;
- Determine the projected water savings from 2015 through 2040 associated with implementing a selected suite of new conservation measures;
- Determine which entity (e.g., BAWSCA, the member agencies, or SCVWD) should implement each conservation measure or program, and when the program should be implemented in order to achieve the specified water savings goals.

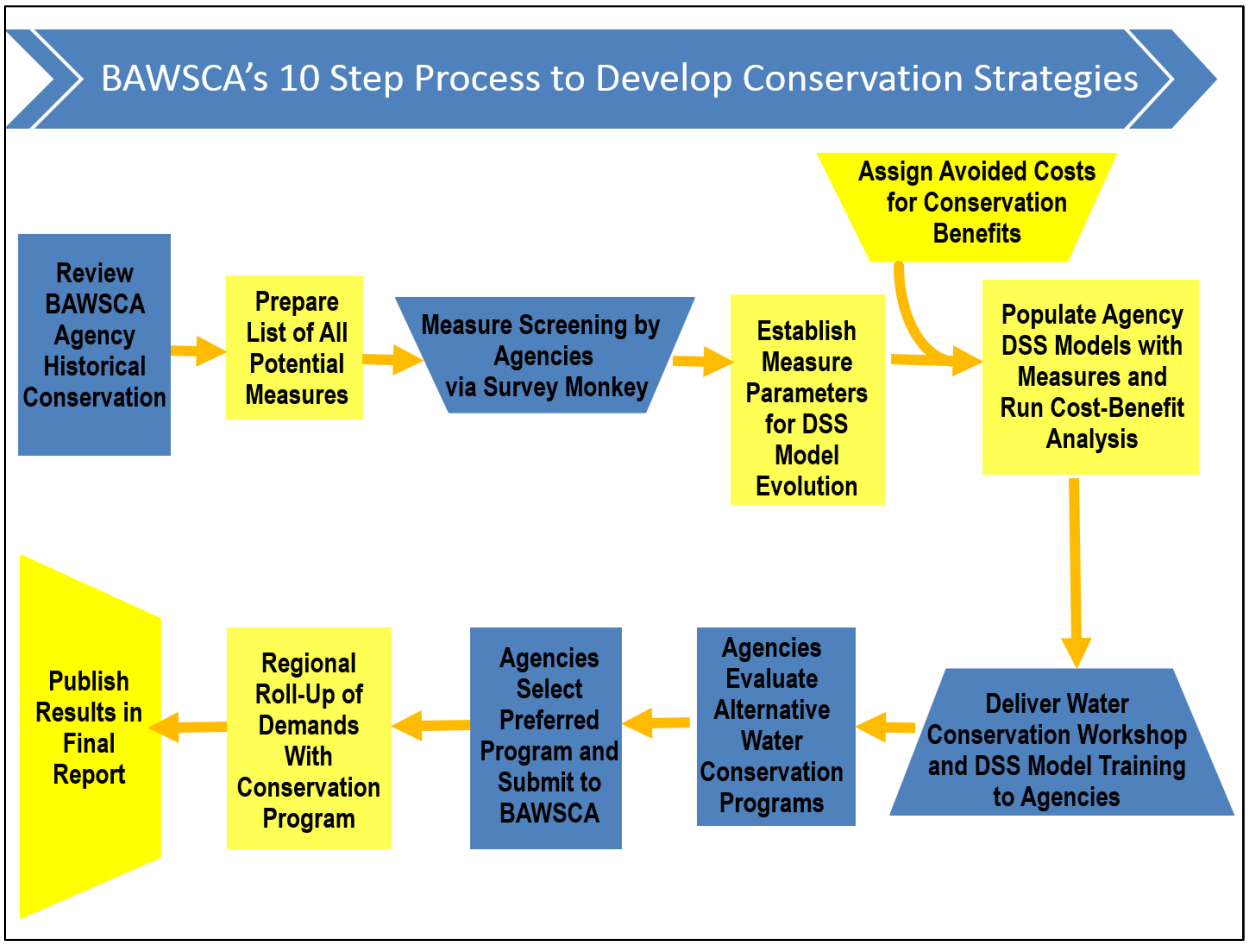
To develop demand forecasts for each agency that account for conservation from both passive (future code and standards) and active conservation programs, the individual agency DSS Models were designed to (1) account for passive conservation savings projected through 2040 and (2) analyze potential savings from a variety of water use efficiency measures to facilitate the development of individual agency conservation savings estimates through 2040.

Each BAWSCA member agency's individual conservation water savings goal was provided by the agency during the data collection process described in Section 2. The basis for the individual agency goals varied from board adopted policies to SB X7-7 targets to CUWCC compliance. An explanation of BAWSCA member agency conservation target setting process and goals can be found in Appendix D.

4.1.1 Conservation Analysis Methodology

The conservation savings projections were developed through a 10-step process presented in Figure 6 and described below.

Figure 6. BAWSCA 10 Step Process to Completing Conservation Analysis



Review of Historical BAWSCA Member Agency Conservation Programs and Savings

The first step in the conservation analysis was to review historical BAWSCA member agency water conservation and savings. The purpose of this review was to look at historically successful programs, past penetration rates (activity levels) for individual measures, and the types of programs that were implemented (and for which customers – single family, multi family, commercial, etc.) by each of the agencies since the 2009 WCIP Plan. This information was reviewed on a regional and individual agency level. The participation rates were incorporated into the design of each of the 25 conservation measure activity levels in the DSS Model analysis.

Selection of Conservation Measures for Analysis

Following the review of the historical conservation efforts, a list of 46 potential conservation measures was provided to BAWSCA and the member agencies to be considered for further evaluation in the DSS Model. This list of measures was then screened by BAWSCA and the member agencies to: (1) identify those measures with the highest level of interest and potential for implementation within the BAWSCA service area and (2) identify which entity (BAWSCA, SCVWD, or individual agencies) would be best suited to implement each measure. The screening process and results are described in Appendix A and Appendix B. Through this process, a total of 25 measures were selected for analysis in the individual agency DSS models. The measures that were incorporated into the DSS Models are presented in Table 2.

Table 2. Water Use Efficiency Measure Descriptions

Measure Name	Description
Water Loss Control Program	Maintain a thorough annual accounting of water production, sales by customer class and quantity of water produced but not sold (non-revenue water). In conjunction with system accounting, include audits that identify and quantify known legitimate uses of non-revenue water in order to determine remaining potential for reducing water losses. Goal is to lower the Infrastructure Leakage Index (ILI) and non-revenue water every year by a pre-determined amount based on cost-effectiveness. These programs typically pay for themselves based on savings in operational costs (and saved rate revenue can be directed more to system repairs/replacement and other costs). Specific goals and methods to be developed by Utility. May include accelerated main and service line replacement. Enhanced real loss reduction may include more ambitious main replacement and active leak detection. Capture water from water main flushing and hydrant flow testing for reuse.
Metering with Advanced Metering Infrastructure (AMI) benefits to Conservation	Retrofit system with AMI meters and associated network capable of providing continuous consumption data to Utility offices. Improved identification of system and customer leaks is major conservation benefit. Some of costs of these systems are offset by operational efficiencies and reduced staffing, as regular meter reading and those for opening and closing accounts are accomplished without need for physical or drive-by meter reading. Also enables enhanced billing options and ability to monitor unauthorized usage (such as use/tampering with closed accounts or irrigation if time of day or days per week are regulated). Customer service is improved as staff can quickly access continuous usage records to address customer inquiries. Optional features include online customer access to their usage, which has been shown to improve accountability and reduce water use. A ten year change-out would be a reasonable objective. Require that new customers install such AMI meters as described above and possibly purchase means of viewing daily consumption inside their home/business either through the Internet (if available) or separate device. The AMI system would, on demand, indicate to the customer and Utility where and how their water is used, facilitating water use reduction and prompt leak identification. This would require Utility to install an AMI system. Require that larger or irrigation customers install such AMI meters as described above and possibly purchase means of viewing daily consumption by landscape/property managers, or business either through the Internet (if available) or separate device. The AMI system would, on demand, indicate to the customer and Utility where and how their water is used, facilitating water use reduction and prompt leak identification. This would require Utility to install an AMI system.
Mobile Home Park and New and Existing Residential Multi-Family (RMF) Submetering	Require or provide a partial cost rebate to meter all remaining mobile home parks that are currently master metered but not separately metered. Pattern after SCVWD program. Provide a rebate (per unit) to assist RMF building owners installing submeters on each existing individual apartment or condominium unit. Provide a rebate (per unit) to assist MF building owners installing submeters on each new individual apartment unit. Require the submetering of individual units in new multi-family, condos, townhouses, and mobile-home parks.

Measure Name	Description
Conservation Pricing (incremental behavioral change – most savings counted as device changes)	Consider revising Utility's tiered rates or seasonal pricing for other customer classes. Some utilities utilize percentages of average winter usage as the basis for individualized summer tiers. MF Residential tiers could be based on number of housing units served by meters. This measure would require a rate study and advanced billing system capabilities. Consider developing a separate billing category for individually metered apartments and multi-family residences.
Agency Public Information & Program Administration (added to BAWSCA)	Continue with a regional campaign. May modify to be a general "Use Only What You Need" message like Denver Water's program or a "Beat the Peak" message media campaign like Cary, North Carolina or Tucson Arizona: http://cms3.tucsonaz.gov/water/beatthepeak. Also considered a program with focused action like: "Take Control of your Controller" Campaign for a focused social media based campaign as a media campaign. Consider determining appropriate usage and media campaign message with marketing study/focus groups. Utility would sponsor bilingual training for managers and workers in landscape maintenance methods that will save irrigation water. Model after Green Gardener Program. Santa Barbara County Water Agency example: http://www.greengardener.org. With some of these programs, names of businesses that have obtained training are included in Utility publications and/or Web sites (as an incentive to participate).
Home Water Use Reports	Home Water Use Reports would provide insights for single family home customers on their water use compared to similar households and promote customer programs.
School Education	School assembly program, classroom presentations, and other options for school education. Measure based on the Resource Action Program WaterWise School Program.
Single Family and MF Water Surveys	Indoor water surveys for existing single family residential customers. Target those with high water use and provide a customized report to owner. May include give-away of efficient shower heads, aerators, and toilet devices. Usually combined with outdoor surveys (See Irrigation Measures). Indoor water surveys for existing MF residential customers (2 units or more). Target those with high water use and provided a customized report to owner. Usually combined with outdoor surveys (see Irrigation Measures) and sometimes with single family surveys. Customer leaks can go uncorrected at properties where owners are least able to pay costs of repair. These programs may require that customer leaks be repaired, but either subsidize part of the repair and/or pay the cost with revolving funds that are paid back with water bills over time. May also include an option to replace inefficient plumbing fixtures at low-income residences. Provide incentive to install pressure regulating valve on existing properties with pressure exceeding 80 psi.
Water Sense Fixtures Giveaway	Utility would buy showerheads and faucet aerators in bulk and give them away at Utility office or community events. Need to coordinate this program with the School Education measure on retrofit kit giveaways to the same customer categories.
High Efficiency (HE) Clothes Washer SF MF Rebate	Provide a rebate for efficient washing machines to single family homes and apartment complexes that have common laundry rooms. It is assumed that the rebates would remain consistent with relevant state and federal regulations (Department of Energy, Energy Star) and only offer the best available technology. This program would be similar the BAWSCA's current program.
Ultra-High-Efficiency Toilet (UHET) SF/MF Rebates	Provide a rebate or voucher for the installation of an UHET. (Toilets flushing 1.28 gpf or less and include dual flush technology). Rebate amounts would reflect the incremental purchase cost.

Measure Name	Description
"Lawn Be Gone" SF Landscape Conversion/Turf Removal	Provide a per square foot incentive for to remove turf and replace with low water use plants or permeable hardscape. Rebate based on dollars per square foot removed, and capped at an upper limit for single family residence.
Weather Based Irrigation Controllers (WBICs) Giveaway Program (and Classes) SF	Provide a per station rebate (i.e., $25 per station) for the purchase of a weather based irrigation controller. These controllers have on-site weather sensors or rely on a signal from a central weather station that modifies irrigation times at least weekly. Requires local irrigation contractors who are competent with these products, so may require sponsoring a training program in association with this measure.
Small Irrigation Hardware Incentives (Drip Irrigation and Rain Sensors)	Provide a rebate or free rain sensor shut-off device for existing irrigation controllers. These cancel scheduled sprinkling when sufficient rain has been received. This measure is most effective in areas with intermittent rain in peak watering seasons. Require installation of rain sensor shut-off devices when installing new irrigation systems. Offer drip conversion kits (RainBird 1800 Retro). Potentially model after Western MWD's pilot.
Gray Water Retrofits SF Rebate	Provide a rebate to assist a certain percentage of single family homeowners per year to install gray water systems.
Water Conserving Landscape & Codes (not including WBICs and turf removal) SF MF CII	Develop and enforce Water Efficient Landscape Design Standards. Standards specify that development projects subject to design review be landscaped according to climate appropriate principals, with appropriate turf ratios, plant selection, efficient irrigation systems and smart irrigation controllers. There are many examples that have demonstrated significant water savings. The ordinance could require certification of landscape professionals.
Customized Top Users Survey & Incentive Program & CII Rebates for Inefficient Equipment	Top water customers from each category would be offered a professional water survey that would evaluate ways for the business to save water and money. The surveys would be for large accounts (such as, accounts that use more than 5,000 gallons of water per day) such as hotels, restaurants, stores and schools. Emphasis will be on supporting the top users for each customer category. After the free water use survey has been completed at site, the Utility will analyze the recommendations on the findings report that is provided and determine if site qualifies for a financial incentive. Financial incentives will be provided after analyzing the cost benefit ratio of each proposed project. Incentives are tailored to each individual site as each site has varying water savings potentials. Incentives will be granted at the sole discretion of the Utility while funding lasts. Program to provide rebates for a standard list of water efficient equipment. Included would be x-ray machines, icemakers, air-cooled ice machines, steamers, washers, spray valves, efficient dishwashers, replace once through cooling, and add conductivity controller on cooling towers. Pattern after Southern Nevada Water Authority, East Bay Municipal Utilities District (EBMUD) or Seattle Water Department programs.
HE Clothes Washer CII Rebate	Provide a rebate for the installation of a high efficiency commercial washer (HEW). Rebate amounts would reflect the incremental purchase cost. Program will be shorter lived as it is intended to be a market transformation measure and eventually would be stopped as efficient units reach saturation.
HET CII Rebates	Provide a rebate or voucher for the installation of a high efficiency toilet (HET). Toilets flushing 1.28 gpf or less and include dual flush technology. Rebate amounts would reflect the incremental purchase cost.

Measure Name	Description
HE Urinal CII Rebates	Provide a rebate or voucher for the installation of a high efficiency urinals. WaterSense standard is 0.5 gpf or less, though models flushing as low as 0.125 gpf (1 pint) are available and function well, so could be specified. Rebate amounts would reflect the incremental purchase cost about $300.
Focused School Retrofit Program	School retrofit program wherein school receives a grant to replace fixtures and upgrade irrigation systems. Consider patterning after other programs. One example is EBMUD's program.
Outdoor Water Audit – Large Landscape	Outdoor water audits offered for existing large landscape customers. Normally those with high water use are targeted and provided a customized report on how to save water. All large multi-family residential, CII, and public irrigators of large landscapes would be eligible for free landscape water audits upon request. Tied to the WaterFluence Budget Program.
Landscape Water Budgets/Monitoring- Large Landscape Dedicated Meters & Mixed Use Conversion	Website that provides feedback on irrigation water use (budget vs. actual). Current WaterFluence Program. May include the cost for dedicated meter conversion.
"Lawn Be Gone" MF CII Large Landscape Landscape Conversion/Turf Removal	Provide a per square foot incentive for to remove turf and replace with low water use plants or hardscape. Rebate is based on price per square foot removed, and capped at an upper limit for multi-family or commercial residence.
WBICs Incentive Program (more money) MF CII Large Landscape	Provide a per station rebate (i.e. $25 per station) for the purchase of a weather based irrigation controller. These controllers have on-site weather sensors or rely on a signal from a central weather station that modifies irrigation times at least weekly. Requires local irrigation contractors who are competent with these products, so may require sponsoring a training program in association with this measure.
Rotating Sprinkler Nozzle Incentive Program SF MF CII Large Landscape	Provide rebates to replace standard spray sprinkler nozzles with rotating nozzles that have lower application rates. Nozzles cost about $6 and rebates have been on the order of $4 with a minimum purchase of about 20 nozzles. Current SCVWD program.

Conservation Measure Design

Following the selection of the 25 conservation measures for the DSS Model, design parameters for each measure were developed for inclusion in the model. The design parameters were developed through a collaborative effort in which information was compiled and reviewed by a Conservation Subcommittee which consisted of participants from Project Team, BAWSCA, SCVWD, and individual agencies.

The design parameters for each conservation measure included the following:

- Voluntary, incentive or required of customers (ordinance)
- Applicable and specific customer classes
- Applicable and specific end uses
- Market penetration annually and by the end of the measure (and if only new accounts were affected)
- Water use reductions for targeted end uses
- Program implementation length
- Measure life (how long the measure affects water savings – some permanently)
- Hot water savings
- Utility costs and customer costs by customer category
- Annual utility administration and marketing costs per measure
- Number of fixtures or units per account

The following assumptions were used in designing the model parameters for each conservation measure:

- Historical BAWSCA data were used in cases when the measure was already in existence.
- SCVWD data were used to design BAWSCA-led measures in cases where SCVWD is a currently running a comparable measure.
- Design of individual "agency measures" and their parameter values came from a Conservation Subcommittee of BAWSCA member agencies.
- Other industry data and knowledge was incorporated when local data was not available.
- New measures were designed with an implementation schedule reflecting dates sometime in the future when BAWSCA member agencies or BAWSCA might begin such programs.

Measure Analysis and Conservation Program Selection

The 25 conservation measures were incorporated into each agency's DSS Model for cost-benefit analysis (described below) and selection of a conservation program to meet the agency's goals. Included in each agency's DSS Model was a list of measures in each of three alternative conservation programs (Programs A, B, and C), which were designed to illustrate a range of various measure combinations and resulting water savings. Four key items were taken into consideration during measure selection for Programs A, B and C:

- Existing agency water use efficiency measures;
- Programs run by BAWSCA (with consideration for SCVWD programs);
- Measures focused on Programmatic BMP defined by the CUWCCs Memorandum of Understanding if the individual agency had reported on a measure ; and
- New and innovative measures.

These programs are not intended to be rigid frameworks but rather to demonstrate the range in savings that could be generated if selected measures were run together. For many of the BAWSCA member agencies, the three Program scenarios are organized as follows:

- **Program A**: "Existing Program" option includes the measures that the agency currently offers.
- **Program B**: "Enhanced Program" includes all measures in Program A plus those additional measures that are both cost-effective and save significant amounts of water. Key benchmarks for the proposed strategies include: 1) cost-effectiveness, 2) compliance with CUWCC's BMPs, 3) ability to help achieve water use reduction targets by 2020 (SBX7-7) if applicable for the individual agency, and 4) feedback from BAWSCA member agency customers.
- **Program C**: "All Measures Analyzed" presents a scenario where all 25 measures are implemented. Though it is unlikely that a member agency would elect to implement all the measures, this program offers the opportunity to explore what the water savings (and costs) would potentially be should such an extensive conservation program be pursued.

Each BAWSCA member agency's DSS Model presented estimated average per capita per day savings with the plumbing codes only, and each of the alternative programs (Program A, B, and C). Plumbing code includes current state and federal standards (including CalGreen, Senate Bill 407 and Assembly Bill 715) for items such as toilets, showerheads, faucets, pre-rinse spray valves. SB 407 and AB 715 require the replacement of non-water conserving plumbing fixtures with water-conserving fixtures.

Each BAWSCA member agency was provided a copy of its DSS Model to review the conservation program options, tailor the programs to meet its needs, and select the program that fit its individual water savings goals and budgets. The reasons that each member agency selected a particular suite of measures varied and included:

- Measure cost-effectiveness to agency
- Applicability to service area
- Amount of water savings generated
- Cost to agency
- Ease of implementation for agency and staffing required
- Whether the measure was being run by BAWSCA or SCVWD
- Local preferences

4.1.2 Perspectives on Benefits and Costs

The determination of the economic feasibility of water use efficiency programs involves comparing the costs of the programs to the benefits provided. This cost effectiveness analysis was performed by using the DSS Model. The DSS Model calculates savings at the end-use level; for example, the model determines the amount of water a toilet rebate program saves in daily toilet use for each single family account. Additional detail on the DSS Model and assumptions can be found in Appendix E and the DSS Model User Manual.

Appendix F presents generic starting value measure assumptions used as means for each agency to tailor its DSS Model to evaluate the potential water use efficiency measures. BAWSCA member agencies had the option to select or unselect any measure for implementation. Assumptions were made for the following variables incorporated into the DSS Model. Each member agency then updated the measures in its individual DSS Model as appropriate to reflect its own customer base and program needs.

- **Targeted Water User Group End Use:** Water user group (e.g., single-family residential) and end use (e.g., indoor or outdoor water use).
- **Utility Unit Cost:** Cost of rebates, incentives, and contractors hired by BAWSCA and BAWSCA member agencies to implement measures.
- **Retail Customer Unit Cost:** Cost for implementing measures that is paid by retail customers (i.e., remainder of a measure's cost that is not covered by a rebate or incentive).
- **Utility Administration and Marketing Cost:** The cost to the utility for staff time, general expenses and overhead needed to implement and administer the measure, including consultant contract administration,

marketing, and participant tracking. The unit costs vary greatly according to the type of customer and implementation method. For example, a measure might cost a different amount for a single-family account than a multi-family account. Rebate program costs are different than costs to develop and enforce an ordinance requirement or a direct installation program. Typically, water utilities incur increased costs with achieving higher market saturation, such as more surveys per year. The model calculates the annual costs based on the number of participants each year. The general formula for calculating annual utility costs is:

Annual Utility Cost = Annual market penetration rate x total accounts in category x unit cost per account x (1+administration and marketing markup percentage)

Annual Customer Cost = Annual number of participants x unit customer cost

Annual Community Cost = Annual utility cost + annual customer cost

4.2 Comparison of Individual Conservation Measures

The cost-effectiveness of each individual water use efficiency measure without the interaction or overlap from other measures that might address the same end use(s) can be found in each BAWSCA member agency's DSS Model. Cost-effectiveness is calculated by evaluating how much water the measures would save by the year 2040, how much they would cost, and the cost of water saved per unit volume if the measures were implemented on a stand-alone basis without interaction or overlap from other measures that might address the same end use(s). Savings from measures which address the same end use(s) are not directly additive. The model uses impact factors to avoid double counting in estimating the water savings from programs of measures. For example, if two measures are planned to address the same end use and both save 10% of the prior water use, then the net effect is not the simple sum (20%). Rather it is the cumulative impact of the first measure reducing the use to 90% of what it was without the first measure in place and then reducing the use another 10% to result in the use being 81% of what it was originally. In this example the net savings is 19%, not 20%. Using impact factors, the model computes the reduction as follows: 0.9 x 0.9 = 0.81 or 19% water savings.

Cost categories are defined below:

- **Utility Costs:** Those costs that a BAWSCA member agency would incur to operate the conservation program measure, including administrative costs.
- **Utility Benefits:** The avoided cost of producing water at an identified rate specified in a BAWSCA member agency's DSS Model; equivalent to their average cost of water for the period from 2013 to 2040. Note that the actual avoided cost of water could be much higher; equivalent to the highest cost of alternative water supplies.

Relevant definitions to the conservation measure analysis are as follows:

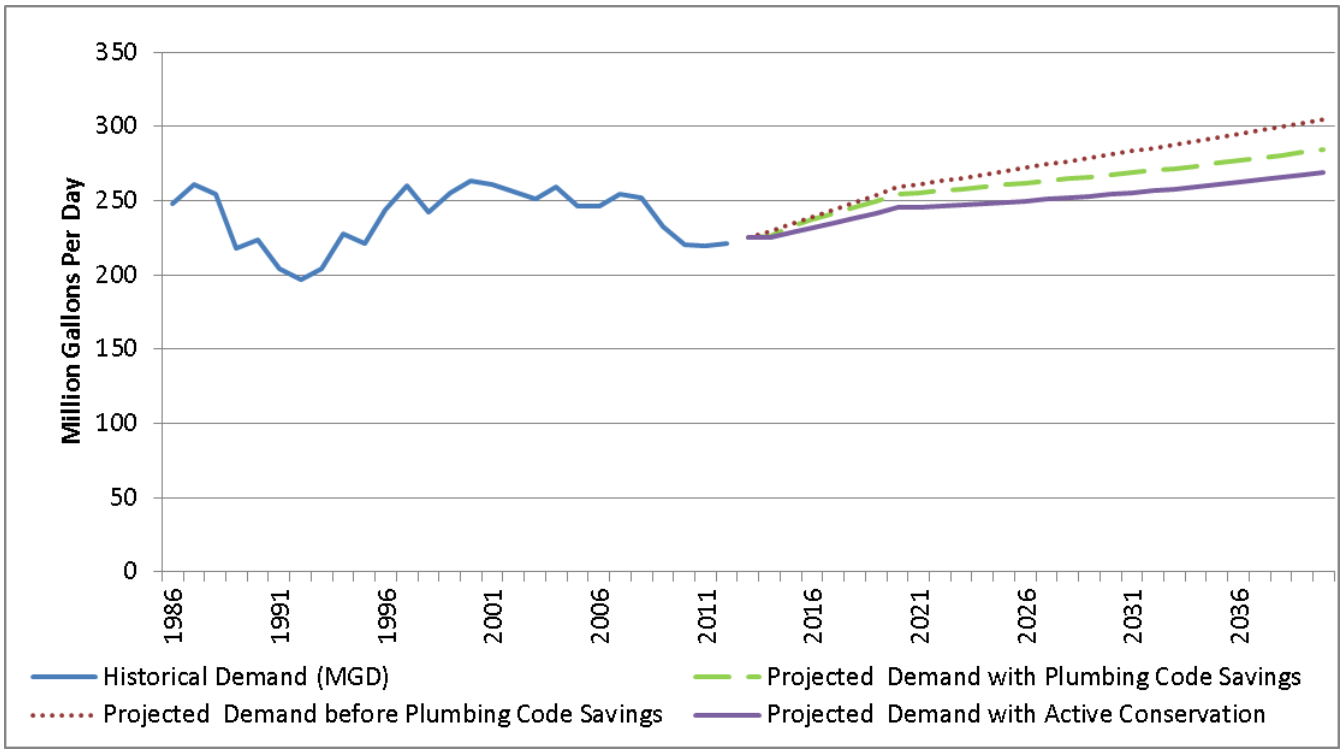
- **Present Value (PV) of Utility Costs and Benefits ($) =** the present value of the 27-year time stream of annual costs or benefits (2013 to 2040), discounted to the base year.
- **Utility Benefit to Cost Ratio =** PV of Utility Benefits divided by PV of Utility Costs.
- **Cost of Water Saved per Unit Volume ($/AF) =** PV of Water Utility Costs over 27 years divided by the 27-Year Volume of Water Savings. This value is compared to the utility's avoided cost of water as one indicator of the cost effectiveness of water use efficiency efforts. It should be noted that the value somewhat undervalues the cost of water saved because program costs are discounted to present value and the annual water savings are not.

4.3 Conservation Savings Results

The following demand scenarios were analyzed: (1) BAWSCA-regional water demand projections with no plumbing code savings; and (2) BAWSCA regional water demand projections with plumbing code savings; and (3) BAWSCA regional water demand projections with the plumbing code savings and BAWSCA member agency-selected active conservation measure savings.

Figure 7 presents the combined BAWSCA region-wide water demand projections for each of the three scenarios. Total water demand is defined as total water consumption plus unaccounted-for water. Water consumption is defined as water delivered to individual customers for use.

Figure 7. BAWSCA Region Wide Baseline Demands with Active Conservation Savings to 2040



One of the objectives of the Project was to identify conservation measures for further consideration for BAWSCA regional implementation. Table 3 presents the number of BAWSCA member agencies that selected each measure as part of their planned conservation programs.

Table 3. BAWSCA Planned Conservation Measure Implementation

Measure Name	No. of Agencies Planning to Implement	Preferred Lead: Individual Agency or BAWSCA	For BAWSCA-Led Measures: Existing or Potential New[a]
Water Loss Control Program	23	Agency	
Metering with Advanced Metering Infrastructure (AMI) benefits to Conservation	11	Agency	
Mobile Home Park and New and Existing MF Submetering	4	Agency	
Conservation Pricing (incremental behavioral change – most savings counted as device changes)	18	Agency	
Agency Public Information & Program Administration (added to BAWSCA)	27	BAWSCA	Existing
Home Water Use Reports	13	BAWSCA	Potential New[b]
School Education	16	BAWSCA	Existing
Single Family and MF Water Surveys	21	Agency	
Water Sense Fixtures Giveaway	23	BAWSCA	Potential New
High Efficiency (HE) Clothes Washer SF MF Rebate	25	BAWSCA	Existing
Ultra-High-Efficiency Toilet (UHET) SF/MF Rebates	25	BAWSCA	Existing
"Lawn Be Gone" SF Landscape Conversion/Turf Removal	15	BAWSCA	Existing
Weather Based Irrigation Controllers (WBICs) Giveaway Program (and Classes) SF	9	BAWSCA	Potential New
Small Irrigation Hardware Incentives (Drip Irrigation and Rain Sensors)	11	BAWSCA	Potential New
Gray Water Retrofits SF Rebate	11	BAWSCA	Potential New
Water Conserving Landscape & Codes (not including WBICs and turf removal) SF MF CII	13	BAWSCA	Potential New
Customized Top Users Survey & Incentive Program & CII Rebates for Inefficient Equipment	10	Agency	
HE Clothes Washer CII Rebate	13	BAWSCA	Potential New
HET CII Rebates	24	BAWSCA	Existing
HE Urinal CII Rebates	12	BAWSCA	Potential New
Focused School Retrofit Program	5	BAWSCA	Potential New
Outdoor Water Audit – Large Landscape	15	BAWSCA	Existing[c]
Landscape Water Budgets/Monitoring- Large Landscape Dedicated Meters & Mixed Use Conversion	12	BAWSCA	Existing[c]
"Lawn Be Gone" MF CII Large Landscape Landscape Conversion/Turf Removal	15	BAWSCA	Existing
WBICs Incentive Program (more money) MF CII Large Landscape	10	BAWSCA	Potential New
Rotating Sprinkler Nozzle Incentive Program SF MF CII Large Landscape	12	BAWSCA	Potential New

(a) For individual agency measures, current or potential future implementation of each varies by agency; therefore, this information was not included in the above table.
(b) Home Water Use Reports program to begin Summer 2014.
(c) Elements of WaterFluence Large Landscape Program.

4.4 Agency Input and Review

As part of this Project's collaborative approach, an initial webinar was held to facilitate the selection of conservation measures for analysis in the DSS Model, followed by two surveys conducted in April 2013 and December 2013 to solicit feedback on which conservation measures BAWSCA member agencies wanted to consider as part of the DSS Model's conservation analysis.

A Conservation Workshop was held on May 19, 2014 to facilitate BAWSCA member agency understanding of and involvement in the conservation program analysis in the DSS Model. During this five hour workshop, each BAWSCA member agency was provided a copy of its model and received instruction on how to make adjustment to the conservation measures and program options.

Following the Conservation Workshop, BAWSCA member agencies were provided an opportunity to review the preliminary conservation analysis results and to incorporate additional conservation program information into the model. Some agencies elected to modify their model with BAWSCA representatives. Following agency review, each agency submitted a revised model with its selected conservation program to the Project team for final review. The conservation savings associated with the selected program were then used to develop each agency's demand projections with active conservation savings.

DEVELOPMENT OF REGIONAL WATER DEMAND AND CONSERVATION PROJECTIONS FINAL REPORT

5. PROJECTED WATER DEMAND AND CONSERVATION SAVINGS RESULTS

5.1 Introduction

The purpose of this section is to present the results of the water demand and conservation savings projections for each individual BAWSCA member agency and for the BAWSCA region as a whole. This section describes the conservation analysis results.

5.2 BAWSCA Regional Demand Projections

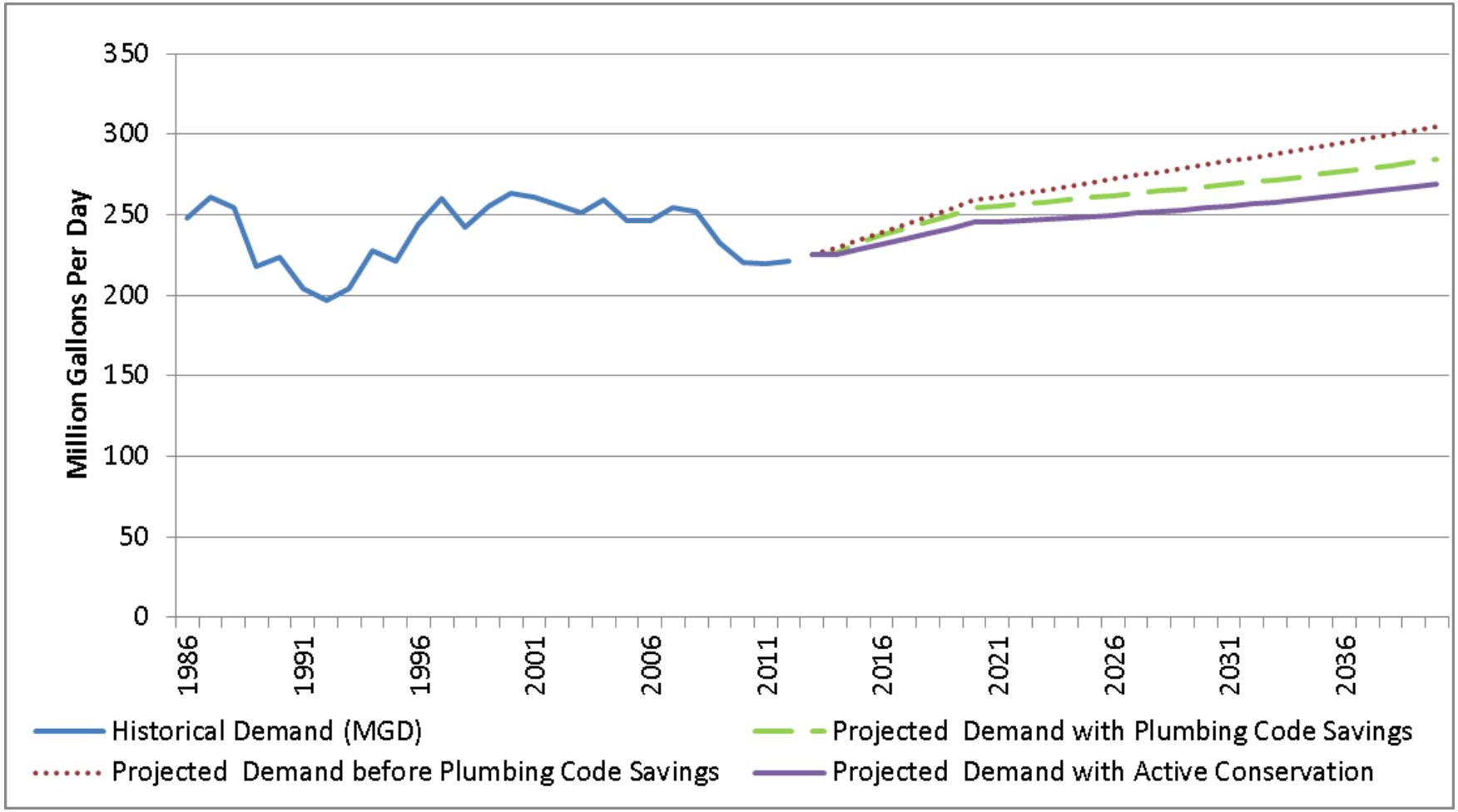
The following demand scenarios were analyzed: (1) BAWSCA-regional water demand projections with no plumbing code savings; (2) BAWSCA regional water demand projections with plumbing code savings; and (3) BAWSCA regional water demand projections with the plumbing code savings and BAWSCA member agency-selected active conservation measure savings. Table 4 presents the total BAWSCA service area projections for each of the three scenarios, and the following figure shows the total water demand for each scenario.

Table 4. Regional Demand Projections

Demand Forecast	2015	2020	2025	2030	2035	2040
Total Water Demand with No Plumbing Code Savings* (MGD)	233.9	259.3	269.8	281.1	292.3	304.5
Total Water Demand With Plumbing Code Savings* (MGD)	232.6	254.4	260.6	267.4	275.1	284.3
Total Water Demand With Active Conservation Measure Savings* (MGD)	228.2	245.3	249.0	254.1	260.7	269.3

*Total Water Demand accounts for all production in the service areas' water systems regardless of source. Source can be from SFPUC, groundwater, surface water, SWP or SCWVD.

Figure 8. BAWSCA Region Wide Demand Projections to 2040



5.3 Population and Employment Projections Summary

Table 5 presents the population projections that were utilized for each agency and BASCWA's region-wide population and employment projections. Table 6 presents the BAWSCA region-wide historical and projected population and employment

Table 5. BAWSCA Member Agency Population Projections

Service Areas	Projection Source	2015	2020	2025	2030	2035	2040
Alameda County Water District	2013 ACWD forecast "Reliability Design" IRP Report"	338,713	350,725	361,570	372,297	385,289	415,637
Brisbane/GVMID	ABAG 2013 Subregional	4,394	4,509	4,632	4,761	4,906	5,056
Burlingame, City of	2010 UWMP	32,993	34,051	35,009	36,051	37,104	39,530
CWS - Bear Gulch District	2010 UWMP	57,733	59,305	60,965	62,719	64,573	66,535
CWS-Mid Peninsula District	2010 UWMP	130,382	134,004	137,824	141,853	146,101	150,580
CWS - South San Francisco District	2010 UWMP	60,581	62,384	64,277	66,265	68,353	70,548
Coastside County Water District	ABAG 2013 Subregional	16,668	16,848	16,873	16,886	18,363	19,840
Daly City, City of	ABAG 2013 Subregional	109,313	112,374	115,671	119,147	123,020	127,028
East Palo Alto, City of	ABAG 2013 Subregional	24,877	26,434	28,048	28,847	29,746	31,151
Estero MID/Foster City	2010 UWMP	37,088	37,924	38,492	38,869	39,223	39,580
Hayward, City of	ABAG 2013 Subregional	150,919	157,655	164,617	171,979	179,916	188,170
Hillsborough, Town of	2010 UWMP	10,869	10,913	10,956	11,000	11,000	11,000
Menlo Park, City of	ABAG 2013 Subregional (modified)*	16,224	16,620	17,052	17,510	18,035	18,569
Mid-Peninsula Water District	ABAG 2013 Subregional	26,924	27,560	28,259	28,793	29,438	30,203
Millbrae, City of	ABAG 2013 Subregional	22,848	24,192	25,571	27,076	28,657	30,294
Milpitas, City of	ABAG 2013 Subregional	73,086	79,614	86,328	93,608	101,167	109,124
Mountain View, City of	Draft GP Subsequent EIR	76,837	79,388	81,938	84,489	87,040	89,591
North Coast County Water District	2010 UWMP	39,800	40,600	41,400	42,000	42,400	42,800
Palo Alto, City of	City of Palo Alto Planning Department	67,135	72,786	72,786	75,883	79,446	83,162
Purissima Hills Water District	BAWSCA WCDB	6,135	6,150	6,165	6,180	6,195	6,220
Redwood City, City of	2010 UWMP	87,696	89,756	91,815	93,875	95,935	97,995
San Bruno, City of	2010 UWMP	45,600	48,600	51,200	53,400	55,800	56,860

Service Areas	Projection Source	2015	2020	2025	2030	2035	2040
San Jose, City of	San Jose 2040 General Plan	26,569	39,884	53,200	66,515	79,830	93,145
Santa Clara, City of	2010 UWMP	125,397	131,732	136,660	141,587	146,917	152,247
Stanford University	Stanford Institutional Research & Decision Support Department	29,653	30,534	31,461	32,439	33,471	34,561
Sunnyvale, City of	ABAG 2013 Subregional	148,355	165,476	174,664	184,309	194,330	194,330
Westborough Water District	2010 UWMP	14,050	14,060	14,040	14,020	14,020	14,020
TOTAL		1,780,839	1,874,077	1,951,474	2,032,356	2,120,273	2,217,775

* Service area population further reviewed and refined at Menlo Park request. Population minor update was made with support of Project Team analysis of census data with input from ABAG which was then reviewed and approved by Menlo Park staff.

Table 6. BAWSCA Region Wide Historical and Projected Population and Employment

Year	Population	Employment (Jobs)
1995*	1,529,829	1,044,179
2000*	1,620,307	1,129,881
2005*	1,655,948	1,064,347
2010*	1,695,292	1,033,325
2015	1,780,839	1,116,305
2020	1,874,077	1,212,341
2025	1,951,474	1,270,387
2030	2,032,356	1,332,664
2035	2,120,273	1,389,873
2040	2,217,775	1,443,835

* Historical population and employment based on BAWSCA records as reported by individual member agencies.

5.4 Individual Agency Water Demands

Tables 7, 8, and 9 present the BAWSCA individual member agency water demand projections through 2040. The tables present the following scenarios:

- Demands before incorporating future passive conservation savings;
- Demands including projected passive conservation savings, and
- Demands including projected passive and active conservation savings.

Table 7. Demand Projections before Passive Conservation Savings (MGD)

Service Areas	2015	2020	2025	2030	2035	2040
Alameda County Water District	46.3	49.8	51.9	53.8	55.3	58.4
Brisbane/GVMID	0.6	0.8	1.0	1.0	1.0	1.0
Burlingame, City of	4.8	5.1	5.3	5.4	5.6	5.9
CWS - Bear Gulch District	12.8	14.5	14.8	15.2	15.6	16.1
CWS - Mid Peninsula District	14.3	15.0	15.4	15.8	16.3	16.8
CWS - South San Francisco District	7.5	8.1	8.4	8.6	8.9	9.1
Coastside County Water District	1.9	1.9	1.9	1.9	2.1	2.2
Daly City, City of	6.5	6.7	6.9	7.1	7.4	7.6
East Palo Alto, City of	1.9	2.1	2.2	2.3	2.4	2.5
Estero MID/Foster City	4.1	4.3	4.4	4.4	4.5	4.6
Hayward, City of	17.6	22.1	23.8	25.2	26.6	28.0
Hillsborough, Town of	3.1	3.3	3.3	3.3	3.3	3.3
Menlo Park, City of	3.2	3.5	3.5	3.5	3.5	3.6
Mid-Peninsula Water District	3.1	3.4	3.5	3.6	3.7	3.7
Millbrae, City of	2.4	2.7	2.8	3.0	3.1	3.3
Milpitas, City of	10.4	11.6	11.5	12.1	12.8	13.5
Mountain View, City of	10.7	11.3	11.8	12.7	13.3	13.8
North Coast County Water District	3.1	3.2	3.3	3.3	3.3	3.4
Palo Alto, City of	12.6	14.6	14.6	15.4	16.2	17.0
Purissima Hills Water District	1.9	1.9	1.9	1.9	1.9	1.9
Redwood City, City of	10.7	12.0	12.2	12.5	12.8	13.1
San Bruno, City of	3.7	4.2	4.6	5.1	5.6	6.1
San Jose, City of	5.9	8.6	10.1	11.3	12.3	13.4
Santa Clara, City of	21.7	22.9	23.5	24.2	25.0	25.8
Stanford University	3.4	3.5	3.7	4.0	4.3	4.6
Sunnyvale, City of	18.9	21.6	22.6	23.6	24.7	25.0
Westborough Water District	0.8	0.9	0.9	0.9	0.9	0.9
TOTAL*	233.9	259.3	269.8	281.1	292.3	304.5

* Total projections account for the total projected water demand in a service area water system regardless of source. Source include: purchases from SF Regional Water System, groundwater, surface water, recycled water, desalination, SWP, or SCVWD.

Table 8. Demand Projections with Passive Conservation Savings (MGD)

Service Areas	2015	2020	2025	2030	2035	2040
Alameda County Water District	46.1	49.0	50.2	51.2	52.1	54.4
Brisbane/GVMID	0.6	0.8	1.0	1.0	1.0	1.0
Burlingame, City of	4.8	4.9	5.0	5.1	5.2	5.4
CWS - Bear Gulch District	12.8	14.3	14.5	14.8	15.1	15.4
CWS - Mid Peninsula District	14.2	14.7	14.8	14.9	15.1	15.4
CWS - South San Francisco District	7.5	8.0	8.1	8.2	8.3	8.5
Coastside County Water District	1.8	1.9	1.9	1.9	1.9	2.0
Daly City, City of	6.4	6.5	6.5	6.5	6.5	6.6
East Palo Alto, City of	1.9	2.1	2.1	2.1	2.2	2.2
Estero MID/Foster City	4.1	4.2	4.2	4.2	4.2	4.2
Hayward, City of	17.6	21.8	23.3	24.4	25.6	26.8
Hillsborough, Town of	3.1	3.2	3.2	3.2	3.2	3.2
Menlo Park, City of	3.2	3.5	3.4	3.4	3.4	3.4
Mid-Peninsula Water District	3.1	3.3	3.3	3.3	3.4	3.4
Millbrae, City of	2.4	2.6	2.7	2.8	2.9	3.0
Milpitas, City of	10.4	11.3	11.1	11.5	11.9	12.5
Mountain View, City of	10.6	11.1	11.4	12.1	12.4	12.8
North Coast County Water District	3.1	3.1	3.1	3.1	3.1	3.1
Palo Alto, City of	12.5	14.3	14.1	14.7	15.3	16.0
Purissima Hills Water District	1.9	1.9	1.9	1.9	1.9	1.9
Redwood City, City of	10.6	11.7	11.7	11.7	11.8	11.9
San Bruno, City of	3.6	4.0	4.4	4.7	5.1	5.5
San Jose, City of	5.8	8.5	9.8	10.9	11.9	12.8
Santa Clara, City of	21.6	22.5	22.8	23.1	23.6	24.2
Stanford University	3.4	3.5	3.7	4.0	4.3	4.6
Sunnyvale, City of	18.8	21.1	21.6	22.2	23.0	23.1
Westborough Water District	0.8	0.8	0.8	0.8	0.8	0.8
TOTAL*	232.6	254.4	260.6	267.4	275.1	284.3

* Total projections account for the total projected water demand in a service area water system regardless of source. Source include: purchases from SF Regional Water System, groundwater, surface water, recycled water, desalination, SWP, or SCVWD.

Table 9. Demand Projections with Passive and Active Conservation Savings (MGD)

Service Areas	2015	2020	2025	2030	2035	2040
Alameda County Water District	45.2	47.2	48.1	49.0	49.8	52.1
Brisbane/GVMID	0.6	0.8	1.0	0.9	0.9	0.9
Burlingame, City of	4.8	4.9	4.9	5.0	5.1	5.3
CWS - Bear Gulch District	12.4	13.6	13.7	13.8	14.0	14.3
CWS - Mid Peninsula District	13.8	14.1	14.1	14.2	14.4	14.7
CWS - South San Francisco District	7.4	7.8	7.9	8.0	8.1	8.3
Coastside County Water District	1.8	1.8	1.8	1.7	1.8	1.9
Daly City, City of	6.4	6.4	6.4	6.3	6.3	6.4
East Palo Alto, City of	1.8	2.0	2.0	2.0	2.1	2.1
Estero MID/Foster City	4.0	4.1	4.0	4.0	4.0	4.0
Hayward, City of	17.5	21.5	22.8	23.6	24.2	25.4
Hillsborough, Town of	3.1	3.1	3.0	3.0	3.0	3.0
Menlo Park, City of	3.1	3.3	3.3	3.2	3.2	3.2
Mid-Peninsula Water District	3.0	3.2	3.2	3.2	3.3	3.3
Millbrae, City of	2.4	2.6	2.7	2.7	2.8	3.0
Milpitas, City of	10.3	11.1	10.7	11.0	11.5	12.0
Mountain View, City of	10.5	10.8	11.0	11.5	11.8	12.2
North Coast County Water District	3.0	3.1	3.1	3.0	3.0	3.0
Palo Alto, City of	12.2	13.7	13.3	13.8	14.4	15.0
Purissima Hills Water District	1.8	1.8	1.8	1.7	1.7	1.7
Redwood City, City of	9.8	10.1	9.6	9.2	9.3	9.4
San Bruno, City of	3.6	3.9	4.2	4.6	5.0	5.3
San Jose, City of	5.8	8.4	9.7	10.8	11.8	12.8
Santa Clara, City of	21.3	21.6	21.7	21.9	22.2	22.7
Stanford University	3.3	3.3	3.5	3.8	4.1	4.3
Sunnyvale, City of	18.4	20.3	20.7	21.2	22.0	22.1
Westborough Water District	0.8	0.8	0.8	0.8	0.8	0.7
TOTAL*	228.2	245.3	249.0	254.1	260.7	269.3

*Total projections account for the total projected water demand in a service area water system regardless of source. Source include: purchases from SF Regional Water System, groundwater, surface water, recycled water, desalination, SWP, or SCVWD.

5.5 Projected Consumption by Customer Class

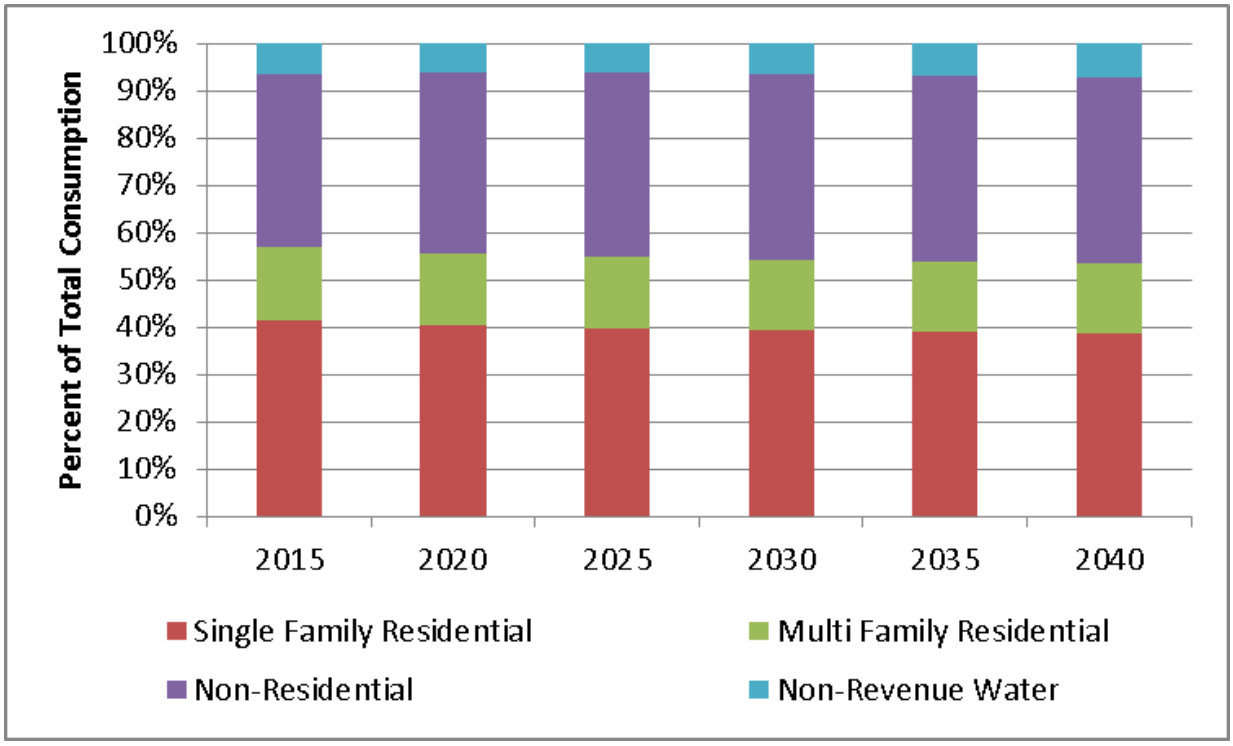
Table 10 and Figure 9 present the BAWSCA region-wide projected water consumption by customer category through 2040.

Table 10 Projected Consumption by Customer Category (MGD)*

Customer Category	2015	2020	2025	2030	2035	2040
Single Family Residential	94.3	98.8	99.2	99.8	101.6	104.4
Multi Family Residential	35.7	37.4	37.6	37.9	38.6	39.5
Non-Residential*	83.1	94.4	97.0	99.8	103.1	106.3
Non-Revenue Water	15.1	14.7	15.2	16.6	17.5	19.0
TOTAL*	228.2	245.3	249.0	254.1	260.7	269.3

*Non-Residential includes commercial, industrial, institutional, public, and other uses.

Figure 9. Projected Consumption By Customer Category



5.6 Next Steps

The demand projections developed through the Project will be used the Final Phase of the Strategy. BAWSCA will work with the member agencies to determine each agency's planned water supply portfolio for meeting its projected water demands in order to identify any new water supply needs. This information will be used in the evaluation of new supply options to meet the water demands of the BAWSCA member agencies through 2040.

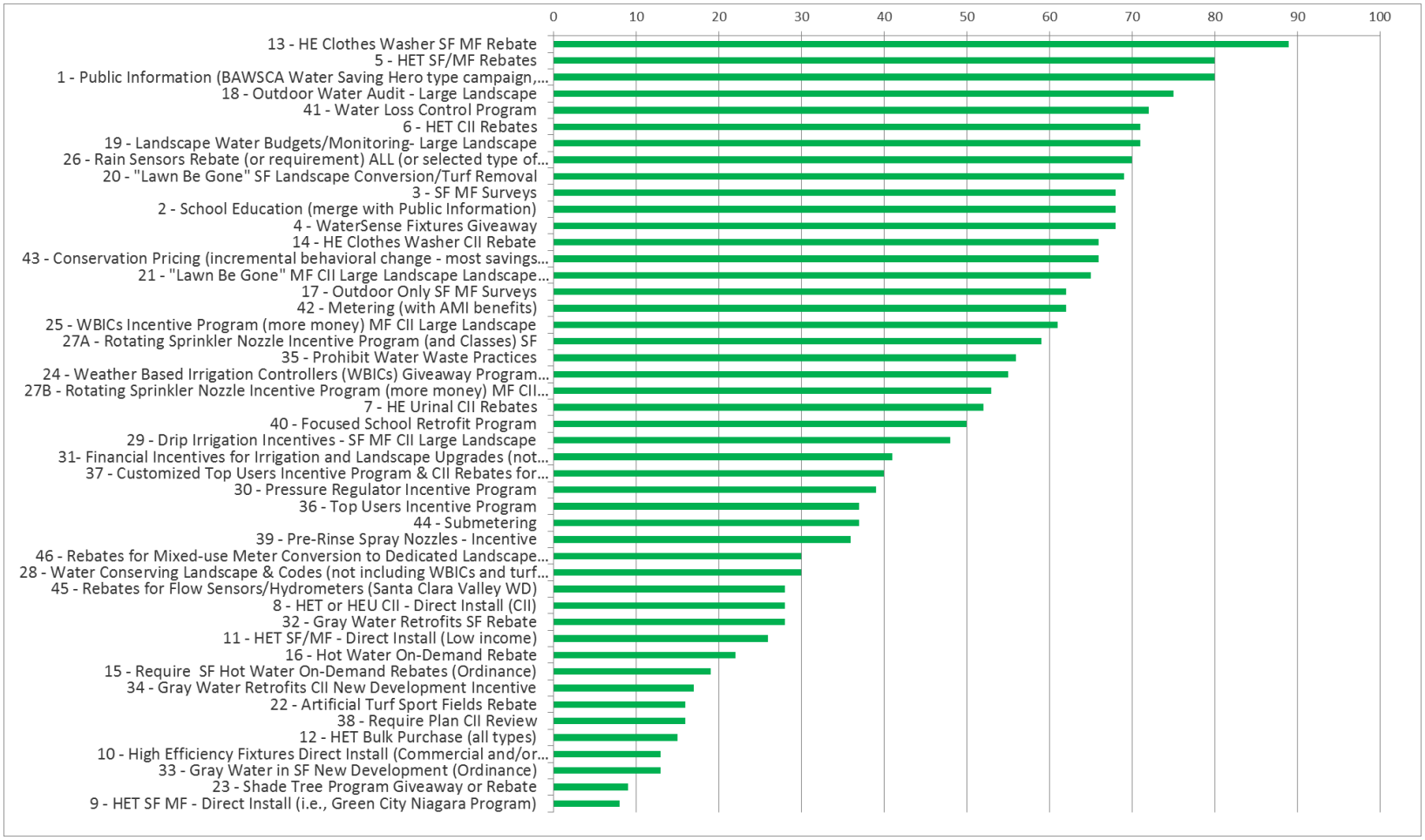
Most of the BAWSCA member agencies are required to prepare UWMPs, which are due to DWR by December 2015. Member agencies may elect to utilize the demand and conservation savings projections developed through this Project in completion of their respective UWMPs. Member agencies may also update these demands for the 2015 UWMPs if necessary to incorporate new information for their respective service areas.

