MID-PENINSULA WATER DISTRICT

2015 Urban Water Management Plan

JUNE 23, 2016

IN ASSOCIATION WITH:

ManageWater Consulting, Inc.

MADDAUS WATER MANAGEMENT INC.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ACRONYMS

AB	Assembly Bill
ABAG	Association of Bay Area Governments
ACS	American Community Survey
ACWA	Association of California Water Agencies
AF	acre-foot/acre-feet (1 AF = 325,851 gallons)
AFY	acre-feet per year
AMI	Automated Meter Infrastructure
AWWA	American Water Works Association
AWWARF	American Water Works Association Research Foundation
BARDP	Bay Area Regional Desalination Project
BAWSCA	Bay Area Water Supply and Conservation Agency
BDPL	Bay Division Pipeline
BMP	Best Management Practice
CII	Commercial, Industrial, and Institutional
CIMIS	California Irrigation Management Information System
CPI	Consumer Price Index
CUWCC	California Urban Water Conservation Council
CWC	California Water Code
DMM	Demand Management Measure
DRIP	Drought Implementation Plan
DWR	Department of Water Resources
DSS	Decision Support System
EOC	Emergency Operations Center
Eto	Evapotranspiration rate
FY	Fiscal Year
gpcd	Gallons per capita per day
gpf	Gallons per flush
hcf unit	A billing unit of 100 cubic feet or CCF, 748 gallons
HE	High Efficiency
HEU	High Efficiency Urinal
HHLSM	Hetch Hetchy Local Simulation Model
ILI	Infrastructure Leakage Index
IRR	Irrigation
ISA	Interim Supply Allocation
ISG	Individual Supply Guarantee
ISL	Interim Supply Limitation
MF	Multi-family
MG	Million gallons
mgd	Million gallons a day
MOU	Memorandum of Understanding
MPWD	Mid-Peninsula Water District
MWM	Maddaus Water Management, Inc.
ND	New Development
NRW	Non-revenue water
PEIR	Program Environmental Impact Report
PV	Present value
PWSS	Public Water System Statistics
RWS	Regional Water System (also Hetch Hetchy System)
SB	Senate Bill
SBSA	South Bay Systems Authority
SF	Single Family
SFPUC	San Francisco Public Utilities Commission
SMP	Surface Mining Permit
UHET	Ultra-High Efficiency Toilet
ULFT	Ultra-Low Flow Toilet
UWMP	Urban Water Management Plan
WCIP	Water Conservation Implementation Plan
WF	Water factor
WSA	Water Supply Agreement
WSAP	Water Shortage Allocation Plan
WSIP	Water System Improvement Program

1. INTRODUCTION AND OVERVIEW

This report presents the 2015 Urban Water Management Plan (UWMP) for the Mid-Peninsula Water District (MPWD) service area. Section 1 describes the general purpose of the UWMP, it discusses implementation, and provides general information about MPWD, its water supplier - the San Francisco Public Water Utilities Commission (SFPUC) and MPWD's service area characteristics.

1.1 Background and Purpose

The intent of this UWMP is to provide the Department of Water Resources (DWR) and the public with information on present and future water sources and demands and to provide an assessment of MPWD's water resource needs. Specifically, the UWMP must provide water supply planning for a 20-year planning period in 5-year increments. It also must identify and quantify adequate water supplies for existing and future demands during normal, dry and drought years, and assure efficient use of urban water supplies. The MPWD's 2015 UWMP addresses all Water Code requirements for an UWMP, as shown on the completed DWR UWMP checklist provided in Appendix A.

1.2 Urban Water Management Planning and the California Water Code

This UWMP has been prepared in response to the Urban Water Management Planning Act (UWMP Act), CWC Sections 10610 through 10650.

In order for an urban water supplier to be eligible for any water management grant or loan administered by DWR, the agency must have a current UWMP on file that has been determined by DWR to address the requirements of the CWC. A current UWMP must also be maintained by the water supplier throughout the term of any grant or loan administered by DWR. An UWMP may also be required in order to be eligible for other State funding, depending on the conditions that are specified in the funding guidelines.

This 2015 UWMP also includes an updated Water Shortage Contingency Plan (2016 WSCP, Appendix C). A WSCP is required under the provisions of AB 11X (1991) and it addresses changes required by subsequent legislation including the Water Conservation Act of 2009 (SB X7-7). The Plan also incorporates the water conservation initiatives that the MPWD has adopted under the terms of the California Urban Water Conservation Council (CUWCC) Memorandum of Understanding (MOU), Regarding Urban Water Conservation in California to which the District is a signatory.