At this point, no formal commitment has been made at the individual agency level to implement the new water conservation measures that were evaluated as part of the Project, or at the BAWSCA level to implement the new conservation programs that were identified for possible regional implementation. BAWSCA will work with the member agencies to further evaluate these programs and to implement new regional programs as appropriate. BAWSCA recognizes that actual implementation of water conservation to achieve the identified water savings goals must be managed in an adaptive fashion, making both small and large program changes as needed over time.

APPENDIX A. CONSERVATION SCREENING GRAPHICS

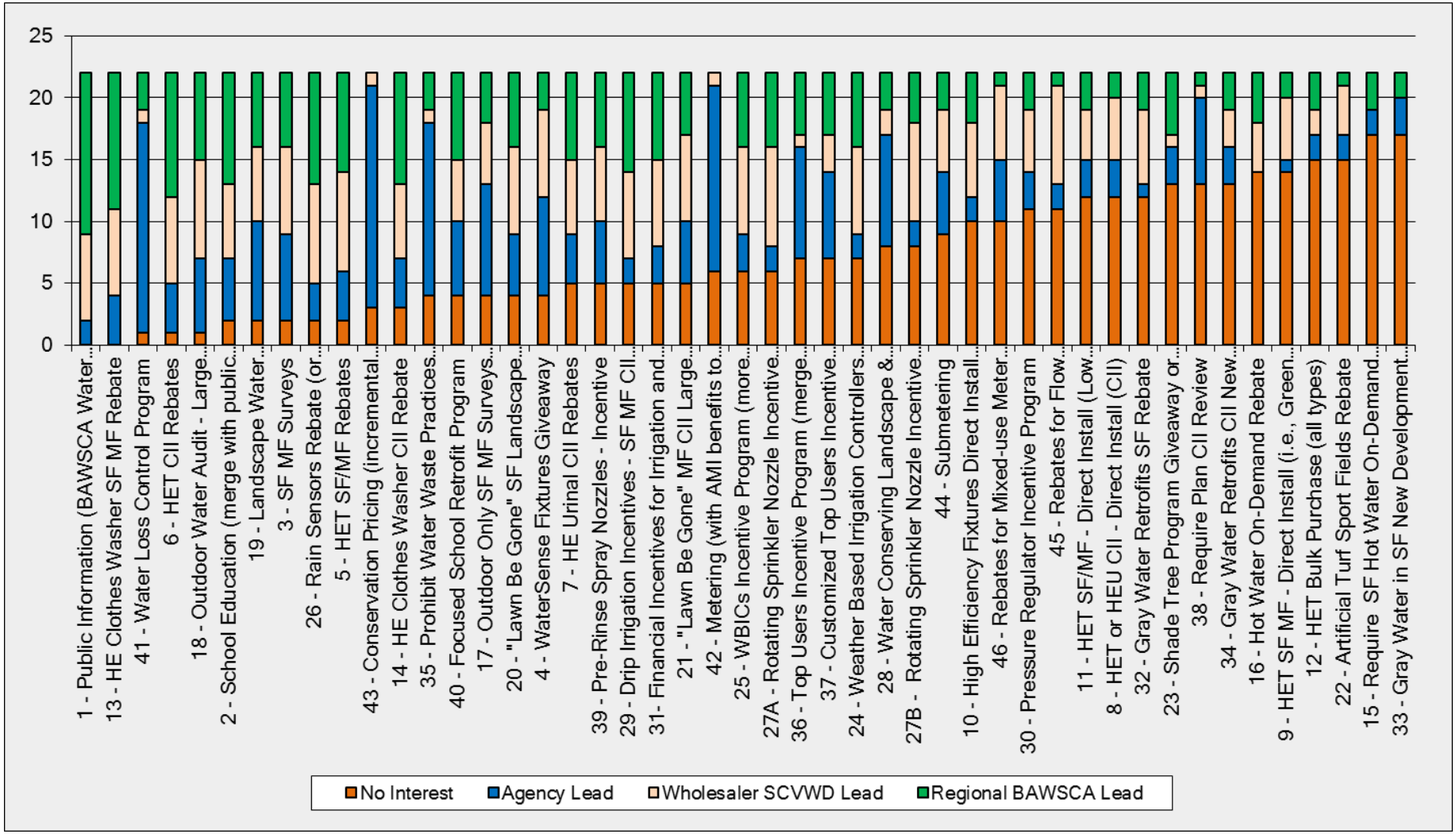
The following graphics present the results of the SurveyMonkey survey that solicited BAWSCA member agency feedback on conservation measures that would be considered in the DSS Model Analysis.

Figure 10. Summary of Online Survey Ranking of Water Use Efficiency Measures



Note: Highest Ranking Measures are Near the Top of the List. Weighted based on 5 points High, 3 points Medium and 1 point Low Interest.

Figure 11. Summary of BAWSCA Member Input on Lead Implementation Agency



Note: Highest ranking (most interested) conservation measures are farthest to the left

APPENDIX B. LIST OF MEASURES SELECTED AND NOT SELECTED FOR COST EFFECTIVENESS ANALYSIS

The following table presents the list of conservation measures selected and not selected for the DSS Model cost-effectiveness analysis.

Table 11. Selected 25 Measures to be Included in the DSS Model for Cost Effectiveness Analysis

Measure Name	Category	BAWSCA Regional or Agency Led	CUWCC BMP No.
Water Loss Control Program	Utility	Agency	1.2
Metering (with AMI benefits to Conservation)	Utility	Agency	1.3
Submetering (retrofit incentive)	Residential	Agency	
Conservation Pricing (incremental behavioral change – most savings counted as device changes)	Utility	Agency	1.4
Public Information & Program Administration (BAWSCA Water Saving Hero type campaign, SCVWD – Save 20 Gallons, Agency Program Expenses not associated with incentives)	Utility	BAWSCA	2.1
School Education (WaterWise Program)	Utility	BAWSCA	2.2
SF MF Surveys	Residential	Agency	3.1
WaterSense Fixtures Giveaway	Residential	Agency	3.1
HE Clothes Washer SF MF Rebate	Residential	BAWSCA	3.3
HET SF/MF Rebates	Residential	BAWSCA	3.4
"Lawn Be Gone" SF Landscape Conversion/Turf Removal	Residential/ Landscape	BAWSCA	Only Flex-Track or GPCD
Weather Based Irrigation Controllers (WBICs) Giveaway Program (and Classes) SF	Residential/ Landscape	BAWSCA	Only Flex-Track or GPCD
Small Irrigation Hardware Incentives (Drip Irrigation and Rain Sensors)	Residential/ Landscape	BAWSCA	Only Flex-Track or GPCD
Gray Water Retrofits SF Rebate	Residential/ Landscape	BAWSCA	Only Flex-Track or GPCD
Water Conserving Landscape & Codes (not including WBICs and turf removal) SF MF CII	Residential/ Landscape	Agency	Code Savings
Customized Top Users Survey & Incentive Program & CII Rebates for Inefficient Equipment	CII	Agency	4 - Savings
HE Clothes Washer CII Rebate	CII	BAWSCA	4 - Savings
HET CII Rebates	CII	BAWSCA	4 - Savings
HE Urinal CII Rebates	CII	BAWSCA	4 - Savings
Focused School Retrofit Program	CII	BAWSCA	4 - Savings
Outdoor Water Audit – Large Landscape	Landscape	BAWSCA	5
Landscape Water Budgets/Monitoring- Large Landscape Dedicated Meters & Mixed Use Conversion	Landscape	BAWSCA	5

Measure Name	Category	BAWSCA Regional or Agency Led	CUWCC BMP No.
"Lawn Be Gone" MF CII Large Landscape Landscape Conversion/Turf Removal	Landscape	BAWSCA	5
WBICs Incentive Program (more money) MF CII Large Landscape	Landscape	BAWSCA	5
Rotating Sprinkler Nozzle Incentive Program SF MF CII Large Landscape	Landscape	BAWSCA	5

Table 12. Measures Considered that were NOT be Included in the DSS Model

Measure Name	Reason for Not Including in DSS Model
Prohibit Water Waste Practices	Include in toolbox but do not model per agency feedback at 12/19/13 meeting
Outdoor Only SF MF Surveys	Include SF MF Surveys in lieu of this measure per agency feedback at 12/19/13 meeting
Top Users Incentive Program	Include SF MF Survey and CII Top Users in lieu of this measure per agency feedback at 12/19/13 meeting
Pre-Rinse Spray Nozzles - Incentive	Exclude per discussion at 12/19/13 meeting
Pressure Regulator Incentive Program	Exclude per discussion at 12/19/13 meeting
Financial Incentives for Irrigation and Landscape Upgrades (not including WBICs and turf removal)	Overlaps with other higher-ranked included measures
Shade Tree Program Giveaway or Rebate	Low Ranking
Submetering (Ordinance)	Low Ranking
Require Plan CII Review	Low Ranking
High Efficiency Fixtures Direct Install (Commercial and/or Government Buildings Only)	Low Ranking
HET SF/MF - Direct Install (Low income)	Low Ranking
Rebates for Mixed-use Meter Conversion to Dedicated Landscape Meter (Santa Clara Valley WD)	Low Ranking
HET Bulk Purchase (all types)	Low Ranking
Require SF Hot Water On-Demand Rebates (Ordinance)	Low Ranking
HET or HEU CII - Direct Install (CII)	Low Ranking
Gray Water in SF New Development (Ordinance)	Low Ranking
Hot Water On-Demand Rebate	Low Ranking
Gray Water Retrofits SF Rebate	Low Ranking
HET SF MF - Direct Install (i.e., Green City Niagara)	Low Ranking
Artificial Turf Sport Fields Rebate	Low Ranking
Rebates for Flow Sensors/Hydrometers (SCVWD)	Low Ranking

APPENDIX C. ECONOMETRIC MODEL DESCRIPTION

Econometric Modeling Framework

Introduction

In the past BAWSCA has relied on projections of population and jobs to predict future baseline water demand. Residential demand was projected by multiplying per household use by population growth and CII demand by multiplying per employee use by projected job growth. These estimates of baseline demand were then converted into estimates of net demand by subtracting likely savings from various plumbing codes and active conservation programs. While the simplicity of this methodology makes it appealing and easy to understand, econometric analysis studying historical data (assuming historical relationships remain valid) can provide helpful information for answering questions such as, how much and at what rate will demand rebound as the economy expands; how much will future price increases continue to depress demand; and, how does demand respond to weather?

To address these questions, we have developed econometric demand models for each agency that aims to estimate the relationship between water demand and its key drivers such as price, economic conditions, and weather. The model estimates the water demands based on the data (independent variables) in Table 13.

Table 13. Independent Variables Evaluated for the Econometric Analysis

Variable Type	Variables	Units	Data Source	Note
Weather	Precipitation	Inches per month	NOAA Weather Data	
Weather	Avg Daily Max Air Temp	Fahrenheit	NOAA Weather Data	
Weather	Avg Air Temp	Fahrenheit	NOAA Weather Data	See note 1
Weather	Min Air Temp	Fahrenheit	NOAA Weather Data	See note 1
Weather	Reference ETo	Inches	Not available for all areas	
Economy	# of Jobs	Jobs per capita	ABAG	See note 2
Economy	Unemployment	Unemployment rate	CA EDD / BLS	
Service Area Housing Mix	SF and MF Units	Dwelling units	DOF	See note 3
Service Area Data	Rates	$/MG	Provided by Agencies	
Service Area Data	Population	People	ABAG or other selected source	
Service Area Data	# Customers	Accounts	Agency billing data	See note 4
Conservation	Conservation savings per year	Million gallons per day	BAWSCA WCDB	

NOTES:
[1]Maximum temperature was a better predictor than average or minimum temperature.
[2]Jobs were collinear with population, thus not a good metric for capturing the state of the economy. The unemployment rate performed better in this regard.

[3]The single-family/multi-family split showed very little variation over time. It was excluded from the models on account of being statistically insignificant.
[4]Number of accounts was collinear with population, thus, excluded from the final models.

Using the independent variables listed above, regression methods were applied to historical data to evaluate alternative model specifications. Based on these analyses, the following best fit equation was developed:

$$Ln(monthly\ GPCD) = \alpha + \beta Trend + \theta Ln(unemployment\ rate) + \delta Ln(marginal\ price) + \vartheta Temperature\ Deviation + \vartheta Rainfall\ Deviation + \pi monthly\ indicators + \varepsilon$$

Where,

Monthly production is measured in gallons per capita per day (GPCD)
α is a scaling constant
Trend is a variable that takes on a value of 0 in the first year, 1 in the second year, and so on
Unemployment rate is captured as an annual percent (for example, 7%)
Marginal price for single-family customers, measured in dollars per hundred cubic feet
Temperature deviation is measured in degrees Fahrenheit (average maximum daily temperature in a given month minus average for the same month between 1995 and 2012)
Rainfall deviation is measured in total inches (total rainfall in a given month minus average total rainfall for same month between 1995 and 2012)
Monthly indicators are binary 0-1 variables, taking on a value of 1 for a given month in question, 0 otherwise
ε denotes random error.

Each independent variable on the right hand side of the equation is preceded by a coefficient (i.e. β, etc.) that measures the strength of the impact of an independent variable on monthly demand (the variable on the left hand side of the equation is also known as the dependent variable). A positive coefficient implies that an increasing independent variable will cause the dependent variable to also increase; a negative coefficient, the opposite. The purpose of model development is both to select the elements of the equation, as well as to estimate each independent variable's coefficient. Continuous variables such as the marginal price and the unemployment rate are logarithmically transformed so that their respective coefficients can be given a proportional interpretation. So, for example, the coefficient on logarithmically transformed marginal price becomes the price elasticity, and so on. The trend variable captures changes in GPCD over time not accounted for by price, unemployment rate, or weather.

Our basic model specification includes several features. First, agency-specific production data are modeled at a monthly, not annual level. The reason for estimating monthly level models is to allow for the impact of weather to vary by time of year. Prior research strongly indicates that abnormal temperature and abnormal rainfall do not have the same effect in January as, say, in May.[1] Working with monthly production data allows one to incorporate time-varying weather effects. Second, temperature and rainfall enter the model as deviations from their respective monthly averages, capturing directly how demand reacts to weather as it deviates from average. Normal seasonality in monthly demand (that is, July demand being much higher than January demand) is captured by the monthly indicator variables.

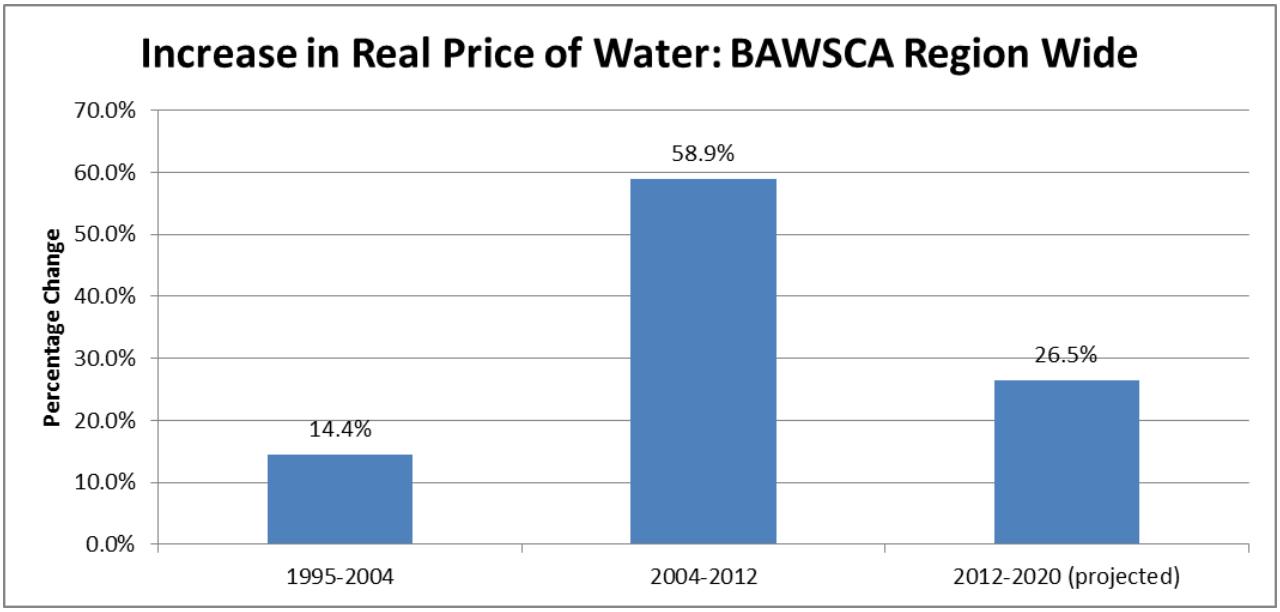
[1] Bamezai, A., *GPCD Weather Normalization Methodology*, final report submitted to the California Urban Water Conservation Council, 2011.

Temperature and rainfall data were obtained from eight NOAA stations throughout the Bay Area. Other stations were also available, but were not useful because either the available histories were too short, or suffered from long interludes of missing data. Weather data were assigned to each retailer from the station closest to it.

Third, economic conditions are captured by the unemployment rate obtained from the Bureau of Labor Statistics and/or California Employment Development Department (EDD). We tested whether including jobs in the model would improve its predictive ability. It did not because trends in population and jobs are very similar over time; the former is already incorporated in monthly GPCD. We also tested whether including metrics to capture changes in the housing stock (single-family/multi-family split) would improve the model, but these turned out to be statistically insignificant because of too little variation over time.

Finally, the models also include a measure of the marginal price of water in real terms (that is, price deflated by the consumer price index published by the Bureau of Labor Statistics). The marginal price of water faced by the average single-family customer in an agency was used to depict price variation over time. By and large, Commercial, Institutional, and Industrial (CII) and SFR price trends appear similar. Figure 12 shows price escalation faced by single-family customers in the BAWSCA service area overall, calculated as a weighted average of each BAWSCA member agency price data. The price and unemployment rate data are available at a water supplier level (the latter by town or city) so that one can tailor these metrics to each retailer's service area. In other words, each BAWSCA retailer has their own marginal price and unemployment-rate metric, and weather from one of eight NOAA stations closest to it.

Figure 12. BAWSCA Region-Wide Trends in the Single-Family Real Price of Water



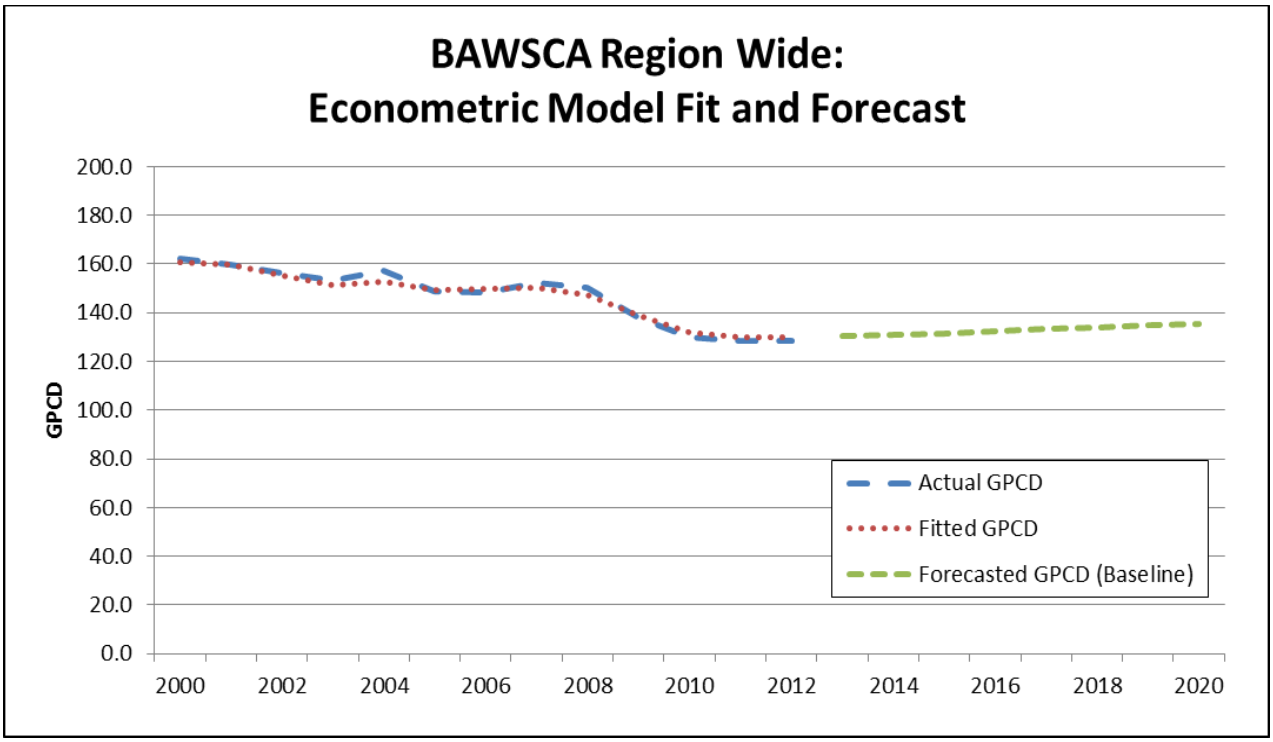
Note: The increase in price represents the Wholesale Customers share for funding the $4.6 B Water System Improvement Program

Model Results

Models, as per the equation shown above, were developed for each agency using their own unique data. To illustrate the method in general a monthly GPCD model was developed for all BAWSCA agencies combined as well. Figure 13 shows how this model's fitted values compare with BAWSCA's region-wide GPCD trend. The resulting R-square value of 0.93 indicates a high correspondence between actual and fitted values. The models capture the downturn in demand experienced during the 2008-2011 period. The models also predict a rise in baseline demand as the economy

expands, but tempered by projected price increases (shown earlier in Figure 12), which have been factored into the forecast.

Figure 13. BAWSCA Region-Wide Econometric Model Fit and Forecast



This type of model is known as a time-series, cross-sectional model. This region-wide model incorporates agency-level fixed effects, a correction for autocorrelation in the error term, and also population weighting to account for different agency sizes. Agency-specific fixed effects capture the impact of agency characteristics that do not vary much over time, such as average household income and lot size, leading to a much more robust model specification than one without these fixed effects. In other words, our model captures the impact on GPCD of income, lot size, and other unobservable time-invariant differences across agencies implicitly through these fixed effects.

In addition to the fixed effects, each agency is allowed to have its own time trend to capture the impact of service area dynamics that influence water use but are not fully captured either by price, unemployment rate or weather. The normal seasonality in water use is also allowed to vary across agencies. The impact of weather deviations from normal is also allowed to vary by season and across agencies by interacting these deviation variables with an agency's transformed seasonal peaking factor[2]. A greater summer-winter differential indicates a greater prevalence of weather-sensitive end uses, making the impact of non-normal weather also correspondingly greater. The feasibility of using peaking factors to scale the impact of non-normal weather across agencies was demonstrated by Bamezai (2011) in a study completed for the CUWCC (*op. cit.*). Those concepts have been applied here as well.

[2] Peaking factor is calculated by dividing maximum monthly summer demand by minimum winter monthly demand in any given year, then averaging these ratios across all years included during the baseline period. Transformed peaking factor is calculated as 1-(1/Peaking Factor).

An important goal of the econometric modeling is to forecast baseline water demand, that is, demand excluding the effect of plumbing codes and active conservation programs. After establishing baseline demand, one can layer on the impact of plumbing codes going forward and the impact of a specifically designed conservation program to reach a GPCD goal. However, historical production data provided by water suppliers embed the impact of past plumbing codes and active conservation programs, which need to be accounted for first. This was done by relying on prior conservation savings models (2008 DSS Models) developed for BAWSCA. Estimated conservation savings by supplier and year forecasted by these conservation models were added back to the production data reported by water suppliers prior to estimation of the econometric model. Forecasts based on these revised production data then yield baseline demand.

Table 14. BAWSCA Region-Wide Model Results

Independent Variable	Coefficient	Std. Error	t-statistic
Ln(Marginal Price)	-0.168	0.010	-16.3
Ln(Unemployment Rate)	-0.051	0.004	-12.5
Temp. Dev. (Apr-Jun) x TPF‡	0.021	0.001	13.8
Temp Dev. (Jul-Oct) x TPF	0.011	0.001	7.1
Temp. Dev. (Nov-Mar) x TPF	0.019	0.001	14.2
Rain Dev. (Apr-Jun) x TPF	-0.132	0.005	-24.0
Rain Dev. (Jul-Oct) x TPF	-0.045	0.007	-6.0
Rain Dev. (Nov-Mar) x TPF	-0.009	0.001	-7.1
Jan Indicator	-0.021	0.005	-3.9
Feb	-0.013	0.006	-2.2
Mar	0.020	0.006	3.2
Apr	0.187	0.006	28.9
May	0.353	0.006	54.1
Jun	0.518	0.006	79.9
Jul	0.566	0.006	87.0
Aug	0.551	0.006	85.3
Sep	0.526	0.006	82.7
Oct	0.366	0.006	59.7
Nov	0.153	0.006	29.1
Constant	4.936	0.015	322.0
Agency specific fixed effects	Included		
Agency specific trend terms	Included		
Agency interactions with monthly dummies	Included		
R-Square	0.93		

Notes:
1. The large number of coefficients associated with the agency fixed effects, agency trend terms and agency interactions with monthly dummies not shown for the sake of brevity.
2. ‡TPF denotes transformed peaking factor.
3. Dependent Variable: Ln(Monthly GPCD), 27 retail agencies, up to 18 years of data per agency.

The model coefficients for the region-wide model are shown in Table 14 and are presented in three columns, including one for the estimated coefficient, one for the likely band of error surrounding this coefficient (referred to as standard error), and one for the t-statistic. An independent variable's t-statistic is the ratio of the coefficient over its standard error. A t-statistic of 2 or greater indicates a statistically significant relationship between the dependent and

independent variable; less than 2 indicates that the data are not able to conclusively demonstrate a relationship. The latter finding may reflect the lack of any relationship. Or, it may occur because of data errors or other problems, such as, two or more independent variables being highly correlated with one another. The model's R-square is shown at the bottom, which is indicative of the explanatory power of a statistical model. It can vary between zero and a maximum of 1, with higher numbers indicating greater explanatory power.

The coefficients found in Table 14 have the following interpretation. A price elasticity of -0.168 indicates that a 10% real increase in the marginal price of water can be expected to reduce demand by 1.7%. Our region-wide estimate of price elasticity compares well with the published literature on this topic. A 10% increase in the annual unemployment rate is likely to depress water demand by 0.05%, a statistically significant effect, but one weaker than price. The weather coefficients are all significant and behave in expected ways. For an agency with a peaking factor of 2, or a transformed peaking factor of 0.5 (a fairly typical agency) an extra inch of rainfall per month during the spring season reduces monthly demand by roughly 6.6%, while the same extra inch during the winter months only depresses monthly demand by 0.4%. On the temperature dimension, if daily maximum temperature is 1 degree higher on average in a given month, then this is likely to raise monthly water demand by 1.0% during the spring season, 0.5% during the summer season, and 0.9% during late fall and winter seasons. Lower than average temperatures would have the opposite effect.

The monthly dummy variables also exhibit the expected pattern with July exhibiting the largest coefficient, indicating that July demand is greatest during the year, reaching a minimum during January.

APPENDIX D. CONSERVATION TARGETS AND GOALS

State Mandated Water Conservation

Senate Bill X7-7 (SB X7-7) or "The Water Conservation Act of 2009" was enacted to ensure California continues to have reliable water supplies, requiring urban water agencies to collectively reduce statewide per capita water use by 20% before December 31, 2020. The law establishes that the base daily per capita use be based on total gross water use, divided by the service area population. Complying with SB X7-7 can be via one of four approved methods. BAWSCA member agencies plan to use a combination of water use efficiency (WUE) measures and recycled water to help meet or exceed the per capita consumption water use targets to support the overall goal of more supply reliability for the BAWSCA member agencies.

Water Reduction Targets Methodology

The baseline volume of gallons per capita per day (GPCD) was calculated for each BAWSCA member agency in most cases by using a 10-year base period average. BAWSCA member agencies chose one of four compliance methods, which can be found in their specific DSS model in addition to their target GPCD value. BAWSCA member agency per capita water use trends can be found in their DSS Model.

Each conservation measure targets a particular water use such as indoor single-family water use. Targeted water uses are categorized by water user group and by end use. Targeted water user groups could include Single-Family Residential (SF); Multi-Family Residential (MF); Commercial, Industrial, and Institutional (CII); and public (PUB). Measures may apply to more than one water user group. Targeted end uses include indoor and outdoor use. The targeted water use is important to identify because the water savings are generated from reductions in water use for the targeted end use. For example, Residential Retrofits targets Single-Family and Multi-Family Residential indoor use, specifically shower use. When considering the water savings potential generated by a residential retrofit one considers the water saved by installing low-flow showerheads in single- and multi-family homes.

The market penetration goal for a measure is the extent to which the product or service related to the conservation measure occupies the potential market. In essence, the market penetration goal identifies how many fixtures, rebates, surveys, etc. the wholesale customer would have to offer or conduct over a period of time to reach its water savings goal for that conservation measure. This is often expressed in terms of the number of fixtures, rebates, surveys, etc. offered or conducted per year.

The potential for errors in market penetration goal estimates for each measure can be significant because they are based on previous experience, chosen implementation methods, projected utility effort and funds allocated to implement the measure. The potential error can be corrected through re-evaluation of the measure as the implementation of the measure progresses. For example, if the market penetration required to achieve specific water savings turns out to be more or less than predicted, adjustments to the implementation efforts can be made. Larger rebates or additional promotions are often used to increase the market penetration. The process is iterative to reflect actual conditions and helps to ensure that market penetration and needed savings are achieved regardless of future variances between estimates and actual conditions.

In contrast, market penetration for mandatory ordinances can be more predictable with the greatest potential for error occurring in implementing the ordinance change. For example, requiring dedicated irrigation meters for new accounts through an ordinance can assure an almost 100 percent market penetration for affected properties.

APPENDIX E. KEY ASSUMPTIONS FOR THE DSS MODEL

The following section presents the key assumptions used in the DSS Model. The assumptions having the most dramatic effect on future demands are the natural replacement rate of fixtures, how residential or commercial future use is projected, and finally the percent of estimated real water losses.

Table 15. List of Key Assumptions

List of Baseline Demand Projection Assumptions for DSS Model	
Parameter	**Model Input Value, Assumptions, and Key References**
Model Start Year	2013
Model End Year	2040
Non-Revenue Water	Based on individual billing
Population Projection Source	Provided by and verified by individual agencies
Employment Projection Source	Provided by and verified by individual agencies
Number of Water Accounts for Start Year	Provided by and verified by individual agencies
Avoided Cost of Water $/AF	Provided by and verified by individual agencies
Residential End Uses	CA DWR Report "California Single Family Water Use Efficiency Study", 2011, AWWARF Report "Residential End Uses of Water" 1999, Agency supplied data on costs and savings, professional judgment where no published data available
Non-Residential End Uses, %	AWWARF Report "Commercial End Uses of Water" 1999
Efficient Residential Fixture Current Installation Rates	U.S. Census, Housing age by type of dwelling plus natural replacement plus rebate program (if any).
	Reference "High Efficiency Plumbing Fixtures - Toilets and Urinals" Koeller & Company July 23, 2005.
	Reference Consortium for Efficient Energy (www.cee1.org)
Water Savings for Fixtures, gal/capita/day	AWWARF Report "Residential End Uses of Water" 1999, ,CA DWR Report "California Single Family Water Use Efficiency Study", 2011, Agency supplied data on costs and savings, professional judgment where no published data available
Non-Residential Fixture Efficiency Current Installation Rates	U.S. Census, assume commercial establishments built at same rate as housing, plus natural replacement
Residential Frequency of Use Data, Toilets, Showers, Washers, Uses/user/day	Falls within ranges in AWWARF Report "Residential End Uses of Water" 1999
Non-Residential Frequency of Use Data, Toilets and Urinals,	Estimated based using AWWARF Report "Commercial and Institutional End Uses of Water" 1999

List of Baseline Demand Projection Assumptions for DSS Model	
Parameter	**Model Input Value, Assumptions, and Key References**
Uses/user/day	
Natural Replacement Rate of Fixtures	Residential Toilets 3% (1.28 gpf toilets), 3% (1.6 gpf and higher toilets)
	Commercial Toilets 2% (1.28 gpf toilets), 4% (1.6 gpf and higher toilets)
	Residential Showers 4%
	Residential Clothes washers 6.7%
	A 3% replacement rate corresponds to 33 year life of a new fixture.
	A 6.67% replacement rate corresponds to 15 year washer life based on "Bern Clothes Washer Study, Final Report, Energy Division, Oak Ridge National Laboratory, for U.S. Department of Energy, March 1998, Internet address: www.energystar.gov

Present Value Analysis and the Utility and Community Perspective

Present value analysis using constant FY 2014 dollars and a real discount rate of 3% is used to discount costs and benefits to the base year. From this analysis, benefit-cost ratios of each measure are computed. When measures are put together in programs, the model is set up to avoid double counting savings from multiple measures that act on the same end use of water. For example, multiple measures in a program may target toilet replacements. The model includes assumptions to apportion water savings between the multiple measures.

Economic analysis can be performed from several different perspectives, based on which party is affected. For planning water conservation programs for utilities, the perspectives most commonly used for benefit-cost analyses are the "utility" perspective and the "community" perspective. The "utility" benefit-cost analysis is based on the benefits and costs to the water provider. The "community" benefit-cost analysis includes the utility benefit and costs together with account owner/customer benefits and costs. These include customer energy and other capital or operating cost benefits plus costs of implementing the measure, beyond what the utility pays.

The utility perspective offers two advantages. First, it considers only the program costs that will be directly borne by the utility. This enables the utility to fairly compare potential investments for saving versus supplying increased quantities of water. Second, revenue shifts are treated as transfer payments, which means program participants will have lower water bills and non-participants will have slightly higher water bills so that the utility's revenue needs continue to be met. Therefore, the analysis is not complicated with uncertainties associated with long-term rate projections and retail rate design assumptions. It should be noted that there is a significant difference between the utility's savings from the avoided cost of procurement and delivery of water and the reduction in retail revenue that results from reduced water sales due to water use efficiency. This budget impact occurs slowly, and can be accounted for in water rate planning. Because it is the water provider's role in developing a water use efficiency plan that is vital in this study, the utility perspective was primarily used to evaluate elements of the Plan.

The community perspective is defined to include the utility and the customer costs and benefits. Costs incurred by customers striving to save water while participating in water conservation programs are considered, as well as the benefits received in terms of reduced energy bills (from water heating costs) and wastewater savings, among others. Water bill savings are not a customer benefit in the aggregate for reasons described above. Other factors external to

the utility, such as environmental effects, are often difficult to quantify or are not necessarily under the control of the utility. They are therefore frequently excluded from economic analyses, including this one.

Present Value Parameters

The time value of money is explicitly considered. Typically the costs to save water occur early in the planning period whereas the benefits usually extend to the end of the planning period. A long planning period of 20-30 years is typically used because costs and benefits that occur beyond 2040 years have very little influence on the total present value of the costs and benefits. The value of all future costs and benefits is discounted to the first year in the DSS Model (the base year, which in this case is 2013), at the real interest rate of 3.0%. The DSS Model calculates this real interest rate, adjusting the current nominal interest rate (assumed to be approximately 6.1%) by the assumed rate of inflation (3.0%). Cash flows discounted in this manner are herein referred to as "Present Value" sums.

Assumptions about Measure Costs

Costs were determined for each of the measures based on industry knowledge, past experience and data provided by BAWSCA and BAWSCA member agencies. Costs may include incentive costs, usually determined on a per-participant basis; fixed costs, such as marketing; variable costs, such as the costs to staff the measures and to obtain and maintain equipment; and a one-time set-up cost. The set-up cost is for measure design by staff or consultants, any required pilot testing, and preparation of materials that will be used in marketing the measure. The model was run for 27 years (each year between FY 2013 and FY 2040). Costs were spread over the time period depending on the length of the implementation period for the measure and estimated voluntary customer participation levels.

Lost revenue due to reduced water sales is not included as a cost because the water conservation measures evaluated herein generally take effect over a long span of time that is sufficient to enable timely rate adjustments, if necessary, to meet fixed cost obligations and savings on variable costs such as energy and chemicals.

Assumptions about Measure Savings

Data necessary to forecast water savings of measures include specific data on water use, demographics, market penetration, and unit water savings. Savings normally develop at a measured and predetermined pace, reaching full maturity after full market penetration is achieved. This may occur three to seven years after the start of implementation, depending upon the implementation schedule. For every water conservation activity or replacement with more efficient devices, there is a useful life. The useful life is called the "Measure Life" and is defined to be how long water conservation measures stay in place and continue to save water. It is assumed that measures implemented because of codes, standards or ordinances, like toilets for example, would be "permanent" and not revert to an old inefficient level of water use if the device needed to be replaced. However, some measures that are primarily behavioral based, such as residential surveys, are assumed to need to be repeated on an ongoing basis to retain the water savings (e.g., homeowners move away and new homeowners may have less efficient water using practices around the home). Surveys typically have a measure life on the order of five years.

Assumptions about Avoided Costs

The estimated avoided cost of water was provided by BAWSCA and BAWSCA member agency staff and can be found in each BAWSCA member agency's specific DSS Model. This value is the average cost of blended water for the 2013-2032 period including any purchased water as well as the agency's energy, treatment, and facilities improvement costs.

APPENDIX F. DETAILED STARTING VALUES FOR WATER USE EFFICIENCY MEASURES EVALUATED

The following figures present the DSS Model starting values for the conservation measures that were analyzed for possible inclusion into each BAWSCA member agency's conservation program.

Measure 1 Water Loss

Water Loss

Overview	
Name	Water Loss
Abbr	1
Category	
Measure Type	Water Loss Measure

Time Period	
First Year	2013

Cost	
Total Multi Year Cost	$250,000
Number of Years	10

Maintenance Costs	
Annual Maintenance Costs	$50,000

Target	
Total GPCD Reduction	4.0

Description

AGENCY MEASURE: Maintain a thorough annual accounting of water production, sales by customer class and quantity of water produced but not sold (non-revenue water). In conjunction with system accounting, include audits that identify and quantify known legitimate uses of non-revenue water in order to determine remaining potential for reducing water losses. Goal would be to lower the Infrastructure Leakage Index (ILI) and non-revenue water every year by a pre-determined amount based on cost-effectiveness. These programs typically pay for themselves based on savings in operational costs (and saved rate revenue can be directed more to system repairs/replacement and other costs). Specific goals and methods to be developed by Utility. May include accelerated main and service line replacement. Enhanced real loss reduction may include more ambitious main replacement and active leak detection. Capture water from water main flushing and hydrant flow testing for reuse.

Comments

The savings is over the life of the program which is tied to the agency current Non Revenue Water percentage which can be found in the GREEN "Non Revenue Water" portion of the DSS Model. All programs are advised to have "Annual Maintenance Costs" inputted to allow for budget estimates for complete program. Additional water savings of "Non-Revenue Water" real water losses may be available when technically feasible. Rule of thumb is minimum system water losses below approximately 6% (as defined as the difference between production and consumption or alternatively as a percent of System Input Volume using AWWA Water System Audit definitions). For NRW below 6% (which can be found in the GREEN "Non Revenue Water" portion of the DSS Model), input "0%" for new real water savings and "$0" in the Backlog Cost section. For NRW above 6%, a GPCD savings input volume can be computed (an estimate of annual savings volume divided by total population). For example a 4.0 GPCD is equivalent to a 2% reduction for the system with a 150 GPCD water use. Additional Water Loss Control Program budget to achieve these water savings is inputted into the "Backlog Cost" section along with the duration of the years to accomplish the estimated reduction. In other words, $250,000 over 5 years would add $50,000 per year to assist with meeting NRW reduction goals.
Agency specific.
Large Systems: Program Cost $1,000,000 over 10 years; Annual Maint. Costs $50,000
Medium Systems: $500,000 over 10 years; Annual Maint cost $25,000
Small Systems: $250,000 over 10 years; Annual Maint. Costs $15,000
Also, look at the NRW % in the green section of the model - if NRW is less than 6%, NO program cost, only maintenance costs.

Measure 2 AMI

AMI

Overview	
Name	AMI
Abbr	2
Category	
Measure Type	Standard Measure

Time Period	
Start Year	2021
Last Year	2025
Total Years	5

Measure Life	
Permanent	☑
Years	
Repeat	☐

Categories	
SF	☑
MF	☑
COM	☑
IND	☐
INST	☐
MUN	☐
IRR	☐
AG	☐
REC	☐
OTH	☐

End Uses	
Toilets	☐
Urinals	☐
Faucets	☐
Showers	☐
Dishwashers	☐
Clothes Washers	☐
Process	☐
Spray Rinse	☐
Bath	☐
Internal Leakage	☑
Other	☐
Irrigation	☐
Pool	☐
Wash Down	☐
Car Washing	☐
External Leakage	☐
Outdoor	☐

Fixture Water Savings	
Toilets	0%
Urinals	0%
Faucets	0%
Showers	0%
Dishwashers	0%
Clothes Washers	0%
Process	0%
Spray Rinse	0%
Bath	0%
Internal Leakage	20%
Other	0%
Irrigation	0%
Pool	0%
Wash Down	0%
Car Washing	0%
External Leakage	0%
Outdoor	0%

Description

AGENCY MEASURE: Retrofit system with AMI meters and associated network capable of providing continuous consumption data to Utility offices. Improved identification of system and customer leaks is a major conservation benefit. Some costs of these systems are offset by operational efficiencies and reduced staffing, as regular meter reading and opening and closing accounts are accomplished without the need for a site visit. Also enables enhanced billing options and ability to monitor unauthorized usage, such as use/tampering with closed accounts or irrigation when time of day or days per week are regulated. Customer service is improved as staff can quickly access continuous usage records to address customer inquiries. Optional features include online customer access to their usage, which has been shown to improve accountability and reduce water use. A ten year change-out would be a reasonable objective. Require that new, larger or irrigation customers install such AMI meters as described above and possibly purchase means of viewing daily consumption inside their home, business, or by their landscape/property managers, either through the Internet (if available) or separate device. The AMI system would, on demand, indicate to the customer and Utility where and how their water is used, facilitating water use reduction and prompt leak identification. This would require Utility to install an AMI system.

Comments

Basis for the starting value cost estimate is $500 per AMI unit where assumes (a) partial % cost share for the "utility" of estimated AMI (automatic meter infrastructure) retrofit cost of $200 with other water utility departments such as operations; and (b) customer side cost of $300 to cover the reminder of the total unit cost (assumed paid by rate revenue). Cost estimate includes leak repair for those customer-side leaks found and fixed. Cost estimate does not include service leak repair (assume included in Water Loss Control program).

Fixture Costs

	Utility	Customer	Fix/Acct
SF	$200	$300	1
MF	$200	$300	1
COM	$200	$1,000	1
IND	$0	$0	0
INST	$0	$0	0
MUN	$0	$0	0
IRR	$0	$0	0
AG	$0	$0	0
REC	$0	$0	0
OTH	$0	$0	0

Target	
Annual % of Accts	10%
Affects Only New Accounts	☐

Administration Costs	
Markup Percentage	40%

Measure 3 Submetering

Submetering

Overview	
Name	Submetering
Abbr	3
Category	
Measure Type	Standard Measure

Time Period	
Start Year	2015
Last Year	2025
Total Years	11

Measure Life	
Permanent	☑
Years	0
Repeat	☐

Categories	
SF	☐
MF	☑
COM	☐
IND	☐
INST	☐
MUN	☐
IRR	☐
AG	☐
REC	☐
OTH	☐

End Uses	
Toilets	☑
Urinals	☑
Faucets	☑
Showers	☑
Dishwashers	☑
Clothes Washers	☑
Process	☑
Spray Rinse	☑
Bath	☑
Internal Leakage	☑
Other	☑
Irrigation	☑
Pool	☑
Wash Down	☑
Car Washing	☑
External Leakage	☑
Outdoor	☑

Fixture Water Savings	
Toilets	15%
Urinals	15%
Faucets	15%
Showers	15%
Dishwashers	15%
Clothes Washers	15%
Process	15%
Spray Rinse	15%
Bath	15%
Internal Leakage	15%
Other	15%
Irrigation	15%
Pool	15%
Wash Down	15%
Car Washing	15%
External Leakage	15%
Outdoor	15%

Description

AGENCY MEASURE: Require or provide a partial cost rebate to meter all remaining mobile home parks that are currently master metered but not separately metered. Pattern after Santa Clara Valley Water District program.
Provide a rebate (per unit) to assist MF building owners installing submeters on each existing individual apartment or condominium unit.
Provide a rebate (per unit) to assist MF building owners installing submeters on each new individual apartment unit.
Require the submetering of individual units in new multi-family, condos, townhouses, and mobile-home parks.

Comments

According to SCVWD study assume 150 submeters per property for 1-2 properties per year. Estimated cost based on $150 per meter x 150 DUs = $22,500 per account for utility cost. Also assumes $50 per meter x 150 DUs per property for customer cost = $7,500. DU = dwelling unit (i.e., mobile home)" The participation rate of 0.1% assumes 1 property per 1,000 MF accounts.

Fixture Costs	Utility	Customer	Fix/Acct
SF	$0	$0	0
MF	$150	$50	150
COM	$0	$0	0
IND	$0	$0	0
INST	$0	$0	0
MUN	$0	$0	0
IRR	$0	$0	0

Target	
Annual % of Accts	0.10%
Affects Only New Accounts	☐

Administration Costs	
Markup Percentage	25%

Measure 4 Pricing

Conservation Pricing

Overview	
Name	Conservation Pricing
Abbr	4
Category	
Measure Type	Pricing Measure

Customer Class	
Customer Class	Single Family

Time Period	
First Year	2021

Description

AGENCY MEASURE: Assumes price increases from the year 2021 to the year 2040. Converts price increases to real price increases net of inflation; Annual increase must be above user set threshold (such as assuming a 2% inflation) to trigger a demand reduction. The near term price increases

Comments

This measure uses the dollar price and SF price elasticities for the year 2035-36 as provided in the report written by Sunding and published by the Brattle Group and SFPUC in 2014. The pricing measure only addresses SF customer as this was the only class with price elasticities defined by Sunding for individual BAWSCA water agencies.

Planned Rate Increases

Add Rate Increase

Change Year	Price Incr (%)	Price Incr Adjusting for Inflation	
2021	VARIES	CALC'D	Delete
2022	VARIES	CALC'D	Delete
2023	VARIES	CALC'D	Delete
2024	VARIES	CALC'D	Delete
2025	VARIES	CALC'D	Delete
2026	VARIES	CALC'D	Delete
2027	VARIES	CALC'D	Delete
2028	VARIES	CALC'D	Delete
2029	VARIES	CALC'D	Delete
2030	VARIES	CALC'D	Delete
2031	VARIES	CALC'D	Delete
2032	VARIES	CALC'D	Delete
2033	VARIES	CALC'D	Delete
2034	VARIES	CALC'D	Delete
2035	VARIES	CALC'D	Delete

Results	
Average Water Savings (mgd)	
CALC'D	
Lifetime Savings - Present Value ($)	
Utility	CALC'D
Community	CALC'D
Lifetime Costs - Present Value ($)	
Utility	CALC'D
Community	CALC'D
Benefit to Cost Ratio	
Utility	CALC'D
Community	CALC'D
Cost of Savings per Unit Volume ($/mg)	
Utility	CALC'D

Price Elasticity		
Overall	Indoor	Outdoor
-0.15	-0.05	CALC'D

Utility Costs	
Rate Study Cost	$50,000
Rate Study Frequency (every # yrs)	5
First Year of Rate Study	2021
Annual Maintenance Cost	$10,000

Consumer Price Index	
First Year Index	100.0
Annual Increase	2%

Measure 5A Public Information

Public Info

Overview	
Name	Public Info
Abbr	5A
Category	
Measure Type	Standard Measure

Time Period	
Start Year	2013
Last Year	2040
Total Years	28

Measure Life	
Permanent	☐
Years	2
Repeat	☑

Categories	
SF	☑
MF	☐
COM	☐
IND	☐
INST	☐
MUN	☐
IRR	☐
AG	☐
REC	☐
OTH	☐

End Uses	
Toilets	☑
Urinals	☑
Faucets	☑
Showers	☑
Dishwashers	☑
Clothes Washers	☑
Process	☑
Spray Rinse	☑
Bath	☑
Internal Leakage	☑
Other	☑
Irrigation	☑
Pool	☑
Wash Down	☑
Car Washing	☑
External Leakage	☑
Outdoor	☑

Fixture Water Savings	
Toilets	0.10%
Urinals	0.10%
Faucets	0.10%
Showers	0.10%
Dishwashers	0.10%
Clothes Washers	0.10%
Process	0.10%
Spray Rinse	0.10%
Bath	0.10%
Internal Leakage	0.10%
Other	0.10%
Irrigation	0.10%
Pool	0.10%
Wash Down	0.10%
Car Washing	0.10%
External Leakage	0.10%
Outdoor	0.10%

Description

BAWSCA REGIONAL MEASURE: Continue with a regional campaign. May modify to be a general "Use Only What You Need" message like Denver Water's program or a "Beat the Peak" message media campaign like Cary, North Carolina or Tucson Arizona: aahttp://cms3.tucsonaz.gov/water/beatthepeak. Considering a program with focused action like: "Take Control of your Controller" Campaign for a focused social media based campaign as a media campaign. Consider determining appropriate usage and media campaign message with marketing study/focus groups. Utility would sponsor bilingual training for managers and workers in landscape maintenance methods that will save irrigation water. Model after Green Gardener Program. Santa Barbara County Water Agency example: http://www.greengardener.org. With some of these programs, names of businesses that have obtained training are included in Utility publications and/or Web sites (as an incentive to participate).

Comments

Cost assumes SF category but impacts all customer classes. The $0.23 is the BAWSCA cost per SF connection for the entire region. BAWSCA budget of $40,000 is spent on WaterWise Gardening Website, Landscape classes ($26k) and Sponsorships ($6-9k). Add money to this measure if there is additional funds spent above and beyond the BAWSCA regional program efforts.

Fixture Costs	Utility	Customer	Fix/Acct
SF	$0.23	$0	1
MF	$0	$0	0
COM	$0	$0	0
IND	$0	$0	0
INST	$0	$0	0
MUN	$0	$0	0
IRR	$0	$0	0

Target	
Annual % of Accts	50%
Affects Only New Accounts	☐

Administration Costs	
Markup Percentage	15%

Measure 5B Public Information Home Water Use Reports

Public Info-Home Water Use Reports

Overview	
Name	Public Info-Home Water U
Abbr	5B
Category	
Measure Type	Standard Measure

Time Period	
Start Year	2014
Last Year	2040
Total Years	27

Measure Life	
Permanent	☐
Years	2
Repeat	☑

Categories	
SF	☑
MF	☐
COM	☐
IND	☐
INST	☐
MUN	☐
IRR	☐
AG	☐
REC	☐
OTH	☐

End Uses	
Toilets	☑
Urinals	☐
Faucets	☑
Showers	☑
Dishwashers	☑
Clothes Washers	☑
Process	☐
Spray Rinse	☐
Bath	☑
Internal Leakage	☑
Other	☑
Irrigation	☑
Pool	☑
Wash Down	☑
Car Washing	☑
External Leakage	☑
Outdoor	☐

Fixture Water Savings	
Toilets	5%
Urinals	0%
Faucets	5%
Showers	5%
Dishwashers	5%
Clothes Washers	5%
Process	0%
Spray Rinse	0%
Bath	5%
Internal Leakage	5%
Other	5%
Irrigation	5%
Pool	5%
Wash Down	5%
Car Washing	5%
External Leakage	5%
Outdoor	0%

Description

AGENCY MEASURE: Home Water Use Reports would report for single family home customers. Provides much more insights on the water bills, and strongly promotes customer programs.

Comments

Cost excludes start which is $3 per account. The $9 is based on BAWSCA bids received in April 2014. Assumes only SF accounts participate and assume large-user account targeting to get highest 25% of users. No customer costs assigned for this measure as assume customer takes an action for another measure. This avoids any double counting with Measure 5A or other measures.

Fixture Costs	Utility	Customer	Fix/Acct
SF	$9	$0	1
MF	$0	$0	0
COM	$0	$0	0
IND	$0	$0	0
INST	$0	$0	0
MUN	$0	$0	0
IRR	$0	$0	0
AG	$0	$0	0
REC	$0	$0	0
OTH	$0	$0	0

Target	
Annual % of Accts	25%
Affects Only New Accounts	☐

Administration Costs	
Markup Percentage	15%

Measure 6 School Education

School Education

Overview	
Name	School Education
Abbr	6
Category	
Measure Type	Standard Measure

Time Period	
Start Year	2013
Last Year	2040
Total Years	28

Measure Life	
Permanent	☑
Years	7
Repeat	☐

Description

BAWSCA REGIONAL MEASURE: School assembly program, classroom presentations, other options for school education. Measure based on the Resource Action Program.

Comments

BAWSCA $112k budget for 3,221 students. Average cost per student is $34. Assuming a mostly $35 indoor kit cost with admin and future cost increases, use $40 as basis for unit cost.