1.2.1 Urban Water Management Planning Act of 1983 (AB 797)

The UWMP Act was adopted by the California Legislature as Assembly Bill 797 during the 1983-84 session and signed into law by Governor Deukmejian on January 1, 1984. The UWMP Act has been modified over the years in response to the State's water shortages, droughts, and other factors.

The UWMP Act requires that "every urban water supplier shall prepare and adopt an Urban Water Management Plan". 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".

The MPWD[1], as defined in the CWC section 10617, qualifies as an "Urban Water Supplier". The MPWD is a "Special

[1] The name "MPWD" was formally changed from the "Belmont County Water District" on June 5, 2000.

District"[2] and a public agency directly providing water for municipal purposes to 26,924[3] customers. The MPWD serves more than 3,000 customers therefore an UWMP is required to be completed for 2015 and every five years thereafter and submitted to the report to the DWR. This Plan updates MPWD's existing 2010 UWMP[4]. This is the sixth UWMP to be prepared by the MPWD under the terms of AB 797 and subsequent amending legislation.

The UWMP Act requires urban water suppliers to report, describe, and evaluate:

- Water deliveries and uses,
- Water supply sources,
- Efficient water uses,
- Demand Management Measures (Conservation Measures), and
- Water shortage contingency planning.

The UWMP Act directs water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies are available to meet existing and future demands. Urban water suppliers are required to assess current demands and supplies over a 20-year planning horizon and consider various drought scenarios. The UWMP Act also requires water shortage contingency planning and drought response actions are included in a UWMP.

This 2015 UWMP incorporates important information on MPWD's water supply planning and studies, emergency response, and conservation activities. It addresses all Water Code requirements for such a plan as shown on the completed DWR UWMP checklist provided in Appendix A.

1.2.2 Applicable Changes to the Water Code since 2010 UWMPs

Applicable changes to the Water Code since 2010 UWMPs are included in Appendix B.

1.2.3 Water Conservation Act of 2009 (SB X7-7)

A significant amendment was made in 2009, after the drought of 2007-2009 and as a result of the governor's call for a statewide 20% reduction in urban water use by the year 2020. This amendment is the Water Conservation Act of 2009, also known as SB X7-7. SB X7-7 requires agencies to establish water use targets for 2015 and 2020 that would result in statewide savings of 20% by the year 2020. It also requires urban water suppliers to report in their UWMPs, base daily per capita water use (baseline), urban water use target, interim urban water use target, and compliance daily per capita water use.

Beginning in 2016, retail water suppliers are required to comply with the water conservation requirements in SB X7-7 in order to be eligible for State water grants or loans.

1.3 UWMP Organization

The following information is included in this report and is discussed in individual sections below:

Section 1 – Introduction and Overview: In this introductory chapter, MPWD provides a discussion on the importance and extent of their water management planning efforts.

[2] Certificate of Incorporation, State of California, Department of State, July 3, 1929.

[3] BAWSCA Regional Water Demand and Conservation Projections Report (MWM, September 2014).

[4] Mid-Peninsula Water District, Urban Water Management Plan, adopted December 2010.

Section 2 – Plan Preparation: This section provides information on the process for developing the UWMP, including efforts in coordination and outreach.

Section 3 – System Description: This section includes maps of MPWD's service area, a description of the service area and climate, its Public Water System, and its organizational structure and history.

Section 4 – System Water Use: The current and projected water uses within MPWD's service area are described and quantified in this section.

Section 5 – Baselines and Targets: A description of MPWD's methods for calculating its baseline and target water consumption is included in this section, along with a demonstration of how MPWD has achieved the 2015 interim water use target and its plans for achieving the 2020 water use target.

Section 6 – System Supplies: This section describes and quantifies the current and projected sources of water available to MPWD. A description and quantification of potential recycled water uses and supply availability is also included in this chapter.

Section 7 – Water Supply Reliability: This section describes the reliability of MPWD's water supply and projects the reliability out 20 years. This description is provided for normal, single dry years, and multiple dry years.

Section 8 – Water Shortage Contingency Planning: This section provides MPWD's staged plan for dealing with water shortages, including a catastrophic supply interruption.

Section 9 – Demand Management Measures: MPWD's efforts to promote conservation and to reduce demand on water supply are described in this section, which also specifically addresses several demand management measures.

Section 10 – Plan Adoption, Submittal, and Implementation: This section describes the steps taken to adopt and submit the UWMP and to make it publicly available. This also includes a discussion of MPWD's plan to implement the UWMP.