Categories	
SF	☑
MF	☑
COM	☐
IND	☐
INST	☐
MUN	☐
IRR	☐
AG	☐
REC	☐
OTH	☐

End Uses	
Toilets	☐
Urinals	☐
Faucets	☑
Showers	☑
Dishwashers	☐
Clothes Washers	☐
Process	☐
Spray Rinse	☐
Bath	☐
Internal Leakage	☑
Other	☐
Irrigation	☑
Pool	☐
Wash Down	☐
Car Washing	☐
External Leakage	☐
Outdoor	☐

Fixture Water Savings	
Toilets	0%
Urinals	0%
Faucets	1%
Showers	1%
Dishwashers	0%
Clothes Washers	0%
Process	0%
Spray Rinse	0%
Bath	1%
Internal Leakage	1%
Other	0%
Irrigation	1%
Pool	0%
Wash Down	0%
Car Washing	0%
External Leakage	0%
Outdoor	0%

Fixture Costs	Utility	Customer	Fix/Acct
SF	$40	$0	1
MF	$40	$0	1
COM	$0	$0	0
IND	$0	$0	0
INST	$0	$0	0
MUN	$0	$0	0

Target	
Annual % of Accts	5%
Affects Only New Accounts	☐

Administration Costs	
Markup Percentage	30%

Measure 7 SF MF Surveys

SF MF Surveys

Overview	
Name	SF MF Surveys
Abbr	7
Category	
Measure Type	Standard Measure

Time Period	
Start Year	2013
Last Year	2040
Total Years	28

Measure Life	
Permanent	☐
Years	5
Repeat	☑

Description

AGENCY MEASURE: Indoor and outdoor water surveys for existing single family and multi-family (2 units or more) residential customers. Target those with high water use and provide a customized report to owner. May include give-away of efficient shower heads, aerators, and toilet devices. Usually combined with outdoor surveys (see Irrigation Measures). Customer leaks can go uncorrected at properties where owners are least able to pay costs of repair. These programs may require that customer leaks be repaired, with either part of the repair subsidized and/or the cost paid with revolving funds paid back with water bills over time. May also include an option to replace inefficient plumbing fixtures at low-income residences. Provide incentive to install pressure regulating valve on existing properties with pressure exceeding 80 psi.

Comments

4% of account participants is based on median value from BAWSCA Water Conservation Database records (2004-2013).

Categories	
SF	☑
MF	☑
COM	☐
IND	☐
INST	☐
MUN	☐
IRR	☐
AG	☐
REC	☐
OTH	☐

End Uses	
Toilets	☑
Urinals	☐
Faucets	☑
Showers	☑
Dishwashers	☑
Clothes Washers	☑
Process	☐
Spray Rinse	☐
Bath	☑
Internal Leakage	☑
Other	☑
Irrigation	☑
Pool	☑
Wash Down	☑
Car Washing	☑
External Leakage	☑
Outdoor	☐

Fixture Water Savings	
Toilets	5%
Urinals	0%
Faucets	5%
Showers	5%
Dishwashers	5%
Clothes Washers	5%
Process	0%
Spray Rinse	0%
Bath	5%
Internal Leakage	5%
Other	5%
Irrigation	10%
Pool	10%
Wash Down	10%
Car Washing	10%
External Leakage	10%
Outdoor	0%

Fixture Costs	Utility	Customer	Fix/Acct
SF	$100	$50	1
MF	$100	$50	1
COM	$0	$0	0
IND	$0	$0	0

Target	
Annual % of Accts	2%
Affects Only New Accounts	☐

Administration Costs	
Markup Percentage	30%

Measure 8 WS Giveaway

WS Giveaway

Overview	
Name	WS Giveaway
Abbr	8
Category	
Measure Type	Standard Measure

Time Period	
Start Year	2014
Last Year	2020
Total Years	7

Measure Life	
Permanent	☑
Years	
Repeat	☐

Categories	
SF	☑
MF	☑
COM	☐
IND	☐
INST	☐
MUN	☐
IRR	☐
AG	☐
REC	☐
OTH	☐

End Uses	
Toilets	☐
Urinals	☐
Faucets	☑
Showers	☑
Dishwashers	☐
Clothes Washers	☐
Process	☐
Spray Rinse	☐
Bath	☐
Internal Leakage	☐
Other	☐
Irrigation	☐
Pool	☐
Wash Down	☐
Car Washing	☐
External Leakage	☐
Outdoor	☐

Fixture Water Savings	
Toilets	0%
Urinals	0%
Faucets	7%
Showers	7%
Dishwashers	0%
Clothes Washers	0%
Process	0%
Spray Rinse	0%
Bath	0%
Internal Leakage	0%
Other	0%
Irrigation	0%
Pool	0%
Wash Down	0%
Car Washing	0%
External Leakage	0%
Outdoor	0%

Description

AGENGY MEASURE: Utility would buy showerheads and faucet aerators in bulk and give them away at Utility office or community events. Need to coordinate this program with the School Education measure on retrofit kit giveaways to the same customer categories.

Comments

Assumes minimum 2 bathrooms per SF account and 4 units or 8 bathrooms per MF account. Utility Costs provided by BAWSCA for 1.8gpm showerhead / 1.5 gpm aerator kit. Customer cost is to repair leaks or other minor costs. Current customer participation based on WCDB Residential retrofit kits measure record (2004-2013).
Assume kits save 27.6% (reduced to be conservative) by assuming only 25% of kits are actually installed in the homes and yield water savings.

Fixture Costs	Utility	Customer	Fix/Acct
SF	$12	$25	2
MF	$12	$25	8
COM	$0	$0	0
IND	$0	$0	0
INST	$0	$0	0
MUN	$0	$0	0
IRR	$0	$0	0
AG	$0	$0	0

Target	
Annual % of Accts	2%
Affects Only New Accounts	☐

Administration Costs	
Markup Percentage	25%

Measure 9 SF MF HECW Rebates

SF MF HECW Rebates

Overview	
Name	SF MF HECW Rebates
Abbr	9
Category	
Measure Type	Standard Measure

Time Period	
Start Year	2013
Last Year	2021
Total Years	9

Measure Life	
Permanent	☑
Years	0
Repeat	☐

Categories	
SF	☑
MF	☑
COM	☐
IND	☐
INST	☐
MUN	☐
IRR	☐
AG	☐
REC	☐
OTH	☐

End Uses	
Toilets	☐
Urinals	☐
Faucets	☐
Showers	☐
Dishwashers	☐
Clothes Washers	☑
Process	☐
Spray Rinse	☐
Bath	☐
Internal Leakage	☐
Other	☐
Irrigation	☐
Pool	☐
Wash Down	☐
Car Washing	☐
External Leakage	☐
Outdoor	☐

Fixture Water Savings	
Toilets	0%
Urinals	0%
Faucets	0%
Showers	0%
Dishwashers	0%
Clothes Washers	37%
Process	0%
Spray Rinse	0%
Bath	0%
Internal Leakage	0%
Other	0%
Irrigation	0%
Pool	0%
Wash Down	0%
Car Washing	0%
External Leakage	0%
Outdoor	0%

Description

BAWSCA REGIONAL MEASURE: Provide a rebate for efficient washing machines to single family homes and apartment complexes with common laundry rooms. It is assumed that the rebates would remain consistent with relevant state and federal regulations (Department of Energy, Energy Star) and only offer the best available technology. This program would be similar the BAWSCA's current program.

Comments

Water savings is based on difference between a 34 gallon per load machine compared to a 12 gallon per load CEE Tier 3 machine. Rebate of $88/unit cost is based on a blended rate of current BAWSCA program data and includes the PGE share of $75 for most efficient beyond Tier 3 CEE (see waterenergysavings.com). This is ($125 + $50)/2.

Fixture Costs	Utility	Customer	Fix/Acct
SF	$88	$550	1
MF	$50	$550	1
COM	$0	$0	0
IND	$0	$0	0
INST	$0	$0	0
MUN	$0	$0	0
IRR	$0	$0	0
AG	$0	$0	0
REC	$0	$0	0

Target	
Annual % of Accts	3%
Affects Only New Accounts	☐

Administration Costs	
Markup Percentage	30%

Measure 10 SF MF UHET Rebates

SF MF UHET Rebates

Overview	
Name	SF MF UHET Rebates
Abbr	10
Category	
Measure Type	Standard Measure

Time Period	
Start Year	2014
Last Year	2016
Total Years	3

Measure Life	
Permanent	☑
Years	0
Repeat	☐

Categories	
SF	☑
MF	☑
COM	☐
IND	☐
INST	☐
MUN	☐
IRR	☐
AG	☐
REC	☐
OTH	☐

End Uses	
Toilets	☑
Urinals	☐
Faucets	☐
Showers	☐
Dishwashers	☐
Clothes Washers	☐
Process	☐
Spray Rinse	☐
Bath	☐
Internal Leakage	☐
Other	☐
Irrigation	☐
Pool	☐
Wash Down	☐
Car Washing	☐
External Leakage	☐
Outdoor	☐

Fixture Water Savings	
Toilets	63%
Urinals	0%
Faucets	0%
Showers	0%
Dishwashers	0%
Clothes Washers	0%
Process	0%
Spray Rinse	0%
Bath	0%
Internal Leakage	0%
Other	0%
Irrigation	0%
Pool	0%
Wash Down	0%
Car Washing	0%
External Leakage	0%
Outdoor	0%

Description

BAWSCA REGIONAL MEASURE: Provide a rebate or voucher for the installation of a ultra high efficiency toilet (UHET). (Toilets flushing 1.28 gpf or less and include dual flush technology). Rebate amounts would reflect the incremental purchase cost.

Comments

Utility cost is for toilet purchase. Rebate value based on SCVWD program and approved by BAWSCA staff for use for this measure unit cost. Customer cost is for installation.

Fixture Costs	Utility	Customer	Fix/Acct
SF	$100	$150	2
MF	$100	$150	3
COM	$0	$0	0
IND	$0	$0	0
INST	$0	$0	0
MUN	$0	$0	0

Target	
Annual % of Accts	1%
Affects Only New Accounts	☐

Administration Costs	
Markup Percentage	30%

Measure 11 Turf Removal SF

Turf Removal SF

Overview	
Name	Turf Removal SF
Abbr	11
Category	
Measure Type	Standard Measure

Time Period	
Start Year	2014
Last Year	2040
Total Years	27

Measure Life	
Permanent	☑
Years	0
Repeat	☐

Categories	
SF	☑
MF	☐
COM	☐
IND	☐
INST	☐
MUN	☐
IRR	☐
AG	☐
REC	☐
OTH	☐

End Uses	
Toilets	☐
Urinals	☐
Faucets	☐
Showers	☐
Dishwashers	☐
Clothes Washers	☐
Process	☐
Spray Rinse	☐
Bath	☐
Internal Leakage	☐
Other	☐
Irrigation	☑
Pool	☐
Wash Down	☐
Car Washing	☐
External Leakage	☐
Outdoor	☐

Fixture Water Savings	
Toilets	0%
Urinals	0%
Faucets	0%
Showers	0%
Dishwashers	0%
Clothes Washers	0%
Process	0%
Spray Rinse	0%
Bath	0%
Internal Leakage	0%
Other	0%
Irrigation	25%
Pool	0%
Wash Down	0%
Car Washing	0%
External Leakage	0%
Outdoor	0%

Description

BAWSCA REGIONAL MEASURE: Provide a per square foot incentive to remove turf and replace with low water use plants or permeable hardscape. Rebate based on dollars per square foot removed and capped at an upper limit for single family residences.

Comments

SCVWD: $1 per sf per site with no cap (changed as 1/1/2014) 300% increase. Past average was about 900 s.f. per SF property. Palo Alto and SJ Muni add $1 per sf. These are non-drought values as this is a long term study.

Fixture Costs	Utility	Customer	Fix/Acct
SF	$1,000	$2,000	1
MF	$0	$0	0
COM	$0	$0	0
IND	$0	$0	0
INST	$0	$0	0

Target	
Annual % of Accts	1%
Affects Only New Accounts	☐

Administration Costs	
Markup Percentage	35%

Measure 12 SF WBIC Rebate

SF WBIC Rebate

Overview	
Name	SF WBIC Rebate
Abbr	12
Category	
Measure Type	Standard Measure

Time Period	
Start Year	2013
Last Year	2030
Total Years	18

Measure Life	
Permanent	☑
Years	0
Repeat	☐

Categories	
SF	☑
MF	☐
COM	☐
IND	☐
INST	☐
MUN	☐
IRR	☐
AG	☐
REC	☐
OTH	☐

End Uses	
Toilets	☐
Urinals	☐
Faucets	☐
Showers	☐
Dishwashers	☐
Clothes Washers	☐
Process	☐
Spray Rinse	☐
Bath	☐
Internal Leakage	☐
Other	☐
Irrigation	☑
Pool	☐
Wash Down	☐
Car Washing	☐
External Leakage	☐
Outdoor	☐

Fixture Water Savings	
Toilets	0%
Urinals	0%
Faucets	0%
Showers	0%
Dishwashers	0%
Clothes Washers	0%
Process	0%
Spray Rinse	0%
Bath	0%
Internal Leakage	0%
Other	0%
Irrigation	15%
Pool	0%
Wash Down	0%
Car Washing	0%
External Leakage	0%
Outdoor	0%

Description

BAWSCA REGIONAL MEASURE: Provide a per station rebate (i.e., $25 per station) for the purchase of a weather based irrigation controller. These controllers have on-site weather sensors or rely on a signal from a central weather station that modifies irrigation times at least weekly. Requires local irrigation contractors who are competent with these products, and so may require sponsoring a training program in association with this measure.

Comments

SCVWD has background information for SF WBICs in a summary report. From the report the actual SF WBICs controller costs are estimated to be the following: smaller controller size with 1-12 stations costs $458 per controller; larger controller cost with 12-24 stations is $1,583. This measure assumes the cost of the larger 12-24 station controller is ~$1,500. Current customer participation based on WCDB ET controller rebate program record (2004-2013).

Fixture Costs	Utility	Customer	Fix/Acct
SF	$700	$800	1
MF	$0	$0	0
COM	$0	$0	0
IND	$0	$0	0
INST	$0	$0	0
MUN	$0	$0	0
IRR	$0	$0	0

Target	
Annual % of Accts	1%
Affects Only New Accounts	☐

Administration Costs	
Markup Percentage	25%

Measure 13 Irrigation Incentives

Irrigation Incentives

Overview	
Name	Irrigation Incentives
Abbr	13
Category	
Measure Type	Standard Measure

Time Period	
Start Year	2015
Last Year	2030
Total Years	16

Measure Life	
Permanent	☑
Years	0
Repeat	☐

Categories	
SF	☑
MF	☑
COM	☑
IND	☐
INST	☐
MUN	☐
IRR	☑
AG	☐
REC	☐
OTH	☐

End Uses	
Toilets	☐
Urinals	☐
Faucets	☐
Showers	☐
Dishwashers	☐
Clothes Washers	☐
Process	☐
Spray Rinse	☐
Bath	☐
Internal Leakage	☐
Other	☐
Irrigation	☑
Pool	☐
Wash Down	☐
Car Washing	☐
External Leakage	☐
Outdoor	☐

Fixture Water Savings	
Toilets	0%
Urinals	0%
Faucets	0%
Showers	0%
Dishwashers	0%
Clothes Washers	0%
Process	0%
Spray Rinse	0%
Bath	0%
Internal Leakage	0%
Other	0%
Irrigation	5%
Pool	0%
Wash Down	0%
Car Washing	0%
External Leakage	0%
Outdoor	0%

Description

BAWSCA REGIONAL MEASURE: Provide a rebate or free rain sensor shut-off device for existing irrigation controllers. These cancel scheduled sprinkling when sufficient rain has been received. This measure is most effective in areas with intermittent rain in peak watering seasons.
Require installation of rain sensor shut-off devices when installing new irrigation systems.
Offer drip conversion kits (RainBird 1800 Retro). Potentially model after Western MWD's pilot program.

Comments

Based on SCVWD program. Average per site: Rain sensor (rebate $50, $75 cost), sprinklers ($5 rebate, $6 cost), flow sensors ($500 per meter rebate, $1556 cost), spray bodies (up to $20 for rebate and $12 cost for each).

Fixture Costs	Utility	Customer	Fix/Acct
SF	$250	$100	1
MF	$100	$100	1
COM	$500	$500	1
IND	$0	$0	0
INST	$0	$0	0
MUN	$0	$0	0
IRR	$500	$500	1

Target	
Annual % of Accts	1%
Affects Only New Accounts	☐

Administration Costs	
Markup Percentage	25%

Measure 14 SF Gray Water Retrofit

SF Gray Water Retrofit

Overview	
Name	SF Gray Water Retrofit
Abbr	14
Category	
Measure Type	Standard Measure

Time Period	
Start Year	2014
Last Year	2030
Total Years	17

Measure Life	
Permanent	☑
Years	0
Repeat	☐

Description

BAWSCA REGIONAL MEASURE: Provide a rebate to assist a certain percentage of single family homeowners per year to install gray water systems.

Categories	
SF	☑
MF	☐
COM	☐
IND	☐
INST	☐
MUN	☐
IRR	☐
AG	☐
REC	☐
OTH	☐

End Uses	
Toilets	☐
Urinals	☐
Faucets	☐
Showers	☐
Dishwashers	☐
Clothes Washers	☐
Process	☐
Spray Rinse	☐
Bath	☐
Internal Leakage	☐
Other	☐
Irrigation	☑
Pool	☐
Wash Down	☐
Car Washing	☐
External Leakage	☐
Outdoor	☐

Fixture Water Savings	
Toilets	0%
Urinals	0%
Faucets	0%
Showers	0%
Dishwashers	0%
Clothes Washers	0%
Process	0%
Spray Rinse	0%
Bath	0%
Internal Leakage	0%
Other	0%
Irrigation	10%
Pool	0%
Wash Down	0%
Car Washing	0%
External Leakage	0%
Outdoor	0%

Comments

Cost of SFPUC Program to reimburse for cost of permit is $225 per permit. SCVWD: only landscape to laundry - no permit systems. SCVWD rebate is $100. Model customer cost assumes DIY and cost of materials only. Cost will be much higher than this if retrofit situation. Water savings of 10% from CUWCC BMP reports.

Fixture Costs	Utility	Customer	Fix/Acct
SF	$100	$150	1
MF	$0	$0	0
COM	$0	$0	0
IND	$0	$0	0
INST	$0	$0	0
MUN	$0	$0	0
IRR	$0	$0	0
AG	$0	$0	0

Target	
Annual % of Accts	1%
Affects Only New Accounts	☐

Administration Costs	
Markup Percentage	15%

Measure 15 Landscape Irrigation Code

Landscape Irrigation Codes

Overview	
Name	Landscape Irrigation Code
Abbr	15
Category	
Measure Type	Standard Measure

Time Period	
Start Year	2013
Last Year	2040
Total Years	28

Measure Life	
Permanent	☑
Years	0
Repeat	☐

Description

BAWSCA REGIONAL MEASURE: Develop and enforce Water Efficient Landscape Design Standards. Standards specify that development projects subject to design review be landscaped according to climate appropriate principals, with appropriate turf ratios, plant selection, efficient irrigation systems and smart irrigation controllers. There are many examples that have demonstrated significant water savings. The ordinance could require certification of landscape professionals.

Categories	
SF	☐
MF	☑
COM	☑
IND	☑
INST	☑
MUN	☑
IRR	☑
AG	☐
REC	☐
OTH	☐

End Uses	
Toilets	☐
Urinals	☐
Faucets	☐
Showers	☐
Dishwashers	☐
Clothes Washers	☐
Process	☐
Spray Rinse	☐
Bath	☐
Internal Leakage	☐
Other	☐
Irrigation	☑
Pool	☐
Wash Down	☐
Car Washing	☐
External Leakage	☐
Outdoor	☐

Fixture Water Savings	
Toilets	0%
Urinals	0%
Faucets	0%
Showers	0%
Dishwashers	0%
Clothes Washers	0%
Process	0%
Spray Rinse	0%
Bath	0%
Internal Leakage	0%
Other	0%
Irrigation	15%
Pool	0%
Wash Down	0%
Car Washing	0%
External Leakage	0%
Outdoor	0%

Comments

Only new accounts apply. Utility cost is an inspection cost. Customer cost assumes it is more expensive to comply than typical all turf landscape.

Fixture Costs	Utility	Customer	Fix/Acct
SF	$0	$0	0
MF	$100	$1,000	1
COM	$100	$1,000	1
IND	$100	$1,000	1
INST	$100	$1,000	1
MUN	$100	$1,000	1
IRR	$100	$1,000	1

Target	
Annual % of Accts	100%
Affects Only New Accounts	☑

Administration Costs	
Markup Percentage	25%

Measure 16 CII Incentives, Surveys, and Equipment

CII Incentives, Surveys & Equipment

Overview	
Name	CII Incentives, Surveys & E
Abbr	16
Category	
Measure Type	Standard Measure

Time Period	
Start Year	2013
Last Year	2040
Total Years	28

Measure Life	
Permanent	☐
Years	10
Repeat	☐

Categories	
SF	☐
MF	☐
COM	☑
IND	☑
INST	☑
MUN	☑
IRR	☐
AG	☐
REC	☐
OTH	☐

End Uses	
Toilets	☑
Urinals	☑
Faucets	☑
Showers	☑
Dishwashers	☑
Clothes Washers	☑
Process	☑
Spray Rinse	☑
Bath	☐
Internal Leakage	☐
Other	☐
Irrigation	☐
Pool	☐
Wash Down	☐
Car Washing	☐
External Leakage	☐
Outdoor	☐

Fixture Water Savings	
Toilets	15%
Urinals	15%
Faucets	15%
Showers	15%
Dishwashers	15%
Clothes Washers	15%
Process	15%
Spray Rinse	15%
Bath	0%
Internal Leakage	0%
Other	0%
Irrigation	0%
Pool	0%
Wash Down	0%
Car Washing	0%
External Leakage	0%
Outdoor	0%

Description

BAWSCA REGIONAL MEASURE: Top water customers from each category would be offered a professional water survey that would evaluate ways for the business to save water and money. The surveys would be for large accounts (accounts that use more than 5,000 gallons of water per day) such as hotels, restaurants, stores and schools. Emphasis will be on supporting the top users in each customer category.
After the free water use survey has been completed at site, the Utility will analyze the recommendations on the provided findings report and determine if the site qualifies for a financial incentive. Financial incentives will be provided after analyzing the cost benefit ratio of each proposed project. Incentives are tailored to each individual site as each site has varying water savings potentials. Incentives will be granted at the sole discretion of the Utility while funding lasts.
Program to provide rebates for a standard list of water efficient equipment. Included would be x-ray machines, icemakers, air-cooled ice machines, steamers, washers, spray valves, efficient dishwashers, replacing once through cooling, and adding conductivity controller on cooling towers. Pattern after Southern Nevada Water Authority, East Bay Municipal District or Seattle Water Department programs.

Comments

SCVWD: SCVWD Water Conservation Budget, Res, CII, Landscape, Ag, Program Support - flexible. In-house CII surveys upon request. WET Program - water saved funding past statistics - less than 4 sites per year for about 7,000 ccf per year saved. Average cost is $4 per ccf saved or 50% of the cost (whichever is less). Limiting factor often the 50% cost. Cost sharing water only partners including the $4 per ccf (not wastewater or energy cost sharing). Ice machines and food steamers are new and just getting started. Limited on any water-cooled ice machines. Current customer participation based on WCDB CII equipment upgrade incentive program record (2004-2013).

Fixture Costs	Utility	Customer	Fix/Acct
SF	$0	$0	0
MF	$0	$0	0
COM	$5,000	$5,000	1
IND	$5,000	$5,000	1
INST	$5,000	$5,000	1
MUN	$5,000	$5,000	1
IRR	$0	$0	0
AG	$0	$0	0
REC	$0	$0	0
OTH	$0	$0	0

Target	
Annual % of Accts	1%
Affects Only New Accounts	☐

Administration Costs	
Markup Percentage	30%

Measure 17 CII HECW Rebates

CII HECW Rebates

Overview	
Name	CII HECW Rebates
Abbr	17
Category	
Measure Type	Standard Measure

Time Period	
Start Year	2013
Last Year	2021
Total Years	9

Measure Life	
Permanent	☑
Years	0
Repeat	☐

Categories	
SF	☐
MF	☐
COM	☑
IND	☑
INST	☑
MUN	☐
IRR	☐
AG	☐
REC	☐
OTH	☐

End Uses	
Toilets	☐
Urinals	☐
Faucets	☐
Showers	☐
Dishwashers	☐
Clothes Washers	☑
Process	☐
Spray Rinse	☐
Bath	☐
Internal Leakage	☐
Other	☐
Irrigation	☐
Pool	☐
Wash Down	☐
Car Washing	☐
External Leakage	☐
Outdoor	☐

Fixture Water Savings	
Toilets	0%
Urinals	0%
Faucets	0%
Showers	0%
Dishwashers	0%
Clothes Washers	37%
Process	0%
Spray Rinse	0%
Bath	0%
Internal Leakage	0%
Other	0%
Irrigation	0%
Pool	0%
Wash Down	0%
Car Washing	0%
External Leakage	0%
Outdoor	0%

Description

BAWSCA REGIONAL MEASURE: Provide a rebate for the installation of a high efficiency commercial washer (HECW). Rebate amounts would reflect the incremental purchase cost. Program will be shorter lived as it is intended to be a market transformation measure and eventually would be stopped as efficient units reach saturation.

Comments

Water savings between conventional and Energy Star machines is 37% from Energy Star website appliance savings calculator downloaded on September 20, 2013. Customer cost based on Tier 3 machines cost difference of a high end machine according to Google price research as of April 2014. Assumes 10 machines per account.

Fixture Costs	Utility	Customer	Fix/Acct
SF	$0	$0	0
MF	$0	$0	0
COM	$400	$1,100	10
IND	$400	$1,100	10
INST	$400	$1,100	10
MUN	$0	$0	0
IRR	$0	$0	0
AG	$0	$0	0

Target	
Annual % of Accts	3%
Affects Only New Accounts	☐

Administration Costs	
Markup Percentage	30%

Measure 18 CII HET Rebates

CII HET Rebates

Overview	
Name	CII HET Rebates
Abbr	18
Category	
Measure Type	Standard Measure

Time Period	
Start Year	2013
Last Year	2020
Total Years	8

Measure Life	
Permanent	☑
Years	0
Repeat	☐

Categories	
SF	☐
MF	☐
COM	☑
IND	☑
INST	☑
MUN	☐
IRR	☐
AG	☐
REC	☐
OTH	☐

End Uses	
Toilets	☑
Urinals	☐
Faucets	☐
Showers	☐
Dishwashers	☐
Clothes Washers	☐
Process	☐
Spray Rinse	☐
Bath	☐
Internal Leakage	☐
Other	☐
Irrigation	☐
Pool	☐
Wash Down	☐
Car Washing	☐
External Leakage	☐
Outdoor	☐

Fixture Water Savings	
Toilets	46%
Urinals	0%
Faucets	0%
Showers	0%
Dishwashers	0%
Clothes Washers	0%
Process	0%
Spray Rinse	0%
Bath	0%
Internal Leakage	0%
Other	0%
Irrigation	0%
Pool	0%
Wash Down	0%
Car Washing	0%
External Leakage	0%
Outdoor	0%

Description

BAWSCA REGIONAL MEASURE: Provide a rebate or voucher for the installation of a high efficiency toilet (HET) - toilets flushing 1.28 gpf or less and include dual flush technology. Rebate amounts would reflect the incremental purchase cost.

Comments

Rebate for utility is $125 premium (less than 1.0 gpf) toilet purchase. $50 rebate offered for non-UHET. The $150 customer cost is for installation. Current customer participation based on WCDB measure record (2004-2013). Assumes 10 toilets per CII account.

Fixture Costs	Utility	Customer	Fix/Acct
SF	$0	$0	0
MF	$0	$0	0
COM	$125	$150	10
IND	$125	$150	10
INST	$125	$150	10

Target	
Annual % of Accts	1%
Affects Only New Accounts	☐

Administration Costs	
Markup Percentage	30%

Measure 19 HE Urinal Rebates

HE Urinal Rebates

Overview	
Name	HE Urinal Rebates
Abbr	19
Category	
Measure Type	Standard Measure

Time Period	
Start Year	2013
Last Year	2017
Total Years	5

Measure Life	
Permanent	☑
Years	0
Repeat	☐

Categories	
SF	☐
MF	☐
COM	☑
IND	☑
INST	☑
MUN	☐
IRR	☐
AG	☐
REC	☐
OTH	☐

End Uses	
Toilets	☐
Urinals	☑
Faucets	☐
Showers	☐
Dishwashers	☐
Clothes Washers	☐
Process	☐
Spray Rinse	☐
Bath	☐
Internal Leakage	☐
Other	☐
Irrigation	☐
Pool	☐
Wash Down	☐
Car Washing	☐
External Leakage	☐
Outdoor	☐

Fixture Water Savings	
Toilets	0%
Urinals	75%
Faucets	0%
Showers	0%
Dishwashers	0%
Clothes Washers	0%
Process	0%
Spray Rinse	0%
Bath	0%
Internal Leakage	0%
Other	0%
Irrigation	0%
Pool	0%
Wash Down	0%
Car Washing	0%
External Leakage	0%
Outdoor	0%

Description

BAWSCA REGIONAL MEASURE: Provide a rebate or voucher for the installation of a high efficiency urinals. WaterSense standard is .5 gpf or less, though models flushing as low as 0.125 gpf (1 pint) are available and function well, so could be specified. Rebate amounts would reflect the incremental purchase cost of approx. $300.

Comments

Cost based on SCVWD Direct install unit cost rebate of $300. Water savings of 75% is based on the difference between 1.0 gpf urinal and a 0.25 gpf to 0.125 gpf (1 pint) urinal. Assumes 10 urinals per CII account.

Fixture Costs	Utility	Customer	Fix/Acct
SF	$0	$0	0
MF	$0	$0	0
COM	$300	$50	10
IND	$300	$50	10
INST	$300	$50	10

Target	
Annual % of Accts	1%
Affects Only New Accounts	☐

Measure 20 School Building Retrofit

School Building Retrofit

Overview	
Name	School Building Retrofit
Abbr	20
Category	
Measure Type	Standard Measure

Time Period	
Start Year	2016
Last Year	2030
Total Years	15

Measure Life	
Permanent	☑
Years	0
Repeat	☐

Categories	
SF	☐
MF	☐
COM	☑
IND	☐
INST	☑
MUN	☐
IRR	☐
AG	☐
REC	☐
OTH	☐

End Uses	
Toilets	☑
Urinals	☑
Faucets	☑
Showers	☑
Dishwashers	☐
Clothes Washers	☑
Process	☑
Spray Rinse	☑
Bath	☐
Internal Leakage	☑
Other	☑
Irrigation	☑
Pool	☐
Wash Down	☐
Car Washing	☐
External Leakage	☐
Outdoor	☐

Fixture Water Savings	
Toilets	20%
Urinals	20%
Faucets	20%
Showers	20%
Dishwashers	0%
Clothes Washers	20%
Process	20%
Spray Rinse	20%
Bath	0%
Internal Leakage	20%
Other	20%
Irrigation	20%
Pool	0%
Wash Down	0%
Car Washing	0%
External Leakage	0%
Outdoor	0%

Description

BAWSCA REGIONAL MEASURE: School retrofit program wherein school receives a grant to replace inefficient fixtures and upgrade irrigation systems. Consider patterning after other programs. One example is EBMUD's program.

Comments

The $5,000 utility cost assumes replacement of high use toilets and some irrigation system improvement (where applicable).

Fixture Costs	Utility	Customer	Fix/Acct
SF	$0	$0	0
MF	$0	$0	0
COM	$5,000	$5,000	1
IND	$0	$0	0
INST	$5,000	$5,000	1

Target	
Annual % of Accts	1%
Affects Only New Accounts	☐

Administration Costs	
Markup Percentage	25%

Measure 21 Irrigation Surveys

Irrigation Surveys

Overview	
Name	Irrigation Surveys
Abbr	21
Category	
Measure Type	Standard Measure

Time Period	
Start Year	2013
Last Year	2040
Total Years	28

Measure Life	
Permanent	☐
Years	10
Repeat	☑

Categories	
SF	☐
MF	☑
COM	☑
IND	☐
INST	☑
MUN	☑
IRR	☑
AG	☐
REC	☐
OTH	☐

End Uses	
Toilets	☐
Urinals	☐
Faucets	☐
Showers	☐
Dishwashers	☐
Clothes Washers	☐
Process	☐
Spray Rinse	☐
Bath	☐
Internal Leakage	☐
Other	☐
Irrigation	☑
Pool	☐
Wash Down	☐
Car Washing	☐
External Leakage	☐
Outdoor	☐

Fixture Water Savings	
Toilets	0%
Urinals	0%
Faucets	0%
Showers	0%
Dishwashers	0%
Clothes Washers	0%
Process	0%
Spray Rinse	0%
Bath	0%
Internal Leakage	0%
Other	0%
Irrigation	20%
Pool	0%
Wash Down	0%
Car Washing	0%
External Leakage	0%
Outdoor	0%

Description

BAWSCA REGIONAL MEASURE: Outdoor water audits offered for existing large landscape customers. Normally those with high water use are targeted and provided a customized report on how to save water. All large multi-family residential, CII, and public irrigators of large landscapes would be eligible for free landscape water audits upon request. Tied to the WaterFluence Budget Program.

Comments

Assumes all large landscape accounts can apply. Assume average site is 3 acres and costs $500/acre, $1,500 per site. Current customer participation based on BAWSCA Water Conservation Data Base measure record (2004-2013).

Fixture Costs	Utility	Customer	Fix/Acct
SF	$0	$0	0
MF	$1,500	$500	1
COM	$1,500	$500	1
IND	$0	$0	0
INST	$1,500	$500	1
MUN	$1,500	$500	1
IRR	$1,500	$500	1

Target	
Annual % of Accts	1%
Affects Only New Accounts	☐

Administration Costs	
Markup Percentage	25%

Measure 22 Landscape Budgets and Meters

Landscape Budgets & Meters

Overview	
Name	Landscape Budgets & Met
Abbr	22
Category	
Measure Type	Standard Measure

Time Period	
Start Year	2015
Last Year	2040
Total Years	26

Measure Life	
Permanent	☐
Years	15
Repeat	☑

Categories	
SF	☐
MF	☐
COM	☐
IND	☐
INST	☐
MUN	☐
IRR	☑
AG	☐
REC	☐
OTH	☐

End Uses	
Toilets	☐
Urinals	☐
Faucets	☐
Showers	☐
Dishwashers	☐
lothes Washers	☐
Process	☐
Spray Rinse	☐
Bath	☐
nternal Leakage	☐
Other	☐
Irrigation	☑
Pool	☐
Wash Down	☐
Car Washing	☐
xternal Leakage	☐
Outdoor	☐

Fixture Water Savings	
Toilets	0%
Urinals	0%
Faucets	0%
Showers	0%
Dishwashers	0%
Clothes Washers	0%
Process	0%
Spray Rinse	0%
Bath	0%
Internal Leakage	0%
Other	0%
Irrigation	10%
Pool	0%
Wash Down	0%
Car Washing	0%
External Leakage	0%
Outdoor	0%

Description

BAWSCA REGIONAL MEASURE: Website that provides feedback on irrigation water use (budget vs. actual) current WaterFluence Program. May include the cost for dedicated meter conversion.

Comments

Current customer participation based on BAWSCA Water Conservation Database measure record (2004-2013). NOTE - This measure will not have cost data or water savings if there is no IRR account category for the water agency.

Fixture Costs	Utility	Customer	Fix/Acct
SF	$0	$0	0
MF	$0	$0	0
COM	$0	$0	0
IND	$0	$0	0
INST	$0	$0	0
MUN	$0	$0	0
IRR	$2,500	$500	1

Target	
Annual % of Accts	5%
Affects Only New Accounts	☐

Administration Costs	
Markup Percentage	25%

Measure 23 Turf Removal CII/MF

Turf Removal CII/MF

Overview	
Name	Turf Removal CII/MF
Abbr	23
Category	
Measure Type	Standard Measure

Time Period	
Start Year	2014
Last Year	2040
Total Years	27

Measure Life	
Permanent	☑
Years	0
Repeat	☐

Categories	
SF	☐
MF	☑
COM	☑
IND	☑
INST	☑
MUN	☐
IRR	☐
AG	☐
REC	☐
OTH	☐

End Uses	
Toilets	☐
Urinals	☐
Faucets	☐
Showers	☐
Dishwashers	☐
Clothes Washers	☐
Process	☐
Spray Rinse	☐
Bath	☐
Internal Leakage	☐
Other	☐
Irrigation	☑
Pool	☐
Wash Down	☐
Car Washing	☐
External Leakage	☐
Outdoor	☐

Fixture Water Savings	
Toilets	0%
Urinals	0%
Faucets	0%
Showers	0%
Dishwashers	0%
Clothes Washers	0%
Process	0%
Spray Rinse	0%
Bath	0%
Internal Leakage	0%
Other	0%
Irrigation	25%
Pool	0%
Wash Down	0%
Car Washing	0%
External Leakage	0%
Outdoor	0%

Description

BAWSCA REGIONAL MEASURE: Provide a per square foot incentive to remove turf and replace with low water use plants or hardscape. Rebate is based on price per square foot removed, and capped at an upper limit for multi-family or commercial residence.

Comments

Current customer participation based on BAWSCA WCDB measure record.

Fixture Costs	Utility	Customer	Fix/Acct
SF	$0	$0	0
MF	$5,000	$20,000	1
COM	$5,000	$20,000	1
IND	$5,000	$20,000	1
INST	$5,000	$20,000	1

Target	
Annual % of Accts	0.4%
Affects Only New Accounts	☐

Administration Costs	
Markup Percentage	40%

Measure 24 CII WBIC Rebate

CII WBIC Rebate

Overview	
Name	CII WBIC Rebate
Abbr	24
Category	
Measure Type	Standard Measure

Time Period	
Start Year	2016
Last Year	2040
Total Years	25

Measure Life	
Permanent	☑
Years	0
Repeat	☐

Categories	
SF	☐
MF	☑
COM	☑
IND	☑
INST	☑
MUN	☐
IRR	☐
AG	☐
REC	☐
OTH	☐

End Uses	
Toilets	☐
Urinals	☐
Faucets	☐
Showers	☐
Dishwashers	☐
Clothes Washers	☐
Process	☐
Spray Rinse	☐
Bath	☐
Internal Leakage	☐
Other	☐
Irrigation	☑
Pool	☐
Wash Down	☐
Car Washing	☐
External Leakage	☐
Outdoor	☐

Fixture Water Savings	
Toilets	0%
Urinals	0%
Faucets	0%
Showers	0%
Dishwashers	0%
Clothes Washers	0%
Process	0%
Spray Rinse	0%
Bath	0%
Internal Leakage	0%
Other	0%
Irrigation	15%
Pool	0%
Wash Down	0%
Car Washing	0%
External Leakage	0%
Outdoor	0%

Description

BAWSCA REGIONAL MEASURE: Provide a per station rebate (i.e. $25 per station) for the purchase of a weather based irrigation controller. These controllers have on-site weather sensors or rely on a signal from a central weather station that modifies irrigation times at least weekly. Requires local irrigation contractors who are competent with these products, so may require sponsoring a training program in association with this measure.

Comments

Cost assumes 25 stations. For large sites assumes 3 controller needed.

Fixture Costs	Utility	Customer	Fix/Acct
SF	$0	$0	0
MF	$1,000	$2,000	3
COM	$1,000	$2,000	3
IND	$1,000	$2,000	3
INST	$1,000	$2,000	3

Target	
Annual % of Accts	1%
Affects Only New Accounts	☐

Administration Costs	
Markup Percentage	20%

Measure 25 Sprinkler Nozzle Rebate

Sprinkler Nozzle Rebate

Overview	
Name	Sprinkler Nozzle Rebate
Abbr	25
Category	
Measure Type	Standard Measure

Time Period	
Start Year	2015
Last Year	2040
Total Years	26

Measure Life	
Permanent	☐
Years	7
Repeat	☑

Description

BAWSCA REGIONAL MEASURE: Provide rebates to replace standard spray sprinkler nozzles with rotating nozzles that have lower application rates. This is a current SCVWD program.

Categories	
SF	☑
MF	☑
COM	☑
IND	☑
INST	☑
MUN	☐
IRR	☐
AG	☐
REC	☐
OTH	☐

End Uses	
Toilets	☐
Urinals	☐
Faucets	☐
Showers	☐
Dishwashers	☐
Clothes Washers	☐
Process	☐
Spray Rinse	☐
Bath	☐
Internal Leakage	☐
Other	☐
Irrigation	☑
Pool	☐
Wash Down	☐
Car Washing	☐
External Leakage	☐
Outdoor	☐

Fixture Water Savings	
Toilets	0%
Urinals	0%
Faucets	0%
Showers	0%
Dishwashers	0%
Clothes Washers	0%
Process	0%
Spray Rinse	0%
Bath	0%
Internal Leakage	0%
Other	0%
Irrigation	10%
Pool	0%
Wash Down	0%
Car Washing	0%
External Leakage	0%
Outdoor	0%

Comments

Utility cost based on SCVWD program rebate cost of $5. Actual cost of device is typically $6 per nozzle, so customer cost is $1 per nozzle. Assumes 20 nozzles for SF, 30 nozzles for MF and 50 nozzles for CII accounts. Water savings assumption at 10% is conservative for Bay Area conditions. Many studies on this device are from Southern California and claim 20% savings (but that is for a different climate). The 10% savings is also conservative as many sites upgrade more than just sprinkler nozzles if they do a landscape retrofit and do not want to overstate the water savings for landscape measures.

Fixture Costs

	Utility	Customer	Fix/Acct
SF	$5	$1	20
MF	$5	$1	30
COM	$5	$1	50
IND	$5	$1	50
INST	$5	$1	50
MUN	$0	$0	0
IRR	$0	$0	0
AG	$0	$0	0
REC	$0	$0	0

Target	
Annual % of Accts	2%
Affects Only New Accounts	☐

Administration Costs	
Markup Percentage	20%

REFERENCES

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URS Corporation and Maddaus Water Management, SFPUC Wholesale Customer Water Demand Projections, 2004.

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Technical Memorandum #3
BAWSCA Regional Demand and Conservation Projections
Water Conservation Analysis – City of San Bruno

June 30, 2014

1. INTRODUCTION

The purpose of Technical Memorandum #3 (TM-3) for the Regional Demand and Conservation Projections Project (Project) is to document the projected water demands with conservation savings. TM-3 presents (1) the conservation analysis results and (2) the verification process to be completed and signed by each BAWSCA member agency to confirm the demand projections with active conservation savings. The process by which these projections were developed is documented in the Draft Project Report, which was distributed on June 16, 2014.

2. RESULTS OF WATER USE EFFICIENCY PROGRAM EVALUATION

Table 1 below presents the following results from the Project:

- Demand projections with no additional plumbing code savings (previously verified by member agency through Technical Memorandum #2 (TM-2) signature form)
- Demand projections with future plumbing code savings
- Demand projections with the future plumbing code savings and active conservation program savings.

The active conservation savings incorporated into these projections is the result of the agency-selected active conservation program in the agency's DSS Model. The DSS Model with the selected conservation program was returned to BAWSCA on June 30, 2014.

Table 1: Demand Projections*

Demand Forecast	2015	2020	2025	2030	2035	2040
Total Production with No Plumbing Code Savings* (MGD)	3.68	4.15	4.63	5.11	5.62	6.05
Total Production With Plumbing Code Savings* (MGD)	3.64	4.02	4.37	4.72	5.13	5.49
Total Production With Active Measure Savings* (MGD)	3.61	3.93	4.24	4.58	4.98	5.31

*Total Production accounts for the total projected water demand in a service area water system regardless of source. Source can be from SFPUC, groundwater, surface water, SWP or SCWVD.

Historical water demand projections have not specifically included those for the City of San Bruno's Transit Corridors Plan, which includes additional development of residential, retail, commercial offices, hotels, and associated landscaping. Projected water demands included herein have been adjusted to account for the estimated incremental water demands associated with the Transit Corridors Plan's as described in the City's "Water Supply Assessment for the Transit Corridors Plan," dated June 2011, and are consistent with the City's 2010 Urban Water Management Plan.

3. SIGNATURE PAGE AND PURPOSE OF AGENCY APPROVAL OF CONSERVATION SAVINGS USED FOR PROJECT

The final step in the water conservation analysis is the verification process under which BAWSCA and its member agencies review and confirm the conservation savings projections. To complete this process, each member agency is asked to complete the attached BAWSCA Agency Conservation Analysis Results Verification Form (Signature Form). The purpose of this step is to secure official confirmation that the conservation projections modeled are appropriate to use in the final Project report.

Signature Form

A copy of the Signature Form is provided on the next page. This form is to be signed by a representative of the BAWSCA Member Agency with appropriate signature authority and with knowledge of the basis for demand projections.

Please submit these forms via the Water Conservation Data Base no later than **July 1, 2014.**

BAWSCA AGENCY CONSERVATION ANALYSIS RESULTS VERIFICATION FORM

BAWSCA AGENCY NAME:	**City of San Bruno**
PROJECT MAIN CONTACT:	**Mark Reinhardt**
ADDRESS:	**225 Huntington Drive**
PHONE:	**650-616-7162**
E-MAIL:	**mreinhardt@sanbruno.ca.gov**

CONSERVATION VERIFICATION:
The data provided in Technical Memorandum #3 appears correct to our knowledge.
Please place a check below.
APPEARS VALID: ____*X*_____
NOT VALID _____

Comments:

_____
_____
_____

This form must be signed by a representative of the BAWSCA Member Agency with appropriate signature authority and with applicable knowledge of the basis for selection of the particular projection source.

FORM COMPLETED BY:
Mark Reinhardt Water System and Conservation Manger
Name and Title

Mark Reinhardt 7-1-14
Signature *Date*

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APPENDIX G

SB X7-7 Verification Form

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SB X7-7 Table 0: Units of Measure Used in UWMP* *(select one from the drop down list)*
Hundred Cubic Feet
**The unit of measure must be consistent with Table 2-3*
NOTES:

SB X7-7 Table-1: Baseline Period Ranges			
Baseline	**Parameter**	**Value**	**Units**
10- to 15-year baseline period	2008 total water deliveries	1,907,828	Hundred Cubic Feet
	2008 total volume of delivered recycled water	-	Hundred Cubic Feet
	2008 recycled water as a percent of total deliveries	0.00%	Percent
	Number of years in baseline period[1, 2]	10	Years
	Year beginning baseline period range	2001	
	Year ending baseline period range[3]	2010	
5-year baseline period	Number of years in baseline period	5	Years
	Year beginning baseline period range	2006	
	Year ending baseline period range[4]	2010	

[1] If the 2008 recycled water percent is less than 10 percent, then the first baseline period is a continuous 10-year period. If the amount of recycled water delivered in 2008 is 10 percent or greater, the first baseline period is a continuous 10- to 15-year period. [2] The Water Code requires that the baseline period is between 10 and 15 years. However, DWR recognizes that some water suppliers may not have the minimum 10 years of baseline data.

[3] The ending year must be between December 31, 2004 and December 31, 2010.

[4] The ending year must be between December 31, 2007 and December 31, 2010.

NOTES:

SB X7-7 Table 2: Method for Population Estimates	
Method Used to Determine Population (may check more than one)	
☑	**1. Department of Finance** (DOF) DOF Table E-8 (1990 - 2000) and (2000-2010) and DOF Table E-5 (2011 - 2015) when available
☐	**2. Persons-per-Connection Method**
☐	**3. DWR Population Tool**
☐	**4. Other** DWR recommends pre-review
NOTES:	

SB X7-7 Table 3: Service Area Population		
Year		Population
10 to 15 Year Baseline Population		
Year 1	2001	39,948
Year 2	2002	39,476
Year 3	2003	39,870
Year 4	2004	39,566
Year 5	2005	39,655
Year 6	2006	39,474
Year 7	2007	39,592
Year 8	2008	40,773
Year 9	2009	40,993
Year 10	2010	41,157
Year 11		
Year 12		
Year 13		
Year 14		
Year 15		
5 Year Baseline Population		
Year 1	2006	39,474
Year 2	2007	39,592
Year 3	2008	40,773
Year 4	2009	40,993
Year 5	2010	41,157
2015 Compliance Year Population		
2015		44,409
NOTES:		

SB X7-7 Table 4: Annual Gross Water Use *								
Baseline Year *Fm SB X7-7 Table 3*		**Volume Into Distribution System** *This column will remain blank until SB X7-7 Table 4-A is completed.*	**Deductions**					**Annual Gross Water Use**
			Exported Water	**Change in Dist. System Storage** (+/-)	**Indirect Recycled Water** *This column will remain blank until SB X7-7 Table 4-B is completed.*	**Water Delivered for Agricultural Use**	**Process Water** *This column will remain blank until SB X7-7 Table 4-D is completed.*	
10 to 15 Year Baseline - Gross Water Use								
Year 1	2001	2,151,796			-		-	2,151,796
Year 2	2002	2,044,450			-		-	2,044,450
Year 3	2003	1,961,501			-		-	1,961,501
Year 4	2004	2,005,416			-		-	2,005,416
Year 5	2005	1,761,448			-		-	1,761,448
Year 6	2006	1,868,794			-		-	1,868,794
Year 7	2007	1,800,483			-		-	1,800,483
Year 8	2008	1,907,828			-		-	1,907,828
Year 9	2009	1,878,552			-		-	1,878,552
Year 10	2010	1,780,965			-		-	1,780,965
Year 11	0	-			-		-	-
Year 12	0	-			-		-	-
Year 13	0	-			-		-	-
Year 14	0	-			-		-	-
Year 15	0	-			-		-	-
10 - 15 year baseline average gross water use								**1,916,123**
5 Year Baseline - Gross Water Use								
Year 1	2006	1,868,794			-		-	1,868,794
Year 2	2007	1,800,483			-		-	1,800,483
Year 3	2008	1,907,828			-		-	1,907,828
Year 4	2009	1,878,552			-		-	1,878,552
Year 5	2010	1,780,965			-		-	1,780,965
5 year baseline average gross water use								**1,847,324**
2015 Compliance Year - Gross Water Use								
2015		1,529,900	-		-		-	**1,529,900**

* NOTE that the units of measure must remain consistent throughout the UWMP, as reported in Table 2-3

NOTES: Volumes are in Hundred Cubic Feet.

SB X7-7 Table 4-A: Volume Entering the Distribution System(s)

Complete one table for each source.

Name of Source	All Sources			
This water source is:				
☑	The supplier's own water source			
☑	A purchased or imported source			
Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional (+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	2001	2,151,796		2,151,796
Year 2	2002	2,044,450		2,044,450
Year 3	2003	1,961,501		1,961,501
Year 4	2004	2,005,416		2,005,416
Year 5	2005	1,761,448		1,761,448
Year 6	2006	1,868,794		1,868,794
Year 7	2007	1,800,483		1,800,483
Year 8	2008	1,907,828		1,907,828
Year 9	2009	1,878,552		1,878,552
Year 10	2010	1,780,965		1,780,965
Year 11	0			-
Year 12	0			-
Year 13	0			-
Year 14	0			-
Year 15	0			-
5 Year Baseline - Water into Distribution System				
Year 1	2006	1,868,794		1,868,794
Year 2	2007	1,800,483		1,800,483
Year 3	2008	1,907,828		1,907,828
Year 4	2009	1,878,552		1,878,552
Year 5	2010	1,780,965		1,780,965
2015 Compliance Year - Water into Distribution System				
2015		1,529,900		1,529,900

** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES: Volumes are in Hundred Cubic Feet.

SB X7-7 Table 5: Gallons Per Capita Per Day (GPCD)				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Annual Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use (GPCD)
10 to 15 Year Baseline GPCD				
Year 1	2001	39,948	2,151,796	110
Year 2	2002	39,476	2,044,450	106
Year 3	2003	39,870	1,961,501	101
Year 4	2004	39,566	2,005,416	104
Year 5	2005	39,655	1,761,448	91
Year 6	2006	39,474	1,868,794	97
Year 7	2007	39,592	1,800,483	93
Year 8	2008	40,773	1,907,828	96
Year 9	2009	40,993	1,878,552	94
Year 10	2010	41,157	1,780,965	89
Year 11	0	-	-	
Year 12	0	-	-	
Year 13	0	-	-	
Year 14	0	-	-	
Year 15	0	-	-	
10-15 Year Average Baseline GPCD				**98**
5 Year Baseline GPCD				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use
Year 1	2006	39,474	1,868,794	97
Year 2	2007	39,592	1,800,483	93
Year 3	2008	40,773	1,907,828	96
Year 4	2009	40,993	1,878,552	94
Year 5	2010	41,157	1,780,965	89
5 Year Average Baseline GPCD				**94**
2015 Compliance Year GPCD				
2015		44,409	1,529,900	**71**

NOTES: Volumes are in Hundred Cubic Feet.

SB X7-7 Table 6: Gallons per Capita per Day *Summary From Table SB X7-7 Table 5*	
10-15 Year Baseline GPCD	98
5 Year Baseline GPCD	94
2015 Compliance Year GPCD	71
NOTES:	

SB X7-7 Table 7: 2020 Target Method *Select Only One*		
Target Method		Supporting Documentation
☐	Method 1	SB X7-7 Table 7A
☐	Method 2	SB X7-7 Tables 7B, 7C, and 7D *Contact DWR for these tables*
☑	Method 3	SB X7-7 Table 7-E
☐	Method 4	Method 4 Calculator
NOTES:		

SB X7-7 Table 7-E: Target Method 3				
Agency May Select More Than One as Applicable	Percentage of Service Area in This Hydrological Region	Hydrologic Region	"2020 Plan" Regional Targets	Method 3 Regional Targets (95%)
☐		North Coast	137	130
☐		North Lahontan	173	164
☐		Sacramento River	176	167
☑	100%	San Francisco Bay	131	124
☐		San Joaquin River	174	165
☐		Central Coast	123	117
☐		Tulare Lake	188	179
☐		South Lahontan	170	162
☐		South Coast	149	142
☐		Colorado River	211	200
Target *(If more than one region is selected, this value is calculated.)*				**124**

NOTES:

SB X7-7 Table 7-F: Confirm Minimum Reduction for 2020 Target			
5 Year Baseline GPCD *From SB X7-7 Table 5*	Maximum 2020 Target[1]	Calculated 2020 Target[2]	**Confirmed 2020 Target**
94	N/A	124	**124**

[1] Maximum 2020 Target is 95% of the 5 Year Baseline GPCD [2] 2020 Target is calculated based on the selected Target Method, see SB X7-7 Table 7 and corresponding tables for agency's calculated target.

NOTES: Per Water Code Section 10608.22, because the City's 5-year baseline is less than 100 GPCD, this minimum reduction does not apply.

SB X7-7 Table 8: 2015 Interim Target GPCD		
Confirmed 2020 Target *Fm SB X7-7 Table 7-F*	10-15 year Baseline GPCD *Fm SB X7-7 Table 5*	**2015 Interim Target GPCD**
124	98	**111**

NOTES: Because the City's Baseline GPCD is lower than the Confirmed 2020 Target, the City has interpreted that the appropriate 2015 Interim Target would be the same as the Confirmed 2020 Target, not the midpoint of the Baseline GPCD and the Confirmed 2020 Target (see footnote (a) to Table 5-4 on page 5-8 of the City's UWMP).

SB X7-7 Table 9: 2015 Compliance								
Actual 2015 GPCD	2015 Interim Target GPCD	Optional Adjustments *(in GPCD)* Enter "0" if Adjustment Not Used			TOTAL Adjustments	Adjusted 2015 GPCD	2015 GPCD *(Adjusted if applicable)*	**Did Supplier Achieve Targeted Reduction for 2015?**
		Extraordinary Events	Weather Normalization	Economic Adjustment				
71	111	*From Methodology 8 (Optional)*	*From Methodology 8 (Optional)*	*From Methodology 8 (Optional)*	-	71	71	**YES**

NOTES: Because the City's Baseline GPCD is lower than the Confirmed 2020 Target, the City has interpreted that the appropriate 2015 Interim Target would be the same as the Confirmed 2020 Target, not the midpoint of the Baseline GPCD and the Confirmed 2020 Target (see footnote (a) to Table 5-4 on page 5-8 of the City's UWMP). However, regardless of how the 2015 Interim Target is calculated, the City has met the 2015 Interim Target.

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APPENDIX H

Water Supply Agreements

- Water Sales Contract between City of San Bruno and City and County of San Francisco
- Intertie and Water Service Agreement between City of San Bruno and North Coast County Water District

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ATTACHMENT F

WATER SALES CONTRACT

This Contract, dated as of _____, 2009, is entered into by and between the City and County of San Francisco ("San Francisco") and

_____

_____ ("Customer").

RECITALS

San Francisco and the Customer have entered into a Water Supply Agreement ("WSA"), which sets forth the terms and conditions under which San Francisco will continue to furnish water for domestic and other municipal purposes to Customer and to other Wholesale Customers. The WSA contemplates that San Francisco and each individual Wholesale Customer will enter into an individual contract describing the location or locations at which water will be delivered to each customer by the San Francisco Public Utilities Commission ("SFPUC"), the customer's service area within which water so delivered is to be sold, and other provisions unique to the individual purchaser. This Water Sales Contract is the individual contract contemplated by the WSA.

AGREEMENTS OF THE PARTIES

1. Incorporation of the WSA

The terms and conditions of the WSA are incorporated into this Contract as if set forth in full herein.

2. Term

Unless explicitly provided to the contrary in Article 9 of the WSA, the term of this Contract shall be identical to that provided in Section ___ of the WSA.

3. Service Area

Water delivered by San Francisco to the Customer may be used or sold within the service area shown on the map designated Exhibit A attached hereto. Except as provided in Section ___ of the WSA, Customer shall not deliver or sell any water provided by San Francisco outside of this area without the prior written consent of the General Manager of the SFPUC.

4. Location and Description of Service Connections

Sale and delivery of water to Customer will be made through a connection or connections to the SFPUC Regional Water System at the location or locations shown on Exhibit A attached hereto and with the applicable present account number, description, connection size, and meter size shown on Exhibit B attached hereto.

5. Interties With Other Systems.

Customer maintains interties with neighboring water systems at the location or locations shown on Exhibit A attached hereto and with the connection size(s) as shown on Exhibit C attached hereto.

6. Billing and Payment

San Francisco shall compute the amounts of water delivered and bill Customer therefor on a monthly basis. The bill shall show the separate components of the charge (e.g., service, consumption, demand). Customer shall pay the amount due within thirty (30) days after receipt of the bill.

If Customer disputes the accuracy of any portion of the water bill it shall (a) notify the General Manager of the SFPUC in writing of the specific nature of the dispute and (b) pay the undisputed portion of the bill within thirty (30) days after receipt. Customer shall meet with the General Manager of the SFPUC or a delegate to discuss the disputed portion of the bill.

7., 8., 9... Other Specialized Provisions

[Certain Wholesale Customers will require additional provisions in their individual contracts addressed to issues such as minimum and/or maximum water delivery quantities, prior authorized wheeling arrangements, maximum expansion of the service area, etc. These and other provisions addressing issues unique to the particular Wholesale Customer may be added here, subject to the provisions of Section 9.01 of the WSA.]

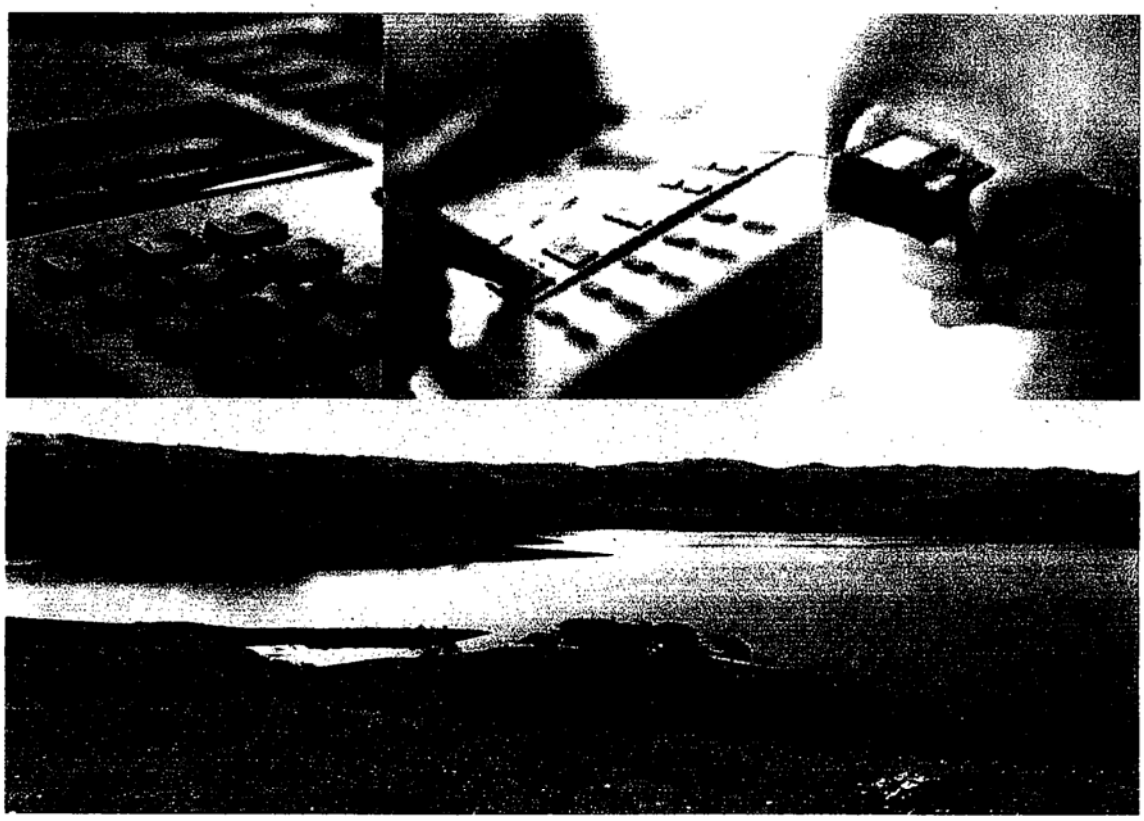
IN WITNESS WHEREOF, the parties hereto have executed this Contract, to become effective upon the effectiveness of the WSA, by their duly authorized representatives.

CITY AND COUNTY OF SAN FRANCISCO Acting by and through its Public Utilities Commission BY _____ Edward Harrington General Manager	Date: _____, 2009
NAME OF WHOLESALE CUSTOMER BY _____ Name: Title:	Date: _____, 2009

Note: This attachment is provided for the convenience of the prospective parties to the Water Supply Agreement and associated individual contracts. The format may be modified as desired by San Francisco and Wholesale Customer, subject to Section 9.01 of the WSA.

ATTACHMENT G

Water Quality Notification and Communications Plan Revision 4 January 2006



Updated by:
Water Quality Engineering
Olivia Chen Consultants, Inc.

ATTACHMENT H

WATER SHORTAGE ALLOCATION PLAN

This Interim Water Shortage Allocation Plan ("Plan") describes the method for allocating water between the San Francisco Public Utilities Commission ("SFPUC") and the Wholesale Customers collectively during shortages caused by drought. The Plan implements a method for allocating water among the individual Wholesale Customers which has been adopted by the Wholesale Customers. The Plan includes provisions for transfers, banking, and excess use charges. The Plan applies only when the SFPUC determines that a system-wide water shortage due to drought exists, and all references to "shortages" and "water shortages" are to be so understood. This Plan was adopted pursuant to Section 7.03(a) of the 1984 Settlement Agreement and Master Water Sales Contract and has been updated to correspond to the terminology used in the June 2009 Water Supply Agreement between the City and County of San Francisco and Wholesale Customers in Alameda County, San Mateo County and Santa Clara County ("Agreement").

SECTION 1. SHORTAGE CONDITIONS

1.1. Projected Available SFPUC Water Supply. The SFPUC shall make an annual determination as to whether or not a shortage condition exists. The determination of projected available water supply shall consider, among other things, stored water, projected runoff, water acquired by the SFPUC from non-SFPUC sources, inactive storage, reservoir losses, allowance for carryover storage, and water bank balances, if any, described in Section 3.

1.2 Projected SFPUC Purchases. The SFPUC will utilize purchase data, including volumes of water purchased by the Wholesale Customers and by Retail Customers (as those terms are used in the Agreement) in the year immediately prior to the drought, along with other available relevant information, as a basis for determining projected system-wide water purchases from the SFPUC for the upcoming year.

1.3. Shortage Conditions. The SFPUC will compare the available water supply (Section 1.1) with projected system-wide water purchases (Section 1.2). A shortage condition exists if the SFPUC determines that the projected available water supply is less than projected system-wide water purchases in the upcoming Supply Year (defined as the period from July 1 through June 30). When a shortage condition exists, SFPUC will determine whether voluntary or mandatory actions will be required to reduce purchases of SFPUC water to required levels.

1.3.1 Voluntary Response. If the SFPUC determines that voluntary actions will be sufficient to accomplish the necessary reduction in water use throughout its service area, the SFPUC and the Wholesale Customers will make good faith efforts to reduce their water purchases to stay within their annual shortage allocations and associated monthly water use budgets. The SFPUC will not impose excess use charges during periods of voluntary rationing, but may suspend the prospective accumulation of water bank credits, or impose a ceiling on further accumulation of bank credits, consistent with Section 3.2.1 of this Plan.

1.3.2 Mandatory Response. If the SFPUC determines that mandatory actions will be required to accomplish the necessary reduction in water use in the SFPUC service area, the SFPUC may implement excess use charges as set forth in Section 4 of this Plan.

1.4. Period of Shortage. A shortage period commences when the SFPUC determines that a water shortage exists, as set forth in a declaration of water shortage emergency issued by the SFPUC pursuant to California Water Code Sections 350 et seq. Termination of the water shortage emergency will be declared by resolution of the SFPUC.

SECTION 2. SHORTAGE ALLOCATIONS

2.1. Annual Allocations between the SFPUC and the Wholesale Customers. The annual water supply available during shortages will be allocated between the SFPUC and the collective Wholesale Customers as follows:

Level of System Wide Reduction in Water Use Required	Share of Available Water	
	SFPUC Share	Wholesale Customers Share
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%

The water allocated to the SFPUC shall correspond to the total allocation for all Retail Customers.

2.2 Annual Allocations among the Wholesale Customers. The annual water supply allocated to the Wholesale Customers collectively during system wide shortages of 20 percent or less will be apportioned among them based on a methodology adopted by all of the Wholesale Customers, as described in Section 3.11(C) of the Agreement. In any year for which the methodology must be applied, the Bay Area Water Supply and Conservation Agency ("BAWSCA") will calculate each Wholesale Customer's individual percentage share of the amount of water allocated to the Wholesale Customers collectively pursuant to Section 2.1. Following the declaration or reconfirmation of a water shortage emergency by the SFPUC, BAWSCA will deliver to the SFPUC General Manager a list, signed by the President of BAWSCA's Board of Directors and its General Manager, showing each Wholesale Customer together with its percentage share and stating that the list has been prepared in accordance with the methodology adopted by the Wholesale Customers. The SFPUC shall allocate water to each Wholesale Customer, as specified in the list. The shortage allocations so established may be transferred as provided in Section 2.5 of this Plan. If BAWSCA or all Wholesale Customers do not provide the SFPUC with individual allocations, the SFPUC may make a final allocation decision after first meeting and discussing allocations with BAWSCA and the Wholesale Customers.

The methodology adopted by the Wholesale Customers utilizes the rolling average of each individual Wholesale Customer's purchases from the SFPUC during the three immediately

preceding Supply Years. The SFPUC agrees to provide BAWSCA by November 1 of each year a list showing the amount of water purchased by each Wholesale Customer during the immediately preceding Supply Year. The list will be prepared using Customer Service Bureau report MGT440 (or comparable official record in use at the time), adjusted as required for any reporting errors or omissions, and will be transmitted by the SFPUC General Manager or his designee.

2.3. Limited Applicability of Plan to System Wide Shortages Greater Than Twenty Percent. The allocations of water between the SFPUC and the Wholesale Customers collectively, provided for in Section 2.1, apply only to shortages of 20 percent or less. The SFPUC and Wholesale Customers recognize the possibility of a drought occurring which could create system-wide shortages greater than 20 percent despite actions taken by the SFPUC aimed at reducing the probability and severity of water shortages in the SFPUC service area. If the SFPUC determines that a system wide water shortage greater than 20 percent exists, the SFPUC and the Wholesale Customers agree to meet within 10 days and discuss whether a change is required to the allocation set forth in Section 2.1 in order to mitigate undue hardships that might otherwise be experienced by individual Wholesale Customers or Retail Customers. Following these discussions, the Tier 1 water allocations set forth in Section 2.1 of this Plan, or a modified version thereof, may be adopted by mutual written consent of the SFPUC and the Wholesale Customers. If the SFPUC and Wholesale Customers meet and cannot agree on an appropriate Tier 1 allocation within 30 days of the SFPUC's determination of water shortage greater than 20 percent, then (1) the provisions of Section 3.11(C) of the Agreement will apply, unless (2) all of the Wholesale Customers direct in writing that a Tier 2 allocation methodology agreed to by them be used to apportion the water to be made available to the Wholesale Customers collectively, in lieu of the provisions of Section 3.11(C).

The provisions of this Plan relating to transfers (in Section 2.5), banking (in Section 3), and excess use charges (in Section 4) shall continue to apply during system-wide shortages greater than 20 percent.

2.4. Monthly Water Budgets. Within 10 days after adopting a declaration of water shortage emergency, the SFPUC will determine the amount of Tier 1 water allocated to the Wholesale Customers collectively pursuant to Section 2.1. The SFPUC General Manager, using the Tier 2 allocation percentages shown on the list delivered by BAWSCA pursuant to Section 2.2, will calculate each Wholesale Customer's individual annual allocation. The SFPUC General Manager, or his designee, will then provide each Wholesale Customer with a proposed schedule of monthly water budgets based on the pattern of monthly water purchases during the Supply Year immediately preceding the declaration of shortage (the "Default Schedule"). Each Wholesale Customer may, within two weeks of receiving its Default Schedule, provide the SFPUC with an alternative monthly water budget that reschedules its annual Tier 2 shortage allocation over the course of the succeeding Supply Year. If a Wholesale Customer does not deliver an alternative monthly water budget to the SFPUC within two weeks of its receipt of the Default Schedule, then its monthly budget for the ensuing Supply Year shall be the Default Schedule proposed by the SFPUC.

Monthly Wholesale Customer water budgets will be derived from annual Tier 2 allocations for purposes of accounting for excess use. Monthly Wholesale Customer water budgets shall be adjusted during the year to account for transfers of shortage allocation under Section 2.5 and

transfers of banked water under Section 3.4.

2.5. Transfers of Shortage Allocations. Voluntary transfers of shortage allocations between the SFPUC and any Wholesale Customers, and between any Wholesale Customers, will be permitted using the same procedure as that for transfers of banked water set forth in Section 3.4. The SFPUC and BAWSCA shall be notified of each transfer. Transfers of shortage allocations shall be deemed to be an emergency transfer and shall become effective on the third business day after notice of the transfer has been delivered to the SFPUC. Transfers of shortage allocations shall be in compliance with Section 3.05 of the Agreement. The transferring parties will meet with the SFPUC, if requested, to discuss any effect the transfer may have on its operations.

SECTION 3. SHORTAGE WATER BANKING

3.1. Water Bank Accounts. The SFPUC shall create a water bank account for itself and each Wholesale Customer during shortages in conjunction with its resale customer billing process. Bank accounts will account for amounts of water that are either saved or used in excess of the shortage allocation for each agency; the accounts are not used for tracking billings and payments. When a shortage period is in effect (as defined in Section 1.4), the following provisions for bank credits, debits, and transfers shall be in force. A statement of bank balance for each Wholesale Customer will be included with the SFPUC's monthly water bills.

3.2. Bank Account Credits. Each month, monthly purchases will be compared to the monthly budget for that month. Any unused shortage allocation by an agency will be credited to that agency's water bank account. Credits will accumulate during the entire shortage period, subject to potential restrictions imposed pursuant to Section 3.2.1. Credits remaining at the end of the shortage period will be zeroed out; no financial or other credit shall be granted for banked water.

3.2.1. Maximum Balances. The SFPUC may suspend the prospective accumulation of credits in all accounts. Alternatively, the SFPUC may impose a ceiling on further accumulation of credits in water bank balances based on a uniform ratio of the bank balance to the annual water allocation. In making a decision to suspend the prospective accumulation of water bank credits, the SFPUC shall consider the available water supply as set forth in Section 1.1 of this Plan and other reasonable, relevant factors.

3.3. Account Debits. Each month, monthly purchases will be compared to the budget for that month. Purchases in excess of monthly budgets will be debited against an agency's water bank account. Bank debits remaining at the end of the fiscal year will be subject to excess use charges (see Section 4).

3.4. Transfers of Banked Water. In addition to the transfers of shortage allocations provided for in Section 2.5, voluntary transfers of banked water will also be permitted between the SFPUC and any Wholesale Customer, and among the Wholesale Customers. The volume of transferred water will be credited to the transferee's water bank account and debited against the transferor's water bank account. The transferring parties must notify the SFPUC and BAWSCA of each transfer in writing (so that adjustments can be made to bank accounts), and will meet with the SFPUC, if requested, to discuss any affect the transfer may have on SFPUC operations. Transfers of banked water shall be deemed to be an emergency transfer and shall become effective on the third business day after notice of the transfer has been delivered to the SFPUC.

If the SFPUC incurs extraordinary costs in implementing transfers, it will give written notice to the transferring parties within ten (10) business days after receipt of notice of the transfer. Extraordinary costs means additional costs directly attributable to accommodating transfers and which are not incurred in non-drought years nor simply as a result of the shortage condition itself. Extraordinary costs shall be calculated in accordance with the procedures in the Agreement and shall be subject to the disclosure and auditing requirements in the Agreement. In the case of transfers between Wholesale Customers, such extraordinary costs shall be considered to be expenses chargeable solely to individual Wholesale Customers and shall be borne equally by the parties to the transfer. In the case of transfers between the SFPUC and a Wholesale Customer, the SFPUC's share of any extraordinary transfer costs shall not be added to the Wholesale Revenue Requirement.

3.4.1. Transfer Limitations. The agency transferring banked water will be allowed to transfer no more than the accumulated balance in its bank. Transfers of estimated prospective banked credits and the "overdrafting" of accounts shall not be permitted. The price of transfer water originally derived from the SFPUC system is to be determined by the transferring parties and is not specified herein. Transfers of banked water shall be in compliance with Section 3.05 of the Agreement.

SECTION 4. WHOLESALE EXCESS USE CHARGES

4.1. Amount of Excess Use Charges. Monthly excess use charges shall be determined by the SFPUC at the time of the declared water shortage consistent with the calendar in Section 6 and in accordance with Section 6.03 of the Agreement. The excess use charges will be in the form of multipliers applied to the rate in effect at the time the excess use occurs. The same excess use charge multipliers shall apply to the Wholesale Customers and all Retail Customers. The excess use charge multipliers apply only to the charges for water delivered at the rate in effect at the time the excess use occurred.

4.2 Monitoring Suburban Water Use. During periods of voluntary rationing, water usage greater than a customer's allocation (as determined in Section 2) will be indicated on each SFPUC monthly water bill. During periods of mandatory rationing, monthly and cumulative water usage greater than a Wholesale Customer's shortage allocation and the associated excess use charges will be indicated on each SFPUC monthly water bill.

4.3. Suburban Excess Use Charge Payments. An annual reconciliation will be made of monthly excess use charges according to the calendar in Section 6. Annual excess use charges will be calculated by comparing total annual purchases for each Wholesale Customer with its annual shortage allocation (as adjusted for transfers of shortage allocations and banked water, if any). Excess use charge payments by those Wholesale Customers with net excess use will be paid according to the calendar in Section 6. The SFPUC may dedicate excess use charges paid by Wholesale Customers toward the purchase of water from the State Drought Water Bank or other willing sellers in order to provide additional water to the Wholesale Customers. Excess use charges paid by the Wholesale Customers constitute Wholesale Customer revenue and shall be included within the SFPUC's annual Wholesale Revenue Requirement calculation.

SECTION 5. GENERAL PROVISIONS GOVERNING WATER SHORTAGE ALLOCATION PLAN

5.1. Construction of Terms. This Plan is for the sole benefit of the parties and shall not be construed as granting rights to any person other than the parties or imposing obligations on a party to any person other than another party.

5.2. Governing Law. This Plan is made under and shall be governed by the laws of the State of California.

5.3. Effect on Agreement. This Plan describes the method for allocating water between the SFPUC and the collective Wholesale Customers during system-wide water shortages of 20 percent or less. This Plan also provides for the SFPUC to allocate water among the Wholesale Customers in accordance with directions provided by the Wholesale Customers through BAWSCA under Section 2.2, and to implement a program by which such allocations may be voluntarily transferred among the Wholesale Customers. The provisions of this Plan are intended to implement Section 3.11(C) of the Agreement and do not affect, change or modify any other section, term or condition of the Agreement.

5.4. Inapplicability of Plan to Allocation of SFPUC System Water During Non-Shortage Periods. The SFPUC's agreement in this Plan to a respective share of SFPUC system water during years of shortage shall not be construed to provide a basis for the allocation of water between the SFPUC and the Wholesale Customers when no water shortage emergency exists.

5.5. Termination. This Plan shall expire at the end of the Term of the Agreement.. The SFPUC and the Wholesale Customers can mutually agree to revise or terminate this Plan prior to that date due to changes in the water delivery capability of the SFPUC system, the acquisition of new water supplies, and other factors affecting the availability of water from the SFPUC system during times of shortage.

SECTION 6. ALLOCATION CALENDAR

6.1. Annual Schedule. The annual schedule for the shortage allocation process is shown below. This schedule may be changed by the SFPUC to facilitate implementation.

6.1.1

In All Years	Target Dates
1. SFPUC delivers list of annual purchases by each Wholesale Customer during the immediately preceding Supply Year	November 1
2. SFPUC meets with the Wholesale Customers and presents water supply forecast for the following Supply Year	February
3. SFPUC issues initial estimate of available water supply	February 1
4. SFPUC announces potential first year of drought (if applicable)	February 1
5. SFPUC and Wholesale Customers meet upon request to exchange information concerning water availability and projected system-wide purchases	February 1-May 31
6. SFPUC issues revised estimate of available water supply, and confirms continued potential shortage conditions, if applicable	March 1
7. SFPUC issues final estimate of available water supply	April 15th or sooner if adequate snow course measurement data is available to form a robust estimate on available water supply for the coming year.
8. SFPUC determines amount of water available to Wholesale Customers collectively	April 15th or sooner if adequate snow course measurement data is available to form a robust estimate on available water supply for the coming year.

In Drought Years	Target Dates
9. SFPUC formally declares the existence of water shortage emergency (or end of water shortage emergency, if applicable) under Water Code Sections 350 et. seq.	April 15-31
10. SFPUC declares the need for a voluntary or mandatory response	April 15-31
11. BAWSCA submits calculation to SFPUC of individual Wholesale Customers' percentage shares of water allocated to Wholesale Customers collectively	April 15- 31
12. SFPUC determines individual shortage allocations, based on BAWSCA's submittal of individual agency percentage shares to SFPUC, and monthly water budgets (Default Schedule)	April 25—May 10
13. Wholesale Customers submit alternative monthly water budgets (optional)	May 8-May 24
14. Final drought shortage allocations are issued for the Supply Year beginning July 1 through June 30	June 1
15. Monthly water budgets become effective	July 1
16. Excess use charges indicated on monthly Suburban bills	August 1 (of the beginning year) through June 30 (of the succeeding year)
17. Excess use charges paid by Wholesale Customers for prior year	August of the succeeding year

ATTACHMENT I

NOT USED

ATTACHMENT J

DEFINITIONS AND FORMULAS FOR CALCULATING PROPORTIONAL ANNUAL WATER USE

TABLE OF CONTENTS

This Attachment contains four sections, three figures, and five tables.

Section A:	Water Meters
Section B:	Calculation of Proportional Annual Water Use
Section C:	Data Requirements and Schedule
Section D:	County Line and In-City Terminal Reservoir Meter Calibration and Maintenance
Figure 1:	Locations of SFPUC County-Line Meters and In-City Terminal Reservoirs
Figure 2:	Generalized Schematic of Lake Merced Pump Station
Figure 3:	Locations of System Input and In-Line Meters
Table 1:	Base Usage and Allocation Rates
Table 2:	Locations of SFPUC County-line Meters and In-City Terminal Reservoirs
Table 3:	Locations of SFPUC System Input and In-line Meters
Table 4:	County-line Meters, In-City Terminal Reservoirs and Associated Metering Equipment
Table 5:	Meter Calibration and Maintenance Frequency

Table 1 presents the format for the water usage and allocation rate calculations for reference and to illustrate the definitions and formulas described in Sections A through C. Tables 2 and 3 list the meters whose locations are shown on Figures 1 and 3, respectively. Table

4 identifies the type of meter and associated metering equipment for the County-line Meters and Terminal Reservoirs. Table 5 identifies the meter calibration and maintenance frequency for the meters and equipment listed in Table 4.

SECTION A. WATER METERS

1. General

The Agreement provides that certain operating and maintenance expenses and the capital cost of certain categories of utility plant in service are to be allocated between San Francisco and the Wholesale Customers on the basis of proportionate annual usage of the Regional Water System. The purpose of this Attachment is to describe the meters and illustrate the method by which proportionate annual usage will be calculated.

2. Units of Measurement, Rounding, Conversion

The SFPUC will compile the usage data required to complete Table 1 annually. The units of measurement and conventions for converting and rounding will be as follows.

The data in the Table 1 will be presented, and the calculations contemplated by this Attachment shown, in units of millions of gallons per day (mgd), rounded to the nearest tenth of an mgd. Percentages (e.g., the City and Wholesale usage rates) shall be carried to two digits to the right of the decimal point and reduction factors shall be carried to four digits to the right of the decimal point. Data compiled by the SFPUC in units of hundreds of cubic feet per year (ccf) shall be converted to mgd by multiplying hundreds of cubic feet per year by 0.0000020493 (or 2.0493×10^{-6}) for non-leap years and 0.0000020437 (or 2.0437×10^{-6}) for leap years.

In rounding, if the rightmost digit dropped is 0 through 4, the preceding digit shall be left unchanged; if the rightmost digit dropped is 5 through 9, the preceding digit shall be increased by 1.

3. Location of Meters/Gauges

The SFPUC presently maintains meters and gauges that have been used to determine the proportionate usage of the Regional Water System, in accordance with the methods and calculations described in Exhibit J to the 1984 contract between San Francisco and the Wholesale Customers. These meters consist of "County-Line Meters," "In-City Terminal Reservoir Meters" and "System Input and In-line Meters" as described in the following subsections. As new capital improvement projects are designed and constructed by the SFPUC, it may be necessary for new meters to be installed to ensure continued accurate determinations of the proportionate usage of the Regional Water System. "Planned meters" are included in the following subsections where planned capital improvement projects are likely to require the installation of additional meters.

a. County-line Meters

The SFPUC presently maintains meters at or near the San Mateo-San Francisco County line to measure flow through all transmission pipelines entering the City ("County-line Meters"). The existing and planned County-line Meters are listed in Table 2 and shown on Figures 1 and 2. Additional details pertaining to the County-line meters located at the Lake Merced Pump Station, and specifically to water deliveries from the pump station to Sunset Reservoir, Sutro Reservoir, and Lake Merced are provided below.

(1) County-Line deliveries to Sunset and Sutro Reservoirs

Water delivered to the City through the Sunset Supply Pipeline may be pumped from the Lake Merced Pump Station to either Sunset Reservoir or Sutro Reservoir located within the City. When water is pumped from the Lake Merced Pump Station to both Sunset and Sutro reservoirs simultaneously, the recording instrumentation on the Sunset and Sutro venturi meters are designed to record flows through both meters. When water is pumped to Sutro Reservoir only (typically utilizing Pump No. 4 at the

Lake Merced Pump Station), the source water is from the Sunset Reservoir (not the County-line), and the direction of flow through the Sunset venturi meter is reversed. Under this pumping scenario, the recording instrumentation on the Sunset and Sutro venturi meters are designed to not record flow on their respective recorders such that the in-City transfer of water between Sunset and Sutro Reservoirs is not included as a County-line delivery to the City. Figure 2 provides a generalized schematic of the Lake Merced Pump Station and the typical direction of flow from the County-line, through the pump station.

(2) County-line deliveries to Lake Merced

In order to raise and maintain water levels in Lake Merced, the SFPUC occasionally delivers water directly from the Regional Water System to Lake Merced. Deliveries from the Regional Water System to Lake Merced are accomplished at the Lake Merced Pump Station. The procedure involves operating valves on the suction side of Sunset Pump No. 2 such that water may flow by gravity in the Sunset Supply Pipeline, from San Mateo County, across the County-line and into San Francisco, through Lake Merced Pump Station and into the Lake Merced wet well. A 16-inch pipeline connection on the suction side of Sunset Pump No. 2 allows for deliveries of water to the wet well (see Figure 2). Water deliveries from the Regional Water System to Lake Merced are considered County-line deliveries and an in-City usage in the calculation of water allocation rates.

b. In-City Terminal Reservoirs

Water usage by the City includes water deliveries from the SFPUC's "terminal reservoirs." The terminal reservoirs are: 1) Sunset Reservoir, 2) University Mound Reservoir, and 3) Merced Manor Reservoir. The terminal reservoirs are shown on Figure 1.

c. System Input and In-Line Meters

The SFPUC presently measures water flow into and through the Regional System utilizing "System Input and In-Line Meters." The existing and planned System Input and In-Line Meters are listed in Table 3 and shown on Figure 3.

d. Wholesale Customer Meters and City Retail Customer Meters Located Outside the Boundaries of the City

The SFPUC presently measures water deliveries from the Regional Water System to its Wholesale Customers at various locations where the water delivery systems of the individual Wholesale Customers tie into the Regional Water System. The meters at these locations are referred to as the Wholesale Customers' "master meters." The SFPUC also measures water deliveries from the Regional Water System to other customers located outside of the boundaries of the City that are not Wholesale Customers. Water deliveries to the Wholesale Customers and Retail Customers outside the City's boundaries that receive water from the Regional Water System are accounted for by the SFPUC's Customer Service Division as described in Section B.

4. Replacement and Relocation of Meters, Gauges, and Recording Devices.

The SFPUC presently equips all of its large venturi meters with differential pressure transmitters. The smaller meters utilize other methods and equipment to register and record flows. The SFPUC will maintain the meters, gauges, and recording devices described above in subsections (a), (b), (c), and (d) unless and until such meters, gauges, and recording devices are replaced.

The SFPUC may replace the meters, gauges, and recording devices described above in subsections (a), (b), (c), and (d) or install new meters, gauges, and recording devices at new locations, provided that such changes do not diminish the accuracy of the water flow measurements or impair the ability of the SFPUC to separate direct City water use from water use by the wholesale customers. Maintenance and calibration procedures for new or replaced equipment may change. Modified maintenance and calibration procedures for new or replaced equipment will conform to industry standards set forth in AWWA Manual M33, the applicable

standards in the International Society of Automation, and will implement the manufacturer's instructions for maintenance and calibration. The SFPUC will provide BAWSCA with advance written notice of any such changes, together with a brief explanation of the reasons therefor and a description of the type and location of the replacement. Such notice shall automatically amend the list of meters, gauges, and recording devices set forth above in subsections (a), (b), (c), and (d).

5. Recording of Water Flow Data

a. Flow Data

The City shall record and maintain data measuring base water flow throughout the SFPUC Regional Water System as necessary to determine proportional annual water usage.

b. Reservoir Data

The SFPUC shall record and maintain data measuring the levels of the terminal reservoirs described above in subsection A.3.b and shown on Figure 1 on an hourly basis. Flow values derived from reservoir level readings for all reservoirs in the SFPUC wholesale system shall be calculated using the tables contained in the SFPUC publication "Reservoir Data" (aka "The Weir Book"), which set forth the relationship between reservoir levels and water volumes, as such tables may be amended from time to time to reflect changes in the volumes of the various reservoirs. The tables to be used initially shall be those from the current edition of The Weir Book.

SECTION B. CALCULATION OF PROPORTIONAL ANNUAL USAGE

"Base rates" means the percentages of annual SFPUC deliveries attributed to the Wholesale Customers and to City Retail Customers.

The percentage of annual SFPUC metered deliveries attributed to the Wholesale Customers (i.e., the wholesale base rate) shall be calculated for each fiscal year as described below and illustrated in Table 1. The item numbers listed below correspond to the item numbers listed in Table 1.

(1) "Gross San Francisco County line base deliveries" shall equal the total amount of water flowing into the City's distribution system through transmission pipelines entering the City, as measured by the County-Line Meters described in Section A.3.a. and shown on Figures 1 and 2.

(2) "Daly City base deliveries" shall equal the water flowing to Daly City through meter accounts provided downstream of the County-Line meters or through SFPUC's City Distribution Division. At present these accounts are:

(a) CSPL1/Macdonald Avenue Service (Account number 010084-01-0)

(b) Guttenberg Street Service (Account number 010013-01-3)

(c) Carter Street Service (Account numbers 284070-01-8 and 284071-01-6)

These accounts represent a portion of the total deliveries to Daly City. The quantities of water delivered to these four Daly City accounts are reported monthly in Form MGT441 by the SFPUC's Customer Service Division. These connections to meters are presently located within the City, and thus record water which has already been recorded by the SFPUC's master meters at the County line. So long as this condition continues, Daly City base deliveries shall be subtracted from "Gross San Francisco County line base deliveries."

(3) "Net San Francisco base deliveries" shall equal the result of subtracting "Daly City base deliveries" from "Gross San Francisco County line base deliveries."

(4) "Other suburban raw water base deliveries" shall equal the sum of all deliveries of raw (untreated) water to customers of the SFPUC located outside the City other than deliveries to the Wholesale Customers. "Other suburban raw water base deliveries" include deliveries of raw water in Alameda and San Mateo Counties to SFPUC Retail Customers, City departments and commissions, and other users affiliated with San Francisco.

(5) "Other suburban treated water base deliveries" shall equal the sum of all deliveries of treated water to customers of the SFPUC located outside the City other than deliveries to the Wholesale Customers. Other suburban treated water base deliveries include deliveries of treated water to the SFPUC's Retail Customers in San Mateo, Santa Clara and Alameda Counties (such as NASA Ames Research Center and LLNL), to City departments and commissions and other users affiliated with San Francisco (such as the San Francisco International Airport, the San Francisco County Jail, and tenants of land owned by the City Recreation and Park Department).

(6) "Other suburban base deliveries" shall equal the sum of "Other suburban raw water deliveries" and "Other suburban treated water deliveries." The combined amount of raw and treated water delivered to suburban entities other than the Wholesale Customers is reported monthly in Form MGT440 by the SFPUC's Customer Service Division.

(7) "Total City base usage" shall equal "Net San Francisco base deliveries" plus "Other suburban base deliveries."

(8) "Total wholesale base usage" shall equal the sum of all metered deliveries to the Wholesale Customers measured at their SFPUC master meters (including all deliveries to Daly City which are comprised of deliveries through meters located outside San Francisco and meters located inside San Francisco, deliveries through the latter of which are designated above in paragraph B.1.2 as "Daly City base

deliveries"). The quantity of water delivered to the individual Wholesale Customers, and the combined amount of water delivered to all Wholesale Customers is reported monthly in Form MGT440 by the SFPUC's Customer Service Division.

(9) "Total system base usage" shall equal "City base usage" plus "Wholesale base usage."

(10) "Wholesale base rate" shall equal the percentage obtained by dividing "Wholesale base usage" by "Total system base usage."

(11) "City base rate" shall equal the percentage obtained by subtracting "Wholesale base rate" from 100 percent.

(12) "Base system input" shall equal all amounts of water supplied to the SFPUC Regional Water System, which presently comes from the following sources:

(a) Hetch Hetchy water as measured at the venturi meters on the 58–inch, 61-inch, and 78.5-inch San Joaquin Pipeline Nos. 1, 2, and 3 near Oakdale.

(b) Water supplied by HHWPD to LLNL as measured at the customer meter. Water delivered from the system to LLNL shall be deemed negative in sign for the purpose of determining "Base system input."

(c) Hetch Hetchy water pumped from the Alameda siphons to San Antonio Reservoir as measured at the venturi meter on the 60-inch San Antonio pipeline. Water delivered from the system to San Antonio Reservoir shall be deemed negative in sign for the purpose of determining "Base system input."

(d) Sunol Valley Water Treatment Plant as measured at the meter on the 78-inch effluent pipeline.

(e) Harry Tracy Water Treatment Plant as measured at the venturi meters on the 60-inch and 78-inch effluent pipelines.

(f) Raw water deliveries to all SFPUC Retail Customers outside the City boundaries as measured at the customer meter. These deliveries are considered positive for the purposes of Table 1. Currently, raw water deliveries to the system are represented by the following account numbers contained in Form MGT440 prepared by the SFPUC's Customer Service Division:

266081-01-7 (Calaveras Nursery)
266081-02-5 (Calaveras Nursery)
264355-01-7 (Caltrans)
266084-02-9 (Color Spot Nursery)
272701-02-0 (Color Spot Nursery)
266069-02-0 (Crystal Springs Golf Course)
266078-02-1 (Dell Franklin)
266078-01-3 (Dells Nursery)
266084-01-1 (Hi-C Nursery)
272701-01-2 (Hi-C Nursery)
284112-01-8 (Hansen Aggregates)
266084-03-7 (Jeff Anhorn Nursery)
272701-03-8 (Jeff Anhorn Nursery)
266079-02-9 (Mission Valley Rock)
281043-01-8 (Mission Valley Rock)
267618-02-3 (Nagata Farms)
267618-01-5 (Nagata Farms)
266090-01-8 (Naka Nursery)

266091-01-6 (Naka Nursery)

266090-02-6 (Naka Nursery)

266091-02-4 (Naka Nursery)

264315-02-9 (Pacific Nurseries)

266076-01-7 (Sunol Christmas Tree Farm)

266076-02-5 (Sunol Tree Farm)

276095-01-5 (Sunol Valley Golf & Recreation)

266077-02-3 (Ura Farm)

264352-01-4 (Ura, John)

266075-01-9 (Valley Crest)

268276-01-1 (Valley Crest Nursery)

266093-01-2 (Valley Crest Tree Company)

268426-02-0 (Valley Crest Tree Company)

266075-02-7 (Valley Crest Tree Company)

266093-02-0 (Valley Crest Tree Company)

268276-02-9 (Valley Crest Tree Company)

266082-01-5 (Western Star Nursery)

266089-01-0 (Western Star Nursery)

267254-02-7 (Western Star Nursery)

266082-02-3 (Western Star)

266089-02-8 (Western Star)

267254-03-5 (Western Star)

(g) Raw water deliveries from Pilarcitos Reservoir and Crystal Springs Reservoir to Coastside County Water District as measured at the customer meters. These deliveries are considered positive for the purposes of Table 1. Currently, raw water deliveries to Coastside County Water District from both reservoirs are represented under account number 010027-01-9 contained in Form MGT441 prepared by the SFPUC's Customer Service Division:

(h) Crystal Springs Balancing Reservoir. The flow into or out of the Crystal Springs Balancing Reservoir shall be calculated based on the changes in the amounts of water stored in the reservoir. The amounts of water stored shall be determined by the use of water level sensors, and the application of water level readings to a water level-storage capacity table. Decreases in storage, which indicate a flow from the Balancing Reservoir into the system, shall be deemed positive in sign. Increases in storage, which indicate a flow into the Balancing Reservoir from the system, shall be deemed negative in sign. Over the period of a year, the total flows into and out of Crystal Springs Balancing Reservoir are nearly equivalent. As such, total system input from Crystal Springs Reservoir shall be deemed zero for calculating current base rates.

(i) Deliveries to Crystal Springs Reservoir as measured by the overflow weir at the Pulgas Pump Station. Deliveries from the system to Crystal Springs Reservoir ("spills") shall be deemed negative in sign for the purpose of determining "Base system input."

(j) Terminal Reservoirs. The "terminal reservoirs" consist of Sunset Reservoir, University Mound Reservoir, and Merced Manor Reservoir, each located within the City of San Francisco. The flow into or out of the terminal reservoirs shall be calculated based on the changes in the amounts of water stored in them. The amounts of water stored shall be determined by the use of water level sensors, and the application of water levels to water level-storage capacity tables. Over the period of a year, the total flows into and out of terminal reservoirs are nearly equivalent. As such, total system input from the terminal reservoirs shall be deemed zero for calculating base rates.

(k) Other Sources. Other sources of flow into, or from, the Regional Water System, shall be accounted for as "other sources." Examples of other

sources of system input would include intertie water deliveries between the Regional System and the Santa Clara Valley Water District, and between the Regional System and the East Bay Municipal Utilities District, and deliveries of raw water from Crystal Springs Reservoir in the event of an emergency. Flows from the system shall be deemed negative in sign for the purpose of determining "Base system input."

(13) "Total base system input" shall equal the sum of the system inputs from the sources described in paragraph B.1.12.

(14) "Joint system loss reduction factor" shall equal "Total system base usage" divided by "Total base system input." "Joint system loss reduction factor" shall not exceed 1.0.

(15) "Daly City reduction factor" shall equal "Net San Francisco base deliveries" divided by "Gross San Francisco County line base deliveries." "Daly City reduction factor" shall not exceed 1.0.

(16) "Total suburban base deliveries" shall equal "Other suburban base deliveries" plus "Total wholesale base usage."

(17) "Suburban reduction factor" shall equal "Wholesale base usage" divided by "Total suburban base deliveries." "Suburban reduction factor" shall not exceed 1.0.

(18) "HHWPD Deliveries above Oakdale" shall equal the total amount of water delivered by the HHWPD to users located above the system input meters in Oakdale. Water users located above the system input meters in Oakdale are currently represented by Groveland Community Services District and the HHWPD facility at Moccasin.

(19) "HH Reduction Factor" is calculated for the purpose of determining the Wholesale Customers' share of the Hetch Hetchy Assessment. The factor shall equal a fraction, the numerator of which is the total system input measured at the Oakdale meters (Table 1, line 12.a) and the denominator of which is the sum of the total system input measured at the Oakdale meters (Table 1, line 12.a) plus the total "HHWPD deliveries above Oakdale" (Table 1, line 18).

SECTION C. DATA REQUIREMENTS AND SCHEDULE

1. Collection and Dissemination of Data

The SFPUC presently compiles daily flow data for the County-line meters, System Input and In-Line Meters, and daily reservoir water level data, and provides copies of that data to the Wholesale Customers (through BAWSCA) on a monthly basis. The SFPUC also provides copies of wholesale "Suburban Resale" and City Retail water usage data to BAWSCA on a monthly basis. Additionally, the SFPUC provides BAWSCA access to flow data for the meters as reported and recorded by the SFPUC's SCADA system.

The SFPUC shall continue to provide the flow and water usage data described above to BAWSCA on a monthly basis, and shall continue to allow BAWSCA access to the SCADA system data, so that a coordinated effort between the SFPUC and BAWSCA will allow for updating Table 1 of this Attachment annually on a timely basis.

It shall continue to be the SFPUC's responsibility to compile the data necessary to update Table 1 of this Attachment annually and the City shall deliver to BAWSCA, for review and approval, copies of the updated Table 1 by September 15 for the fiscal year ending the preceding June 30, as shown by the schedule contained in Section C.3.

Upon reasonable notice to the General Manager of the SFPUC, BAWSCA shall be given access to all water flow and usage records compiled by the SFPUC, including raw data, at reasonable times during business hours and shall have the right to copy such records and data at its expense.

2. Lack of Data

The parties recognize that, because of human error, mechanical failure, or other unplanned events, portions of the data required for the calculation of the usage rates and ratios described in Sections B and C of this Attachment occasionally may be unavailable or incorrect. In the event that such data are unavailable or inaccurate, the SFPUC shall make a reasonable estimate of the unavailable or incorrect data or use the most accurate alternative data that are available, and substitute the estimate therefor.

If the SFPUC uses an estimate of the unavailable or inaccurate data or alternative data, it shall provide BAWSCA with the following:

(1) a description of the unavailable or inaccurate data and the estimation or substitution of data used therefor;

(2) an explanation of the cause of the missing or inaccurate data and the reasons underlying the SFPUC's estimation or substitution of alternate data; and

(3) a statement of how the error or malfunction that caused the unavailability or inaccuracy of the data will be avoided in the future.

The SFPUC shall provide this information to BAWSCA upon calculation by the SFPUC of the usage rates and ratios described in this Attachment for the fiscal year in question.

3. Schedule for Completing the Annual Calculations of Water Usage Rates

The parties recognize the importance of updating Table 1 of this Attachment annually in a timely manner, and that historically, doing so has required a coordinated effort between the SFPUC and BAWSCA. To assure timely completion of the annual calculations of water usage rates and ratios, the parties agree to adhere to the following schedule.

(1) By August 15: The SFPUC shall forward to BAWSCA all data for the fiscal year ending the preceding June 30, necessary to make a determination of the base water usage and base allocation rates for the Wholesale Customers and the City.

(2) By September 15. The City shall deliver to BAWSCA, for review and approval, draft copies of the updated Table 1 for the fiscal year ending the preceding June 30.

(3) Between September 15 and October 15. The SFPUC and BAWSCA shall reconcile any discrepancies or inaccuracies in the draft calculations of water usage rates and shall reach agreement on a final updated Table 1 for the fiscal year ending the preceding June 30.

(4) By November 1. The SFPUC shall deliver to BAWSCA a finalized updated Table 1, signed by the SFPUC General Manager, or appropriate designee, representing the water usage rates agreed upon by the SFPUC and BAWSCA, for the fiscal year ended June 30.

(5) By November 15. BAWSCA shall return the finalized Table 1 to the SFPUC, counter-signed by the BAWSCA General Manager/CEO. If the SFPUC does not receive the countersigned Table 1 from BAWSCA by November 15, it may use the water use data as contained in the Table 1 delivered pursuant to paragraph (4) above, subject to arbitration as provided in section 8.01 of the Agreement.

SECTION D. COUNTY LINE AND IN-CITY TERMINAL RESERVOIR METER CALIBRATION AND MAINTENANCE

1. General

This section refers only to the County-Line and In-City Terminal Reservoir Meters. The term "meter(s)" includes the primary meter itself (most of the primary meters in the SFPUC's water system are Venturi-type flow meters) as well as any and all of the associated equipment used to measure, record, and transmit flow and water level data. The metering equipment associated with the primary metering device (also referred to as the secondary metering equipment) includes differential pressure transmitters, recorders, telecommunications equipment and the portion of the SFPUC's Supervisory Control and Data Acquisition (SCADA) System that is used to transmit flow and water level measurements from the water meter to the computer terminal that records the measured data.

The County-Line and In-City Terminal Reservoir meters, their general locations, and their associated metering equipment are listed in Table 4.

2. Frequency and Type of Work to be Performed

The meters, water level sensors, and associated metering equipment are to be inspected, tested, calibrated, and maintained according to the applicable meter calibration and maintenance frequency specified in Table 5.

3. Components of the Calibration and Maintenance Work

The SFPUC will contract with an independent metering consultant to perform periodic inspections, testing, servicing and calibrations of the meters and metering equipment for the County-line meters and In-City Terminal Reservoirs. The metering consultant's calibration and maintenance work will include the following components:

- Annual Pitot Tube Tests: Pitot tube flow tests shall be performed once a year on all Venturi-type flow meters. See Sections 4.b and 4.c for further detail.

- Quarterly Secondary Meter Equipment Testing and Calibration: The secondary metering equipment shall be tested for accuracy and calibrated quarterly at five input levels (0%, 25%, 50%, 75% and 100% of the full range of flow). See Section 4.a for further detail.

- Cleaning: Clean and remove dust, oils, dirt, etc. from all instruments.

- Flushing: Flush and clean Venturi tube differential pressure (D/P) sensing lines.

- Inspecting: Inspections for mechanical fatigue, leaky pipes and fittings, worn parts, and improper operation of electrical/electronic equipment.

- Lubrication: Mechanical parts shall be lubricated as needed.

4. Calibration Procedures

The metering consultant shall continue to calibrate and maintain the County-line meters and metering equipment listed in Table 4 in accordance with the frequency of work specified in Table 5. The work includes documenting meter readings and accuracy before and after calibration. Specific tasks to be completed by the metering consultant are as follows:

a) Quarterly testing and calibration. The secondary metering equipment shall be tested and calibrated quarterly using NIST Traceable test equipment, and a "dead weight tester."

The system loop error for the secondary metering equipment is determined by connecting its output to the differential pressure transmitter and adjusting the dead weight tester to 5 places over the full range of flow: 0%, 25%, 50%, 75% and 100%, while all instruments in the loop are connected. For water level transmitters, provide simulated test head equal to full range of the transmitter being calibrated, comparing the simulated test head to its 4-20 milliamp output signal to determine transmitter error and calibration requirements. The system loop error for the secondary metering equipment may not exceed +/-2%. The individual components of the secondary metering equipment shall also be tested at the same 5 input levels and calibrated as necessary to ensure the error of the system and individual components does not exceed +/- 2%.

b) Annual Pitot Tube Testing and Calibration. Annual Pitot tube testing shall be conducted for a comparison of flow totalized by the Pitot tube test equipment and the totalizer used by the SFPUC for water measurement and billing purposes. Annual Pitot tube flow testing shall be performed on all flow meters for assessment of Venturi error using the Annubar continuous flow method at 22% of the pipe radius. Pitot tube flow testing must be conducted continuously for a minimum of 30 minutes per test.

The Pitot tube flow tests are first performed before any of the secondary metering instruments are calibrated to determine the total system error (system consisting of the primary metering device and secondary metering equipment). Once the total system loop error has been established, perform secondary loop instrument testing and calibration as per the quarterly testing and calibration procedures described in 4.a above. If the total system error exceeds +/- 2% after calibration of the secondary metering equipment, minor adjustments to the differential pressure transmitter shall be made to correct (calibrate) the error in the Venturi meter. Repeat Pitot tube testing must be performed after the individual instrument calibration and differential pressure transmitter adjustments have been performed to establish that total system loop error is within +/- 2%.

c) Pitot tube testing shall be conducted at a flow rate representing the typical flow for the meter (and, if operationally possible, at three different flows ranging from a minimum to near maximum capacity flow).

d) The metering consultant shall perform the meter testing and calibration procedures utilizing the meter characteristic curves (for example, the pressure drop vs. flow for a Venturi meter) that have been obtained during previous meter calibration and maintenance work.

e) During each quarterly site visit, the metering consultant shall inspect, assess and document the condition of all metering equipment, including meter, gauges, indicators, recorders, transmitters and other instrumentation, used in the measurement and recording of flow rates and cumulative flow totals and shall document all operational problems with the calibration instruments and meters during the calibration process. Problems may include air entrainment, leakage, flow disturbance and unstable meter readings.

f) Prior to each quarterly site visit, the metering consultant shall review prior calibration records and reports for each meter to determine if previously-identified errors or equipment deficiencies were corrected as previously recommended.

g) Each quarter, the metering consultant shall submit a final report (See Section 6) containing all of the calibration results for each meter tested and calibrated during the quarter. The metering consultant's report shall include a narrative description of the work conducted on each meter and meter calibration reports for the individual metering equipment. The quarterly report shall also address deficiencies that were not previously corrected according to the recommendations made in the prior report.

5. Calibration Instruments

The instrument used for flow testing of the primary meter (Venturi) must meet the accuracy standards required by the American Water Works Association (AWWA), and be

capable of measuring actual flows with an error of less than +/- 2%. If a particular calibration instrument is not rated for accuracy by the AWWA, its accuracy will be determined by reference to its manufacturer's representations as to accuracy.

6. Calibration Reports

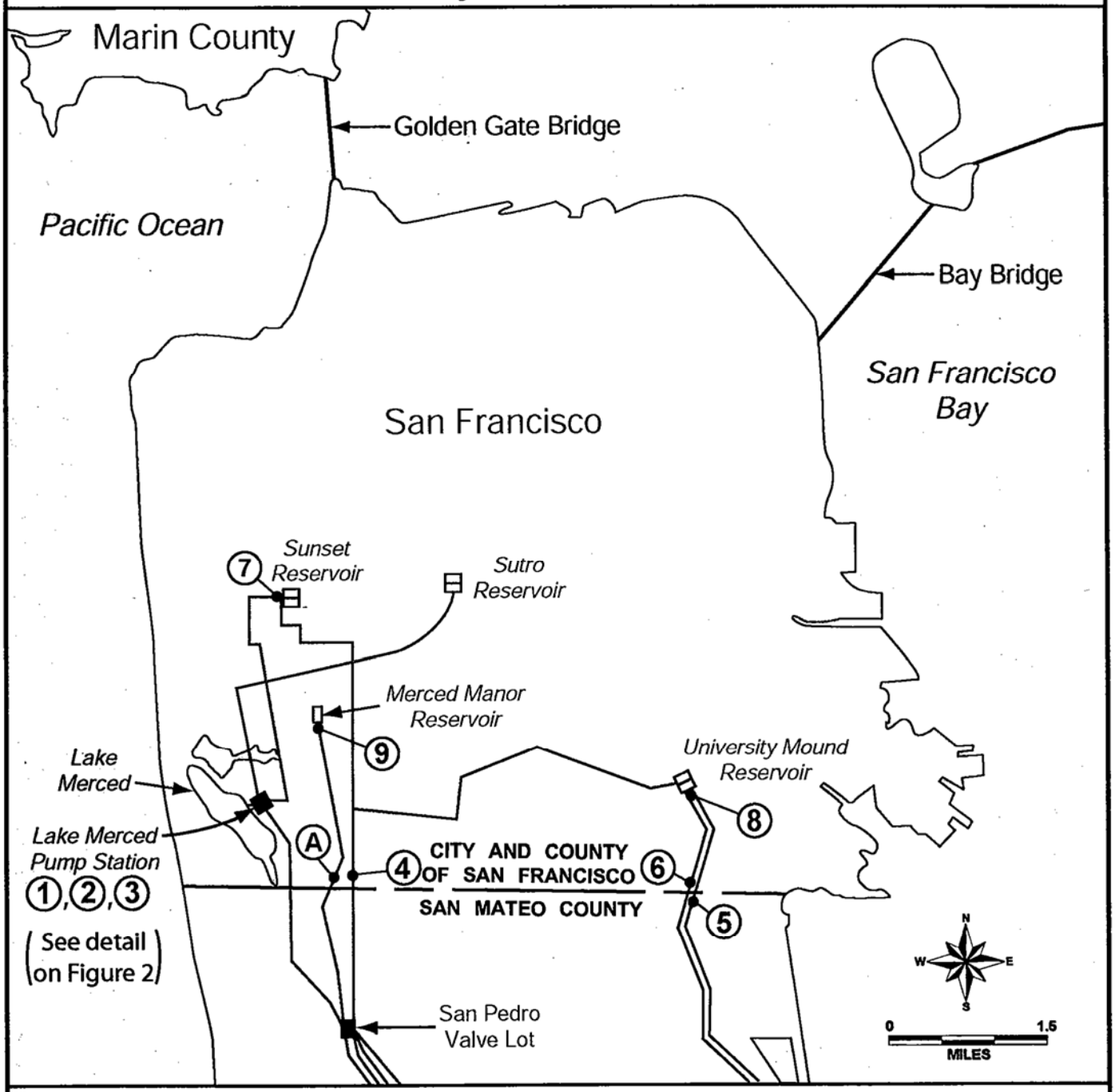
Within fourteen (14) working days after the beginning of each quarter, the metering consultant shall submit a written progress report of the work performed during the previous quarter. Each quarterly report will describe the results of the meter calibrations and any other tasks performed. The report will also include comments regarding any observations of abnormal conditions and any recommendations regarding these meters and their related equipment.