Section 11 – References: Any applicable references contained within this UWMP are noted in this section.

Section 12 – Appendices: As shown in the Table of Contents, a number of appendices are included consisting of documents related to this UWMP Plan Preparation.

2. PLAN PREPARATION

2.1 Basis for Preparing a Plan

In accordance with the CWC, urban water suppliers with 3,000 or more service connections or supplying 3,000 or more acre-feet of water per year are required to prepare an UWMP every five years.

2.1.1 Public Water Systems

Public Water Systems (PWSs) are the systems that provide drinking water for human consumption. These systems are regulated by the State Water Resources Control Board, Division of Drinking Water. The California Health and Safety Code 116275 (h) defines a "Public Water System" as a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year.

Table 2-1 lists MPWD's public water system number, number of municipal connections, and volume of water supplied in 2015.

Table 2-1: Public Water Systems

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 (MG)
4110001	Mid-Peninsula Water District	7,977	839.78
	TOTAL	7,977	839.78
Source: MPWD consumption data from SFPUC meters.			

2.2 Regional Planning

Before developing the UWMP, water agencies should consider the extent to which they will become involved in regional planning processes. Developing a cooperative 2015 UWMP may be a natural continuation of other regional coordination efforts, such as Integrated Regional Water Management, or may present an opportunity to begin regional collaboration. Regional planning can deliver mutually beneficial solutions to all agencies involved by reducing costs for the individual agency, assessing water resources at the appropriate geographic scale, and allowing for solutions that cross jurisdictional boundaries. Some of the other possible benefits, depending on the level of regional cooperation, can include:

- More reliable water supplies;
- Increased regional self-reliance;
- Improved water quality;
- Better flood management;
- Increased economic stability;

- Restored and enhanced ecosystems; and
- Reduced conflict over resources.

The MPWD is a member of the Bay area Water Supply and Conservation Agency (BAWSCA)[5] that provides regional water reliability planning and conservation programming for the benefit of its member agencies that purchase wholesale water supplies from the San Francisco Public Utilities Commission (SFPUC). BAWSCA was created on May 27, 2003 to represent the interests of 16 cities, 8 water districts, and 2 private water providers. BAWSCA members are located in Alameda, Santa Clara and San Mateo counties and purchase water on a wholesale basis from the San Francisco Regional Water System (RWS).[6] Collectively the BAWSCA agencies are referred to as the "Wholesale Customers".

Collectively, the BAWSCA member agencies deliver water to over 1.74 million residents and nearly 40,000 commercial, industrial and institutional accounts in 16 cities, 8 water districts, and 2 private water providers in Alameda, Santa Clara, and San Mateo 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's Regional Water System (RWS). BAWSCA worked with SFPUC to provide common information about the SFPUC RWS for its member agencies, and to ensure consistent information for the 2015 UWMP updates. Additional information about BAWSCA is presented in Section 6.

2.3 Individual or Regional Planning and Compliance

MPWD's 2015 UWMP is individual to its service area.

Table 2-2: Plan Identification

Table 2-2: Plan Identification			
Select Only One	**Type of Plan**		**Name of RUWMP or Regional Alliance** *if applicable* *drop down list*
X	**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)		

2.3.1 Regional UWMP

A group of water suppliers agreeing among themselves to plan, comply, and report as a region on the requirements of SB X7-7 is referred to as a "Regional Alliance." The MPWD is not part of a Regional Alliance.

[5] http://bawsca.org/

[6] In this report, the terms "Regional Water System, "RWS" and "Hetch Hetchy System," are used interchangeably refer to the overall SFPUC water supply system.

2.4 Calendar Year and Units of Measure

2.4.1 Calendar Year Reporting

Although MPWD's budget is based on a fiscal year, MPWD reports as required to agencies on a calendar year basis, rather than fiscal. All data included in this 2015 UWMP is from January 1 through December 31.

2.4.2 Units of Measure

Water agencies use various units of measure when reporting water volumes, such as acre-feet (AF), million gallons (MG), or hundred cubic feet (CCF). Agencies may report volumes of water in any of these units, but must maintain consistency throughout the Plan. In this 2015 UWMP, the MPWD is reporting water volumes in MG.

Table 2-3: Agency Identification

Table 2-3: Agency Identification	
Type of Agency (select one or both)	
	Agency is a wholesaler
X	Agency is a retailer
Fiscal or Calendar Year (select one)	
X	UWMP Tables Are in Calendar Years
	UWMP Tables Are in Fiscal Years
If Using Fiscal Years Provide Month and Day that the Fiscal Year Begins (dd/mm)	
dd/mm	
Units of Measure Used in UWMP (select from Drop down)	
Unit	MG
Source: MPWD.	