The reports must include complete descriptions and status of meters and related equipment, dates and times of service, all calibration specifics, pipeline dimensions, range of flow rates and totalized volumes, before and after error analysis and accuracy levels achieved, testing equipment used, and the name(s) of the person(s) that performed the work.

When appropriate and necessary, the metering consultant shall provide recommendations for improving the accuracy and reliability of the equipment and/or the methods of data collection. If, in the opinion of the metering consultant, the condition of a meter or its associated metering equipment is found to be defective, damaged, or otherwise in need of immediate repair or replacement, the metering consultant shall: 1) promptly notify the appropriate SFPUC personnel of the problem and recommend a solution to the problem so that the SFPUC can determine how to address it and, 2) include the problem description in its quarterly report.

FIGURE 1

Locations of SFPUC County-Line Meters and In-City Terminal Reservoirs



METER	PIPELINE	LOCATION
1	Sunset	Lake Merced Pump Station
2	Sutro	Lake Merced Pump Station
3	Lake Merced Outfall	Lake Merced Pump Station
4	San Andreas No. 2	Junipero Serra (Hwy. 280) South of Belle Ave.
5	Crystal Springs No. 1	PG&E Martin Service Center Yard
6	Crystal Springs No. 2	Tamasco Ct. South of Sunnydale Ave.
A	San Andreas No. 3 (Planned)	To be determined

METER	RESERVOIR	LOCATION
7	Sunset Reservoir	26th Avenue and Ortega
8	University Mound Reservoir	University Avenue and Bacon
9	Merced Manor Reservoir	23rd Avenue and Ocean

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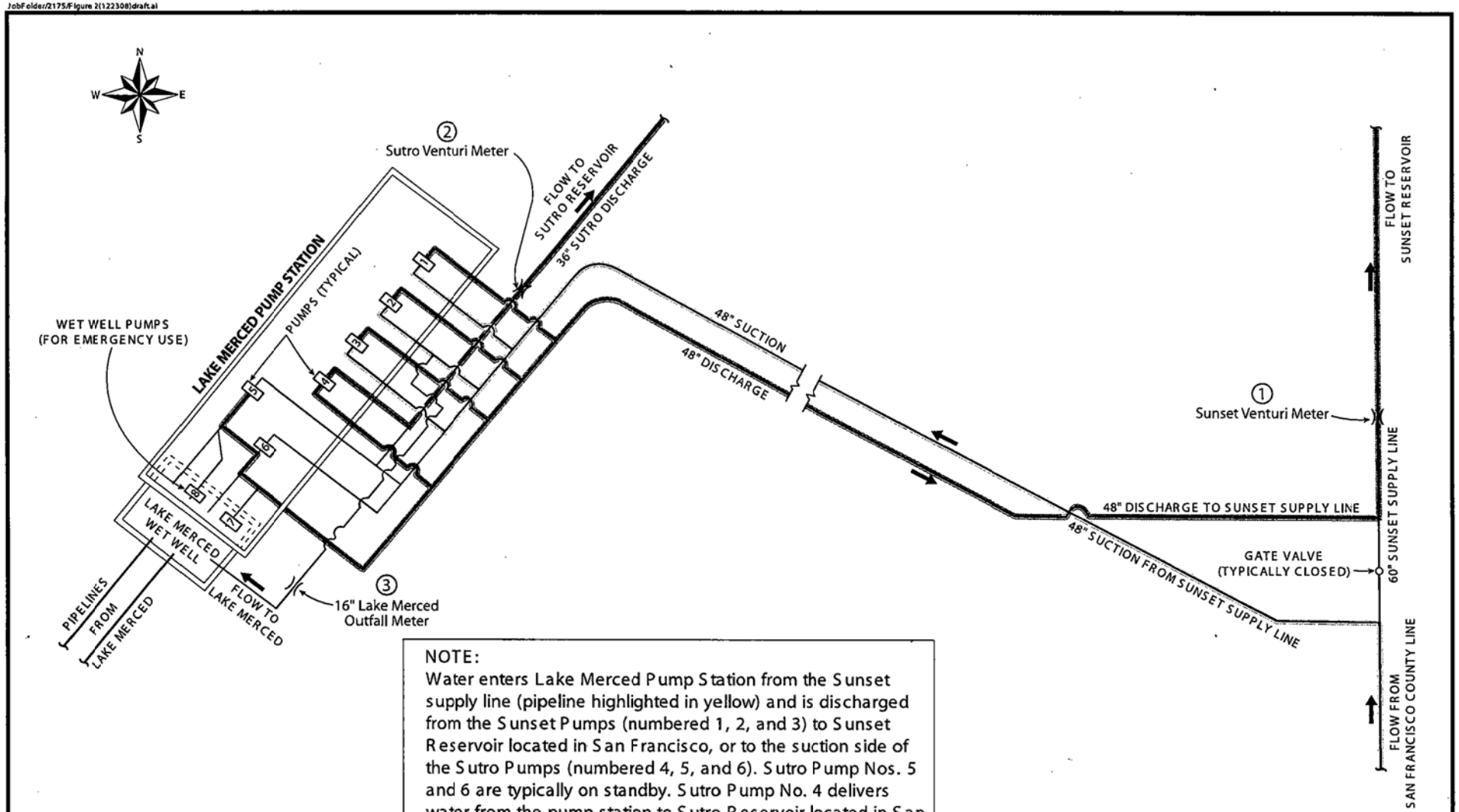


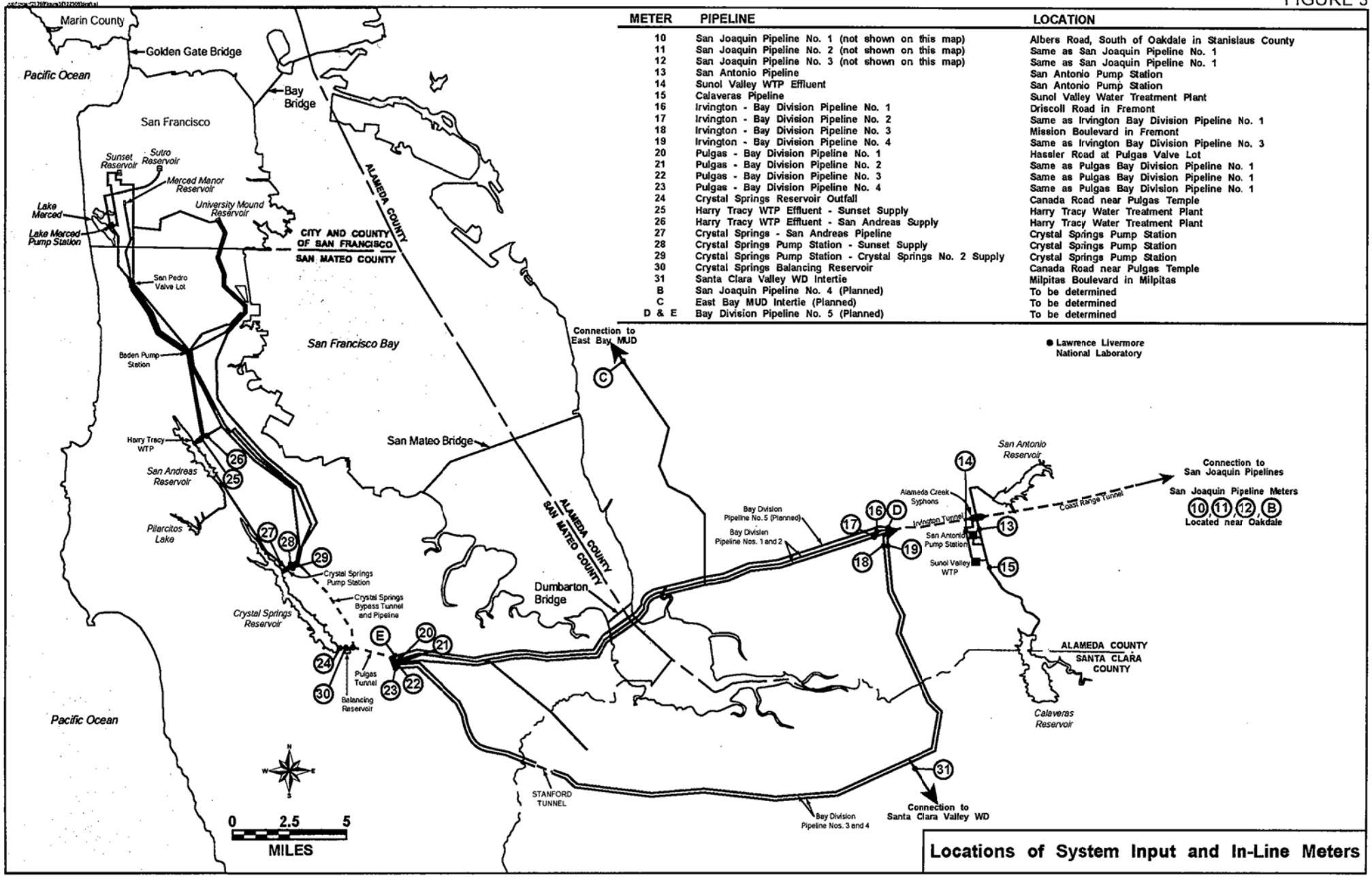
NOTE:
Water enters Lake Merced Pump Station from the Sunset supply line (pipeline highlighted in yellow) and is discharged from the Sunset Pumps (numbered 1, 2, and 3) to Sunset Reservoir located in San Francisco, or to the suction side of the Sutro Pumps (numbered 4, 5, and 6). Sutro Pump Nos. 5 and 6 are typically on standby. Sutro Pump No. 4 delivers water from the pump station to Sutro Reservoir located in San Francisco. Deliveries from the SFPUC water system to Lake Merced are accomplished by gravity through the 16-inch pipeline that connects to the suction side of Sunset Pump No. 2.

Generalized Schematic of Lake Merced Pump Station

FIGURE 2

FIGURE 3

METER	PIPELINE	LOCATION
10	San Joaquin Pipeline No. 1 (not shown on this map)	Albers Road, South of Oakdale in Stanislaus County
11	San Joaquin Pipeline No. 2 (not shown on this map)	Same as San Joaquin Pipeline No. 1
12	San Joaquin Pipeline No. 3 (not shown on this map)	Same as San Joaquin Pipeline No. 1
13	San Antonio Pipeline	San Antonio Pump Station
14	Sunol Valley WTP Effluent	San Antonio Pump Station
15	Calaveras Pipeline	Sunol Valley Water Treatment Plant
16	Irvington - Bay Division Pipeline No. 1	Driscoll Road in Fremont
17	Irvington - Bay Division Pipeline No. 2	Same as Irvington Bay Division Pipeline No. 1
18	Irvington - Bay Division Pipeline No. 3	Mission Boulevard in Fremont
19	Irvington - Bay Division Pipeline No. 4	Same as Irvington Bay Division Pipeline No. 3
20	Pulgas - Bay Division Pipeline No. 1	Hassler Road at Pulgas Valve Lot
21	Pulgas - Bay Division Pipeline No. 2	Same as Pulgas Bay Division Pipeline No. 1
22	Pulgas - Bay Division Pipeline No. 3	Same as Pulgas Bay Division Pipeline No. 1
23	Pulgas - Bay Division Pipeline No. 4	Same as Pulgas Bay Division Pipeline No. 1
24	Crystal Springs Reservoir Outfall	Canada Road near Pulgas Temple
25	Harry Tracy WTP Effluent - Sunset Supply	Harry Tracy Water Treatment Plant
26	Harry Tracy WTP Effluent - San Andreas Supply	Harry Tracy Water Treatment Plant
27	Crystal Springs - San Andreas Pipeline	Crystal Springs Pump Station
28	Crystal Springs Pump Station - Sunset Supply	Crystal Springs Pump Station
29	Crystal Springs Pump Station - Crystal Springs No. 2 Supply	Crystal Springs Pump Station
30	Crystal Springs Balancing Reservoir	Canada Road near Pulgas Temple
31	Santa Clara Valley WD Intertie	Milpitas Boulevard in Milpitas
B	San Joaquin Pipeline No. 4 (Planned)	To be determined
C	East Bay MUD Intertie (Planned)	To be determined
D & E	Bay Division Pipeline No. 5 (Planned)	To be determined



Locations of System Input and In-Line Meters

Table 1
Base Usage (mgd) and Allocation Rates

(1) Usage	(2) Definition	(3) 2004-05	(4) 2005-06	(5) 2006-07	(6) 2007-08	(7) 2008-09	(8) 2009-10
1. Gross S.F. Co. line	B.1	79.5	78.3	75.7			
2. Daly City portion	B.2	0.2	0.2	0.2			
3. Net S.F.	(1-2)	79.3	78.1	75.5			
4. Other suburban raw water	B.4	0.4	0.5	0.7			
5. Other suburban treated water	B.5	4.1	3.4	3.9			
6. Total other suburban	(4+5)	4.5	3.9	4.6			
7. Total City usage	(3+6)	83.8	82.0	80.1			
8. Total wholesale usage	B.8	167.4	164.4	175.8			
9. Total system usage	(7+8)	251.2	246.4	255.9			
10. Wholesale alloc. rate	(8/9)	66.63%	66.72%	68.70%			
11. City alloc. rate	(100%-10)	33.37%	33.28%	31.30%			
12a. HHWPD input (Oakdale)	B.12	194.7	202.6	227.3			
12b. Deliveries to LLNL	B.12	-0.4	-0.9	-0.9			
12c. HH to San Ant. Res.	B.12	-3.8	-1.8	-11.6			
12d. Sunol Valley WTP	B.12	28.5	29.4	17.6			
12e. Harry Tracy WTP	B.12	45.2	40.4	41.2			
12f. Raw water deliveries	B.12	0.4	0.4	0.7			
12g. Deliveries to Coastside Co. WD	B.12	1.8	1.6	2.1			
12h. Crys. Sprs. Bal. Res.	B.12	0.0	0.0	0.0			
12i. Spill to CS Res.	B.12	-19.9	-42.6	-37.1			
12j. Terminal Reservoirs	B.12	0.0	0.0	0.0			
12k. Other sources	B.12	0.0	1.9	3.8			
13. Total system input	B.13	246.5	231.0	243.1			
14. Jt. sys. loss red. fact.	(9/13)	1.0000	1.0000	1.0000			
15. Daly City red. factor	(3/1)	0.9975	0.9974	0.9974			
16. Total suburban	(6+8)	171.9	168.3	180.4			
17. Suburban red. factor	(8/16)	0.9736	0.9768	0.9745			
18. HHWPD Deliveries above Oakdale	B.18						
19. HH Reduction Factor	B.19	99.56%					

Table 2
Locations of SFPUC County-Line Meters and In-City Terminal Reservoirs

County-Line Meters

Meter	Pipeline	Location
1	Sunset	Lake Merced Pump Station
2	Sutro	Lake Merced Pump Station
3	Lake Merced Outfall	Lake Merced Pump Station
4	San Andreas No. 2	Junipero Serra (Hwy. 280) South of Belle Ave.
5	Crystal Springs No. 1	PG&E Martin Service Center Yard
6	Crystal Springs No. 2	Tamasco Ct. South of Sunnydale Ave.
A	San Andreas No. 3 (Planned)	To be determined

In-City Terminal Reservoirs

Meter	Reservoir	Location
7	Sunset Reservoir	26th Avenue and Ortega
8	University Mound Reservoir	University Avenue and Bacon
9	Merced Manor Reservoir	23rd Avenue and Ocean

Table 3
Locations of SFPUC System Input and In-Line Meters

Meter	Pipeline	Location
10	San Joaquin Pipeline No. 1	Albers Road, South of Oakdale in Stanislaus County
11	San Joaquin Pipeline No. 2	Same as San Joaquin Pipeline No. 1
12	San Joaquin Pipeline No. 3	Same as San Joaquin Pipeline No. 1
13	San Antonio Pipeline	San Antonio Pump Station
14	Sunol Valley WTP Effluent	San Antonio Pump Station
15	Calaveras Pipeline	Sunol Valley Water Treatment Plant
16	Irvington – Bay Division Pipeline No. 1	Driscoll Road in Fremont
17	Irvington – Bay Division Pipeline No. 2	Same as Irvington Bay Division Pipeline No.1
18	Irvington – Bay Division Pipeline No. 3	Mission Boulevard in Fremont
19	Irvington – Bay Division Pipeline No. 4	Same as Irvington Bay Division Pipeline No.3
20	Pulgas – Bay Division Pipeline No. 1	Hassler Road at Pulgas Valve Lot
21	Pulgas – Bay Division Pipeline No. 2	Same as Pulgas Bay Division Pipeline No. 1
22	Pulgas – Bay Division Pipeline No. 3	Same as Pulgas Bay Division Pipeline No. 1
23	Pulgas – Bay Division Pipeline No. 4	Same as Pulgas Bay Division Pipeline No. 1
24	Crystal Springs Reservoir Outfall	Canada Road near Pulgas Temple
25	Harry Tracy WTP Effluent – Sunset Supply	Harry Tracy Water Treatment Plant
26	Harry Tracy WTP Effluent – San Andreas Supply	Harry Tracy Water Treatment Plant
27	Crystal Springs – San Andreas Pipeline	Crystal Springs Pump Station
28	Crystal Springs Pump Station – Sunset Supply	Crystal Springs Pump Station
29	Crystal Springs Pump Station – Crystal Springs No. 2 Supply	Crystal Springs Pump Station
30	Crystal Springs Balancing Reservoir	Canada Road near Pulgas Temple
31	Santa Clara Valley WD Intertie	Milpitas Boulevard in Milpitas
B	San Joaquin Pipeline No. 4 (Planned)	To be determined
C	East Bay MUD Intertie (Planned)	To be determined
D&E	Bay Division Pipeline No. 5 (Planned)	To be determined

TABLE 4
SFPUC COUNTY-LINE METERS, IN-CITY TERMINAL RESERVOIRS, AND ASSOCIATED METERING EQUIPMENT

County-Line Meter	Meter Type	Location
1. **Sunset**	60" Venturi	Lake Merced Pump Station
Associated Metering Equipment:	• Rosemount D/P transmitter • Honeywell recorder • SCADA	
2. **Sutro**	36" Venturi	Lake Merced Pump Station
Associated Metering Equipment:	• Rosemount D/P transmitter • Honeywell recorder • SCADA	
3. **Lake Merced Outfall**	16" Mag. Meter	Lake Merced Pump Station
Associated Metering Equipment:	• Honeywell recorder • SCADA	
4. **San Andreas No. 2**	36" Venturi	Junipero Serra (Hwy. 280) south of Belle Avenue
Associated Metering Equipment:	• Yokogawa D/P transmitter • NLS display • AGM electronics • Honeywell recorder • SCADA	
5. **Crystal Springs No. 1**	44" Venturi	PG&E Martin Service Center Yard
Associated Metering Equipment:	• Yokogawa D/P transmitter • NLS display • AGM electronics • Honeywell recorder • SCADA	
6. **Crystal Springs No. 2**	60" Venturi	Tamasco Ct. south of Sunnydale Avenue
Associated Metering Equipment:	• Yokogawa D/P transmitter • NLS display • AGM electronics • SCADA	
In-City Terminal Reservoirs		
1. **Sunset**	Pressure Transducer	26th Avenue and Ortega
Associated Metering Equipment:	• Honeywell recorder • SCADA	
2. **Merced-Manor**	Pressure Transducer	23rd Avenue and Ocean
Associated Metering Equipment:	• Honeywell recorder • SCADA	
3. **University Mound**	Pressure Transducer	University Avenue and Bacon
Associated Metering Equipment:	• Honeywell recorder • SCADA	

TABLE 5
METER CALIBRATION AND MAINTENANCE FREQUENCY

METER/ EQUIPMENT	FREQUENCY			WORK TO BE PERFORMED (See Work Codes Listed Below)					
	Quarterly	Semi-Annual	Annual	CA	CL	FL	IN	LU	PT
Venturi Meters			X	X		X (1)	X (1)		X
Magnetic Meters		X		X (2)	X (2)		X (2)		
Yokagowa D/P Transmitters	X			X	X	X	X		
Rosemount D/P Transmitters	X			X	X	X	X		
Honeywell Recorders	X			X	X		X		
Water Level Sensors (Pressure Transducers)	X			X	X		X		
SCADA Electronics	X			X					
AGM Electronics	X			X					
NLS Digital Displays	X			X					
Electrostatic 24V DC Power Supplies			X				X (3)		
ASCO Solenoids			X		X		X (4)	X	

WORK CODES:
CA = CALIBRATE; CL = CLEAN; FL = FLUSH; IN = INSPECT; LU = LUBRICATE; PT = PITOT TUBE TEST.

NOTES:
(1) Inspection and flushing requirements for Venturi meters refer to the pressure tubing from the meter to the differential pressure transmitter.

(2) May calibrate using clamp-on meter where conditions allow. Inspection and cleaning requirements for magnetic meters refer to the sensors or probes that are inserted through the pipe wall.

(3) Adjust voltage if necessary.

(4) Replace rubber ware as needed.

ATTACHMENT K-1
WHOLESALE CUSTOMERS' SHARE OF NET BOOK VALUE OF EXISTING ASSETS
****PRELIMINARY - TO BE SUBSTITUTED WITH FINAL 6/30/09 VALUES****
(Section 5.03)

	Notes	Projected Value		
		Water	Hetch Hetchy	Total
Regional System Net Plant as of 6/30/08 (Actual)	1	$ 435,639,907	$ 66,135,724	
Less: Projected Depreciation on Regional Assets	2	$ (32,526,143)	$ (3,598,189)	
Plus: Projected FY 2008-09 Capital Additions	3	$ 62,771,153	$ -	
Projected Regional System Net Plant as of 6/30/09		$ 465,884,917	$ 62,537,535	
Plus: Projected Construction Work In Progress (CWIP) as of 6/30/09	4	$ 16,928,503	$ 5,807,023	
Projected Regional System Net Plant and CWIP as of 6/30/09		$ 482,813,420	$ 68,344,558	$ 551,157,978
Allocation Factor:	5	70.1%	64.2%	
Wholesale Share of Projected Regional System Net Plant as of 6/30/09		$ 326,585,327	$ 40,149,098	$ 366,734,424
Plus: Wholesale Share of Projected CWIP as of 6/30/09	6	$ 11,866,881	$ 3,728,109	$ 15,594,989
Wholesale Share of Projected Net Plant and CWIP as 6/30/09		$ 338,452,207	$ 43,877,206	$ 382,329,414
Interest Rate:		5.13%	5.13%	
Term (Yrs):		25	25	
Monthly Principal & Interest		$ 2,004,277	$ 259,836	$ 2,264,113
Annual Wholesale Revenue Requirement Amount		$ 24,051,326	$ 3,118,033	$ 27,169,359

Notes

1 FAACS 120A Report as of 6/30/08
2 SFPUC Estimate
3 SFPUC Estimate based on projects and amounts as follows:

	Water Assets
CUW358 Sunset Reservoir (North Basin)	$ 57,382,744
CUW 365 Cross Connection Controls	$ 3,679,415
CUW 394 Watershed Land Acqusition	$ 1,708,994
Total Additions	$ 62,771,153

4 CWIP based on balance as 6/30/08 plus YTD expenditures (see Attachment K-2)
5 Fixed allocation factors based on dollar weighted 5-year average of J-Table allocation factors (2003-04 through 2007-08)
6 Wholesale share CWIP based on balance as 6/30/08 plus YTD expenditures (see Attachment K-2)

ATTACHMENT K-2
WHOLESALE CUSTOMERS' SHARE OF THE BOOK VALUE OF REVENUE FUNDED CAPITAL EXPENDITURES
****PRELIMINARY - TO BE SUBSTITUTED WITH FINAL 6/30/09 VALUES****
(Section 5.03)

[1] Project No.	[2] Project Description	[3] Rate Class	[4] CWIP as of 6/30/08	[5] FY 2008-09 Expenditures	[6] Reduction for 02A Funding	[7] CWIP as 6/30/09	[8] Water Related CWIP	[9] Wholesale Share	
A.	Water Enterprise								
1	Regional Projects								
CUW352	Alameda Creek Fishery	Joint	$ 2,007,607	$ 224,582	$ 2,232,189	$ -		$ -	
CUW353	Seismic Upgrade @ Hayward Fault	Joint	$ 3,129,234	$ 1,967,625	$ 5,096,859	$ -		$ -	
CUW354	LOWER CRYSTAL SPRINGS DAM-REV-SFWD	Joint	$ 7,046,944	$ 1,086,262	$ 8,133,206	$ -		$ -	
CUW355	STANDBY POWER FACILITIES	Joint	$ 3,715,276	$ 6,596,849	$ 10,312,125	$ -		$ -	
CUW357	Adit Leak Repairs	Joint	$ 783	$ 1,129	$ 1,912	$ -		$ -	
CUW359	Irvington Tunnel	Joint	$ 21,391,129	$ 5,176,713	$ 26,567,842	$ -		$ -	
CUW359		Joint	$ 7,837,176	$ -	$ 7,837,176	$ -		$ -	
CUW361	Pulgas Balancing Reservoir	Joint	$ 368,057	$ 1,383,959	$ 1,752,016	$ -		$ -	
CUW361		Joint	$ 1,255,545	$ -	$ 1,255,545	$ -		$ -	
CUW361		Joint	$ 1,248,002	$ -	$ 1,248,002	$ -		$ -	
CUW361		Joint	$ 570,179	$ -	$ 570,179	$ -		$ -	
CUW361		Joint	$ 712,921	$ -	$ 712,921	$ -		$ -	
CUW363	SCADA Phase II	Joint	$ 1,335,371	$ 1,738,045	$ 3,073,416	$ -		$ -	
CUW363		Joint	$ 1,062,050	$ -	$ 1,062,050	$ -		$ -	
CUW365	Cross Connection Control	Joint	$ 3,635,172	$ 547,801	$ 4,182,973	$ -		$ -	Capitalized in FY 2008-09
CUW367	HTWTP LT Impr	Joint	$ 8,011,348	$ 2,479,731	$ 10,491,079	$ -		$ -	
CUW368	BDPL Hydraulic Capacity	Joint	$ 23,640,601	$ -	$ 23,640,601	$ -		$ -	
CUW368		Joint	$ 17,556,905	$ 4,200,442	$ 21,757,347	$ -		$ -	
CUW368		Joint	$ 2,579,847	$ -	$ 2,579,847	$ -		$ -	
CUW370	Pipeline Readiness	Joint	$ 5,320,934	$ 328,070	$ 5,649,004	$ -		$ -	
CUW371	CSPS and Pipeline	Joint	$ 11,420,770	$ 3,872,779	$ 15,293,549	$ -		$ -	
CUW372	University Mound (N)	Joint	$ 4,624,981	$ 1,068,147	$ 5,693,128	$ -		$ -	
CUW373	SJPL	Joint	$ 19,479,341	$ 6,023,849	$ 25,503,190	$ -		$ -	
CUW373		Joint	$ 7,199,051	$ -	$ 7,199,051	$ -		$ -	
CUW374	Calaveras Dam	Joint	$ 31,171,669	$ 4,314,430	$ 35,486,099	$ -		$ -	
CUW374		Joint	$ 2,366,343	$ -	$ 2,366,343	$ -		$ -	
CUW378	CSPL #2	Joint	$ 7,453,098	$ 913,369	$ 8,366,467	$ -		$ -	
CUW379	SAPL #3	Joint	$ 5,728,934	$ 588,346	$ 6,317,280	$ -		$ -	
CUW380	BDPK #3&4 Crossovers	Joint	$ 3,855,357	$ 1,083,888	$ 4,939,245	$ -		$ -	
CUW381	SVWTP Expansion	Joint	$ 5,450,995	$ -	$ 5,450,995	$ -		$ -	
CUW381		Joint	$ 53,222	$ 3,090,520	$ 3,143,742	$ -		$ -	
CUW381		Joint	$ 97,373	$ -	$ 97,373	$ -		$ -	
CUW382	SVWTP Treated Water Reservoir	Joint	$ 5,799,505	$ 575	$ 5,800,080	$ -		$ -	
CUW384	Tesla	Joint	$ 6,102,621	$ 7,444,942	$ 13,547,563	$ -		$ -	
CUW386	SAPS X-CONNECT & PUMP IMP 96A UEB	Joint	$ 1,374,491	$ 971,625	$ 2,346,116	$ -		$ -	
CUW388	PEIR	Joint	$ 896,476	$ 1,641,717	$ 2,538,193	$ -		$ -	
CUW388		Joint	$ 1,331,676	$ -	$ 1,331,676	$ -		$ -	
CUW390	Desalination Pilot	Joint	$ 175,165	$ -	$ 175,165	$ -		$ -	
CUW391	Baden/San Pedro Valve Lots	Joint	$ 3,964,642	$ 948,589	$ 4,913,231	$ -		$ -	
CUW392	Program Management	Joint	$ 2,452,297	$ 5,081,444	$ 7,533,741	$ -		$ -	
CUW393	BDPL #4 Condition Assessment	Joint	$ 25,071	$ 294,634	$ 319,705	$ -		$ -	
CUW394	Watershed Enviroment Improvement	Joint	$ 142,924	$ 96,027	$ 238,951	$ -		$ -	Capitalized in FY 2008-09
CUW101	SAN ANDREAS PLANT EXPANSION #1	Joint	$ 182	$ 96,027		$ 96,209		$ 67,443	
CUW111	LOWER CRYSTAL SPRINGS DAM-REV-SFWD	Joint	$ 40,436	$ -		$ 40,436		$ 28,346	
CUW151	Baden PS	Joint	$ 921	$ 26,760		$ 27,681		$ 19,404	
CUW161	Water Treatment Facilities	Joint	$ 75,801	$ 605		$ 76,406		$ 53,561	
CUW178	SAPS X-CONNECT & PUMP IMP 96A UEB	Joint	$ 104,902	$ -		$ 104,902		$ 73,536	
CUW202	Replace PCCP	Joint	$ 50,808	$ -		$ 50,808		$ 35,616	
CUW202		Joint	$ 285,003	$ 64,256		$ 349,259		$ 244,831	
CUW202		Joint	$ 2,365	$ -		$ 2,365		$ 1,658	
CUW127	SCADA	Joint	$ 50,029	$ 2,481,274		$ 2,531,303		$ 1,774,443	
CUW356	New Crystal Springs Bypass Tunnel	Joint	$ 13,992,264	$ 5,560,862	$ 16,028,397	$ 3,524,729		$ 2,470,835	
CUW358	Sunset (N)	Joint	$ 52,494,764	$ 4,887,980	$ 55,806,081	$ 1,576,663		$ 1,105,241	Capitalized in FY 2008-09
CUW387	Tesla Portal Disinfection	Joint	$ 2,377,262	$ (1,996)	$ 1,223,945	$ 1,151,321		$ 807,076	
CUW135	New Lines and Bypass Valves	Joint	$ 45,413	$ -		$ 45,413		$ 31,835	
CUW135		Joint	$ 153,983	$ 620,156		$ 774,139		$ 542,671	
CUW135		Joint	$ 8,860	$ -		$ 8,860		$ 6,211	
CUW143	HH Water Treatment Plan	Joint	$ 5,656	$ -		$ 5,656		$ 3,965	
CUW143		Joint	$ 709,972	$ 8,817		$ 718,789		$ 503,871	
CUW143		Joint	$ 96,292	$ -		$ 96,292		$ 67,501	
CUW186	SVWTP IMPROVEMENT PROJECT-CPB-SFWD	Joint	$ 3,604	$ -		$ 3,604		$ 2,526	
CUW206	Tesla Portal/Thomas Shaft Emergency Disinfection	Joint	$ 4,365	$ -		$ 4,365		$ 3,060	
CUW206		Joint	$ 283,620	$ 5,665		$ 289,285		$ 202,789	
CUW206		Joint	$ 227,004	$ -		$ 227,004		$ 159,130	
CUW231	Millbrae Labs	Joint	$ 81,856	$ 34,685		$ 116,541		$ 81,695	
CUW236	TELSA/SJVH WQ MONITORING IMPR	Joint	$ 152,963	$ -		$ 152,963		$ 107,227	
CUW366	HTWTP ST Improvements	Joint	$ 16,523	$ -		$ 16,523		$ 11,583	
CUW366		Joint	$ 1,398,798	$ 5,732,626	$ 7,131,424	$ -		$ -	
CUW366		Joint	$ 1,452,901	$ -	$ 1,452,901	$ -		$ -	
CUW120	WATER QUALITY PLANNING STUDY	Joint	$ 577	$ -		$ 577		$ 404	
CUW164	WATER VULNERABILITY STUDY-UEB	Joint	$ 479	$ -		$ 479		$ 336	
CUW181	STANDBY POWER FACILITIES	Joint	$ 5,905	$ -		$ 5,905		$ 4,139	
CUW210	Millbrae Administrative Bldg Remodel	Joint	$ 7,803	$ 321,553		$ 329,356		$ 230,879	
CUW220	Calaveras Dam Evaluation	Joint	$ 308,971	$ -		$ 308,971		$ 216,589	
CUW227	Watershed Facilities and Fencing	Joint	$ 190,552	$ 206,448		$ 397,000		$ 278,297	
CUW228	Watershed Roads	Joint	$ 358,434	$ 85,337		$ 443,771		$ 311,083	
CUW232	Crystal Springs Dam Discharge	Joint	$ 363,823	$ -		$ 363,823		$ 255,040	
CUW242	Demolition of Unsafe Structures	Joint	$ 311,548	$ 22,741		$ 334,289		$ 234,337	
CUW242		Joint	$ 315	$ -		$ 315		$ 221	
CUW261	Regional R&R - Storage	Joint	$ 275,694	$ 277,958		$ 553,652		$ 388,110	
CUW262	Regional R&R - Treatement	Joint	$ 1,236,895	$ 409,282		$ 1,646,177		$ 1,153,970	
CUW262		Joint	$ 277,383	$ -		$ 277,383		$ 194,445	

ATTACHMENT K-2
WHOLESALE CUSTOMERS' SHARE OF THE BOOK VALUE OF REVENUE FUNDED CAPITAL EXPENDITURES
****PRELIMINARY - TO BE SUBSTITUTED WITH FINAL 6/30/09 VALUES****
(Section 5.03)

[1] Project No.	[2] Project Description	[3] Rate Class	[4] CWIP as of 6/30/08	[5] FY 2008-09 Expenditures	[6] Reduction for 02A Funding	[7] CWIP as 6/30/09	[8] Water Related CWIP	[9] Wholesale Share
CUW263	Regional R&R - Transmission	Joint	$ 768,422	$ 797,659		$ 1,566,081		$ 1,097,823
CUW263		Joint	$ 1,224,094	$ -		$ 1,224,094		$ 858,090
CUW360	PLANNING - WSTD Sunol Quarry Reservoirs	Joint	$ 2,513	$ -		$ 2,513		$ 1,762
CUW934	BOA/BAW/13/F2/SFWD-CONT PROJ-OPER FD	Joint	$ 59,479	$ (2,210)	$ 998,005	$ (940,736)		$ (659,456)
	TOTAL REGIONAL WATER PROJECTS		$ 313,100,517	$ 84,802,574	$379,397,925	$ 18,505,166		$ 12,972,121
	Less Projects to be Capitalized in FY 2008-09					$ 1,576,663		$ 1,105,241
	ADJUSTED TOTAL REGIONAL WATER PROJECTS					$ 16,928,503		$ 11,866,881
2	Wholesale Direct							
	None							
B.	Hetch Hetchy Water & Power							
CUH703	Priest Reservoir By-pass	Joint	-	47,164		$ 47,164	$ 21,224	$ 13,626
CUH762	SJPL Reparis	Water	53,616	255,011		$ 308,627	$ 308,627	$ 198,139
CUH766	HH Security Improvements	Joint	164,478	261,601		$ 426,079	$ 191,736	$ 123,094
CUH767	Power Transformers	Power	-	-		$ -	$ -	$ -
CUH803	Street Lights	Power	-	40,506		$ 40,506	$ -	$ -
CUH804	HH Roads	Joint	-	341,240		$ 341,240	$ 153,558	$ 98,584
CUH829	HH SCADA	Joint	-	-		$ -	$ -	$ -
CUH842	Moccasin Cottages Renovations	Joint	-	-		$ -	$ -	$ -
CUH846	New Moccasin Penstock	Power	543,073	-		$ 543,073	$ -	$ -
CUH851	Turbine Generator Renovations	Power	111,755	926,254		$ 1,038,009	$ -	$ -
CUH868	Moccasin Energy Absorber	Power	-	-		$ -	$ -	$ -
CUH876	Moccasin Phone System	Joint	-	15,677		$ 15,677	$ 7,055	$ 4,529
CUH878	O'Shaugnessy Discharge/Toulumne River Channel Impr.	Joint	31,953	168,076		$ 200,029	$ 90,013	$ 57,788
CUH891	Metering Muni Load	Power	18	4,361		$ 4,379	$ -	$ -
CUH893	Cherry/Eleanor Pump Upgrade	Power	-	17,012		$ 17,012	$ -	$ -
CUH896	Street Lights	Power	9,294	568,794		$ 578,088	$ -	$ -
CUH899	Canyon Tunnel Penstock	Power	6,210	21,804		$ 28,014	$ -	$ -
CUH915	UG Assessment/Hunters Point	Power	961,755	1,668,663		$ 2,630,418	$ -	$ -
CUH926	Pipe Purchase	Water	-	13,667		$ 13,667	$ 13,667	$ 8,774
CUH931	Microwave Replacement	Joint	3,157,491	156,270		$ 3,313,761	$ 1,491,192	$ 957,346
CUH932	HH SCADA	Joint	-	-		$ -	$ -	$ -
CUH825	Distribution System	Power	446,419	109,797		$ 556,216	$ -	$ -
CUH941	HHP SCADA Security & Control, East/O'Shaugnessy	Joint	1,433,974	246,948		$ 1,680,922	$ 756,415	$ 485,618
CUH942	O'Shaugnessy Dam Discharge Needle Valves	Joint	-	-		$ -	$ -	$ -
CUH943	Renewable Energy	Power	-	-		$ -	$ -	$ -
CUH945	SJPL Crossovers	Water	-	-		$ -	$ -	$ -
CUH946	Facility Maintenance	Joint	-	239		$ 239	$ 108	$ 69
CUH947	Sustainable Energy Account	Power	441,226	1,838,396		$ 2,279,622	$ -	$ -
CUH948	Facility Maintenance - Transmission Lines	Power	70,631	101,295		$ 171,926	$ -	$ -
CUH949	POW Maintenance	Power	-	-		$ -	$ -	$ -
CUH950	HPH/KPH/MPH	Power	1,236,853	1,167,621		$ 2,404,474	$ -	$ -
CUH955	Solar Monitoring	Power	222	-		$ 222	$ -	$ -
CUH956	Facility Maintenance - Gate Valves	Water	275,213	-		$ 275,213	$ 275,213	$ 176,687
CUH957	Moccasin Corrison Control	Joint	48,023	110,986		$ 159,009	$ 71,554	$ 45,938
CUH958	Generation Metering	Power	-	18,811		$ 18,811	$ -	$ -
CUH959	Moccasin Reservoir Water Quality	Water	109,379	-		$ 109,379	$ 109,379	$ 70,221
CUH960	Solar Power Project	Power	6,480	(5,333)		$ 1,147	$ -	$ -
CUH861	MECA Solar	Power	-	26,369		$ 26,369	$ -	$ -
CUH962	SF Electrical Reliability	Power	9,672,565	2,653		$ 9,675,218	$ -	$ -
CUH964	Watershed Lan Purchase	Water	-	75,756		$ 75,756	$ 75,756	$ 48,635
CUH966	MECA - Demand Reduction	Power	-	-		$ -	$ -	$ -
CUH969	SFIA SCADA	Power	-	-		$ -	$ -	$ -
CUH971	Neward - CCSF Tranmission Project	Power	235,120	54,602		$ 289,722	$ -	$ -
CUH972	Load Metering	Power	145,039	1,274		$ 146,313	$ -	$ -
CUH973	Distribution Assessment	Power	-	-		$ -	$ -	$ -
CUH975	Hetch Hetchy Water R&R	Power	-	130,100		$ 130,100	$ -	$ -
CUH975	Hetch Hetchy Water R&R	Water	52,613	516,524		$ 569,137	$ 569,137	$ 365,386
CUH975	Hetch Hetchy Water R&R	Joint	999,854	887,864		$ 1,887,718	$ 849,473	$ 545,362
CUH976	KPH Rewind	Power	1,053,295	1,417,914		$ 2,471,209	$ -	$ -
CUH977	Facilities Maintenance - Water	Joint	770,839	1,049,878		$ 1,820,717	$ 819,323	$ 526,005
CUH978	Community Choice Aggregation	Power	5,571	101,075		$ 106,646	$ -	$ -
CUH979	Hunters Point Distribution	Power	1,926,977	532,011		$ 2,458,988	$ -	$ -
CUH981	Shore Power for Cruise Ships	Power	2,690	-		$ 2,690	$ -	$ -
CUH986	SEA - Energy Efficiency	Power	15,262	-		$ 15,262	$ -	$ -
CUW687	525 Golden Gate	Joint	-	4,105		$ 4,105	$ 1,847	$ 1,186
IUH004	Auto Maintenance	Joint	-	3,882		$ 3,882	$ 1,747	$ 1,122
PUH501	SF Environment Energy/Green Power	Power	-	66,107		$ 66,107	$ -	$ -
PYEAES	Youth Employment	Joint	-	-		$ -	$ -	$ -
	TOTAL HHWP PROJECTS		23,987,888	12,964,974	-	36,952,862	5,807,023	$ 3,728,109
C	TOTAL COMBINED WATER AND HHWP		$ 337,088,405	$ 97,767,548	$379,397,925	$ 55,458,028		$ 15,594,990

Notes
1. 6/30/08 CWIP per FAMIS
2. FY 2008-09 Expenditures posted through 3/20/09 per FAMIS
3. Wholesale share of CWIP 70.1% (see Note 5 Attachment K-1)
4. Water Related HHWP CWIP includes 100% of Water and 45% of Joint
5. Wholesale share of CWIP 64.2% (see Note 5 Attachment K-1)
6. Fund 2A expenditures are funded by Series 2006A bond proceeds, proceeds of commercial paper redeemed from 2006A proceeds and earnings on such proceeds, as applicable.

ATTACHMENT K-3
25 YEAR PAYOFF SCHEDULE FOR EXISITING RATE BASE
WATER ENTERPRISE REGIONAL ASSETS AND ONE DIRECT WHOLESALE ASSET
****PRELIMINARY - TO BE SUBSTITUTED WITH FINAL 6/30/09 VALUES****
(Section 5.03)

	Water Assets
6/30/09 Wholesale Share of Net Plant & CWIP (Attachment K-1)	338,452,207
Interest Rate:	5.13%
Term:	25
Monthly Principal & Interest Calculation:	2,004,277
Annual Wholesale Revenue Requirement:	24,051,326

Fiscal Yr Ending	Principal	Interest	**Annual Payment (Wtr)**	Year End Balance
Jun-10	6,848,259	17,203,067	**24,051,326**	331,603,948
Jun-11	7,207,954	16,843,372	**24,051,326**	324,395,994
Jun-12	7,586,541	16,464,785	**24,051,326**	316,809,453
Jun-13	7,985,013	16,066,313	**24,051,326**	308,824,439
Jun-14	8,404,415	15,646,911	**24,051,326**	300,420,024
Jun-15	8,845,844	15,205,482	**24,051,326**	291,574,180
Jun-16	9,310,459	14,740,867	**24,051,326**	282,263,721
Jun-17	9,799,478	14,251,848	**24,051,326**	272,464,243
Jun-18	10,314,181	13,737,145	**24,051,326**	262,150,062
Jun-19	10,855,919	13,195,407	**24,051,326**	251,294,143
Jun-20	11,426,110	12,625,216	**24,051,326**	239,868,033
Jun-21	12,026,250	12,025,076	**24,051,326**	227,841,784
Jun-22	12,657,911	11,393,415	**24,051,326**	215,183,873
Jun-23	13,322,749	10,728,577	**24,051,326**	201,861,123
Jun-24	14,022,507	10,028,819	**24,051,326**	187,838,616
Jun-25	14,759,019	9,292,307	**24,051,326**	173,079,597
Jun-26	15,534,215	8,517,111	**24,051,326**	157,545,382
Jun-27	16,350,127	7,701,199	**24,051,326**	141,195,254
Jun-28	17,208,894	6,842,432	**24,051,326**	123,986,361
Jun-29	18,112,766	5,938,560	**24,051,326**	105,873,594
Jun-30	19,064,113	4,987,213	**24,051,326**	86,809,482
Jun-31	20,065,428	3,985,898	**24,051,326**	66,744,054
Jun-32	21,119,335	2,931,991	**24,051,326**	45,624,719
Jun-33	22,228,597	1,822,729	**24,051,326**	23,396,122
Jun-34	23,396,122	655,204	**24,051,326**	0
Totals:	338,452,207	262,830,943	601,283,150	

ATTACHMENT K-4
25 YEAR PAYOFF SCHEDULE FOR EXISTING RATE BASE
HETCH HETCHY WATER ASSETS AND WATER-RELATED PORTION OF JOINT ASSETS
****PRELIMINARY - TO BE SUBSTITUTED WITH FINAL 6/30/09 VALUES****
(Section 5.03)

	Hetch Hetchy
6/30/09 Wholesale Share of Net Plant & CWIP (Attachment K-1)	43,877,206
Interest Rate:	5.13%
Term:	25
Monthly Principal & Interest Calculation:	259,836
Annual Wholesale Revenue Requirement:	3,118,033

Fiscal Yr Ending	Principal	Interest	**Annual Payment (HH)**	Year End Balance
Jun-10	887,814	2,230,219	**3,118,033**	42,989,393
Jun-11	934,445	2,183,588	**3,118,033**	42,054,948
Jun-12	983,525	2,134,507	**3,118,033**	41,071,423
Jun-13	1,035,183	2,082,849	**3,118,033**	40,036,239
Jun-14	1,089,555	2,028,478	**3,118,033**	38,946,685
Jun-15	1,146,782	1,971,250	**3,118,033**	37,799,903
Jun-16	1,207,015	1,911,017	**3,118,033**	36,592,887
Jun-17	1,270,412	1,847,621	**3,118,033**	35,322,475
Jun-18	1,337,138	1,780,894	**3,118,033**	33,985,337
Jun-19	1,407,370	1,710,663	**3,118,033**	32,577,967
Jun-20	1,481,290	1,636,743	**3,118,033**	31,096,678
Jun-21	1,559,092	1,558,940	**3,118,033**	29,537,585
Jun-22	1,640,981	1,477,051	**3,118,033**	27,896,604
Jun-23	1,727,172	1,390,861	**3,118,033**	26,169,432
Jun-24	1,817,889	1,300,144	**3,118,033**	24,351,544
Jun-25	1,913,371	1,204,662	**3,118,033**	22,438,173
Jun-26	2,013,868	1,104,165	**3,118,033**	20,424,305
Jun-27	2,119,643	998,389	**3,118,033**	18,304,662
Jun-28	2,230,974	887,058	**3,118,033**	16,073,688
Jun-29	2,348,153	769,880	**3,118,033**	13,725,535
Jun-30	2,471,486	646,546	**3,118,033**	11,254,048
Jun-31	2,601,298	516,735	**3,118,033**	8,652,751
Jun-32	2,737,927	380,106	**3,118,033**	5,914,824
Jun-33	2,881,733	236,300	**3,118,033**	3,033,091
Jun-34	3,033,091	84,941	**3,118,033**	0
	43,877,206	34,073,607	77,950,813	

ATTACHMENT K-5
UNEXPENDED APPROPRIATIONS FOR REVENUE-FUNDED REGIONAL ASSETS
CONSTRUCTION WORK IN PROGRESS AS OF MARCH 30, 2009
(Section 5.04)

Project	Project Title	Fund Type	Subfund	Classification	Appropriation	YTD Expenditures	PTD Expenditures	Encumbrances	Available Balances	Notes
				Water Assets						
CUW257	WATERSHED PROTECTION	5W	AAAACP	REGIONAL	1,448,720	29,653	413,529	141,643	893,548	
CUW250	WATERSHED TRAILS&RECREATION IMPRO	5W	AAAACP	REGIONAL	387,639	9,431	112,689	6,675	268,275	
CUW261	REGIONAL WATER STORAGE RNR -BUDGET	5W	AAAACP	REGIONAL	1,750,000	250,970	526,664	26,687	1,196,648	Annual R&R
CUW242	DEMOLITION UNSAFE STRUCTURES	5W	AAAACP	REGIONAL	1,000,000	22,647	407,820	21,524	570,656	
CUW263	CONVEYANCE/TRANSMISSION - BUDGET	5W	AAAACP	REGIONAL	7,825,000	763,603	3,378,543	125,990	4,320,466	Annual R&R
CUW264	WATERSHED ROADS - BUDGET	5W	AAAACP	REGIONAL	3,000,000	77,074	1,391,500	162,401	1,446,099	Annual R&R
CUW262	TREATMENT FACS/WQ IMPROVE-BUDGET	5W	AAAACP	REGIONAL	4,801,000	399,073	2,704,204	349,016	1,747,780	Annual R&R
CUW168	ALAMEDA CREEK FISH RELEASE	5W	AAAACP	REGIONAL	1,537,398	46,624	1,040,919	152,647	343,832	
CUW231	MILLBRAE LAB CAPITAL IMPROVEMENTS	5W	AAAACP	REGIONAL	770,000	19,119	532,135	0	237,865	
CUW227	WATERSHED FENCES/FACILITES	5W	AAAACP	REGIONAL	3,000,000	206,222	2,223,776	581,926	194,298	
CUW253	FACILITIES SECURITY PROJECT	5W	AAAACP	REGIONAL	5,300,000	73,048	4,146,944	113,124	1,039,931	
CUW210	MILLBRAE ADMIN BLDG INTERIM REMODEL	5W	AAAACP	REGIONAL	2,407,700	284,902	1,935,204	160	472,337	
CUW228	WATERSHED ROADS RECONSTRUCTION	5W	AAAACP	REGIONAL	5,170,000	82,992	4,413,061	18,598	738,340	
CUW202	SAN ANTONIO PIPELINE EMERGENCY REPA	5W	AAAACP	REGIONAL	1,400,000	6,012	1,269,190	61,727	69,083	
CUW148	ENVIRONMENTAL & REGULATORY COMP	5W	AAAACP	REGIONAL	3,241,279	0	3,014,995	184,774	41,510	
CUW135	NEW LINE & BYPASS VALVES	5W	AAAACP	REGIONAL	4,829,680	2,103	4,689,067	0	140,613	
CUW143	HETCH HETCHY WATER TREATMENT PLAN	5W	AAAACP	REGIONAL	18,821,529	0	18,452,053	47,947	321,529	
CUW161	TREATMENT FACILITIES IMPROVEMENTS	5W	AAAACP	REGIONAL	15,028,319	334	14,747,873	0	280,446	
CUW241	FACILITIES MAINT SUPPORT STRUCTURES	5W	AAAACP	REGIONAL	5,000,000	8,390	4,988,882	0	11,118	
CUW392	PROGRAM MANAGEMENT SERVICES - WSIF	5W	AAAACP	LOCAL/REGIONAL	1,837,000	(98,519)	751,659	71,973	1,013,368	
CUW127	INST SCADA SYSTEM	5W	AAAACP	LOCAL/REGIONAL	13,156,681	2,481,274	8,653,641	0	4,503,040	
CUW710	OCIP PROJECT CONTROL	5W	AAAACP	LOCAL/REGIONAL	2,497,881	235,706	2,496,959	0	922	
	TOTAL ALL PROJECTS				104,209,826	4,900,661	82,291,307	2,066,813	19,851,706	
	LOCAL PROJECTS			LOCAL	0	0	0	0	0	
	JOINT LOCAL AND REGIONAL PROJECTS			LOCAL/REGIONAL	17,491,562	2,618,462	11,902,259	71,973	5,517,330	
	REGIONAL PROJECTS			REGIONAL	86,718,264	2,282,199	70,389,048	1,994,840	14,334,376	
	TOTAL ALL PROJECTS				104,209,826	4,900,661	82,291,307	2,066,813	19,851,706	
				Hetchy Hetchy Assets						
CUH975	WATER INFRASTRUCTURE - BUDGET	5T	AAAACP	WATER	9,000,000	1,534,488	2,806,592	3,565,023	2,628,385	
CUH964	WATERSHED PROPERTY PURCHASES	5T	AAAACP	WATER	800,000	75,756	454,756	0	345,244	
CUH957	FAC MAINTENANCE-WATER TRANSPORTAT	5T	AAAACP	WATER	3,400,000	110,986	2,885,394	209,138	305,469	
CUH703	PRIEST RESERVOIR DIVERSION CHANNEL	5T	AAAACP	WATER	21,210,344	47,164	20,166,993	0	1,043,351	
CUH926	PIPELINE PURCHASE REPLACEMENT PIPE	5T	AAAACP	WATER	159,860	13,667	157,489	0	2,371	
CUH762	SAN JOAQUIN PIPELINE REPAIRS	5T	AAAACP	WATER	41,469,206	255,011	41,215,761	134,652	118,792	
CUW687	525 GOLDEN GATE	5T	AAAACP	JOINT	280,600	4,105	26,437	0	254,163	
CUH977	FACILITIES MAINTENANCE - BUDGET	5T	AAAACP	JOINT	9,300,000	1,049,878	3,578,478	803,231	4,918,290	
CUH931	HH MICROWAVE REPLACEMENT	5T	AAAACP	JOINT	4,767,000	156,270	3,313,761	1,227,242	225,997	
CUH941	HH SCADA SECURITY & CONTROL, EAST	5T	AAAACP	JOINT	2,068,180	246,948	1,680,922	256,198	131,060	
CUH804	HETCH-HETCHY ROADS REBUILDING	5T	AAAACP	JOINT	4,175,027	341,240	3,544,483	113,314	517,230	
CUH766	HETCHY FACILITIES SECURITY IMPROV.	5T	AAAACP	JOINT	2,086,692	261,601	1,960,386	62,470	63,836	
CUH876	MOCCASIN PHONE SYSTEM	5T	AAAACP	JOINT	1,610,000	15,677	1,528,780	0	81,220	
CUH878	O'SHAUGENESSY DIS.REPAIRS	5T	AAAACP	JOINT	7,179,009	33,750	7,101,644	9,297	68,068	
CUH810	VARIOUS OLD JOB	5T	AAAACP	JOINT	7,613,638	18,690	7,538,034	1,561	74,044	
CUH946	FAC MAINTENANCE-SUPPORT STRUCTURE	5T	AAAACP	JOINT	2,281,454	239	2,273,485	0	7,969	
CUH949	RIGHT OF WAY MAINTENANCE	5T	AAAACP	JOINT	815,000	0	814,208	166	626	
	TOTAL ALL PROJECTS				118,216,010	4,165,470	101,047,602	6,382,292	10,786,117	
	POWER PROJECTS			POWER	0	0	0	0	0	
	WATER PROJECTS			WATER	76,039,410	2,037,072	67,686,985	3,908,812	4,443,613	
	JOINT PROJECTS			JOINT	42,176,600	2,128,397	33,360,617	2,473,480	6,342,504	
	TOTAL ALL PROJECTS				118,216,010	4,165,470	101,047,602	6,382,292	10,786,117	

ATTACHMENT L-1
IDENTIFICATION OF WSIP PROJECTS AS REGIONAL/RETAIL
(Section 5.04)

Project Number		Project Description
REGIONAL		
		San Joaquin Region
CUW373	Regional	San Joaquin Pipeline System Rehabilitation
CUW384	Regional	Tesla Advance Disinfection
CUW387	Regional	Tesla Portal Disinfection
		Sunol Valley Region
CUW352	Regional	Alameda Creek Fishery Enhancement
CUW355	Regional	Stand-by Power - Various Locations
CUW359	Regional	New Irvington Tunnel/Alameda Siphon No. 4
CUW370	Regional	Pipeline Readiness Improvements
CUW374	Regional	Calaveras Dam Replacement
CUW381	Regional	SVWTP 40 mgd Addition
CUW382	Regional	SVWTP Finished Water Reservoir
CUW386	Regional	San Antonio Pump Station Upgrade
		Bay Division Region
CUW353	Regional	Seismic Upgrade BDPL 3 & 4
CUW363	Regional	SCADA Phase II/Security Upgrades
CUW368	Regional	BDPL Reliability Upgrades
CUW380	Regional	BDPL 3 & 4 Crossover
CUW389	Regional	EBMUD Intertie
CUW393	Regional	BDPL 4 Slipline
		Peninsula Region
CUW354	Regional	Lower Crystal Springs Dam Improvement
CUW356	Regional	Crystal Springs Bypass Tunnel
CUW357	Regional	Adit Leak Repairs
CUW361	Regional	Pulgas Balancing Reservoir Rehabilitation and Improvements
CUW365	Regional	Cross Connection Control
CUW366	Regional	HTWTP Short Term Improvemetns
CUW367	Regional	HTWTP Long Term Improvements
CUW369	Regional	Capuchino Valve Lot Improvements
CUW371	Regional	Crystal Springs/San Andreas Transmission
CUW378	Regional	Crystal Springs Pipleine 2 Replacement
CUW379	Regional	San Andreas Pipeline 3 Installation
CUW390	Regional	Desalination
CUW391	Regional	Baden & San Pedro Valve Lots Improvements

ATTACHMENT L-1
IDENTIFICATION OF WSIP PROJECTS AS REGIONAL/RETAIL
(Section 5.04)

Project Number		Project Description
		San Francisco Region
CUW358	Regional	Sunset Reservoir Upgrades - North Basin
CUW372	Regional	University Mound Reservoir Upgrades - North Basin
		System-Wide
CUW388	Regional	PEIR
CUW392	Regional	Program Management Services
CUW394	Regional	Watershed Land Acquisition

RETAIL

		Reservoirs
CUW307	Local	Summit Reservoir Rehabilitation
CUW310	Local	New Northwest Reservoir
CUW319	Local	Hunters Point Reservoir Rehabilitation
CUW334	Local	Stanford Heights Reservoir Rehabilitation
CUW335	Local	Potrero Heights Reservoir Rehabiliation
CUW337	Local	Sutro Reservoir Rehabilitation
		Pump Stations/Tanks
CUW306	Local	Crocker Amazon Pump Station Upgrade
CUW309	Local	Lake Merced Pump Station Upgrade
CUW314	Local	La Grande Tank Upgrade
CUW318	Local	Forest Hill Tank Rehabilitation
CUW320	Local	Forest Hilll Pump Station Upgrade
CUW321	Local	Forest Knoll Pump Station Upgrade
CUW322	Local	Lincoln Park Pump Station Upgrade
CUW323	Local	Alemany Pump Station Upgrade
CUW324	Local	Mount Davidson Pump Station Upgrade
CUW326	Local	Palo Alto Pump Station Upgrade
CUW326	Local	Sktview-AquaVista Pump Station Upgrade
CUW327	Local	Summit Pump Station Upgrade
CUW328	Local	McLaren #1 Tank Rehabilitation
CUW329	Local	Potrero Heights Tank Seismic Upgrade
CUW330	Local	Forest Knoll Tank Seismic Upgrade
CUW331	Local	Lincoln Park Tank Seismic Upgrade
CUW332	Local	McLaren #2 Tank Rehabilitation
CUW333	Local	Mount Davidson Tank Seismic Upgrade
CUW338	Local	La Grande Pump Station Upgrade
CUW339	Local	Potrero Heights Pump Station Upgrade
CUW340	Local	Vista Francisco Pump Station Upgrade

ATTACHMENT L-1
IDENTIFICATION OF WSIP PROJECTS AS REGIONAL/RETAIL
(Section 5.04)

Project Number		Project Description
		Pipelines/Valves
CUW304	Local	North University Mound System Upgrade
CUW308	Local	Motorize Key Valves
CUW311	Local	Sunset Circulation Improvements
CUW312	Local	Lincoln Way Transmission Line
CUW313	Local	Noe Valley Transmission Main, Phase 2
CUW315	Local	East/West Transmission Main
CUW316	Local	Fulton @ Sixthe Ave Main Replacement
		Water Supply/Water Quality
CUW301	Local	Groundwater
CUW302	Local	Recycled Water
CUW364	Local	Lawrence-Livermore National Laboratory Water Quality Improvements
		Miscellaneous
CUW303	Local	Vehicle Service Facility Upgrade
CUW305	Local	Fire Protection at CCD

03/13/06

$507,815,000
PUBLIC UTILITIES COMMISSION
OF THE CITY AND COUNTY OF SAN FRANCISCO
SAN FRANCISCO WATER REVENUE BONDS, 2006 SERIES A

$110,065,000
PUBLIC UTILITIES COMMISSION
OF THE CITY AND COUNTY OF SAN FRANCISCO
SAN FRANCISCO WATER REVENUE BONDS, 2006 REFUNDING SERIES B

CERTIFICATE REGARDING USE OF PROCEEDS

The undersigned hereby states and certifies as follows:

(i) The undersigned is the General Manager of the Public Utilities Commission of the City and County of San Francisco (the "Commission"), and is authorized to execute this certificate on behalf of the Commission and is knowledgeable with respect to the matters set forth herein.

(ii) On the date hereof, the Commission is issuing the two series of bonds captioned above (the "2006 Series A Bonds," the "2006 Refunding Series B Bonds" and, together, the "Bonds") pursuant to an Amended and Restated Indenture dated as of August 1, 2002 and the First Supplemental Indenture dated as of March 1, 2006 (collectively, the "Indenture"), both by and between the Commission and U.S. Bank National Association, as trustee (the "Trustee").

(iii) The Trustee will transfer and deposit the proceeds of the 2006 Series A Bonds received by the Trustee on the date hereof as follows:

(1) $48,212,528.32 will be deposited in the 2006 Series A Capitalized Interest Account established within the Interest Fund;

(2) $15,958,031.25 will be deposited in the 2006 Series A Reserve Account of the Bond Reserve Fund;

(3) $623,906.09 will be deposited in the 2006 Series A Costs of Issuance Fund;

(4) $120,622,352.19 will be deposited in the 2006 Series A Refunding Fund and transferred pursuant to Irrevocable Refunding Instructions of the Commission dated the date hereof; and

(5) the remaining $338,600,816.86 will be transferred to the Treasurer for deposit to the 2006 Series A Project Fund.

(iv) The proceeds of the 2006 Series A Bonds transferred pursuant to the Irrevocable Refunding Instructions of the Commission will be used to defease and refund the Commission's Commercial Paper Notes (Water Series) on a current basis. The Notes were issued to finance a portion of the facilities described in Exhibit A hereto.

(v) The proceeds of the Bonds deposited in the 2006 Series A Project Fund will be used to finance a portion of the facilities described in Exhibit A hereto.

(vi) The Trustee will transfer and deposit the proceeds of the 2006 Refunding Series B Bonds received by the Trustee on the date hereof as follows:

(1) $192,498.04 will be deposited in the 2006 Refunding Series B Costs of Issuance Fund; and

(2) $111,178,241.95 will be deposited in the 2006 Refunding Series B Refunding Fund.

(vii) The proceeds of the Bonds deposited in the 2006 Refunding Series B Refunding Fund, together with amounts on deposit in the funds and accounts established under the Indenture for the Commission's San Francisco Water Revenue Bonds, 1996 Series A (the "1996 Series A Bonds") and its San Francisco Water Revenue Bonds, 2001 Series A (the "2001 Series A Bonds"), will be used to refund on an advance basis a portion of the outstanding 1996 Series A Bonds and a portion of the outstanding 2001 Series A Bonds. The portion of the 1996 Series A Bonds being refunded were issued to finance the facilities (the "1996 Project") described in Exhibit B hereto, and the portion of the 2001 Series A Bonds being refunded were used to finance the facilities (the "2001 Project") described in Exhibit B hereto.

(viii) Exhibit C hereto attached describes (A) each use to be made by any person of the Project, the 1996 Project and the 2001 Project other than use by the Commission and other non-federal governmental units and other than use by members of the public generally, and (B) payments (if any) directly or indirectly in respect of such use which are to be made after the date hereof;

(ix) Other than as set forth in Exhibit A and Exhibit B, no portion of the proceeds of the Bonds will be used, directly or indirectly, to make or finance a loan to any person (other than a State or local government unit) or to acquire property which will be sold or leased to any person (other than a State or local government unit) on an installment a sale basis except as referenced in Exhibit C.

(x) The Commission expects to use the Project for the purposes referenced and discussed in Exhibit A, Exhibit B, Exhibit C and Exhibit D or for other governmental purposes of the Commission during the entire term of the Bonds.

(xi) Set forth on Exhibit D is the Commission's methodology for determining governmental use and private use with respect to the water enterprise.

(xii) To the best knowledge of the undersigned, the above statements are reasonable and there are no other facts, estimates or circumstances, other than those set forth herein, that would materially affect the statements made herein.

Capitalized terms used but not defined herein have the meanings set forth in the Indenture.

IN WITNESS WHEREOF, I have hereunto set my name this 15th day of March, 2006.

PUBLIC UTILITIES COMMISSION OF THE
CITY AND COUNTY OF SAN FRANCISCO

By:_____
General Manager

ATTACHMENT L-2 (CONTINUED)
WATER ENTERPRISE REVENUE BOND 2006 SERIES A
SUMMARY OF SOURCES AND USES OF FUNDS
(Section 5.04)

Source: Closing Documents (Certificate Regarding Use of Proceeds)

Proceeds		
Principal	507,815,000.00	
Plus Premium	19,109,138.35	
Minus Underwriter's Discount	(932,940.06)	
Minus Insurance	(1,973,563.58)	
Net Proceeds	524,017,634.71	
Use of Proceeds		
Capitalized Interest Fund	48,212,528.32	
Bond Reserve Fund	15,958,031.25	
Insurance Fund	623,906.09	
Series A Refunding Fund	120,622,352.19	459,223,169.05
Series A Project Fund	338,600,816.86	
Total Uses	524,017,634.71	

	Commercial Paper	Project Fund	Total
Hetch Hetchy			
Tesla Portal Disinfection	251,262.58	1,147,302.42	1,398,565.00
Advance Disinfection	429,714.76	5,611,554.24	6,041,269.00
SJPL	4,737,937.28	17,784,667.72	22,522,605.00
Total Hetch Hetchy	5,418,914.62	24,543,524.38	29,962,439.00
SF Regional			
University Mound - North	55,728.10	5,964,279.90	6,020,008.00
Sunset - North	7,525,896.84	28,782,094.16	36,307,991.00
Groundwater	3,400,973.67	2,963,110.33	6,364,084.00
Recycled Water	1,548,036.76	11,316,958.24	12,864,995.00
Total SF Regiona1	12,530,635.37	49,026,442.63	61,557,078.00
SF Local	45,405,787.71	106,407,313.30	151,813,101.01
Sunol Valley Subregional			
Calaveras Dam	9,065,945.51	15,993,818.49	25,059,764.00
Stand-by Power	556,398.67	1,207,319.33	1,763,718.00
Pipeline Readiness	649,566.31	4,942,205.69	5,591,772.00
SAPS Upgrade	213,423.44	1,748,134.56	1,961,558.00
SVWTP Finished Water Res	3,317,203.82	7,838,383.18	11,155,587.00
Irvington Tunnel	4,084,139.65	18,247,176.35	22,331,316.00
Alameda Creek Fishery	656,765.00	1,327,119.00	1,983,884.00
SVWTP 40 mgd Addition	25,378.75	3,474,585.25	3,499,964.00
Total Sunol Valley Subregional	18,568,821.15	54,778,741.85	73,347,563.00

ATTACHMENT L-2 (CONTINUED)
WATER ENTERPRISE REVENUE BOND 2006 SERIES A
SUMMARY OF SOURCES AND USES OF FUNDS
(Section 5.04)

Miscellaneous				
PEIR	3,204,177.44	5,103,872.56	8,308,050.00	
PPPCMS Services	2,964,786.31	10,358,811.69	13,323,598.00	
Watershed Land Acquisition	-	502,660.00	502,660.00	
Total Miscellaneous	6,168,963.75	15,965,344.25	22,134,308.00	
LLNL	133,156.60	282,702.40	415,859.00	
Bay Division Subregional				
Seismic Upgrade BDPL 3 & 4	4,758,306.54	16,481,539.46	21,239,846.00	
BDPL Reliability	4,360,664.44	40,874,800.56	45,235,465.00	
BDPL 3 & 4 Crossover	802,494.94	493,817.06	1,296,312.00	
SCADA Phase II	65,497.37	1,247,963.63	1,313,461.00	
EBMUD Intertie	6,668,906.37	4,075,015.63	10,743,922.00	
BDPL 4 Slipline	-	1,219,251.00	1,219,251.00	
Total Bay Division Subregional	16,655,869.66	64,392,387.34	81,048,257.00	
Peninsula Subregional				
Capuchino Valve Lot	162,584.69	753,779.31	916,364.00	
CS/SA Transmission	2,288,853.10	3,448,975.90	5,737,829.00	
Adit Leak Repair	255,334.99	1,650,368.01	1,905,703.00	
HTWTP Short Term	2,874,763.69	3,582,860.31	6,457,624.00	
Cross Connection Control	1,150,559.48	324,549.52	1,475,109.00	
CS Bypass Tunnel	2,873,475.22	15,532,584.78	18,406,060.00	
LCS Dam Improvement	931,587.07	3,278,932.93	4,210,520.00	
Pulgas Balancing Reservoir	1,218,341.39	2,706,284.61	3,924,626.00	
HTWTP Long Term	1,107,185.77	2,549,793.23	3,656,979.00	
Baden & San Pedro Valve Lots	60,203.48	2,963,540.52	3,023,744.00	
Total Peninsula Subregional	12,922,888.88	36,791,669.12	49,714,558.00	
San Francisco Subregional				
CSPL 2 Replacement	1,269,111.95	5,019,824.05	6,288,936.00	
SAPL 3	1,492,584.40	1,942,479.60	3,435,064.00	
Desalination	55,618.10	596,473.90	652,092.00	
Total San Francisco Subregional	2,817,314.45	7,558,777.55	10,376,092.00	
Grand Total	120,622,352.19	359,746,902.82	480,369,255.01	
Regional			328,140,295.00	68.31%
Local			152,228,960.01	31.69%
			480,369,255.01	

This certificate is for illustration only. It was prepared in 2006 and shown groundwater and recycled water projects as regional instead of local. In addition, it does not reflect expenditures for the portions of regional assets which in rate base as of June 30, 2008 nor what is expected to be added to rate base through June 30, 2009. For these reasons, the percentages shown for regional and local projects are not accurate.

ATTACHMENT L-3
WATER ENTERPRISE REVENUE BOND 2006 SERIES A
ANNUAL REPORT ON EXPENDITURES OF AND EARNINGS ON PROCEEDS
AS OF JUNE 30, 2009
(Section 5.04 A)

Project Number		Project Description	Net Financing Proceeds[1]	Appropriated Interest Earnings[2]	Adjusted Project Funding	Expenditures Thru 6/30/09[3]	Remaining Balance
REGIONAL PROGRAM							
		San Joaquin Region					
CUW373	Regional	San Joaquin Pipeline System Rehabilitation	1,398,565				
CUW384	Regional	Tesla Advance Disinfection	6,041,269				
CUW387	Regional	Tesla Portal Disinfection	22,522,605				
		Total San Joaquin Region	29,962,439				
		Sunol Valley Region					
CUW352	Regional	Alameda Creek Fishery Enhancement	1,983,884				
CUW355	Regional	Stand-by Power - Various Locations	1,763,718				
CUW359	Regional	New Irvington Tunnel/Alameda Siphon No. 4	22,331,316				
CUW370	Regional	Pipeline Readiness Improvements	5,591,772				
CUW374	Regional	Calaveras Dam Replacement	25,059,764				
CUW381	Regional	SVWTP 40 mgd Addition	3,499,964				
CUW382	Regional	SVWTP Finished Water Reservoir	11,155,587				
CUW386	Regional	San Antonio Pump Station Upgrade	1,961,558				
		Total Sunol Valley Region	73,347,563				
		Bay Division Region					
CUW353	Regional	Seismic Upgrade BDPL 3 & 4	21,234,846				
CUW363	Regional	SCADA Phase II/Security Upgrades	1,313,461				
CUW368	Regional	BDPL Reliability Upgrades	45,235,465				
CUW380	Regional	BDPL 3 & 4 Crossover	21,239,846				
CUW389	Regional	EBMUD Intertie	10,743,922				
CUW393	Regional	BDPL 4 Slipline	1,219,251				
		Total Bay Division Region	100,986,791				
		Peninsula Region					
CUW354	Regional	Lower Crystal Springs Dam Improvement	4,210,520				
CUW356	Regional	Crystal Springs Bypass Tunnel	18,406,050				
CUW357	Regional	Adit Leak Repairs	1,905,703				
CUW361	Regional	Pulgas Balancing Reservoir Rehabilitation and Improvements	3,924,626				
CUW365	Regional	Cross Connection Control	1,475,109				
CUW366	Regional	HTWTP Short Term Improvemetns	6,457,624				
CUW367	Regional	HTWTP Long Term Improvements	3,656,979				
CUW369	Regional	Capuchino Valve Lot Improvements	916,364				
CUW371	Regional	Crystal Springs/San Andreas Transmission	5,737,829				
CUW378	Regional	Crystal Springs Pipleine 2 Replacement	6,288,936				
CUW379	Regional	San Andreas Pipeline 3 Installation	3,435,064				
CUW390	Regional	Desalination	652,092				
CUW391	Regional	Baden & San Pedro Valve Lots Improvements	3,023,744				
		Total Peninsula Region	60,090,650				
		San Francisco Region					
CUW358	Regional	Sunset Reservoir Upgrades - North Basin	6,020,008				
CUW372	Regional	University Mound Reservoir Upgrades - North Basin	36,307,991				
		Total San Francisco Region	42,327,999				
		System-Wide					
CUW388	Regional	PEIR	8,308,050				
CUW392	Regional	Program Management Services	13,323,598				
CUW394	Regional	Watershed Land Acquisition	502,660				
		Total System-Wide	22,134,308				
		Total Regional Program	328,849,750				
LOCAL PROGRAM							
		Reservoirs					
CUW307	Local	Summit Reservoir Rehabilitation					
CUW310	Local	New Northwest Reservoir					
CUW319	Local	Hunters Point Reservoir Rehabilitation					
CUW334	Local	Stanford Heights Reservoir Rehabilitation					
CUW335	Local	Potrero Heights Reservoir Rehabilitation					
CUW337	Local	Sutro Reservoir Rehabilitation					
		Total Reservoirs					
		Pump Stations/Tanks					
CUW306	Local	Crocker Amazon Pump Station Upgrade					
CUW309	Local	Lake Merced Pump Station Upgrade					
CUW314	Local	La Grande Tank Upgrade					
CUW318	Local	Forest Hill Tank Rehabilitation					
CUW320	Local	Forest Hilll Pump Station Upgrade					
CUW321	Local	Forest Knoll Pump Station Upgrade					
CUW322	Local	Lincoln Park Pump Station Upgrade					
CUW323	Local	Alemany Pump Station Upgrade					
CUW324	Local	Mount Davidson Pump Station Upgrade					

ILLUSTRATION ONLY DRAFT

WATER ENTERPRISE REVENUE BOND 2006 SERIES A
ANNUAL REPORT ON EXPENDITURES OF AND EARNINGS ON PROCEEDS
AS OF JUNE 30, 2009
(Section 5.04 A)

Project Number		Project Description	Net Financing Proceeds[1]	Appropriated Interest Earnings[2]	Adjusted Project Funding	Expenditures Thru 6/30/09[3]	Remaining Balance
CUW326	Local	Palo Alto Pump Station Upgrade					
CUW326	Local	Sktview-AquaVista Pump Station Upgrade					
CUW327	Local	Summit Pump Station Upgrade					
CUW328	Local	McLaren #1 Tank Rehabilitation					
CUW329	Local	Potrero Heights Tank Seismic Upgrade					
CUW330	Local	Forest Knoll Tank Seismic Upgrade					
CUW331	Local	Lincoln Park Tank Seismic Upgrade					
CUW332	Local	McLaren #2 Tank Rehabilitation					
CUW333	Local	Mount Davidson Tank Seismic Upgrade					
CUW338	Local	La Grande Pump Station Upgrade					
CUW339	Local	Potrero Heights Pump Station Upgrade					
CUW340	Local	Vista Francisco Pump Station Upgrade					
		Total Pump Stations/Tanks					
		Pipelines/Valves					
CUW304	Local	North University Mound System Upgrade					
CUW308	Local	Motorize Key Valves					
CUW311	Local	Sunset Circulation Improvements					
CUW312	Local	Lincoln Way Transmission Line					
CUW313	Local	Noe Valley Transmission Main, Phase 2					
CUW315	Local	East/West Transmission Main					
CUW316	Local	Fulton @ Sixth Ave Main Replacement					
		TtoalPipelines/Valves					
		Water Supply/Water Quality					
CUW301	Local	Groundwater					
CUW302	Local	Recycled Water					
CUW364	Local	Lawrence-Livermore National Laboratory Water Quality Improvements					
		Total Water Supply/Water Quality					
		Miscellaneous					
CUW303	Local	Vehicle Service Facility Upgrade					
CUW305	Local	Fire Protection at CCD					
		Total Miscellaneous					
		Total Local Program					
		Grand Total Regional and Local Programs					
		Unappropriated Interest Earnings					
		Percent of Net Proceeds[4]					
		Percent of Net Proceeds and Earnings[4]					

ILLUSTRATION ONLY DRAFT

[1]Net financing proceeds available on date of issue (i.e. deposit to project fund)
[2]Cumulative net of arbitrage rebate liability
[3]Cumulative
[4]If financing sources Substantially Expended, proceed allocations are then fixed

REVENUE-FUNDED CAPITAL ADDITIONS (Section 5.04.B)
Subfund: 5W CPF WCF - Wholesale Customer Capital Fund (Water)

Projected FAMIS as of July 1, 2009 (Day 1 of New Budget Year)

Wholesale Customer Capital Fund (5W CPF WCF)

Based on Proportionate Annual Water Deliveries of ... 68.7%

Project	Title	A: FY 2009-10 Approved Budget* - Total Regional	B: FY 2009-10 Approved Budget - WHOLESALE SHARE	C: Total Appropriation - All Years^	D: All Years Actual Expenditures^	E: Fiscal Year 2009-10 Actual Expenditures^	F: Encumbered But Not Expended^	G=C-D-F: Appropriated, Unencumbered Balance^	H: Projected Expended & Encumbered through 6/30/2010	I=G-H: Projected Surplus / (Shortfall)
CUW262	Regional Water RnR - Treatment Facilities	$ 1,000,000	$ 687,000	$ 687,000	$ -	$ -	$ -	$ 687,000	$ 229,000	$ 458,000
CUW263	Regional Water RnR - Conveyance/Transmission Systems	$ 7,000,000	$ 4,809,000	$ 4,809,000	$ -	$ -	$ -	$ 4,809,000	$ 1,603,000	$ 3,206,000
CUW264	Regional Water - Watersheds / ROW Management	$ 500,000	$ 343,500	$ 343,500	$ -	$ -	$ -	$ 343,500	$ 114,000	$ 229,500
FUW100	Regional Water - Facilities Maintenance	$ 3,700,000	$ 2,541,900	$ 2,541,900	$ -	$ -	$ -	$ 2,541,900	$ 847,000	$ 1,694,900
CUW261	Regional Water - Storage									
	Regional Total	**$ 12,200,000**	**$ 8,381,400**	**$ 8,381,400**	**$ -**	**$ -**	**$ -**	**$ 8,381,400**	**$ 2,793,000**	**$ 5,588,400**

Source: * SFPUC Commission Approved Budget, February 2009, Same Format
^ FAMIS - City's Official Financial System of Record

Ties to Budget Hearing Materials

REVENUE-FUNDED CAPITAL ADDITIONS (Section 5.04.B)
Subfund: 5W CPF WCF - Wholesale Customer Capital Fund (Water)

Projected FAMIS as of June 30, 2010 (Last Day of Budget Year)

Wholesale Customer Capital Fund (5W CPF WCF)

Based on Proportionate Annual Water Deliveries of ... 68.7%

Project	Title	FY 2009-10 Approved Budget* - Total Regional	FY 2009-10 Approved Budget - WHOLESALE SHARE	Total Appropriation - All Years^	All Years Actual Expenditures^	Fiscal Year 2009-10 Actual Expenditures^	Encumbered But Not Expended^	Appropriated, Unencumbered Balance^	Projected Expended & Encumbered through 6/30/2011	Projected Surplus / (Shortfall)
CUW262	Regional Water RnR - Treatment Facilities	$ 1,000,000	$ 687,000	$ 687,000	$ 235,000	$ 235,000	$ -	$ 452,000	$ 409,000	$ 43,000
CUW263	Regional Water RnR - Conveyance/Transmission Systems	$ 7,000,000	$ 4,809,000	$ 4,809,000	$ 1,395,000	$ 1,395,000	$ 25,000	$ 3,389,000	$ 1,589,000	$ 1,800,000
CUW264	Regional Water - Watersheds / ROW Management	$ 500,000	$ 343,500	$ 343,500	$ 115,000	$ 115,000	$ 50,000	$ 178,500	$ 35,500	$ 143,000
FUW100	Regional Water - Facilities Maintenance	$ 3,700,000	$ 2,541,900	$ 2,541,900	$ 850,000	$ 850,000	$ 123,000	$ 1,568,900	$ 768,900	$ 800,000
CUW261	Regional Water - Storage	$ -	$ -							
	Regional Total	**$ 12,200,000**	**$ 8,381,400**	**$ 8,381,400**	**$ 2,595,000**	**$ 2,595,000**	**$ 198,000**	**$ 5,588,400**	**$ 2,802,400**	**$ 2,786,000**

Source: * SFPUC Commission Approved Budget, February 2009, Same Format
^ FAMIS - City's Official Financial System of Record

Ties to Budget Hearing Materials
Shown on Attachment N-2, Schedule 3

Shown On Attachment N-2, Schedule 3
Revenue Capital - Actual Expenditures

Shown on Attachement N-2, Schedule 3
Continuing Appropriation
Needed for Mulit-Year
Revenue Funded Capital

REVENUE-FUNDED CAPTIAL ADDITIONS (Section 5.04.B)
Subfund: 5T CPF WCF - Wholesale Customer Capital Fund (Hetch Hetchy)

Projected FAMIS as of July 1, 2009 (Day 1 of New Budget Year)

		A		B	C	D	E	F	G=C-D-F	H	I=G-H
					Wholesale Customer Capital Fund (5W CPF WCF)						
Based on Proportionate Annual Water Deliveries of ...				68.1%							
Project	Title	FY 2009-10 Approved Budget* - Total Regional		FY 2009-10 Approved Budget - WHOLESALE SHARE	Total Appropriation - All Years^	All Years Actual Expenditures^	Fiscal Year 2009-10 Actual Expenditures^	Encumbered But Not Expended^	Appropriated, Unencumbered Balance^	Projected Expended & Encumbered through 6/30/2010	Projected Surplus / (Shortfall)
CUH931	HH Microwave Replacement	$ 4,000,000	J	$ 1,224,900	$ 1,224,900	$ -	$ -	$ -	$ 1,224,900	$ 408,000	$ 816,900
CUH977	HH Water R&R - Facilities Maintenance	$ 3,500,000	J	$ 1,071,788	$ 1,071,788	$ -	$ -	$ -	$ 1,071,788	$ 357,000	$ 714,788
CUH947	SEA - Go Solar Incentive Porject	$ 4,000,000	P	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CUH971	Alternative Transmission Studies	$ 1,000,000	P	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CUH976	HH Water R&R - Power Infrastructure	$ 16,700,000	P	$ -	$ -					$ -	
CUH979	Hunters Point Municipal Power	$ -	P	$ -	$ -					$ -	
CUH983	Civic Center Sustainability District	$ 1,090,000	P	$ -	$ -					$ -	
CUH986	General Fund Dept - Energy Efficiency	$ 7,365,158	P	$ -	$ -					$ -	
	Renewable/Generation	$ 3,501,307	P	$ -	$ -					$ -	
	Treasure Island Improvement Project	$ 2,700,000	P	$ -	$ -					$ -	
	Enterprise Fund Dept - Energy Efficiency	$ 325,722	P	$ -	$ -					$ -	
CUH975	HH Water R&R - Water Infrastructure	$ 6,000,000	W	$ 4,083,000	$ 4,083,000					$ 1,361,000	
	Toulumne River Watershed Protection	$ 2,000,000	W	$ 1,361,000	$ 1,361,000					$ 454,000	
	Regional Total	$ 52,182,187		$ 7,740,688	$ 7,740,688	$ -	$ -	$ -	$ 2,296,688	$ 2,580,000	$ 1,531,688

Source: * SFPUC Commission Approved Budget, February 2009, Same Format
^ FAMIS - City's Official Financial System of Record

Ties to Budget Hearing Materials

REVENUE-FUNDED CAPTIAL ADDITIONS (Section 5.04.B)
Subfund: 5T CPF WCF - Wholesale Customer Capital Fund (Hetch Hetchy)

Projected FAMIS as of June 30, 2010 (Last Day of Budget Year)

					Wholesale Customer Capital Fund (5W CPF WCF)						
Based on Proportionate Annual Water Deliveries of ...				68.1%							
Project	Title	FY 2009-10 Approved Budget* - Total Regional		FY 2009-10 Approved Budget - WHOLESALE SHARE	Total Appropriation - All Years^	All Years Actual Expenditures^	Fiscal Year 2009-10 Actual Expenditures^	Encumbered But Not Expended^	Appropriated, Unencumbered Balance^	Projected Expended & Encumbered through 6/30/2011	Projected Surplus / (Shortfall)
CUH931	HH Microwave Replacement	$ 4,000,000	J	$ 1,224,900	$ 1,224,900	$ 1,224,900	$ 1,224,900	$ -	$ -	$ -	$ -
CUH977	HH Water R&R - Facilities Maintenance	$ 3,500,000	J	$ 1,071,788	$ 1,071,788	$ 1,071,788	$ 1,071,788	$ -	$ (1)	$ (1)	$ -
CUH947	SEA - Go Solar Incentive Porject	$ 4,000,000	P	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CUH971	Alternative Transmission Studies	$ 1,000,000	P	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CUH976	HH Water R&R - Power Infrastructure	$ 16,700,000	P	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CUH979	Hunters Point Municipal Power	$ -	P	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CUH983	Civic Center Sustainability District	$ 1,090,000	P	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CUH986	General Fund Dept - Energy Efficiency	$ 7,365,158	P	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Renewable/Generation	$ 3,501,307	P	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Treasure Island Improvement Project	$ 2,700,000	P	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Enterprise Fund Dept - Energy Efficiency	$ 325,722	P	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CUH975	HH Water R&R - Water Infrastructure	$ 6,000,000	W	$ 4,083,000	$ 4,083,000	$ 4,083,000	$ 4,083,000	$ -	$ -	$ -	$ -
	Toulumne River Watershed Protection	$ 2,000,000	W	$ 1,361,000	$ 1,361,000	$ 1,361,000	$ 1,361,000	$ -	$ -	$ -	$ -
	Regional Total	$ 52,182,187		$ 7,740,688	$ 7,740,688	$ 7,740,688	$ 7,740,688	$ -	$ (1)	$ (1)	$ -

Source: * SFPUC Commission Approved Budget, February 2009, Same Format
^ FAMIS - City's Official Financial System of Record

Ties to Budget Hearing Materials
Shown on Attachment N-2, Schedule 6

Shown On Attachment N-2, Schedule 6
Revenue Capital - Actual Expenditures

Show on Attachment N-2, Schedule 6
Continuing Appropriation
Needed for Mulit-Year
Revenue Funded Capital

ATTACHMENT M-2

REVENUE FUNDED CAPITAL
ANNUAL REPORTING REQUIREMENTS
(Section 5.04B)

Part A. Updated Actual Information Through Most Recent Fiscal Year (Due in November)

Each year, the SFPUC will provide a report on the status of the regional revenue funded projects with the following information:

Project-level information (through close-out)

1 Scope of project
2 Current cost estimate/budget.
3 Expected milestone dates (ie, design, environmental, construction period, close-out, etc.)
4 Contract status
5 Reasons for status changes from prior report.
6 Other information relevant to whether project is on time/on budget.
7 For most recently completed fiscal year and estimated for current year:
8 Total expenditures (capital and operating); amounts paid from other sources.
9 Amount of encumbered and unencumbered appropriations
10 Application of any unused appropriations

Wholesale Capital Fund

11 Beginning balance, deposits, capital expenditures (by project), earnings, ending balance.
12 Components of ending balance; wholesale portion of:
13 Appropriated and encumbered
14 Appropriated but unencumbered

Part B. Proposed Appropriations for Upcoming Year (Due in March)

15 Project information, to the extent not provided in Part A
16 Expected funding needs for regional projects
17 Unused or excess appropropriations carried over.
18 Proposed appropriation for upcoming fiscal year.

ATTACHMENT M-3
WHOLESALE REVENUE-FUNDED CAPITAL FUND - BALANCING ACCOUNT ADJUSTMENT
**** EXAMPLE REPORTING FORMAT ****
(Section 6.08)

	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)	(1)
	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20
a. Beginning balance	$0	$5,671,414	$8,960,834	$9,669,194	$10,420,781	$11,217,991	$5,498,801	$6,198,022	$6,944,933	$7,742,299	$8,593,037
b. Transfer to Balancing Account	$0					($6,467,533)					($2,574,995)
Year 1											
c. Budgeted appropriation	$8,381,400					$10,697,026					$13,652,417
d. Encumbrance/Expenditure	($2,793,800)	($2,793,800)	($2,793,800)			($3,565,675)	($3,565,675)	($3,565,675)			($4,550,806)
Year 2											
e. Budgeted appropriation		$8,800,470					$11,231,878				
f. Encumbrance/Expenditure		($2,933,490)	($2,933,490)	($2,933,490)			($3,743,959)	($3,743,959)	($3,743,959)		
Year 3											
g. Budgeted appropriation			$9,240,494					$11,793,471			
h. Encumbrance/Expenditure			($3,080,165)	($3,080,165)	($3,080,165)			($3,931,157)	($3,931,157)	($3,931,157)	
Year 4											
i. Budgeted appropriation				$9,702,518					$12,383,145		
j. Encumbrance/Expenditure				($3,234,173)	($3,234,173)	($3,234,173)			($4,127,715)	($4,127,715)	($4,127,715)
Year 5											
k. Budgeted appropriation					$10,187,644					$13,002,302	
l. Encumbrance/Expenditure					($3,395,881)	($3,395,881)	($3,395,881)			($4,334,101)	($4,334,101)
m. Subtotal	$5,587,600	$8,744,594	$9,393,873	$10,123,885	$10,898,206	$5,251,755	$6,025,163	$6,750,702	$7,525,246	$8,351,628	$6,657,838
n. Interest earnings (e.g., 3%)	$83,814	$216,240	$275,321	$296,896	$319,785	$247,046	$172,859	$194,231	$217,053	$241,409	$228,763
o. Ending fund balance (unencumbered, unexpende	$5,671,414	$8,960,834	$9,669,194	$10,420,781	$11,217,991	$5,498,801	$6,198,022	$6,944,933	$7,742,299	$8,593,037	$6,886,601
p. Five Year Cumulative Appropriations w/ interest					$47,504,581					$60,180,421	
q. 10% of Cumulative Appropriations w/ interest					$4,750,458					$6,018,042	
r. Ending fund balance					$11,217,991					$8,593,037	
s. Excess balance transferred to Balancing Account*					($6,467,533)					($2,574,995)	

*Test: Any balance in excess of 10% of the cumulative five-year appropriation total is credited to the balancing account.

BALANCING ACCOUNT / RATE SETTING CALCULATION
REFERENCE SECTION 6.03.A.3.a

ILLUSTRATION ONLY DRAFT

	FY 2007-08	FY 2008-09	FY 2009-10
Step 1:			
A. Balancing Account as of June 30, 2007	$12,882,000		
B. Interest on Balancing Account at Pooled Investment Rate for Fiscal Year	$554,000		
C. Wholesale Revenues for Fiscal Year	($113,932,000)		
D. Wholesale Revenue Requirement for Fiscal Year	$119,224,000		
E. Settlement Credits or Other Adjustments	$2,448,614		
F. 1984 Agreement Balancing Account Credits	$0		
G. Balancing Account as of June 30, 2008	$21,176,614		
Step 2:			
A. Balancing Account as of June 30, 2008		$21,176,614	
B. Interest on Balancing Account at Pooled Investment Rate for Fiscal Year		$529,000	
C. Wholesale Revenues for Fiscal Year		-$123,604,000	
D. Wholesale Revenue Requirement for Fiscal Year		$120,562,000	
E. Settlement Credits or Other Adjustments		$21,000	
F. 1984 Agreement Balancing Account Credits		$0	
G. Balancing Account as of June 30, 2009		$18,684,614	
Step 3:			
A. Balancing Account as of June 30, 2009			$0
B. Interest on Balancing Account at Pooled Investment Rate for Fiscal Year			$0
C. Wholesale Revenues for Fiscal Year			-$127,485,900
D. Wholesale Revenue Requirement for Fiscal Year			$140,994,733
E. Settlement Credits or Other Adjustments			$21,000
F. 1984 Agreement Balancing Account Credits			$1,997,220
G. Balancing Account as of June 30, 2010			$15,527,053
H. Net Change in Wholesale Revenue Coverage			$4,488,233
I. Total Revenue Deficiency or Surplus			$20,015,286
J. Projected Water Sales in Ccf	84,621,240	83,205,600	85,920,000
K. Deficiency or (Surplus) $/Ccf			$0.23
L. Deficiency or (Surplus) Ccf as a Percentage of Revenues			15.7%

Note: Dollar amounts are for illustrative purposes only. The Parties have not agreed on the amount of the balancing account as of June 30, 2007, revenue requirement for FY 2007-08, settlement credits for FY 2007-08, and the amount of the balancing account as of June 30, 2009.

BALANCING ACCOUNT / RATE SETTING CALCULATION
METHOD OF CALCULATION
REFERENCE SECTION 6.03.A.3.a

N = The year for which rates are being set

N-1 = The current year

N-2 = The most recently completed year for which actual results are available

Calculation Method:

Step 1 Determine the actual revenue differential for year N-2
- A. Enter the beginning amount of the Balancing Account
- B. Calculate the interest earned at the Pooled Investment Account Rate for (A)
- C. Enter the actual Wholesale revenues billed
- D. Enter the Wholesale Revenue Requirement
- E. Enter settlement credits or adjustments, if any
- F. Enter carry-over 1984 Agreement credits owed the City, if any
- G. Calculate the ending amount of the Balancing Account

Step 2 Determine the projected revenue differential for year N-1
- A. Enter the beginning amount of the Balancing Account; this is the same amount as G in Step 1
- B. Calculate the interest earned at the Pooled Investment Account Rate for (A)
- C. Enter the actual Wholesale revenues billed
- D. Enter the Wholesale Revenue Requirement
- E. Enter settlement credits or adjustments, if any
- F. Enter carry-over 1984 Agreement credits owed the City, if any
- G. Calculate the ending amount of the Balancing Account

Step 3 Determine the projected revenue differential for year N
- A. Enter the beginning amount of the Balancing Account; this is the same amount as G in Step 2
- B. Calculate the interest earned at the Pooled Investment Account Rate for (A)
- C. Enter the actual Wholesale revenues billed
- D. Enter the Wholesale Revenue Requirement
- E. Enter settlement credits or adjustments, if any
- F. Enter carry-over 1984 Agreement credits owed the City, if any
- G. Calculate the ending amount of the Balancing Account
- H. Enter the net change in the Wholesale Revenue Coverage, if applicable
- I. Calculate the total revenue deficiency or surplus (G) + (H)
- J. Enter the projected water sales to Wholesale Customers in Ccf
- K. Calculate the required increase in the commodity portion of the rate by dividing (I) by (J)
- L. Calculate the required increase in revenues by dividing (I) by (C)

WHOLESALE REVENUE REQUIREMENT SCHEDULES
CALCULATION OF WHOLESALE REVENUE REQUIREMENT
FISCAL YEAR 2009-10
REFERENCE ARTICLE 5

ATTACHMENT N-2
SCHEDULE 1

EXPENSE CATEGORY	CONTRACT REFERENCE	SCHEDULE REFERENCE	TOTAL	DIRECT RETAIL	DIRECT WHOLESALE	REGIONAL	JOINT EXPENSE ALLOCATION FACTOR	WHOLESALE SHARE
OPERATING AND MAINTENANCE EXPENSE:								
SOURCE OF SUPPLY	5.05 (A)	SCH 8.1	$ 14,943,953	$ 1,251,062	$ -	$ 13,692,891	ANNUAL USE[1]	$ 9,364,568
PUMPING	5.05 (B)	SCH 8.1	$ 4,342,682	$ 3,854,000	$ -	$ 488,682	ANNUAL USE[1]	$ 334,210
TREATMENT	5.05 (C)	SCH 8.1	$ 30,445,053	$ -	$ -	$ 30,445,053	ANNUAL USE[1]	$ 20,821,372
TRANSMISSION & DISTRIBUTION	5.05 (D)	SCH 8.1	$ 53,416,232	$ 30,163,286	$ -	$ 23,252,946	ANNUAL USE[1]	$ 15,902,690
CUSTOMER ACCOUNTS[2]	5.05 (E)	SCH 8.1	$ 7,552,213	$ 7,401,169	$ 151,044	$ -	2%	$ 151,044
TOTAL O&M			$ 110,700,133	$ 42,669,517	$ 151,044	$ 67,879,572		46,573,883
COMPOSITE % (WHOLESALE SHARE / TOTAL O&M)	5.06 (C)							42.07%
ADMINISTRATIVE AND GENERAL EXPENSES:								
COWCAP	5.06 (A)	SCH 8.1	$ 1,238,009	$ -	$ -	$ 1,238,009	COMPOSITE O&M	$ 520,857
SERVICES OF SFPUC BUREAUS	5.06 (B)	SCH 7	$ 22,465,291	$ 8,178,424	$ -	$ 14,286,867	ANNUAL USE[1]	$ 9,770,788
OTHER A&G	5.06 (C)	SCH 8.1	$ 12,972,477	$ 4,009,891	$ -	$ 8,962,586	COMPOSITE O&M	$ 3,770,749
COMPLIANCE AUDIT	5.06 (D)	SCH 8.1	$ 200,000	$ -	$ -	$ 200,000	50%	$ 100,000
TOTAL A&G			$ 36,875,777	$ 12,188,315	$ -	$ 24,687,462		$ 14,162,394
PROPERTY TAXES	5.07	SCH 8.1	$ 1,417,293	$ -	$ -	$ 1,417,293	ANNUAL USE[1]	$ 969,287
CAPITAL COST RECOVERY								
PRE-2009 ASSETS	5.03	ATT K						$ 24,051,326
DEBT SERVICE ON NEW ASSETS	5.04 (A)	SCH 2						$ 17,952,931
REVENUE FUNDED ASSETS - APPROPRIATED TO WHOLESALE CAPITAL FUND	5.04 (B)	SCH 3						$ 8,381,400
TOTAL CAPITAL COST RECOVERY								$ 50,385,657
WHOLESALE SHARE HETCH HETCHY WATER & POWER	5.04	SCH 4						$ 28,903,512
WHOLESALE REVENUE REQUIREMENT								$ 140,994,733
WHOLESALE REVENUE COVERAGE[3]								$ 4,488,233

[1]Proportional Annual Use (68.39%)
[2]Water Enterprise Share of Customer Acccunts Expenses (62% of Total Customer Accounts Expenses)
[3]25% of Wholesale Share of Debt Service

ILLUSTRATION ONLY DRAFT

WHOLESALE REVENUE REQUIREMENT SCHEDULES
WATER ENTERPRISE CAPITAL COST RECOVERY - ANNUAL DEBT SERVICE
FISCAL YEAR 2009-10
REFERENCE SECTION 5.04.A

ATTACHMENT N-2
SCHEDULE 2

	2006 BOND ISSUE SERIES A	2008 BOND ISSUE ALL SERIES	2009 BOND ISSUE ALL SERIES	XXXX BOND ISSUE ALL SERIES	XXXX BOND ISSUE ALL SERIES	XXXX BOND ISSUE ALL SERIES	XXXX BOND ISSUE ALL SERIES	TOTAL ALL OUTSTANDING BONDS
USE OF BOND PROCEEDS								
RETAIL PROJECTS	31.61%	22.95%	19.42%	XX.XX%	XX.XX%	XX.XX%	XX.XX%	
REGIONAL PROJECTS	68.39%	77.05%	80.58%	YY.YY%	YY.YY%	YY.YY%	YY.YY%	
PRINCIPAL PAYMENT	$ 8,765,000	-	-	-			-	$ 8,765,000
RETAIL PROJECTS	$ 2,770,617	-	-			-	-	$ 2,770,617
REGIONAL PROJECTS	$ 5,994,384	-	-			-	-	$ 5,994,384
INTEREST PAYMENT (GROSS)	$ 23,353,388	$ 5,561,386	$ 56,181,932	-	-	-	-	$ 85,096,706
RETAIL PROJECTS	$ 7,382,006	$ 1,276,338	$ 10,910,531	-	-	-	-	$ 19,568,875
REGIONAL PROJECTS	$ 15,971,382	$ 4,285,048	$ 45,271,401	-	-	-	-	$ 65,527,831
INTEREST PAYMENT (CAPITALIZED)	-	-	$ 56,181,932					
RETAIL PROJECTS	-	-	$ 10,910,531					
REGIONAL PROJECTS	-	-	$ 45,271,401					
INTEREST PAYMENT (NET)	$ 23,353,388	$ 5,561,386	-					
RETAIL PROJECTS	$ 7,382,006	$ 1,276,338	-					
REGIONAL PROJECTS	$ 15,971,382	$ 4,285,048	-					
TOTAL PRINCIPAL AND INTEREST PAYMENT	32,118,388	5,561,386	-	-	-	-	-	$ 37,679,774
RETAIL PROJECTS	10,152,622	1,276,338	-	-	-	-	-	$ 11,428,961
REGIONAL PROJECTS	21,965,766	4,285,048	-	-	-	-	-	$ 26,250,813
PROPORTIONAL ANNUAL USE	68.39%	68.39%	68.39%	ZZ.ZZ%	ZZ.ZZ%	ZZ.ZZ%	ZZ.ZZ%	
WHOLESALE SHARE	$ 15,022,387	$ 2,930,544	-	-	-	-	-	$ 17,952,931 (TO SCHEDULE 1)

ILLUSTRATION ONLY DRAFT

Note: Allocation of bond proceeds shown are for illustrative purposes only. Regional projects will not include bond proceeds used to construct or acquire assets capitalized prior to 7/1/09. Regional projects also will not include in-city groundwater or in-city recycled water projects.

WHOLESALE REVENUE REQUIREMENT SCHEDULES
WATER ENTERPRISE CAPITAL COST RECOVERY - REVENUE FUNDED CAPITAL PROJECTS
FISCAL YEAR 2009-10
REFERENCE SECTION 5.04.B

ATTACHMENT N-2
SCHEDULE 3

		PROJECT APPROPRIATION	CLASSIFICATION	ALLOCATION FACTOR	WHOLESALE SHARE	TOTAL APPROPRIATION ALL YEARS	ALL YEARS ACTUAL EXPENDITURES	FY 2009-10 ACTUAL EXPENDITURES	ENCUMBERED, NOT EXPENDED	APPROPRIATED, UNENCUMBERED BALANCE
CUH980	Treasure Island Improvement Project	3,800,000	RETAIL	0.0%	$ -	$ -	$ -	$ -	$ -	$ -
CUW253	Facilities Security	500,000	RETAIL	0.0%	$ -	$ -	$ -	$ -	$ -	$ -
CUW260	Local Water R&R	22,347,520	RETAIL	0.0%	$ -	$ -	$ -	$ -	$ -	$ -
CUW686	Automated Meter Reading System	36,001,000	RETAIL	0.0%	$ -	$ -	$ -	$ -	$ -	$ -
	Total Local	62,648,520			$ -	$ -	$ -	$ -	$ -	$ -
CUW202	Replace Prestressed Concrete Cylr Pipe	-	REGIONAL	68.7%	$ -	$ -	$ -	$ -	$ -	$ -
CUW261	Regional Water R&R - Storage	-	REGIONAL	68.7%	$ -	$ -	$ -	$ -	$ -	$ -
CUW262	Regional Water R&R -Treatment Facilities	1,000,000	REGIONAL	68.7%	$ 687,000	$ 687,000	$ 235,000	$ 235,000	$ -	$ 452,000
CUW263	Regional Water R&R Conveyance/Transmission	7,000,000	REGIONAL	68.7%	$ 4,809,000	$ 4,809,000	$ 1,395,000	$ 1,395,000	$ 25,000	$ 3,389,000
CUW264	Regional Watersheds/ROW Management	500,000	REGIONAL	68.7%	$ 343,500	$ 343,500	$ 115,000	$ 115,000	$ 50,000	$ 178,500
FUW100	Regional Facilities Maintenance	3,700,000	REGIONAL	68.7%	$ 2,541,900	$ 2,541,900	$ 850,000	$ 850,000	$ 123,000	$ 1,568,900
	Total Regional	12,200,000			$ 8,381,400	$ 8,381,400	$ 2,595,000	$ 2,595,000	$ 198,000	$ 5,588,400
	TOTAL ALL PROJECTS	74,848,520			$ 8,381,400	$ 8,381,400	$ 2,595,000	$ 2,595,000 (TO SCHEDULE 1)	$ 198,000 (TO SCHEDULE 1)	$ 5,588,400 (TO SCHEDULE 1)

ILLUSTRATION ONLY DRAFT

WHOLESALE REVENUE REQUIREMENT SCHEDULES
CALCULATION OF WHOLESALE SHARE OF HETCH HETCHY WATER & POWER
FISCAL YEAR 2009-10
REFERENCE ARTICLE 5

ATTACHMENT N-2
SCHEDULE 4

EXPENSE CATEGORY	CONTRACT REFERENCE	SCHEDULE REFERENCE	TOTAL	POWER SPECIFIC	WATER SPECIFIC	JOINT	JOINT ALLOCATION PERCENTAGE	WATER-RELATED TOTAL	WHOLESALE ALLOCATION FACTOR	WHOLESALE SHARE
OPERATION AND MAINTENANCE										
OPERATION	5.08 B 1	SCH 8.2	$ 44,612,220	$ 31,853,965	$ 9,557,861	$ 3,200,394	45%	$ 10,998,038	ADJUSTED PROPORTIONAL ANNUAL USE	$ 7,484,165
MAINTENANCE	5.08 B 1	SCH 8.2	$ 16,868,612	$ 5,048,039	$ 3,238,622	$ 8,581,951	45%	$ 7,100,500	ADJUSTED PROPORTIONAL ANNUAL USE	$ 4,831,890
TOTAL OPERATION AND MAINTENANCE			$ 61,480,832	$ 36,902,004	$ 12,796,483	$ 11,782,345		$ 18,098,538		$ 12,316,055
ADMINISTRATIVE AND GENERAL										$ -
COWCAP	5.08 B 2	SCH 8.2	$ 1,139,579	$ -	$ -	$ 1,139,579	45%	$ 512,811	ADJUSTED PROPORTIONAL ANNUAL USE	$ 348,968
SERVICES OF SFPUC BUREAUS	5.08 B 2	SCH 7	$ 8,255,307	$ 5,375,656	$ 2,879,651	$ -	45%	$ 2,879,651	ADJUSTED PROPORTIONAL ANNUAL USE	$ 1,959,603
OTHER A&G	5.08 B 2	SCH 8.2	$ 25,581,481	$ 14,913,071	$ 36,070	$ 10,632,340	45%	$ 4,820,623	ADJUSTED PROPORTIONAL ANNUAL USE	$ 3,280,434
CUSTOMER ACCOUNTS	5.08 B 2	SCH 8.2	$ 347,403	$ 347,403	$ -	$ -	45%	$ -	ADJUSTED PROPORTIONAL ANNUAL USE	$ -
TOTAL ADMINISTRATIVE AND GENERAL			$ 35,323,770	$ 20,636,130	$ 2,915,721	$ 11,771,919		$ 8,213,085		$ 5,589,004
PROPERTY TAXES	5.08 B 3	SCH 8.2	$ 452,000	$ -	$ -	$ 456,305	45%	$ 205,337	ADJUSTED PROPORTIONAL ANNUAL USE	$ 139,732
CAPITAL COST RECOVERY										
PRE-2009 ASSETS	5.09 B 1	ATT K-4								$ 3,118,033
DEBT SERVICE ON NEW ASSETS	5.09 B 2	SCH 5								$ -
REVENUE FUNDED ASSETS-APPROPRIATIONS TO WHOLESALE CAPITAL FUND	5.09 B 3	SCH 6								$ 7,740,688
TOTAL CAPITAL COST RECOVERY										$ 10,858,721
WHOLESALE SHARE OF HETCH HETCHY WATER & POWER										$ 28,903,512 (TO SCHEDULE 1)
WHOLESALE REVENUE COVERAGE[1]										$ -

[1]Adjusted Proportional Annual Use (68.39% X 99.50% = 68.05%)
[2]25% of Wholesale Share of Debt Service

ILLUSTRATION ONLY DRAFT

WHOLESALE REVENUE REQUIREMENT SCHEDULES
HETCH HETCHY CAPITAL COST RECOVERY - ANNUAL DEBT SERVICE
FISCAL YEAR 2009-10
REFERENCE SECTION 5.09.B.1

ATTACHMENT N-2
SCHEDULE 5

	XXXX BOND ISSUE ALL SERIES	XXXX BOND ISSUE ALL SERIES	XXXX BOND ISSUE ALL SERIES	XXXX BOND ISSUE ALL SERIES	XXXX BOND ISSUE ALL SERIES	XXXX BOND ISSUE ALL SERIES	XXXX BOND ISSUE ALL SERIES	TOTAL ALL OUTSTANDIN G BONDS
USE OF BOND PROCEEDS								
POWER PROJECTS	XX.XX%	XX.XX%	XX.XX%	XX.XX%	XX.XX%	XX.XX%	XX.XX%	[redacted]
WATER PROJECTS	YY.YY%	YY.YY%	YY.YY%	YY.YY%	YY.YY%	YY.YY%	YY.YY%	
JOINT PROJECTS	ZZ.ZZ%	ZZ.ZZ%	ZZ.ZZ%	ZZ.ZZ%	ZZ.ZZ%	ZZ.ZZ%	ZZ.ZZ%	
PRINCIPAL PAYMENT	-	-	-	-	-	-	-	-
POWER SHARE	-	-	-	-	-	-	-	-
WATER SHARE	-	-	-	-	-	-	-	-
JOINT SHARE	-	-	-	-	-	-	-	
INTEREST PAYMENT (NET)	-	-	-	-	-	-	-	-
POWER SHARE	-	-	-	-	-	-	-	-
WATER SHARE	-	-	-	-	-	-	-	-
JOINT SHARE								
TOTAL PRINCIPAL AND INTEREST PAYMENT	-	-	-	-	-	-	-	-
POWER SHARE	-	-	-	-	-	-	-	-
WATER SHARE	-	-	-	-	-	-	-	-
JOINT SHARE								
WATER RELATED PRINCIPAL AND INTEREST PAYMENT[1]								
ADJUSTED PROPORTIONAL ANNUAL USE	68.05%	68.05%	68.05%	68.05%	68.05%	68.05%	68.05%	[redacted]
WHOLESALE SHARE		-	-	-	-	-	-	-

(TO SCHEDULE 4)

[1]Water Related = 100% of Water Share + 45% of Joint Share

ILLUSTRATION ONLY DRAFT

WHOLESALE REVENUE REQUIREMENT SCHEDULES
HETCH HETCHY CAPITAL COST RECOVERY - REVENUE FUNDED CAPITAL PROJECTS
FISCAL YEAR 2009-10
REFERENCE SECTION 5.04.B

ATTACHMENT N-2
SCHEDULE 6

		PROJECT APPROPRIATION	CLASSIFICATION	WATER RELATED PERCENTAGE	WATER RELATED SHARE	ALLOCATION FACTOR	WHOLESALE SHARE	TOTAL APPROPRIATION ALL YEARS	ALL YEARS ACTUAL EXPENDITURES	FY 2009-10 ACTUAL EXPENDITURES	ENCUMBERED, NOT EXPENDED	APPROPRIATED, UNENCUMBERED BALANCE
CUH931	HH Microwave Replacement	$ 4,000,000	JOINT	45%	$ 1,800,000	ADJUSTED PROPORTIONAL ANNUAL USE	$ 1,224,900	$ 1,224,900	$ 1,224,900	$ 1,224,900	$ -	$
CUH977	HH Water R&R - Facilities Maintenance	$ 3,500,000	JOINT	45%	$ 1,575,000	ADJUSTED PROPORTIONAL ANNUAL USE	$ 1,071,788	$ 1,071,788	$ 1,071,788	$ 1,071,788	$ -	$
	Total Joint	$ 7,500,000			$ 3,375,000		$ 2,296,688	$ 2,296,688	$ 2,296,688	$ 2,296,688	$ -	$
CUH947	SEA - Go Solar Incentive Project	$ 4,000,000	POWER	0%	$ -	ADJUSTED PROPORTIONAL ANNUAL USE	$ -					
CUH971	Alternative Transmission Studies	$ 1,000,000	POWER	0%	$ -	ADJUSTED PROPORTIONAL ANNUAL USE	$ -					
CUH976	HH Water R&R - Power Infrastructure	$ 16,700,000	POWER	0%	$ -	ADJUSTED PROPORTIONAL ANNUAL USE	$ -					
CUH979	Hunters Point Municipal Power	$ -	POWER	0%	$ -	ADJUSTED PROPORTIONAL ANNUAL USE	$ -					
CUH983	Civic Center Sustainability District	$ 1,090,000	POWER	0%	$ -	ADJUSTED PROPORTIONAL ANNUAL USE	$ -					
CUH986	General Fund Dept - Energy Efficiency	$ 7,365,158	POWER	0%	$ -	ADJUSTED PROPORTIONAL ANNUAL USE	$ -					
	Renewable/Generation	$ 3,501,307	POWER	0%	$ -	ADJUSTED PROPORTIONAL ANNUAL USE	$ -					
	Treasure Island Improvement Project	$ 2,700,000	POWER	0%	$ -	ADJUSTED PROPORTIONAL ANNUAL USE	$ -					
	Enterprise Fund Dept - Energy Efficiency	$ 325,722	POWER	0%	$ -	ADJUSTED PROPORTIONAL ANNUAL USE	$ -					
	Total Power	$ 36,682,187			$ -		$ -					
CUH975	HH Water R&R - Water Infrastructure	$ 6,000,000	WATER	100%	$ 6,000,000	ADJUSTED PROPORTIONAL ANNUAL USE	$ 4,083,000	$ 4,083,000	$ 4,083,000	$ 4,083,000	$ -	$
	Toulumne River Watershed Protection	$ 2,000,000	WATER	100%	$ 2,000,000	ADJUSTED PROPORTIONAL ANNUAL USE	$ 1,361,000	$ 1,361,000	$ 1,361,000	$ 1,361,000	$ -	$
	Total Water	$ 8,000,000			$ 8,000,000		$ 5,444,000	$ 5,444,000	$ 5,444,000	$ 5,444,000	$ -	$
	TOTAL ALL WATER RELATED PROJECTS	$ 96,364,374			$ 11,375,000		$ 7,740,688	$ 7,740,688	$ 7,740,688	$ 7,740,688 (TO SCHEDULE 4)	$ - (TO SCHEDULE 4)	$ - (TO SCHEDULE 4)

ILLUSTRATIVE ONLY DRAFT

WHOLESALE REVENUE REQUIREMENT SCHEDULES
SERVICES OF SFPUC BUREAUS - ALLOCATION TO ENTERPRISES
FISCAL YEAR 2009-10
REFERENCE SECTION 5.05.B

ATTACHMENT N-2
SCHEDULE 7

		EXPENDITURES	ADJUSTMENTS	ADJUSTED EXPENDITURES	HETCH HETCHY POWER	HETCH HETCHY WATER	WATER RETAIL	WATER REGIONAL	WASTEWATER	TOTAL
ALLOCATION FACTORS (SCHEDULE N-7.1)					11.13%	5.96%	16.94%	29.59%	36.37%	
PUC01	General Manager	$ 7,609,114	$ -	$ 7,609,114	$ 847,180	$ 453,820	$ 1,288,884	$ 2,251,548	$ 2,767,682	$ 7,609,114
PUC1101	BizServ-Administration	$ 4,081,981	$ -	$ 4,081,981	$ 454,478	$ 243,456	$ 691,434	$ 1,207,864	$ 1,484,749	$ 4,081,981
PUC1102	Finance	$ 8,817,687	$ -	$ 8,817,687	$ 981,739	$ 525,902	$ 1,493,600	$ 2,609,166	$ 3,207,280	$ 8,817,687
PUC1103	ITS[1]	$ 18,048,158	$ (1,835,357)	$ 16,212,801	$ 1,805,093	$ 966,959	$ 2,746,235	$ 4,797,391	$ 5,897,123	$ 16,212,801
PUC1106	Human Resources	$ 7,678,483	$ -	$ 7,678,483	$ 854,903	$ 457,958	$ 1,300,634	$ 2,272,074	$ 2,792,914	$ 7,678,483
PUC1108	Customer Services	$ 12,262,428	$ (12,262,428)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
PUC12	External Affairs	$ 3,882,455	$ -	$ 3,882,455	$ 432,263	$ 231,556	$ 657,637	$ 1,148,824	$ 1,412,175	$ 3,882,455
	TOTAL	$ 34,752,000	$ (12,731,000)	$ 48,282,521	$ 5,375,656 (TO SCHEDULE 4)	$ 2,879,651 (TO SCHEDULE 4)	$ 8,178,424 (TO SCHEDULE 1)	$ 14,286,867 (TO SCHEDULE 1)	$ 17,561,923	$ 48,282,521

[1]Adjustment for Transfer of SCADA Expenditures to T&D Joint ($1,730,000)

ILLUSTRATION ONLY DRAFT

WHOLESALE REVENUE REQUIREMENT SCHEDULES
SERVICES OF SFPUC BUREAUS - ANNUAL SALARIES
FISCAL YEAR 2009-10
REFERENCE SECTION 5.05.B

ATTACHMENT N-2
SCHEDULE 7.1

DEPARTMENT/DIVISION	ALLOCATION FACTOR	GROUP CODE	SALARIES	PERCENTAGE	
HETCH HETCHY					
POWER		1	$ 6,677,939	6.27%	
WATER		2	$ 1,775,910	1.67%	
JOINT			$ 9,428,450		
WATER SHARE	45%	2	$ 4,242,803	3.98%	
POWER SHARE	55%	1	$ 5,185,648	4.87%	
WATER					
ADMINISTRATION (WTR01)			$ 1,009,246		
RETAIL SHARE	33.4%	3	$ 336,415	0.32%	
REGIONAL SHARE	33.3%	4	$ 336,415	0.32%	
HETCH HETCHY WATER SHARE	33.3%	2	$ 336,416	0.32%	
CDD (WTR03)		3	$ 17,356,922	16.29%	
WATER QUALITY (WTR04)		4	$ 7,282,589	6.83%	
WATER SUPPLY & TREATMENT (WTR05)		4	$ 18,184,689	17.05%	
NATURAL RESOURCES (WTR06)		4	$ 4,682,073	4.39%	
WATER RESOURCE PLANNING			$ 1,419,760		
WATER CONSERVATION		3	$ 355,703	0.33%	
RETAIL WATER RESOURCE PLANNING		3	$ -		
REGIONAL SHARE (NET SALARIES)		4	$ 1,064,057	1.00%	
WASTEWATER		5	$ 38,757,578	36.37%	
SALARIES BY GROUP CODE					
HETCH HETCHY - POWER		1	$ 11,863,587	11.13%	(TO SCHEDULE 7)
HETCH HETCHY - WATER		2	$ 6,355,129	5.96%	(TO SCHEDULE 7)
WATER - RETAIL		3	$ 18,049,040	16.94%	(TO SCHEDULE 7)
WATER- REGIONAL		4	$ 31,529,823	29.59%	(TO SCHEDULE 7)
WASTEWATER		5	$ 38,757,578	36.37%	(TO SCHEDULE 7)
TOTAL SALARIES			$ 106,555,156	100.00%	

ADMINISTRATION ONLY DRAFT

WHOLESALE REVENUE REQUIREMENT SCHEDULES
CALCULATION OF THE WHOLESALE REVENUE REQUIREMENT
FISCAL YEAR 2009-10
WATER ENTERPRISE SUMMARY OF OPERATING EXPENSES

ATTACHMENT N-2
SCHEDULE 8.1

	Retail	Wholesale	Regional	Total
Operating Expenses				
Transmission & Distributions	$ 30,163,286	$ -	$ 23,252,946	$ 53,416,232
Adjustments to Transmission & Distribution	$ -	$ -	$ -	$ -
Adjusted Transmission & Distribution	$ 30,163,286	$ -	$ 23,252,946	$ 53,416,232
Source of Supply	$ 1,251,062	$ -	$ 13,692,891	$ 14,943,953
Adjustments to Source of Supply	$ -	$ -	$ -	$ -
Adjusted Source of Supply	$ 1,251,062	$ -	$ 13,692,891	$ 14,943,953
Pumping	$ 3,854,000	$ -	$ 488,682	$ 4,342,682
Adjustments to Pumping	$ -	$ -	$ -	$ -
Adjusted Pumping	$ 3,854,000	$ -	$ 488,682	$ 4,342,682
Treatment	$ -	$ -	$ 30,445,053	$ 30,445,053
Adjustments to Treatment	$ -	$ -	$ -	$ -
Adjusted Treatment	$ -	$ -	$ 30,445,053	$ 30,445,053
Customer Accounts	$ 7,401,169	$ 151,044	$ -	$ 7,552,213
Adjustments to Customer Accounts	$ -	$ -	$ -	$ -
Adjusted Customer Accounts	$ 7,401,169	$ 151,044	$ -	$ 7,552,213
Total Adjusted Operating Expense	$ 42,669,517	$ 151,044	$ 67,879,572	$ 110,700,133
General & Administrative Expense				
COWCAP	$ -	$ -	$ 1,238,009	$ 1,238,009
Services of SFPUC Bureaus	$ 8,178,424	$ -	$ 14,286,867	$ 22,465,291
Other General & Administrative	$ 4,009,891	$ -	$ 8,962,586	$ 12,972,477
Adjustments to General & Administrative	$ -	$ -	$ -	$ -
Adjusted General & Administrative	$ 4,009,891	$ -	$ 8,962,586	$ 12,972,477
Compliance Audit	$ 100,000	$ 100,000	$ -	$ 200,000
Total General & Administrative	$ 12,288,315	$ 100,000	$ 24,487,462	$ 36,875,777
Property Taxes	$ -	$ -	$ 1,417,293	$ 1,417,293
Total	$ 54,957,832	$ 251,044	$ 93,784,327	$ 148,993,203

Source: FAMIS/EIS
Note: All adjustments to be separately identified above

ILLUSTRATION ONLY DRAFT

WHOLESALE REVENUE REQUIREMENT SCHEDULES
CALCULATION OF THE WHOLESALE REVENUE REQUIREMENT
FISCAL YEAR 2009-10
HETCHY HETCHY WATER & POWER SUMMARY OF OPERATING EXPENSES

ATTACHMENT N-2
SCHEDULE 8.2

	Power	Water	Joint	Total
Operating Expenses				
Purchased Power & Wheeling	$ 28,953,676			$ 28,953,676
Adjustments to Purchased Power & Wheeling	$ -			$ -
Adjusted Purchased Power & Wheeling	$ 28,953,676			$ 28,953,676
Operations				
Hydraulic Generation	$ 2,900,291	$ -	$ 3,200,394	$ 6,100,685
Transmission & Distribution	$ -	$ -	$	$
Water Quality Expense	$ -	$ 9,557,862	$	$ 9,557,862
Adjustments to Operations	$ -	$ -	$ -	$ -
Adjusted Operations	$ 2,900,291	$ 9,557,862	$ 3,200,394	$ 15,658,547
Maintenance				
Hydraulic Generation	$ 1,840,096	$ 3,238,622	$ 8,581,952	$ 13,660,670
Transmission & Distribution	$ 3,359,385	$	$ -	$ 3,359,385
Water Quality Expense	$	$	$ -	$ -
Adjustments to Maintenance	$ (151,442)	$ -	$ -	$ (151,442)
Adjusted Maintenance	$ 5,048,039	$ 3,238,622	$ 8,581,952	$ 16,868,613
Total Adjusted Operating Expense	$ 36,902,006	$ 12,796,484	$ 11,782,346	$ 61,480,836
General & Administrative Expense				
COWCAP	$ -	$ -	$ 1,139,579	$ 1,139,579
Services of SFPUC Bureaus	$ 5,375,656	$ 2,879,651	$ -	$ 8,255,307
Customer Accounts	$ 347,403	$ -	$ -	$ 347,403
Adjustments to Customer Accounts	$ -	$ -	$ -	$ -
Adjusted Customer Accounts	$ 347,403	$ -	$ -	$ 347,403
Other General & Administrative	$ 14,913,071	$ 36,070	$ 10,632,340	$ 25,581,481
Adjustments to General & Administrative	$ -	$ -	$ -	$ -
Adjusted General & Administrative	$ 14,913,071	$ 36,070	$ 10,632,340	$ 25,581,481
Total General & Administrative	$ 20,636,130	$ 2,915,721	$ 11,771,919	$ 35,323,770
Property Taxes	$ -	$ -	$ 452,000	$ 452,000
Total	$ 57,538,136	$ 15,712,205	$ 24,006,265	$ 97,256,606

Source: FAMIS/EIS
Note: All adjustments to be separately identified above

ILLUSTRATION ONLY DRAFT

SCHEDULE OF PROJECTED WATER SALES, WHOLESALE REVENUE REQUIREMENTS, AND WHOLESALE RATES
CONTRACT REFERENCE: ARTICLE 6.03.A.3

ATTACHMENT N-3

	FISCAL YEAR				
	N	N+1	N+2	N+3	N+4
OPERATION AND MAINTENANCE EXPENSES					
SOURCE OF SUPPLY	$ 9,364,568	$ -	$ -	$ -	$ -
PUMPING	$ 334,210	$ -	$ -	$ -	$ -
TREATMENT	$ 20,821,372	$ -	$ -	$ -	$ -
TRANSMISSION & DISTRIBUTION	$ 15,902,690	$ -	$ -	$ -	$ -
CUSTOMER ACCOUNTS	$ 151,044	$ -	$ -	$ -	$ -
TOTAL OPERATION AND MAINTENANCE EXPENSES	$ 46,573,884	$ -	$ -	$ -	$ -
ADMINISTRATIVE AND GENERAL EXPENSES					
COWCAP	$ 520,857	$ -	$ -	$ -	$ -
SF PUBLIC UTILITIES COMMISSION	$ 9,770,788	$ -	$ -	$ -	$ -
OTHER A&G	$ 3,770,749	$ -	$ -	$ -	$ -
COMPLIANCE AUDIT	$ 100,000	$ -	$ -	$ -	$ -
TOTAL ADMINISTRATIVE AND GENERAL EXPENSES	$ 14,162,394	$ -	$ -	$ -	$ -
PROPERTY TAXES	$ 969,287	$ -	$ -	$ -	$ -
CAPITAL COST RECOVERY					
PRE 2009 ASSETS	$ 24,051,326	$ -	$ -	$ -	$ -
DEBT SERVICE ON NEW ASSETS	$ 17,952,931	$ -	$ -	$ -	$ -
REVENUE FUNDED CAPITAL	$ 8,381,400	$ -	$ -	$ -	$ -
TOTAL CAPITAL COST RECOVERY	$ 50,385,657	$ -	$ -	$ -	$ -
WHOLESALE SHARE HHW&P	$ 28,903,512	$ -	$ -	$ -	$ -
WHOLESALE REVENUE REQUIREMENT	$ 140,994,734	$ -	$ -	$ -	$ -
BALANCING ACCOUNT AS OF JUNE 30	$ -	$ -	$ -	$ -	$ -
INTEREST ON BALANCING ACCOUNT	$ -	$ -	$ -	$ -	$ -
WHOLESALE REVENUES AT EXSITING RATE	$ (127,485,900)	$ -	$ -	$ -	$ -
WHOLESALE EXCESS USE CHARGES	$ -	$ -	$ -	$ -	$ -
SETTLEMENT CREDITS AND OTHER ADJUSTMENTS	$ 21,000	$ -	$ -	$ -	$ -
1984 AGREEMENT BALANCING ACCOUNT CREDITS	$ 1,997,220	$ -	$ -	$ -	$ -
WHOLESALE DEBIT SERVICE COVERAGE RESERVE	$ 4,488,233	$ -	$ -	$ -	$ -
WHOLESALE DEFICIENCY OR CREDIT	$ 20,015,287	$ -	$ -	$ -	$ -
PERCENT WHOLESALE DEFICIENCY OR CREDIT OF REVENUES AND EXCESS USE CHARGES	15.7%				
PROJECTED WATER SALES (CCF)	85,920,000	0	0	0	0
WHOLESALE DEFICIENCY OR CREDIT ($/CCF)	0.23	0	0	0	0
PROJECTED WHOLESALE RATE (UNIT COST ($/CCF)	1.66	0	0	0	0
PROJECTED SERVICE CHARGE REVENUES	$ 4,620,300				
PROJECTED VOLUME CHARGE REVENUES	$ 142,627,200				
TOTAL WHOLESALE REVENUES	$ 147,247,500				

ILLUSTRATION ONLY DRAFT

ATTACHMENT O
STATEMENT OF WHOLESALE REVENUE REQUIREMENT/ CHANGES IN BALANCING ACCOUNT
YEAR ENDED JUNE 30
(Section 7.02.B)

	FY 2008-09 Allocation to Wholesale Customers	FY 2009-10 Allocation to Wholesale Customers	Difference
Wholesale Revenue Requirement Calculation:			
Operating and maintenance (O&M) expense:			
San Francisco Water Enterprise:			
Source of supply	$ 9,133,025	$ 9,364,568	$ 231,543
Pumping	$ 325,946	$ 334,210	$ 8,264
Purification	$ 20,437,460	$ 20,821,372	$ 383,912
Transmission and distribution	$ 9,350,279	$ 15,902,690	$ 6,552,411
Customer Accounts	$ 224,255	$ 151,044	$ (73,211)
Total SFWE operating and maintenance	$ 39,470,965	$ 46,573,884	$ 7,102,919
Hetch Hetchy Water and Power (HHWP):			
Operating expenses	$ 10,359,786	$ 7,484,165	$ (2,875,621)
Maintenance expenses	$ 4,526,240	$ 4,831,890	$ 305,650
Total HHWP operating and maintenance	$ 14,886,026	$ 12,316,055	$ (2,569,971)
Administrative and general (A&G) expenses:			
COWCAP			
SFWE	$ 512,438	$ 520,857	$ 8,419
HHWP	$ 162,364	$ 348,968	$ 186,604
SF Public Utilities Commission:			
SFWE	$ 7,461,835	$ 9,770,788	$ 2,308,953
HHWP	$ 2,357,622	$ 1,959,603	$ (398,019)
Other A&G – SFWE	$ 8,234,799	$ 3,770,749	$ (4,464,050)
Other A&G – HHWP	$ -	$ 3,280,434	$ 3,280,434
Compliance audit	$ 95,338	$ 100,000	$ 4,662
Total administrative and general expenses	$ 18,824,396	$ 19,751,399	$ 927,003
Property taxes (outside city only):			
SFWE	$ 964,040	$ 969,287	$ 5,247
HHWP	$ 120,923	$ 139,732	$ 18,809
Total property taxes	$ 1,084,963	$ 1,109,019	$ 24,056
Capital Cost Recovery			
Pre-2009 Assets			
SFWE		$ 24,051,326	
HHWP		$ 3,118,033	
Debt Service on New Assets			
SFWE		$ 17,952,931	
HHWP		$ -	
Revenue Funded Assets			
SFWE		$ 8,381,400	
HHWP		$ 7,740,688	
Total Capital Cost Recovery	$ 46,378,941	$ 61,244,378	$14,865,437
Total Wholesale Revenue Requirement	$ 120,645,291	$ 140,994,735	$20,349,444
Balancing Account July 1	$ 21,176,614	$ -	
Interest on adjusted beginning balance	$ 529,415	$ -	
Wholesale revenues billed	$ (123,604,000)	$ (147,247,500)	
Excess use charges billed	$ -	$ -	
Wholesale Revenue Coverage Reserve	$ -	$ 4,488,233	
Other adjustments	$ -	$ -	
Settlement adjustments	$ 21,006	$ 21,006	
1984 Agreement Balancing Account Credits	$ -	$ 1,997,220	
Balancing Account June 30	$ 18,768,326	$ 253,694	

ILLUSTRATION ONLY DRAFT

Attachment P

REPRESENTATION LETTER

Certification Pursuant to Water Sales Agreement (the Agreement) between the City and County of San Francisco (San Francisco) and certain wholesale customers in the counties of San Mateo, Santa Clara, and Alameda (the Wholesale Customers) effective July 1, 2009.

Each of the undersigned certifies that:

1. I have reviewed San Francisco Water Department and Hetch Hetchy Water & Power Department Report on the Calculation of the Wholesale Revenue Requirement and Statement of Changes in the Balancing Account (the Statement) for the year ended June 30, 200X;

Based on my knowledge, this report and Statement do not contain any untrue statements of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by the report;

Based on my knowledge, the Statement and other financial information included in the report, fairly presents in all material respects the proper costs incurred and allocated to the Wholesale Customers in accordance with the provisions of the Agreement.

The below certifying officers and I are responsible for establishing and maintaining internal control over financial reporting and have:

Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting for purposes of the preparation of the Statement.

Evaluated the effectiveness of the allocation procedures to ensure compliance with the terms of the Agreement.

The Statement fully complies with the contractual requirements of the Agreement and fairly presents, in all material respects, the allocation of costs to the Wholesale Customers in accordance with the Agreement.

General Manager, SFPUC	Date
Assistant General Manager & Chief Financial Officer, SFPUC	Date
Finance Director, SFPUC	Date
Accounting Manager, SFPUC	Date
Financial Planning Manager, SFPUC	Date
Senior Rates Administrator, SFPUC	Date

CERTIFIED COPY

RESOLUTION NO. 2001-52

RESOLUTION APPROVING AND AUTHORIZING EXECUTION OF AGREEMENT

Intertie and Water Service Agreement

Received
JUN 28 2001
N.C.C.W.D

RESOLVED that the San Bruno City Council approves that certain Agreement with the **North Coast County Water District** which is attached hereto and made a part hereof.

FURTHER RESOLVED that the Mayor is authorized and directed to execute such Agreement on behalf of the City of San Bruno.

--0o0---

I hereby certify that foregoing Resolution No. 2001-52 was introduced and adopted by the San Bruno City Council at a regular meeting on June 26, 2001 by the following vote:

AYES: Councilmembers Ibarra, O'Connell, Ruane; Mayor Franzella

NOES: Councilmember Pallas

ABSENT: None

Jessie Rasmussen
CITY CLERK

I hereby certify this to be a full, true and correct copy of the document it puports to be, the original of which is on file in my office.

Dated: 6-27-01

Vicky S Hasha Deputy City Clerk
City Clerk of the City of San Bruno

AGREEMENT

THIS AGREEMENT is made as of the 19th day of June, 2001, by and between the City of San Bruno ("City") and the North Coast County Water District ("District").

Recitals

1. The City and the District provide water service to their respective, adjacent service areas in San Mateo County.

2. The City and the District have four interconnections between their water transmission systems; the Crystal Springs Road Connection, the Sneath Lane Connection, the College Drive Connection, and the Sweeney Ridge Tank Connection.

3. The City and the District heretofore have entered into certain agreements, including a January 25, 1972 Intertie and Water Service Agreement and a November 1, 1962 Agreement, addressing the furnishing of water by the District to the City and by the City to the District, as well as the responsibility of each party for maintenance and repair of facilities at the points of interconnection.

4. The 1972 Intertie and Water Service Agreement is no longer in effect and the 1962 Agreement does not comprehensively and accurately describe the physical interconnections now in place.

5. The parties deem it to be in the public interest, particularly in the event of an emergency or disaster, to arrange for two-way mutual relief interconnection of their systems.

6. The City and the District each wish to update and consolidate their contractual relationship and to provide for more effective mutual cooperation to the benefit of the residents and businesses of each.

THE PARTIES AGREE AS FOLLOWS:

1. Interconnections Between Systems. Three points of interconnection between the City's and the District's water transmission systems (sometimes collectively referred to as "Interties") are described generally as follows and depicted on Exhibit A.

A. Crystal Springs Road Connection. The District has furnished water to the City through this interconnection on a regular basis since approximately 1972. The City distributes the water solely to residents of the Crystal Springs Apartments.

B. Sneath Lane Connection. This connection is for emergency use only; allowing either party to provide water to the other party on a limited and emergency basis.

C. College Drive Connection. This connection is for emergency use only; allowing either party to provide water to the other party on a limited and emergency basis.

2. **Upgrade and Maintenance of Interties.**

A. **Crystal Springs Road Connection.** The District shall make every reasonable effort to replace the meter for the Crystal Springs Road Connection by December 31, 2001. The District shall be responsible for replacing the existing meter. For purposes of this Agreement, the cost to purchase and install the replacement meter is estimated to be $18,000 to $20,000 (excluding maintenance and repair of the meter) and the useful life of the meter is 20 years. The new meter shall be the property of the District and the District shall be responsible for the maintenance and repair of the meter. If at any time during the term of this Agreement the City provides any portion of or its own source of water to the Crystal Spring Apartment, the District shall no longer provide water through the Crystal Springs Road Connection meter unless the District and the City agree otherwise, and the City shall pay to the District the actual costs for purchase, installation, maintenance and repair of the Crystal Springs Road Connection meter, to the extent that such actual costs have not already been paid to the District through the City's payment of the bi-monthly meter service charge established below. The actual costs for the purchase, installation, maintenance and repair of the Crystal Springs Road Connection meter shall be evidenced by written documentation itemizing the actual labor and materials expended for the Crystal Springs Road Connection meter and all such costs shall be subject to a standard of reasonableness according to industry standards. Additionally, the District shall be responsible for maintenance, repair and replacement of the facilities identified on Exhibit A as "NCCWD FACILITIES," and the City shall be responsible for maintenance, repair and replacement of the facilities identified on Exhibit A as "CITY OF SAN BRUNO FACILITIES." The City shall pay to the District a bi-monthly meter service charge based on the charge of a ten-inch meter as set forth in the District's Rate and Fee Schedule, which currently is $460.78. The City shall pay this charge within thirty (30) days after receipt of the invoice, which shall be included in the invoice for the sale of water, if such water is provided, in accordance with Section 3 below.

B. **Sneath Lane Connection and College Drive Connection.** The District shall be responsible for maintenance, repair and replacement of the facilities identified on Exhibit A as "NCCWD FACILITIES," and the City shall be responsible for maintenance, repair and replacement of the facilities identified on Exhibit A as "CITY OF SAN BRUNO FACILITIES." Additionally, there are facilities at both of these connection locations that benefit both the District and the City, and the maintenance, repair and replacement of the facilities identified on Exhibit A as "NCCWD/CITY OF SAN BRUNO JOINT FACILITIES" shall be borne initially by the District, but the City shall reimburse the District for fifty percent (50%) of the costs incurred. The costs shall include all out-of-pocket costs for equipment, materials, contracted labor, and non-contracted labor provided by the District (at the employees' hourly rates plus fifty percent).

3. **Sale of Water - Nonemergency.** The District will sell the City water at the Crystal Springs Road Connection at the water usage charge established in the District's Rate and Fee Schedule for governmental and multi-unit residential property, which currently is Three Dollars and Three cents ($3.03) per unit (100 cubic feet). Even though the property to be served is outside the District boundaries, the District will not charge twice the amount of the water usage charge because of the past and expected future cooperative relations between the City and the District. The District shall calculate bills and invoice the City bi-monthly. The City shall pay the amount due within thirty (30) days after receipt of a bill. The District may impose a late

charge as established in the District's Rate and Fee Schedule. The City is solely responsible for billing retail customers within the City.

The rate for the sale of water at the Crystal Springs Road Connection is subject to increases or decreases based on amendments to the District's Rate and Fee Schedule. Prior to the imposition of any rate increase or decrease, the District shall provide the City with written notice of such change. The City may participate in any public process involving an amendment to the District's Rate and Fee Schedule effecting this water usage charge, or the water meter service charge established in Section 2.4 of this Agreement.

4. **Sale of Water - Emergency**. The City and the District each agree to sell water to the other, upon request, in cases of emergency, through the Sneath Lane and College Drive connections in accordance with this Section.

In the event either party shall require supplemental emergency water for a limited period of time, such party shall request to obtain water from the other party to the extent the supplying party is able to provide such water in view of its circumstances and demands at that time as determined by the supplying party. The party needing the water shall provide the party supplying the water with a written request for water with as much advance notice as possible. Nothing herein shall be deemed to constitute a dedication of the water supply of either party to service the territory of the other party or to constitute a commitment to supply water to the other party as a regular customer. The obligation to supply water hereunder is limited to surplus water above and beyond that required to service the needs of the supplying party's regular customers as determined by the supplying party and to a reasonable period of time to permit the party being supplied to effect repairs to its own sources. It shall be the responsibility of the party supplying water to operate its own valves. The party supplying water on an emergency basis shall provide written authorization to the party receiving the water prior to the delivery of such water, and representatives of the City and the District shall be present during the commencement and cessation of delivery of emergency water. At no time shall the party receiving the water operate the supplying party's system appurtenances, such as valves, regulators, or hydrants.

The party receiving the water shall compensate the party supplying the water by exchanging water of equal or better quality and in the same amount delivered by the supplying party within thirty (30) days from the date the water is provided. If the party receiving the water is unable to exchange water with the party supplying the water, the party receiving the emergency water shall compensate the party supplying water at the rate charged to the supplying party by the San Francisco Public Utilities Commission at the time of the delivery of the water. Charges shall be made only for months in which water is actually delivered and such payment shall be made within thirty (30) days after receipt of a bill. Meter readings will be made by and at the convenience of the supplying party. Water supplied pursuant to this Section 4 shall be accessed through one of the interconnections described in this Agreement, except where emergency conditions make it infeasible. If it is necessary to access water through fire hydrants, portable meters shall be used to measure the amount of water delivered.

5. **Compliance with San Francisco Contract and Other Agreements**. Each party purchases water from the City and County of San Francisco pursuant to an identical Settlement

Agreement and Master Water Sales Contract and substantially similar Water Supply Contracts, each entered into in 1984 (collectively, "SFWD Contract").

Each party agrees to comply with its respective contractual or other obligations to San Francisco or with any other agreements that may be entered into with other agencies with respect to water delivered to or purchased from the City or the District pursuant to this Agreement. For example, neither party shall be required to provide water to the other if the provision of such water will exceed the allotment of water provided to the supplying party under the SFWD Contract.

6. **Compliance with Laws**. Each party shall have responsibility for obtaining and maintaining all permits and preparing reports or plans as necessary to comply with current or future applicable local, state or federal regulations for the construction, repair and replacement of the facilities that each party is responsible for maintaining as set forth in Section 2 of this Agreement. The City shall have such responsibility for obtaining permits and preparing reports for the joint facilities located on City property. Each party shall provide the other party with a copy of any and all reports, plans or other documents prepared pursuant to this paragraph. The City and the District shall comply with all federal, state and local laws and regulations in connection with their respective drawing of water through the Interties.

Each party shall exercise reasonable care in the performance of its obligations and rights under this Agreement to ensure that the other party's facilities and operations are not impaired or damaged. If any occurrence or conditions during operation or maintenance of the Interties threaten the physical integrity or operational capacity of either party's separate facilities, the affected party may stop operation or maintenance of the Intertie in question and/or take any action that the affected party deems necessary to protect its own separate facilities. Notice shall be given by the affected party to the other party as soon as practical.

7. **Records**. The parties shall maintain accurate and complete records of the maintenance and use of the Interties, and shall make those records available to the other party upon request. Each party shall maintain records of all its costs with respect to its activities under this Agreement and make those records available to the other party. The parties shall retain such records for four (4) years after the termination of this Agreement.

8. **Term**. This Agreement shall begin on the date it is executed by the second of the two parties and shall expire on June 30, 2009, unless terminated earlier as discussed below. The parties may extend this Agreement by mutual written agreement. Either party may terminate this Agreement for default by the other party, if the defaulting party fails to cure the default within thirty (30) days from the date of the notice of the default, or such longer period as may be agreed to by both parties. Additionally, either party may terminate this Agreement without cause upon one hundred and eighty (180) days written notice to the other party.

9. **Quantity or Quality of Water**. It is agreed that the service of water to be provided by the District through the Crystal Springs Road Connection is only such water service as the District can normally render, and that the District is not obligated by this Agreement to maintain any extraordinary pressures or to provide any special or standby equipment or storage reserve. The District makes no promise, guarantee, warranty or representation of any kind

whatsoever, regarding the quantity, quality or pressure of water available, or that water in any pressure, quantity or quality will be available at any particular time. The District shall not be liable for any damage arising from or relating to any failure or insufficiency of water supply, insufficient or excessive water pressure, or any defect or failure relating to the quality of water furnished.

Neither the District nor the City make any representation or warranty of any kind whatsoever regarding the quantity, quality or pressure of water available at any time through the Sneath Lane Connection or College Drive Connection. The party receiving the water through the Interties shall be responsible for any adverse impacts to their own customers that may result from the water received through the Interties.

10. **Sweeny Ridge Tank**. On November 1, 1962, the City and the District entered into an Agreement related to the City's furnishing of water to the District at the four hundred thousand gallon water tank on Sweeny Ridge (the "1962 Agreement"). The parties acknowledge that the 1962 Agreement remains in full force and effect, and agree to address any issues pertaining to updating the 1962 Agreement in the future.

11. **Indemnity**. The City shall indemnify, defend and hold harmless the District from and against any and all claims, liabilities and damages of any kind whatsoever arising out of or in connection with the provision of water (or the failure to provide water) to and/or through the Crystal Springs Road Connection, except for claims, liabilities and damages caused by the District's sole, active negligence or willful misconduct.

In the event the City obtains water from District pursuant to the emergency provisions of Section 4 above, the City shall indemnify, defend and hold harmless the District from and against any and all claims, liabilities and damages of any kind whatsoever arising out of or in connection with provision of water (or the failure to provide water) to and/or through the Sneath Lane or College Drive Connections, except for claims, liabilities and damages caused by the District's sole, active negligence or willful misconduct.

In the event the District obtains water from City pursuant to the emergency provisions of Section 4 above, the District shall indemnify, defend and hold harmless the City from and against any and all claims, liabilities and damages of any kind whatsoever arising out of or in connection with provision of water (or the failure to provide water) to and/or through the Sneath Lane or College Drive Connections, except for claims, liabilities and damages caused by the City's sole, active negligence or willful misconduct.

12. **Notice**. Any notice required or permitted to be given by this Agreement shall be in writing, delivered personally or deposited in the United States mail, first class postage prepaid, addressed as follows:

If to the City: City of San Bruno
567 El Camino Real
San Bruno, CA 94066
Attention: City Manager

If to the District: North Coast County Water District
2400 Francisco Boulevard
P.O. Box 1039
Pacifica, CA 94044
Attention: General Manager

13. **Effective Date**. This Agreement shall be effective as of March 21, 2001.

14. **Amendments**. This Agreement may be changed only by a writing signed by both of the parties.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the day and year first above written.

CITY OF SAN BRUNO

BY: _____
Mayor

Attest: _____
City Clerk

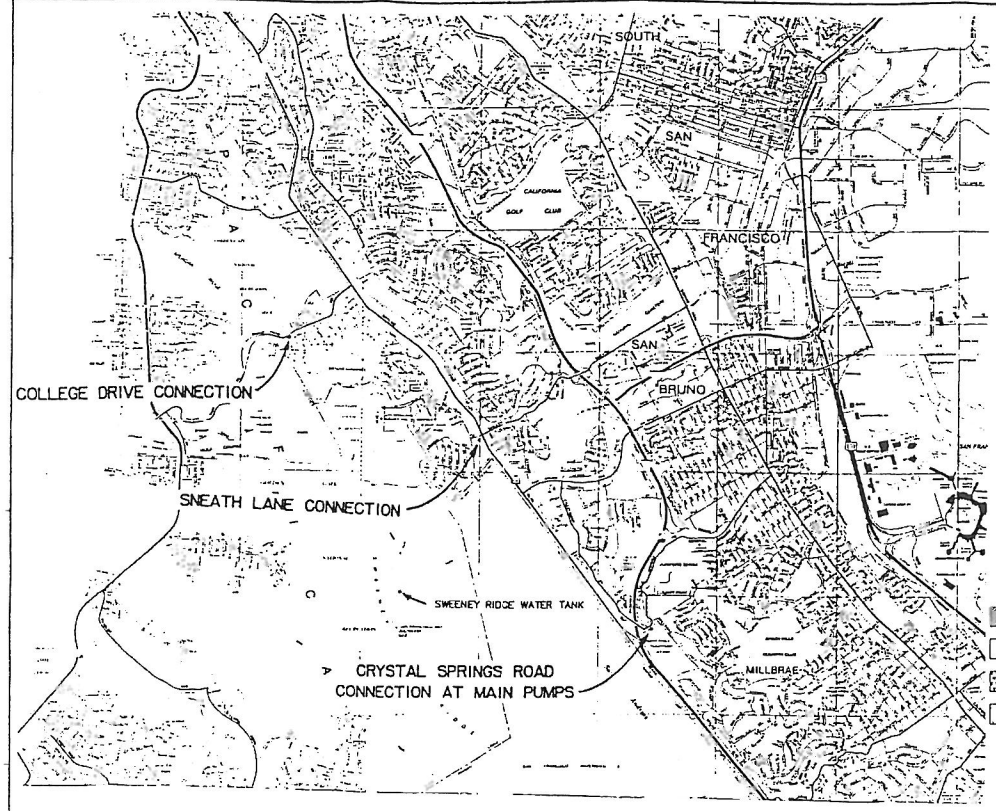
NORTH COAST COUNTY WATER DISTRICT

BY: _____
President, Board of Directors

Attest: _____
Secretary

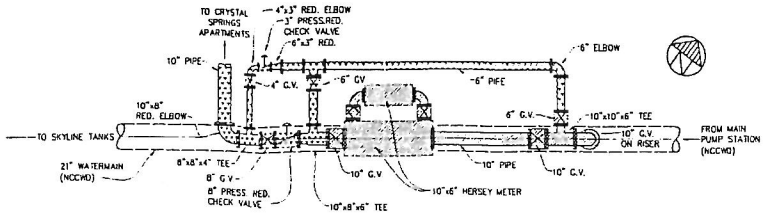
EXHIBIT A

[MAP OF INTERTIES]



LOCATION MAP

SCALE: 1"=2400±

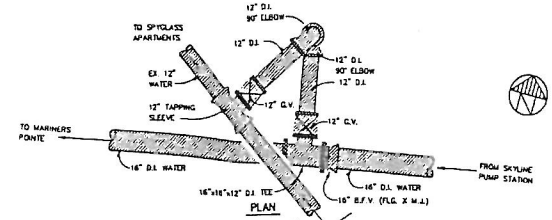


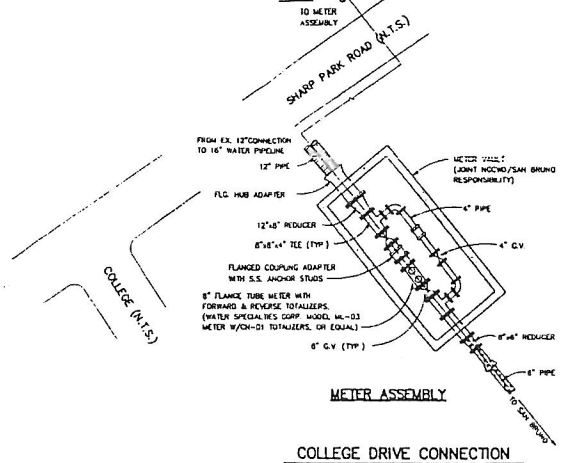
CRYSTAL SPRINGS RD. CONNECTION AT MAIN PUMPS

1/4"=1'-0"

LEGEND

- NCCWD FACILITIES
- NCCWD / CITY OF SAN BRUNO JOINT FACILITIES
- CITY OF SAN BRUNO FACILITIES
- EXISTING CONCRETE

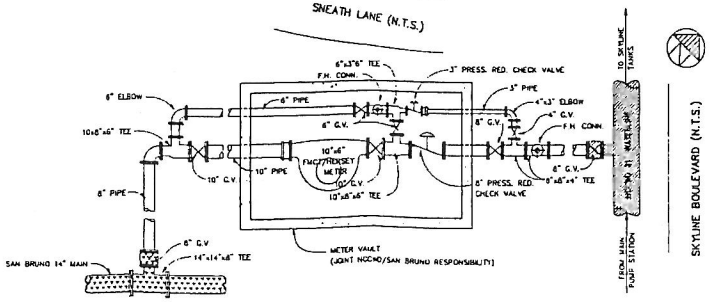




METER ASSEMBLY

COLLEGE DRIVE CONNECTION

1/4"=1'-0"



SNEATH LANE CONNECTION

1/4"=1'-0"

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APPENDIX I

South Westside Groundwater Management Plan

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The South Westside Basin Groundwater Management Plan (pictured below) may be found at the following website: http://sfwater.org/Modules/ShowDocument.aspx?documentid=3104

South Westside Basin Groundwater Management Plan

July 2012

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APPENDIX J

Annual Water Quality Report

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ANNUAL WATER QUALITY REPORT 2014

Throughout this report customers will be able to find useful information specifically related to the City of San Bruno water system, as well as information related to drinking water in general. The primary mission of this report is to summarize the past year's water quality data that are found in the tables at the end of this brochure. You will also find valuable information about City's current operations as well as future changes or improvements to the water system. The City of San Bruno continues its commitment to provide you with safe, high quality drinking water.

Where The City's Water Supply Comes From

The water supply for the City of San Bruno is derived from two sources. Approximately 50% of the daily water demand comes from four of the City's groundwater wells, the other half is purchased from the San Francisco Public Utilities Commission (SFPUC).

The sources of drinking water (both tap water and bottled water) include rivers, lakes, oceans, streams, ponds, reservoirs, springs, and wells.

Supplied by the San Francisco Regional Water System (SFRWS), our major water source originates from spring snowmelt flowing down the Tuolumne River to storage in Hetch Hetchy Reservoir. The pristine, well protected Sierra water source is exempt from filtration requirements by the United States Environmental Protection Agency (USEPA) and State Water Resources Control Board's Division of Drinking Water (SWRCB). Water treatments provided by the SFRWS, including disinfection by ultraviolet light and chlorine, corrosion control by adjustment of the water pH value, fluoridation for dental health protection, and chloramination for maintaining disinfectant residual and minimizing disinfection byproduct formation, are in place to meet the drinking water regulatory requirements.

The Hetch Hetchy water is supplemented with surface water from two local watersheds. Rainfall and runoff from the 35,000-acre Alameda Watershed in Alameda and Santa Clara counties are collected in the Calaveras and San Antonio reservoirs for filtration and disinfection at the Sunol Valley Water Treatment Plant. Rainfall and runoff from the 23,000-acre Peninsula Watershed in San Mateo County are stored in the Crystal Springs, San Andreas, and Pilarcitos reservoirs, and are filtered and disinfected at the Harry Tracy Water Treatment Plant.

As in the past, the Hetch Hetchy Watershed provided the majority of our total water supply, with the remainder contributed by the two local watersheds in 2014.

Water System Operations

Effective operation and maintenance of the distribution system ensures that the water maintains its quality as it travels through the system to your tap. The disinfectant residual in the water after treatment prevents the re-growth of microbial organisms during storage and transmission of water in the distribution system. The flushing of City's water mains and rotation of stored supplies also keeps the water fresh and limits the possibility for growth of such organisms.

The San Bruno Water Division conducts a comprehensive water quality assurance program. We collect over fifty samples a month throughout our system and send them to a state certified laboratory for testing. All samples have tested negative for coliforms and met all water quality standards in 2014.

Other water samples are collected periodically to check for levels of lead and copper, disinfection by-products [trihalomethanes and haloacetic acids – THMs and HAAs] and general physical components as required by state and federal regulations.

The San Bruno Water Division daily maintains water quality at our well facilities, SFPUC turnouts, storage tanks, and pump stations throughout the distribution system. These sites are monitored and maintained by City staff and our computerized SCADA (Supervisory Control and Data Acquisition) system that provides our water division managers with continuous automated water quality information.

In addition, The City of San Bruno Water Division, along with the San Mateo County Environmental Health Department administers and manages a cross- connection prevention program to eliminate possible contamination to our drinking water through backflow prevention devices. The program includes yearly testing of all city-owned backflow devices and monitoring of compliance on privately owned back flow devices*.

**** A note to residents and business owners who have backflow prevention devices: State regulations require that all backflow prevention devices be tested annually by a certified inspector.***

Protecting Our Watersheds

The SFPUC's annual Hetch Hetchy Watershed Sanitary Survey evaluates the sanitary conditions, water quality, potential contamination sources, and the results of watershed management activities with partner agencies including the National Park Service and US Forest Service.

The SFPUC also conducts sanitary surveys every five years to detect and track sanitary concerns for the local watersheds and the approved standby water sources in Early Intake Watershed, which includes Cherry Lake and Lake Eleanor. The latest 5-year surveys were completed in 2011 for the period of 2006-2010. These surveys identified wildlife, stock, and human activities as potential contamination sources. The reports are available for review at the San Francisco District office of SWRCB (510) 620-3474.

Water Quality

The SFPUC's Water Quality Division (WQD) regularly collects and tests water samples from reservoirs and designated sampling points throughout the system to ensure the water delivered to you meets or exceeds federal and state drinking water standards. In 2014, WQD staff conducted more than 52,000 drinking water tests in the transmission and distribution systems. This is in addition to the extensive treatment process control monitoring performed by the SFPUC's certified operators and online instruments.

As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Such substances are called contaminants.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. In order to ensure that tap water is safe to drink, the USEPA and SWRCB prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. SWRCB regulations also establish limits for contaminants in bottled water that provide the same protection for public health.

Contaminants and Regulations

Contaminants That May Be Present In Source Water Include:

Microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic contaminants, such as salts and metals, that can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and herbicides that may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application, and septic systems.

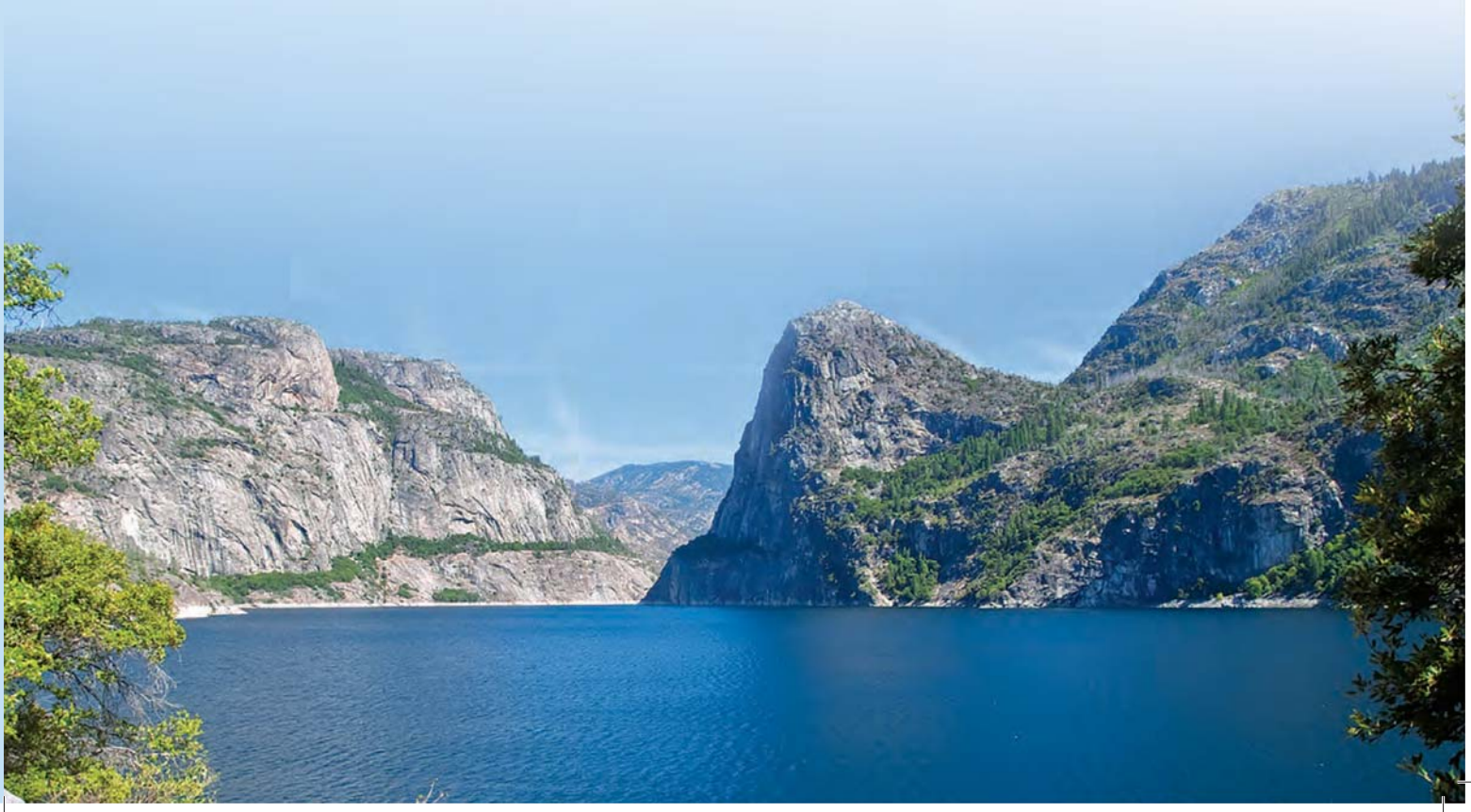
Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production, and mining activities.

More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline 800-426-4791.

Reducing Lead from Plumbing Fixtures

Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. There are no known lead service lines in the SFRWS. We are responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. It is possible that lead levels at your home may be higher than at others because of plumbing materials used in your property.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Infants and young children are typically more vulnerable to lead in drinking water than the general population. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead levels in your water, you may wish to have your water tested. Additional information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the USEPA's Safe Drinking Water Hotline ***(800) 426-4791***, or at ***www.epa.gov/safewater/lead***.

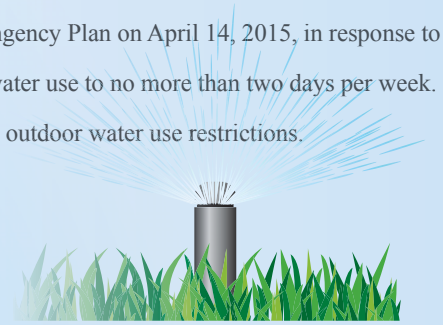


Water Conservation Awareness

On April 1, 2015 Governor Brown signed an executive order to cut the state's overall water usage by 25% from 2013 levels.

San Bruno activated the Water Shortage Contingency Plan on April 14, 2015, in response to recent State Water Resources Control Board requirements limiting outdoor water use to no more than two days per week.

San Bruno has implemented the following new outdoor water use restrictions.



- 2-day per week irrigation schedule
- Maximum 15 minutes per day
- Odd address – Monday and Thursday
- Even Address Tuesday and Friday
- No Address – Monday and Thursday

For additional information about the drought and conservation tips on the City of San Bruno's website at www.sanbruno.ca.gov and Bay Area Water Supply and Conservation Agency's website at www.bawsca.org

Water Conservation tips:

1. Install a low flow showerhead and take 5-minute or less showers. Free showerheads and timers available.
2. Catch water in a watering can or a bucket while waiting for water to get hot.
3. Replace your toilet with a high-efficiency model or put a water displacement bag in each toilet tank. Free displacement bags are available and rebates are available for qualifying high-efficiency toilets.
4. Fix all leaky toilets, faucets and pipes. Install low flow faucet aerators in the kitchen and bathroom. Free low flow aerators are available.
5. Scrape plates and run the garbage disposal less frequently. Compost food scraps instead.
6. Turn off the water while brushing your teeth and shaving.
7. Run only full loads in dishwashers and clothes washers. Replace these appliances with water efficient machines. Rebates are available for qualifying high-efficiency clothes washer models.
8. Water lawns/landscaping between 8:00 pm and 10:00 am. Be sure not to over water landscaping. Check and adjust sprinkler heads seasonally. Plant drought-tolerant and native plants.
9. Use a carwash facility or use a bucket of water and one short rinse to wash your car; wash on a permeable surface (grass or gravel).
10. Sweep (never hose) driveways, patios and sidewalks.

You can pick-up free water saving devices at City Hall's Public Services Counter, Monday-Friday, 8:00 am-5:00 pm: Showerheads, faucet aerators, shower timers, toilet leak tablets, and garden and landscaping guides. Rebates are available for high efficiency toilets, clothes washers. For additional information about the drought and conservation tips on the City of San Bruno's website at ***www.sanbruno.ca.gov*** and Bay Area Water Supply and Conservation Agency's website at ***www.bawsca.org***.

Fluoridation and Dental Fluorosis

Mandated by State law, water fluoridation is a widely accepted practice proven to be safe and effective for preventing and controlling tooth decay. Our water has been fluoridated at 0.9 milligram per liter until May 2015, when the new State regulatory guidance was issued. The water is now fluoridated at a new optimal level of 0.7 mg/L. Infants fed formula mixed with water containing fluoride at this level may have an increased chance of developing tiny white lines or streaks in their teeth. These marks are referred to as mild to very mild fluorosis, and are often only visible under a microscope. Even in cases where the marks are visible, they do not pose any health risk. CDC considers it safe to use optimally fluoridated water for preparing infant formula. To lessen this chance of dental fluorosis, you may choose to use low-fluoride bottled water to prepare infant formula. Nevertheless, children may still develop dental fluorosis due to fluoride intake from other sources such as food, toothpaste and dental products. Contact your health provider or SWRCB if you have concerns about dental fluorosis.
For additional information visit the SWRCB website www.swrcb.ca.gov/ and search for fluoride, or the CDC website www.cdc.gov/fluoridation.

KEY WATER QUALITY TERMS

Following are definitions of key terms referring to standards and goals of water quality noted on the adjacent data table.

Public Health Goal (PHG): The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.

Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the USEPA.

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs or MCLGs as is economically and technologically feasible. Secondary MCLs (SMCLs) are set to protect the odor, taste, and appearance of drinking water..

Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below that there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Primary Drinking Water Standard (PDWS): MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

Regulatory Action Level: The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.

Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.

Turbidity: A water clarity indicator that measures cloudiness of the water, and is also used to indicate the effectiveness of the filtration system. High turbidity can hinder the effectiveness of disinfectants.

Cryptosporidium is a parasitic microbe found in most surface water. The SFPUC regularly tests for this waterborne pathogen, and found it at very low levels in source water and treated water in 2014. However, current test methods approved by the USEPA do not distinguish between dead organisms and those capable of causing disease. Ingestion of Cryptosporidium may produce symptoms of nausea, abdominal cramps, diarrhea, and associated headaches. Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water.

SFPUC's Regional Groundwater Project Will Kick Off Construction in 2015

The SFPUC's Regional Groundwater Storage and Recovery (GSR) Project is a partnership with the cities of Daly City and San Bruno and the California Water Service Company that can provide 7.2 million gallons of water per day to protect against future droughts and earthquakes. Construction is scheduled to begin in 2015 and be completed in 2018. The GSR project balances the use of both groundwater and surface water in the South Westside Groundwater Basin (northern San Mateo County). During years of normal or heavy rainfall, the project will provide additional surface water to the partner agencies in order to reduce the amount of their groundwater pumping. Over time, the reduced pumping will create a groundwater savings account of up to 60,500 acre-feet of water or 20 billion gallons — a volume equivalent to that of the SFPUC's Crystal Springs Reservoir.
In dry years, when less surface water is available, the stored water would be pumped from the new groundwater wells and benefit the 2.6 million people in the Bay Area who rely on the SFRWS.

WATER QUALITY DATA FOR YEAR 2014

DETECTED CONTAMINANTS	UNIT	MCL	PHG OR (MCLG)	SFPUC RANGE OR LEVEL FOUND	SFPUC AVERAGE OR [MAX]	San Bruno RANGE OR LEVEL FOUND	San Bruno AVERAGE OR [MAX]	MAJOR SOURCES IN DRINKING WATER
TURBIDITY								
Unfiltered Hetch Hetchy Water	NTU	5	N/A	0.2 - 0.6[1]	[2.8]	N/A	N/A	Soil runoff
Filtered Water from Sunol Valley Water Treatment Plant (SVWTP)	NTU	1[2]	N/A	--	[0.98]			
	--	min 95% of samples ≤0.3 NTU [2]	N/A	97% - 100%	--			
Filtered Water from Harry Tracy Water Treatment Plant (HTWTP)	NTU	1[2]	N/A	--	[0.07]			
	--	min 95% of samples ≤0.3 NTU [2]	N/A	100%	--			
DISINFECTION BYPRODUCTS AND PRECURSOR								
Total Trihalomethanes	ppb	80	N/A	33 - 77	[55][3]	4.21 - 43	20.6	Byproduct of drinking water disinfection
Haloacetic Acids	ppb	60	N/A	30 -51	[44][3]	ND - 32.9	11.7	Byproduct of drinking water disinfection
Total Organic Carbon[4]	ppm	TT	N/A	1.3 - 2.8	1.9	N/A	N/A	Various natural and man-made sources
MICROBIOLOGICAL								
Total Coliform	--	NoP ≤5.0% of monthly samples	0	N/A	N/A	0	0	Naturally present in the environment
Giardia lamblia	cyst/L	TT	0	<.01 - .04	<0.01	0	0	Naturally present in the environment
INORGANIC CHEMICALS								
Fluoride(source water)[5]	ppm	2	1	ND - 0.8	0.4[6]	.14 - .16	0.14	Erosion of natural deposits; water additive to promote strong teeth
Chloramine(as chlorine)	ppm	MRDL=4.0	MRDLG=4	0.4 - 2.9	[2.2](7)	1.0 - 3.2	[2.29](7)	Drinking water disinfectant added for treatment
Nitrate (as NO 3)	ppm	45	2	N/A	N/A	ND - 7.5	3.02	Natural occuring organic material
RADIONUCLIDES								
Gross Alph Particle Activity	pC/L	15	0	N/A	N/A	ND	ND	Erosion of natural deposits

CONSTITUENTS WITH SECONDARY STANDARDS	UNIT	SMCL	PHG	RANGE	AVERAGE	RANGE	AVERAGE	TYPICAL SOURCES OF CONTAMINANT
Chloride	ppm	500	N/A	<3 - 15	9	72	72	Runoff/leaching from natural deposits
Odor Threshold	TON	3	N/A	ND - 1	ND	ND	ND	Naturally occurring organic materials
Specific Conductance	µS/cm	1600	N/A	32 - 222	169	42 - 546	250	Substances that form ions when in water
Sulfate	ppm	500	N/A	0.9 - 32	17	0.27	0.27	Runoff/leaching from natural deposits
Total Dissolved Solids	ppm	1000	N/A	31 - 120	81	310	310	Runoff/leaching from natural deposits
Turbidity	NTU	5	N/A	0.1 - 0.2	0.1	.05 - .93	0.14	Soil runoff
Iron	ppm	0.3	N/A	ND	ND	ND - .01	0.01	Leaching from natural deposits
Manganese	ppm	0.05	N/A	ND	ND	ND -<.02	0.<02	Leaching from natural deposits

LEAD AND COPPER[8]	UNIT	AL	PHG	RANGE	90TH PERCENTILE	RANGE	90TH PERCENTILE	MAJOR SOURCES IN DRINKING WATER
Copper	ppb	1300	300	N/A	N/A	4.1 - 582	224.1	Internal corrosion of household water plumbing systems
Lead	ppb	15	0.2	N/A	N/A	<1.0 - 10.2	3.2	Internal corrosion of household water plumbing systems

OTHER WATER QUALITY PARAMETERS	UNIT	ORL	RANGE	AVERAGE	RANGE	AVERAGE
Alkalinity(as CaCO3)	ppm	N/A	8 - 94	37	14 - 152	91.4
Bromide(9)	ppb	N/A	ND - 27	5	N/A	N/A
Calcium(as Ca)	ppm	N/A	3 - 20	11	32	32
Chlorate[10]	ppb	800 (NL)	34 - 740	314	53 -200	208
Hardness(as CaCO3)	ppm	N/A	7 - 77	46	42 - 546	228
Magnesium	ppm	N/A	<0.2 - 6.4	3.9	19-39	29.3
pH	-	N/A	6.9 - 10.2	9.3	7.01 -7.83	7.5
Potassium	ppm	N/A	.02 - 1	0.06	N/A	N/A
Silica	ppm	N/A	2 - 5	4	N/A	N/A
Sodium	ppm	N/A	2.4 - 16	10	0.45	0.45

KEY

< / ≤ = less than / less than or equal to
AL = Action Level
Max = Maximum
Min = Minimum
N/A = Not Available
ND = Non-Detect
NL = Notification Level
NoP = Number of Coliform-Positive Sample
NTU = Nephelometric Turbidity Unit
Ton = Threshold Odor Number
ORL = Other Regulatory Level
ppb = part per billion
ppm = part per million
µS/cm = microSiemens / centimeter

Footnotes;

(1) These are monthly average turbidity values measured every 4 hours daily.

(2) There is no turbidity MCL for filtered water. The limits are based on the TT requirements for filtration systems.

(3) This is the highest locational running annual average value

(4) Total organic carbon is a precursor for disinfection byproduct formation. The TT requirement applies to the filtered water from the SVWTP only.

(5) The SWRCB specifies the fluoride level in the treated water be maintained within a range of 0.8 ppm - 1.5 ppm. In 2014, the range and average of the fluoride levels were were 0.6 ppm - 1.2 ppm, and 0.9 ppm respectively.

(6) The natural fluoride levels in the Hetch Hetchy supply was ND. Elevated fluoride levels in the SVWTP and HTWTP raw water are attributed to the transfer of fluoridated Hetch Hetchy water into the reservoirs.

(7) This is the highest quarterly running annual average value.

(8) The most recent Lead and Copper Rule monitoring was in August 2012.

(9) Bromide was detected in HTWTP effluent only.

10) The detected chlorate in the treated water is a degradation product of sodium hypochlorite used by the SFPUC for water disinfection.

Note: The different water sources blended at different ratios throughout the year have resulted in varying water quality.

Additional water quality data may be obtained by calling the City of San Bruno Water Division at (650) 616-7162

SPECIAL HEALTH NEEDS

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons, such as those with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly people, and infants, can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA/Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the USEPA's Safe Drinking Water Hotline 800-426-4791 or at www.epa.gov/safewater.

HOW CAN THE PUBLIC BE INVOLVED?

Meetings of the City of San Bruno City Council begin at 7:00 PM on the second and fourth Tuesdays of each month and are open to the public. Meetings are held at the San Bruno Senior Center located at 1555 Crystal Springs Road.

If you have any questions or need further information, please feel free to contact the City of San Bruno Water Division at (650) 616-7162, or by mail at City of San Bruno Water Division, 567 El Camino Real, San Bruno, CA 94066-4247.
A copy of the 2014 Consumer Confidence Report will also be posted on the City's website at www.sanbruno.ca.gov.

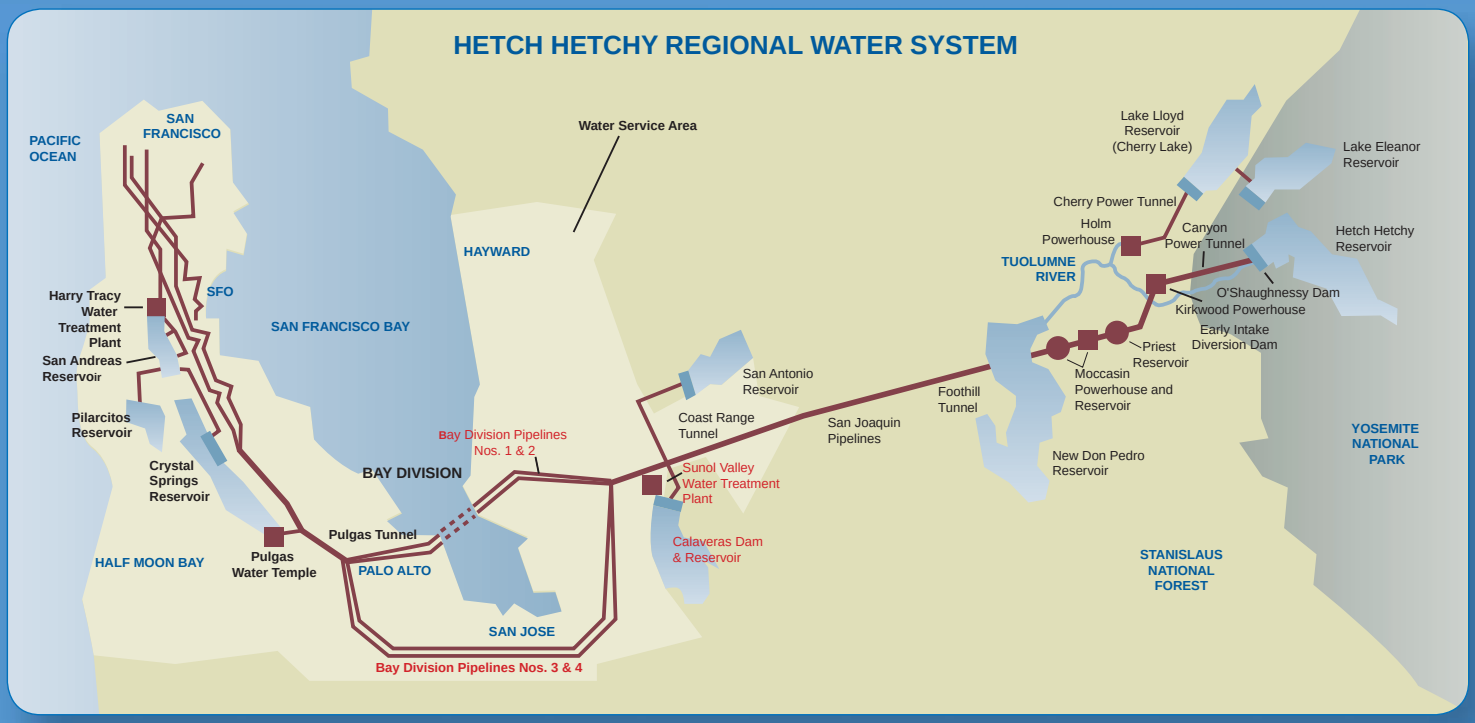
The SFPUC meets on the second and fourth Tuesdays of the month at 1:30 pm at the San Francisco City Hall, room 400. The public is invited to participate in these meetings.

This report contains important information about your drinking water.Translate it, or speak with someone who understands it.

Vea nuestro 2014 informe Anual de Calidad del Agua en sfwater.org/qualitymatters.

查閱2014年水質報告sfwater.org/qualitymatters

567 El Camino Real
San Bruno, CA 94066



City of San Bruno
Public Works Department
Water Division

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APPENDIX K

SFPUC Supply Reliability Information

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

525 Golden Gate Avenue, 10th Floor
San Francisco, CA 94102
T 415.554.3271
F 415.934.5770
TTY 415.554.3488

January 5, 2016

Andree Johnson
Water Resources Specialist
Bay Area Water Supply and Conservation Agency
155 Bovet Road, Suite 650
San Mateo, CA 94402

Dear Ms. Johnson,

Attached please find the information you requested on the Regional Water System's supply reliability for use in the Wholesale Customer's 2015 Urban Water Management Plan (UWMP) updates. The SFPUC has assessed the water supply reliability under the following planning scenarios:

- Projected single dry year supply for base year 2015[1],
- Projected multiple dry year supply beginning with base year 2015, and
- Projected supply reliability for base year 2015 through 2040.

Table 1 summarizes deliveries to the Wholesale Customers for projected single dry year supply for base year 2015 and projected multiple dry year supply beginning base year 2015.

With regards to future demands, the SFPUC proposes to expand their water supply portfolio by increasing the types of water supply resources. Table 2 summarizes the water supply resources assumed to be available by 2040, as well as other assumptions affecting supply. These assumptions differ from those used in the reliability analysis for the previous 2010 UWMP update, and lead to slightly different reliability projections explained further below.

Concerning allocation of supply during dry years, the Water Shortage Allocation Plan (WSAP) was utilized to allocate shortages between the SFPUC and the Wholesale Customers collectively. The WSAP implements a method for allocating water between the SFPUC retail customers and wholesale customers collectively which has been adopted by the Wholesale Customers

[1] Fiscal Year 2015 is used as the base year to run the water supply reliability analysis in the Hetch Hetchy Local Simulation Model (HHLSM). This base year reflects a wholesale Supply Assurance of 184 million gallons per day, as well as Regional Water System reservoir and pipeline capacities and instream flow requirements as they exist in 2015 (pre-Water System Improvement Program [WSIP] completion).

Edwin M. Lee
Mayor

Ann Moller Caen
President

Francesca Vietor
Vice President

Vince Courtney
Commissioner

Anson Moran
Commissioner

Ike Kwon
Commissioner

Harlan L. Kelly, Jr.
General Manager

per the July 2009 Water Supply Agreement between the City and County of San Francisco and Wholesale Customers in Alameda County, San Mateo County, and Santa Clara County. The wholesale customers have adopted the Tier Two Plan, the second component of the WSAP, which allocates the collective wholesale customer share among each of the 26 wholesale customers.

Finally, the SFPUC estimated the frequency and severity of anticipated shortages for the period 2015 (base year) through 2040. For this analysis, we assumed that the historical hydrologic period is indicative of future events and evaluated the supply reliability assuming a repeat of the actual historic hydrologic period 1921 through 2011. The results of this analysis are summarized in Table 3.

Compared to the reliability projections that were provided previously for the 2010 UWMP update, Table 1 indicates slightly higher shortages and lower Wholesale allocations for dry years 2 and 3. Also, Table 3 shows slightly higher estimates of required rationing in multi-year droughts as compared to those provided previously. These differences are due to the inclusion of a temporary constraint on Crystal Springs Reservoir storage and an in-stream flow requirement below Crystal Springs Reservoir, which are shown in Table 2, but were not included in the previous reliability analysis.

It is our understanding that you will pass this information on to the Wholesale Customers. If you have any questions or need additional information, please do not hesitate to contact me at (415) 554-0792.

Sincerely,

Paula Kehoe

Paula Kehoe
Director of Water Resources

Table 1: Projected Deliveries for Three Multiple Dry Years

	Base Year 2015 (Non-Dry)	One Critical Dry Year	Deliveries During Multiple Dry Years		
			Year 1	Year 2	Year 3
System-Wide Shortage	0%	10%	10%	22%	22%
Wholesale Allocation (MGD)	184.0	152.6	152.6	129.2	129.2

MGD = million gallons per day

Table 2: Water Supply Modeling Assumptions for Fiscal Years 2015 through 2040

	2015	2020	2025	2030	2035	2040
Water Supply Resource						
Westside Basin Groundwater (AF/yr)		8,100	8,100	8,100	8,100	8,100
Districts Transfer (AF/yr)		2,240	2,240	2,240	2,240	2,240
Crystal Springs Reservoir Capacity (20.3 BG) [1]			x	x	x	x
Calaveras Reservoir at Full Capacity		x	x	x	x	x
Alameda Creek Recapture (9.3 MGD)		x	x	x	x	x
Reservoir Operation Affecting Supply						
Crystal Springs Reservoir Release for In-Stream Flow to San Mateo Creek (3.5 MGD) [2]	x	x	x	x	x	x
Calaveras Reservoir Release and Alameda Creek Diversion Dam Bypass for In-Stream Flow to Alameda Creek (9.3 MGD)		x	x	x	x	x

AF/yr = acre-feet per year, BG = billion gallons, MGD = million gallons per day, x = in operation

Notes:

1. Schedule for restoration of Crystal Springs Reservoir storage is tied to permitting requirements for endangered plants.
2. Release from Crystal Springs Reservoir to meet minimum in-stream flow requirement in San Mateo Creek began in January 2015.

Table 3: Projected System Supply Reliability Based on Hydrologic Period

	Wholesale Demand (MGD)					
	184.0	184.0	184.0	184.0	184.0	184.0
	Projected Wholesale Allocation (MGD)					
Fiscal Year	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**
1920-21	184.0	184.0	184.0	184.0	184.0	184.0
1921-22	184.0	184.0	184.0	184.0	184.0	184.0
1922-23	184.0	184.0	184.0	184.0	184.0	184.0
1923-24	184.0	184.0	184.0	184.0	184.0	184.0
1924-25	152.6	184.0	184.0	184.0	184.0	184.0
1925-26	184.0	184.0	184.0	184.0	184.0	184.0
1926-27	184.0	184.0	184.0	184.0	184.0	184.0
1927-28	184.0	184.0	184.0	184.0	184.0	184.0
1928-29	184.0	184.0	184.0	184.0	184.0	184.0
1929-30	184.0	184.0	184.0	184.0	184.0	184.0
1930-31	184.0	184.0	184.0	184.0	184.0	184.0
1931-32	129.2	152.6	152.6	152.6	152.6	152.6
1932-33	184.0	184.0	184.0	184.0	184.0	184.0
1933-34	184.0	184.0	184.0	184.0	184.0	184.0
1934-35	152.9	184.0	184.0	184.0	184.0	184.0
1935-36	184.0	184.0	184.0	184.0	184.0	184.0
1936-37	184.0	184.0	184.0	184.0	184.0	184.0
1937-38	184.0	184.0	184.0	184.0	184.0	184.0
1938-39	184.0	184.0	184.0	184.0	184.0	184.0
1939-40	184.0	184.0	184.0	184.0	184.0	184.0
1940-41	184.0	184.0	184.0	184.0	184.0	184.0
1941-42	184.0	184.0	184.0	184.0	184.0	184.0
1942-43	184.0	184.0	184.0	184.0	184.0	184.0
1943-44	184.0	184.0	184.0	184.0	184.0	184.0
1944-45	184.0	184.0	184.0	184.0	184.0	184.0
1945-46	184.0	184.0	184.0	184.0	184.0	184.0
1946-47	184.0	184.0	184.0	184.0	184.0	184.0
1947-48	184.0	184.0	184.0	184.0	184.0	184.0
1948-49	184.0	184.0	184.0	184.0	184.0	184.0
1949-50	184.0	184.0	184.0	184.0	184.0	184.0
1950-51	184.0	184.0	184.0	184.0	184.0	184.0
1951-52	184.0	184.0	184.0	184.0	184.0	184.0
1952-53	184.0	184.0	184.0	184.0	184.0	184.0
1953-54	184.0	184.0	184.0	184.0	184.0	184.0
1954-55	184.0	184.0	184.0	184.0	184.0	184.0
1955-56	184.0	184.0	184.0	184.0	184.0	184.0
1956-57	184.0	184.0	184.0	184.0	184.0	184.0
1957-58	184.0	184.0	184.0	184.0	184.0	184.0
1958-59	184.0	184.0	184.0	184.0	184.0	184.0
1959-60	184.0	184.0	184.0	184.0	184.0	184.0
1960-61	152.6	184.0	184.0	184.0	184.0	184.0

	Wholesale Demand (MGD)					
	184.0	184.0	184.0	184.0	184.0	184.0
	Projected Wholesale Allocation (MGD)					
Fiscal Year	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**
1961-62	129.2	152.6	152.6	152.6	152.6	152.6
1962-63	184.0	184.0	184.0	184.0	184.0	184.0
1963-64	184.0	184.0	184.0	184.0	184.0	184.0
1964-65	184.0	184.0	184.0	184.0	184.0	184.0
1965-66	184.0	184.0	184.0	184.0	184.0	184.0
1966-67	184.0	184.0	184.0	184.0	184.0	184.0
1967-68	184.0	184.0	184.0	184.0	184.0	184.0
1968-69	184.0	184.0	184.0	184.0	184.0	184.0
1969-70	184.0	184.0	184.0	184.0	184.0	184.0
1970-71	184.0	184.0	184.0	184.0	184.0	184.0
1971-72	184.0	184.0	184.0	184.0	184.0	184.0
1972-73	184.0	184.0	184.0	184.0	184.0	184.0
1973-74	184.0	184.0	184.0	184.0	184.0	184.0
1974-75	184.0	184.0	184.0	184.0	184.0	184.0
1975-76	184.0	184.0	184.0	184.0	184.0	184.0
1976-77	152.6	184.0	184.0	184.0	184.0	184.0
1977-78	129.2	152.6	152.6	152.6	152.6	152.6
1978-79	184.0	184.0	184.0	184.0	184.0	184.0
1979-80	184.0	184.0	184.0	184.0	184.0	184.0
1980-81	184.0	184.0	184.0	184.0	184.0	184.0
1981-82	184.0	184.0	184.0	184.0	184.0	184.0
1982-83	184.0	184.0	184.0	184.0	184.0	184.0
1983-84	184.0	184.0	184.0	184.0	184.0	184.0
1984-85	184.0	184.0	184.0	184.0	184.0	184.0
1985-86	184.0	184.0	184.0	184.0	184.0	184.0
1986-87	184.0	184.0	184.0	184.0	184.0	184.0
1987-88	152.6	184.0	184.0	184.0	184.0	184.0
1988-89	129.2	152.6	152.6	152.6	152.6	152.6
1989-90	129.2	152.6	152.6	152.6	152.6	152.6
1990-91	129.2	132.5	132.5	132.5	132.5	132.5
1991-92	129.2	132.5	132.5	132.5	132.5	132.5
1992-93	129.2	132.5	132.5	132.5	132.5	132.5
1993-94	184.0	184.0	184.0	184.0	184.0	184.0
1994-95	184.0	184.0	184.0	184.0	184.0	184.0
1995-96	184.0	184.0	184.0	184.0	184.0	184.0
1996-97	184.0	184.0	184.0	184.0	184.0	184.0
1997-98	184.0	184.0	184.0	184.0	184.0	184.0
1998-99	184.0	184.0	184.0	184.0	184.0	184.0
1999-00	184.0	184.0	184.0	184.0	184.0	184.0
2000-01	184.0	184.0	184.0	184.0	184.0	184.0
2001-02	184.0	184.0	184.0	184.0	184.0	184.0
2002-03	184.0	184.0	184.0	184.0	184.0	184.0
2003-04	184.0	184.0	184.0	184.0	184.0	184.0

	Wholesale Demand (MGD)					
	184.0	184.0	184.0	184.0	184.0	184.0
	Projected Wholesale Allocation (MGD)					
Fiscal Year	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**
2004-05	184.0	184.0	184.0	184.0	184.0	184.0
2005-06	184.0	184.0	184.0	184.0	184.0	184.0
2006-07	184.0	184.0	184.0	184.0	184.0	184.0
2007-08	184.0	184.0	184.0	184.0	184.0	184.0
2008-09	184.0	184.0	184.0	184.0	184.0	184.0
2009-10	184.0	184.0	184.0	184.0	184.0	184.0
2010-11	184.0	184.0	184.0	184.0	184.0	184.0

MGD = million gallons per day

Agency	Base Year (FY 12-13) SFPUC Purchases	Scenarios for Total Available Supply to Wholesale Customers	
		129.2 MGD	132.5.MGD
ACWD	8.96	8.06	8.51
Brisbane/GVMID	0.59	0.53	0.56
Burlingame	4.00	3.78	3.70
Coastside	1.82	1.65	1.62
CWS Total	31.18	27.81	27.11
Daly City	4.01	3.29	3.39
East Palo Alto	2.07	1.95	1.97
Estero	4.10	3.69	3.92
Hayward	15.48	13.93	14.71
Hillsborough	3.30	3.02	2.91
Menlo Park	3.25	2.92	3.04
Mid Pen WD	2.98	2.81	2.75
Millbrae	2.28	2.05	2.15
Milpitas	6.38	5.75	6.06
Mountain View	9.00	8.10	8.55
North Coast	2.44	2.20	2.32
Palo Alto	11.33	10.20	10.76
Purissima Hills	1.99	1.37	1.51
Redwood City	9.73	8.63	8.45
San Bruno	1.94	1.75	1.84
San José	4.45	3.05	3.38
Santa Clara	2.29	1.57	1.74
Stanford	2.15	1.93	2.00
Sunnyvale	9.28	8.35	8.67
Westborough	0.90	0.81	0.86
Wholesale Total	**145.90**	**129.20**	**132.50**

6-Jan-16

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APPENDIX L

Summary of BAIRWMP Climate Change Vulnerability Assessment

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Appendix L
Summary of BAIRWMP Climate Change Vulnerability Assessment

Vulnerability Areas	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 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.

Appendix L
Summary of BAIRWMP Climate Change Vulnerability Assessment

Vulnerability Areas	General Overview of Vulnerabilities
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 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: 2013 Bay Area Integrated Regional Water Management Plan (BAIRWMP), Table 16-3.

APPENDIX M

Water Conservation Section of San Bruno Municipal Code

- The San Bruno Municipal Code may be found in its entirety at the following website: http://qcode.us/codes/sanbruno/

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Chapter 10.16 WATER CONSERVATION

Article I. General

10.16.010 Definitions.

A. "Appeals board" is a subcommittee of the San Bruno water conservation committee, a committee appointed by the San Bruno city council and of staff of the city of San Bruno.

B. "City council" means the city council of the city of San Bruno, California.

C. "Customer" means any person, whether within or without the geographic boundaries of the city of San Bruno who uses water supplied by the city of San Bruno department of public works, water division.

D. "Director" means the director of public works of the city of San Bruno.

E. "Period of precipitation" means during rainfall and not any generalized or specific season or period of the year.

F. "Person" means any person, firm, partnership, association, corporation, company, organization or governmental entity.

G. "Swimming pool" is defined to include any indoor or outdoor constructed swimming or bathing pool or spa that can hold one thousand gallons of water, or more.

H. "Unit of water" is one hundred cubic feet of water.

I. "Water emergency" means any condition related to water supply which may have a negative effect or the disability to supply a normal amount of water to city customers. (Ord. 1522 § 3, 1990)

10.16.020 Declaration of water emergency.

Upon a declaration of a state of water emergency, the city council may declare a need for mandatory water conservation (pursuant to Article II of this chapter) and/or water rationing (pursuant to Article III of this chapter) which shall remain in effect until the city council determines a state of water emergency no longer exists. (Ord. 1522 § 3, 1990)

Article II. Water Conservation Regulations

10.16.030 Mandatory conservation policy.

For water conservation purposes, it is the policy of the city to prohibit certain uses of water from the city's water supply system, or misuse of water in the city of San Bruno from whatever source, and prescribing penalties for violation. (Ord. 1522 § 3, 1990)

10.16.040 Prohibition of nonessential uses of the mandatory conservation policy.

The provisions of this chapter shall apply to all persons using water within the city of San Bruno. Notwithstanding other code provisions inconsistent with this chapter, the provisions of this chapter shall remain in effect until such time the San Bruno city council declares the emergency over. (Ord. 1522 § 3, 1990)

10.16.050 Nonessential uses of the mandatory conservation policy defined.

It is unlawful for any person to use water, from whatever source, for any of the following:

A. The watering of grass, lawn, groundcover, shrubbery, open ground crops and trees, in a manner that results in runoff into sidewalks, gutters and streets or during periods of precipitation, or to an extent which allows excess water to run to waste.

B. The watering of grass, lawn, groundcover, shrubbery, and trees, between the hours of nine a.m. and four p.m.

C. The escape of water through leaks, breaks, or malfunction within the water user's plumbing or distribution system for any period of time within which such break or leak should reasonably have been discovered and corrected. It shall be presumed that a period of ten days after the water user discovers such break, leak, or malfunction, or receives notice from the city of such condition, whichever occurs first, is a reasonable time within which to correct such condition or to make arrangement for correction.

D. The use of hoses not having automatic shut-off devices for the washing of cars, boats, trailers or other vehicles.

E. The use of water from a hose for the cleaning of buildings, structures, walkways, sidewalks, driveways, patios, parking lots or hard-surfaced areas. The washing of windows or structures with a bucket and squeegee is not prohibited by this chapter.

F. The operation of a car wash using water from the city's domestic water system, unless water for such use is recycled.

G. The use of water from any fire hydrant unless specifically authorized by permit from the director of public works except by regularly constituted fire protection agencies for fire suppression purposes.

H. The use of water to fill, clean or maintain artificial or decorative lakes, fountains or ponds with a capacity of one thousand gallons or more.

I. The filling of any swimming pool unless there are extenuating circumstances as determined by the director of public works or his/her designee.

J. The service of water in restaurants except upon request by the customer.

K. The use of any city water for the flushing of fire hydrants and/or fire related drills, and water mains unless there is an emergency as determined by the director of public works, the San Bruno fire chief or the San Bruno city manager.

L. The indiscriminate running of water or washing with water than results in flooding or runoff in or on sidewalks, gutters and streets not otherwise prohibited above.

M. Substantial planting or replanting of new landscaping which is not drought tolerant will be prohibited until such time the San Bruno city council has determined that the emergency has passed. For new developments in which water dependent (not drought tolerant) landscaping is required as a use permit condition, the city shall require a cash bond or other form of security subject to approval of the city from the developer in an amount specified which will be placed in an account in which the interest shall accrue to the developer. "Substantial" planting or replanting is hereby defined as planting or replanting in excess of ten percent of the total planted area of the development, parcel, site or lot.

N. Using potable water from whatever source, in construction for dust control, or soil compaction unless reclaimed (or "nonpotable") water is not available. Vehicles hauling and spraying such water must have standardized signs indicating "reclaimed" or "nonpotable" water.

O. Any other use of domestic water as deemed to be wasteful as determined by the director of public works. (Ord. 1533 § 2, 1991; Ord. 1522 § 3, 1990)

10.16.060 Water restriction, disconnection or removal.

Any person in violation of the provisions of Sections 10.16.040 or 10.16.050 who fails to take corrective action after the first notification of the violation shall be subject to water flow restriction, or disconnection of water service, or removal of water service connection. Upon restriction, disconnection, or removal of water service, a written notice shall be served upon the violator, or conspicuously posted at the entrance to the violator's premises, and shall state the time, place and general description of the violation and the method by which reconnection or non-restriction can be accomplished. (Ord. 1522 § 3, 1990)

10.16.070 Appeal.

Any person who feels that the activity or condition which resulted in the restriction, removal, or disconnection of water service pursuant to this chapter did not constitute a violation of this chapter may appeal to an appeals board that is a subcommittee of the San Bruno water conservation committee, a committee appointed by the San Bruno city council and of members of San Bruno city staff. If the appeals board finds that the activity or conduct did not constitute a violation of this chapter, the reconnection charge will be refunded. (Ord. 1522 § 3, 1990)

10.16.080 Reconnection.

Where water service is disconnected, restricted or removed as authorized above, it shall be reconnected, restored or restriction removed upon the correction of the condition or activity. A reconnection charge of one hundred dollars shall be collected before water service can be continued. (Ord. 1522 § 3, 1990)

10.16.090 Enforcement.

The director of public works, or his/her designee is responsible for enforcing the provisions of this part. Enforcement and/or penalties of Sections 10.16.160 and 10.16.170 may be used to secure compliance with the above water conservation regulations. (Ord. 1522 § 3, 1990)

Article III. Water Conservation Regulations

10.16.100 Water rationing.

At the direction of the city council, and upon adoption of a resolution implementing water rationing, a mandatory water rationing program shall be implemented, as set forth in Sections 10.16.110 through 10.16.150, below. (Ord. 1522 § 3, 1990)

10.16.110 Prohibition of nonessential uses of water.

Upon the institution of water rationing by the San Bruno city council, it is unlawful for any person, firm, partnership, association, corporation or political entity to use water for nonessential uses, as defined below. (Ord. 1522 § 3, 1990)

10.16.120 Nonessential uses defined, water rationing.

Upon the institution of water rationing by the San Bruno city council, the following uses of water are determined to be nonessential, except as further provided in this chapter:

A. All uses identified as nonessential in Section 10.16.050 of "Article II—Water Conservation Regulations" of this chapter.

B. Use of water in excess of the following allocations:

1. Residential customers: as specified by resolution of the San Bruno city council.

2. Industrial customers: as specified by resolution of the San Bruno city council.

3. Commercial, institutional and governmental customers: as specified by resolution of the San Bruno city council.

4. Irrigation and outside water usage customers: as specified by resolution of the San Bruno city council. (Ord. 1522 § 3, 1990)

10.16.130 Exceptions.

Written application for an exception or adjustment may be made to the water conservation appeals board. The appeals board may:

A. Grant permits for the use of water otherwise prohibited; or

B. Adjust the allocations in Section 10.16.120 (B), if it finds that:

1. Failure to do so would cause an emergency condition adversely affecting the health, sanitation, fire protection or safety of the customer, water user, or the public, and

2. The customer or water user has adopted all practicable water-conservation measures;

The appeals board may, upon written application, grant permits for the use of water otherwise prohibited or adjust the allotments in Section 10.16.120 (B), if it finds that failure to do so would cause unnecessary and undue hardship to the customer, water user, or the public. (Ord. 1522 § 3, 1990)

10.16.140 Excess water use charge.

An excess use charge as determined by resolution of the San Bruno city council will be levied for water used in excess of the allocations specified by resolution of the San Bruno city council. Additional charges may be imposed to compensate for a loss of revenue or to pay an additional cost for the purchase or the provision of water. (Ord. 1522 § 3, 1990)

10.16.150 Waiver of excess water use charge.

A. Upon written application to the appeals board, a customer or water user may appeal an excess water use charge.

B. The appeals board may waive a specific excess water use charge if it finds, based upon facts presented, that sufficient justification is present to allow such a waiver.

C. A waiver may be granted for one or more of the following reasons:

1. Water used in excess of allocation was for the protection of health and/or sanitation or for the protection of property in the case of fire.

2. Water used in excess of allocation was the results of a condition unknown to the customer or water user which has subsequently been corrected to the satisfaction of the city.

D. A waiver shall not be granted unless the customer or water user has adopted and has demonstrated all practicable water conservation measures, nor shall a waiver be granted on the basis of economic hardship. (Ord. 1522 § 3, 1990)

Article IV. Enforcement and Penalties

10.16.160 Enforcement of water conservation and water rationing—Civil.

A. If at any time a customer or water user has violated any provisions regarding "Article II—Water Conservation Regulations," or "Article III—Water Rationing Regulations," including use of water in excess of the allotments sets forth in Section 10.16.120(B), the city may in lieu of, or in addition to the penalties provided for in Section 356 and Section 31029 of the California Water Code, install a flow-restricting device on the service line or disconnect or remove water service.

B. Charges for disconnection, or installation of flow-restricting devices and restoration of service or removal of restrictions shall be specified by resolution of the San Bruno city council.

C. Discontinuance of Water Service. The continued violation of water conservation regulations or water consumption in excess of the allocation will result in discontinuance of water service by the city of San Bruno. A charge of one hundred dollars shall be paid prior to reactivating the service.

D. Notices and/or warnings of any violation of this chapter, or of any notice required by this chapter or by state law, may validly be issued by any employee of: the San Bruno water division; the San Bruno police department; the San Bruno finance department; the neighborhood improvement representative; the city engineer; the director of public works; the city attorney; and/or the city manager.

E. In addition to any other enforcement provisions of this section, the city attorney may also seek civil penalties in an amount sufficient to deter such violation, but in no event greater than five thousand dollars for each such violation of this chapter. (Ord. 1522 § 3, 1990)

10.16.170 Penalties—Criminal.

A. Violation of any provision of this chapter shall be an infraction punishable by a fine not to exceed fifty dollars for a first offense; one hundred dollars for a second violation of this chapter within one year; two hundred and fifty dollars for each additional violation of this chapter within one year.

B. Each day any such violation(s) of this chapter is committed or permitted to continue shall constitute a separate offense and shall be punishable as such hereunder.

C. Such violations may be prosecuted by a criminal complaint filed by the San Bruno city attorney, or by a notice to appear (citation) issued by the San Bruno police department, or by the San Bruno neighborhood improvement representative. (Ord. 1522 § 3, 1990)

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APPENDIX N

City Water Shortage Resolutions

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RESOLUTION NO. 2014 - 91

RESOLUTION DECLARING A STATE OF WATER EMERGENCY AS OUTLINED IN THE SAN BRUNO MUNICIPAL CODE CHAPTER 10.16 (WATER CONSERVATION) AND ACTIVATING THE SAN BRUNO WATER SHORTAGE CONTINGENCY PLAN

WHEREAS, on July 15, 2014, the California State Water Board issued emergency water conservation regulations to urban water suppliers throughout the state that apply to outdoor water use which go into effect on or about August 1, 2014 and will remain through April 2015 (270 days).; and

WHEREAS, urban water suppliers with more than 3,000 water connections (San Bruno has approximately 12,000 water connections) are required to implement the Water Shortage Contingency Plan as outlined in their Urban Water Management Plan, with the San Bruno Urban Water Management Plan adopted by the City Council on June 28, 2011; and

WHEREAS, prior to activating the Water Shortage Contingency Plan, the Council must first declare a state of water emergency as outlined in the San Bruno Municipal Code 10.16.020 (Declaration of Water Emergency); and

WHEREAS, water agencies could be subject to State fines up to $10,000 per day per violation for failing to comply and implement their Water Shortage Contingency Plan; and

NOW, THEREFORE, BE IT RESOLVED that the City Council hereby is declaring a State of Water Emergency as outlined in the San Bruno Municipal Code Chapter 10.16 (Water Conservation) and activating the San Bruno Water Shortage Contingency Plan.

---oOo---

I hereby certify that foregoing **Resolution No. 2014 - 91** was introduced and adopted by the San Bruno City Council at a regular meeting on July 22, 2014, by the following vote following vote:

AYES: Councilmembers: Ibarra, Medina, O'Connell, Salazar, Mayor Ruane

NOES: Councilmembers: None

ABSENT: Councilmembers: None

Carol Bonner

Carol Bonner, City Clerk

RESOLUTION NO. 2015 - 29

RESOLUTION AMENDING STAGE II OF THE CITY'S WATER SHORTAGE CONTINGENCY PLAN

WHEREAS, on July 15, 2014, the California State Water Board issued emergency water conservation regulations to urban water suppliers throughout the state that apply to outdoor water use; and

WHEREAS, the City of San Bruno activated its Water Shortage Contingency Plan in response to the State's issuance of these regulations on July 22, 2014; and

WHEREAS, these restrictions were extended and expanded on March 17, 2015; and

WHEREAS, urban water suppliers with more than 3,000 water connections (San Bruno has approximately 12,000 water connections) are required to take action to comply with the State's regulations to modify their Urban Water Management Plan and Water Shortage Contingency Plan; and

WHEREAS, The City of San Bruno is a member of the Bay Area Water Supply and Conservation Agency (BAWSCA); and

WHEREAS, BAWSCA has recommended that its member agencies adopt uniform outdoor irrigation schedules to facilitate consistent customer communication and to demonstrate adherence with the State Water Board's requirement for increased conservation; and

WHEREAS, water agencies could be subject to State fines of up to $10,000 per day per violation for failing to modify their Water Shortage Contingency Plan accordingly.

NOW, THEREFORE, BE IT RESOLVED that the City Council hereby amends Stage II of the City's Water Shortage Contingency Plan to restrict outdoor watering to two days per week according to the following schedule: Odd addresses - Monday and Thursday; Even addresses - Tuesday and Friday; No numerical addresses - Monday and Thursday. Irrigation time shall be limited to 15 minutes per irrigation station. Outdoor irrigation during and 48 hours following measurable precipitation is prohibited.

---oOo---

I hereby certify that foregoing **Resolution No. 2015 - 29**
was introduced and adopted by the San Bruno City Council at a regular meeting on
April 14, 2015, by the following vote:

AYES: Councilmembers: Ibarra, Medina, O'Connell, Salazar, Mayor Ruane

NOES: Councilmembers: None

ABSENT: Councilmembers: None

Carol Bonner

Carol Bonner, City Clerk

APPENDIX O

City of San Bruno Water Rate Schedule

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Water and Wastewater Rate Increase Notice

City of San Bruno **July 2015**

In accordance with the five-year rate schedule adopted by the City Council on July 24, 2012, all water and wastewater rates will increase on utility bills generated on or after July 1, 2015. The new rates for these services will increase by approximately 10% and are provided on this insert.

For questions regarding water and wastewater services and rates, please call the City of San Bruno Finance Department at **650-616-7086.** For more information, please visit: **www.sanbruno.ca.gov/finance_utilitybilling.html**

Water Monthly Service and Usage Charges

Water Monthly Service Charges

The rate structure for water service consists of a monthly service charge based on the size of the water meter, plus a usage charge for all metered water consumption. The rates for all water bills generated on or after July 1, 2015 are as follows:

	Meter Size	Service Charge
Single-Family Residential	All	$ 19.49
Multi-Family, Business, Commercial and Industrial	3/4"	$ 19.49
	1"	$ 31.31
	1-1/2"	$ 60.87
	2"	$ 96.71
	3"	$ 176.19
	4"	$ 297.34
	6"	$ 592.92
	8"	$ 961.91
	10"	$ 1,404.30

Water Consumption Usage Charges

One unit of water equals 100 cubic feet or 748 gallons

	Units	Unit Price
Single-Family Residential	Tier 1: 0-10 units	$ 6.70
	Tier 2: 11-20 units	$ 8.04
	Tier 3: 21+ units	$ 10.72
All Other Accounts	Each Unit	$ 7.58

The amount by which the water bills at any particular property will be affected by these rate increases depends on the size of the meter connection and the amount of water consumed. Any account for which the City of San Bruno must procure water from North Coast County Water District to provide service may be charged a Differential Cost of Supply Charge reflecting the higher cost of water procured from this source. At this time, there is no cost differential.

Wastewater Monthly Service and Quantity Charges

Wastewater Monthly Service Charges

The rate structure for wastewater service consists of a uniform monthly service charge for all properties, plus a quantity charge based on metered water usage. For all residential accounts, the quantity charge is based on the average metered water use consumed through two billing periods during the winter months (November through April).

The rates effective for all wastewater bills generated on or after July 1, 2015, are as follows:

	Meter Size	Service Charge
Single-Family Residential	All	$ 24.71
All Other Accounts (Based on Water Meter Size)	3/4"	$ 24.71
	1"	$ 37.89
	1-1/2"	$ 70.84
	2"	$ 110.37
	3"	$ 202.62
	4" and above	$ 334.41

Quantity Charges Based on Property Classification

For information regarding property classification, please visit: **www.sanbruno.ca.gov/finance_utilitybilling.html**

	Property Classification	Unit Price
All Residential	R	$ 9.23
Commercial	C-1	$ 8.58
	C-2	$ 9.23
	C-3	$ 13.14
	C-4	$ 17.04
Government	G	$ 9.23
Industrial	I-1	$ 9.23
	I-2	$ 6.63
	COD per lb	$ 0.51
	SS per lb	$ 1.05

Cost of Providing Reliable Water and Wastewater Services Are Rising

Why rates are increasing:

The City of San Bruno has a very old utility system. Our 300 miles of water distribution pipelines and sewer collection system average 60 years old—some pipelines are over 100 years old. Many water lines in the older areas of the City are subject to leaks or breaks. Several water tanks and pump stations require significant rehabilitation to improve system reliability and ability to withstand a major earthquake. Many wastewater lines are decaying and are partially damaged by tree roots that can result in backups.

In order to address the important system repair and rehabilitation needs, the City has created a 10-year plan to replace and upsize the aging pipelines to reduce sewer overflows and assure adequate water and sewer capacity. In addition, replacement of water tanks, wells, pump stations, and improvements to the sewer treatment facility will bring both systems up to the current standards. These improvements are necessary to preserve the long term integrity of the City's water and sewer systems to serve customer needs now and into the future.

During the past year, the City completed the design phase on several important sewer and water projects and is in the process of designing or constructing other projects.

The following capital improvements project were completed:

- Construction of Spyglass and Merion Drive Water Main Replacement Project
- Construction of Kains Avenue and San Mateo Avenue Sewer Bypass Improvements Project
- Construction of Pressure Regulators on SFPUC Pipelines Project
- Construction of test well for Well #15, located at Commodore Drive

The following capital improvement projects are underway:

- Construction of the College Water Pump Station, located at Skyline Boulevard and College Drive, is nearing completion.
- Construction of Olympic Sewer Pump Station
- Design of Trenton Sewer Replacement Project
- Design of Water Tank #1, located on Cunningham Way
- Replacement of Citywide residential water meters
- Design of SCADA Radio Transmitter Project
- Design of Well #15 Commodore Drive, location adjacent to the Crossing Development
- Construction of Water Tank #3, adjacent to Skyline Boulevard.
- Design of Jenevein Avenue Water and Sewer Main Replacement Project located between Cherry Avenue to Acacia Avenue
- Design of San Mateo Avenue Water and Sewer Main Replacement Project from El Camino Real to Angus Avenue
- Design of Crystal Springs Road Water and Sewer Main Replacement Project from City Park Way to El Camino Real
- Design of Spyglass Sewer Pump Station
- The City is also working with the City of South San Francisco to improve and expand the jointly owned sewer treatment facility.

The rate increase includes impacts from future increases in the cost of wholesale water purchased from the San Francisco Public Utilities Commission's (SFPUC) Hetch-Hetchy water system, which supplies approximately 50% of San Bruno's water. An increase of 46% in the cost of water is projected in the next five years as San Francisco undertakes its own major capital improvement program to ensure seismic safety and the reliability of its water delivery system. In order to better access the SFPUC's system, the City is completing the design of two new water connection structures which will better regulate the use of this water source.

For more information and a complete list of the current and upcoming sewer and water projects please refer to:

www.sanbruno.ca.gov/pw_proj_current.html

Ways to reduce your water and sewer bills:

San Bruno understands that its customers are facing tough economic times. Customers can reduce their bills by conserving water, especially during the winter months of November through April, which will also lower sewer costs. In addition, the City offers the following water conservation programs:

- **High-Efficiency Toilet Rebate.** An incentive program to encourage the replacement of 20+ year old toilet with an EPA WaterSense toilet. (up to $100 rebate available)
- **Lawn Be Gone!** A rebate program to convert lawns into water efficient landscapes. ($1 per square foot of replaced lawn)
- **Washing Machine Rebates.** Purchase a qualifying washing machine and receive a rebate. (up to $200 rebate available)
- **Landscape classes.** Free classes that provide information on herbage that enhances curb appeal and promotes water conservation. Register at **bawsca.org/water-conservation**

For additional information, please visit **bawsca.org** or **sanbruno.ca.gov/pw_water_rebates.html**

You can also help to ensure that future sewer rates remain low by keeping harmful materials like fats, grease, and oils out of the sewer system. For more information, please visit **www.calfog.org**

In addition, the City of San Bruno offers a low-income program that provides a 25% reduction in rates for qualified customers. This program is based on the size of the household plus total combined annual income, as shown below.

Household Size	Total Combined Annual Income (Not to Exceed)
1	$41,050
2	$46,900
3	$52,750
4	$58,600
5	$63,300
6	$68,000
7	$72,700
8	$77,400

For more information or to apply for low income program, please visit **www.sanbruno.ca.gov/finance_lowincome.html**

Paying your bill

Avoid late penalties by signing up for **automatic payment services** through the City of San Bruno. There is no charge for this service and it's convenient. You can also pay your bill online at **www.onlinebiller.com/sanbruno** or pay-by-phone at **855-748-3086.**

Residential customers are **billed every two months** on approximately the same day each period. Customers living east of Interstate 280 are billed during the even months (e.g. February and April). Customers living west of Interstate 280 are billed during the odd months (e.g. January and March). The billing period is approximately 60 days and is detailed at the top of each billing statement.

Cash, **check** and **Visa and MasterCard** payments are **accepted** at City Hall, **Monday through Friday** 8 am to 5 pm. A 24-hour **drop box is available** outside the Linden Avenue entrance to City Hall, however, customers **should not leave cash payments in the drop box**.

APPENDIX P

UWMP Adoption Resolution

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RESOLUTION NO. 2016 - 56

CERTIFIED COPY

RESOLUTION ADOPTING THE CITY OF SAN BRUNO 2015 URBAN WATER MANAGEMENT PLAN

WHEREAS, the Urban Water Management Plan Act of the California Water Code requires urban water suppliers that either serve over 3,000 customers or provide over 3,000 acre-feet of water annually, to update and adopt an Urban Water Management Plan (UWMP) and submit a complete UWMP to the State Department of Water Resources (DWR) every five years; and

WHEREAS, as required by the California Water Code and Urban Water Management Planning Act, an adopted Urban Water Management Plan provides assistance to water agencies in carrying out their long-term, resource planning responsibilities to ensure adequate water supplies to meet the needs of both existing customers and future demands for water accomplished at the local level; and

WHEREAS, an adopted Urban Water Management Plan is required in order for a water supplier to be eligible for State Department of Water Resources administered State grants, loans, and sustain drought assistance; and

WHEREAS, the current 2010 San Bruno Urban Water Management Plan was last adopted by the City Council June 28, 2011 as required by the Water Conservation Act of 2009, also known as Senate Bill X7-7; and

WERHEAS, in accordance with the California Urban Water Management Planning Act and the Water Conservation Act of 2009, the City has prepared a draft 2015 Urban Water Management Plan update to the City's 2010 Plan; and

WHEREAS, the draft UWMP update must be adopted by the City Council following a public notification and hearing process; and

WHEREAS, the notice of the public hearing to consider and adopt the 2015 Urban Water Management Plan was mailed on June 8, 2016 to the Bay Area Water Supply and Conservation Agency (BAWSCA), the San Francisco Public Utilities Commission (SFPUC), the County of San Mateo, and the Board of the Joint South San Francisco-San Bruno Water Quality Control Plant, and was also published in the San Mateo County Times on June 15 and June 22; and

WHEREAS, the draft 2015 UWMP update was made available for public review beginning June 13, 2016 at the San Bruno Public Library, at the City Hall Public Services Department Customer Counter, and on the City's website; and

WHEREAS, the City is required to hold a public hearing prior to adoption of the Urban Water Management Plan, this Council meeting serves as the public hearing to review and determine the water use targets included in the draft Plan, and based on the comments from this hearing, the City Council may also proceed with formal adoption of the Plan.

NOW, THEREFORE, BE IT RESOLVED that the San Bruno City Council does hereby approve adopting the City of San Bruno 2015 Urban Water Management Plan.

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I hereby certify that foregoing **Resolution No. 2016 - 56** was introduced and adopted by the San Bruno City Council at a regular meeting on June 28, 2016, by the following vote:

AYES: Councilmembers: M. Medina, R. Medina, O'Connell, Mayor Ruane

NOES: Councilmembers: None

ABSENT: Councilmembers: Ibarra

CITY OF SAN BRUNO INCORPORATED DEC. 23RD 1914 SAN MATEO CO CAL

Carol Bonner

Carol Bonner, City Clerk

I hereby certify this to be a full, true and correct copy of the document it puports to be, the original of which is on file in my office.

Dated: June 30, 2016

Vicky S. Hasler Deputy City Clerk

City Clerk of the City of San Bruno

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WEST YOST ASSOCIATES

City Of SAN BRUNO