2.5 Coordination and Outreach

The MPWD has encouraged community participation in its urban water management planning efforts since the first Plan was adopted in 1992. On January 25, 2016, the MPWD provided a notice of preparation of this Urban Water Management Plan to agencies and San Mateo County. The MPWD published two consecutive weekly notices in the Daily Journal. The MPWD also posted a notice on its website (www.midpeninsulawater.org). Also, in January 2016, notices of preparation were sent to the Cities of Belmont and San Carlos, San Mateo County, the South Bayside Systems Authority, the Belmont-San Carlos Fire Department, and BAWSCA agencies. On May 26 and June 23, 2016 the MPWD convened public meetings at its office in Belmont to receive comments on the Plan prior to its final adoption by the MPWD's Board of Directors and submittal to the DWR.

A copy of the public outreach materials, including website postings and invitation letters, are included in Appendix K and Appendix L.

2.5.1 Wholesale and Retail Coordination

When a water supplier relies upon a wholesale agency for a water supply, both suppliers are required to provide each other with information regarding projected water supply and demand. Retail agencies that receive a water supply from one or more wholesalers are required to provide their wholesaler(s) with the retail agency's projected water demand from that source, in five-year increments for 20 years, or as far as data is available.

The MPWD purchases 100% of its water from SFPUC and as a member of BAWSCA, MPWD participates in various regional water conservation initiatives coordinated by BAWSCA and/or SFPUC concerning MPWD's projected water demands and expected supplies.

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

As a wholesale customer of the SFPUC, the MPWD is directly connected to SFPUC's RWS. The MPWD's water transmission system is connected with the SFPUC system at two points. There is a low elevation connection in Redwood City and a high elevation connection in the vicinity of the Pulgas Water Temple. The MPWD currently supplies water to consumers in an area slightly larger than the city limits of the City of Belmont. The MPWD's service territory covers approximately 5 square miles and serves approximately 26,924 people. In the event of an emergency, the MPWD can serve or be served with interties between neighboring utilities. The MPWD has 1 intertie with Foster City, 4 with San Carlos, 1 with Redwood City, and 3 with San Mateo.[7]

When water exchanges occur between these systems, they are considered temporary and not a current nor planned source of water supply for the MPWD. The interconnections are used to manage existing supplies, and also provide potential emergency back-up sources of water. As described in Section 8, the MPWD also maintains a large volume of water in storage for potential emergency use.

Table 2-4: Water Supplier Information Exchange

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 *(Add additional rows as needed)*
San Francisco Public Utilities Commission (SFPUC).
NOTES: The SFPUC supplies 100% of MPWD's water supply. The SFPUC Regional Water (Hetch Hetchy) System (RWS) is the MPWD's only viable supply source currently. BAWSCA has the authority to coordinate water conservation, supply, and recycling activities for its agencies.

[7] Source: http://www.midpeninsulawater.org/about.php

2.5.2 Coordination with Other Agencies and the Community

Water suppliers must coordinate the preparation of their UWMP with other appropriate agencies in the area, to the extent practicable. In order to verify that agencies have fulfilled the CWC provisions, agencies are to include a description of their outreach and coordination activities to other agencies and the community, as described in CWC 10620(d)(2) and CWC 10642.

Most land use planning and development approvals within the MPWD's service area boundaries are the responsibility of the City of Belmont. The City of San Carlos and San Mateo County also have planning authority over small portions of the service area.[8] Wastewater treatment for the MPWD service area is provided by Silicon Valley Clean Water (SVCW, formerly the: "Clean South Bayside System Authority") in Redwood City and fire suppression services are provided by the Belmont Fire Department and San Carlos Fire Department.

2.5.3 Notice to Cities and Counties

The CWC 10621 (b) requires that agencies notify cities and counties to which they serve water that the Plan is being updated and reviewed. The CWC specifies that this must be done at least 60 days prior to the public hearing. These notifications to cities and counties are shown in Section 10, Table 10-1.

On January 25, 2016, the MPWD sent notices to the cities within its service area and San Mateo County that they have an opportunity to provide input regarding the MPWD's 2015 UWMP. The notification date and the addressees are listed in Section 10, Table 10-1. The dates below identify key public meetings where the MPWD's 2015 UWMP was discussed. A copy of the public outreach materials, including website postings and invitation letters, are included in Appendix K and Appendix L.

Date	**Subject**	**Action**
May 26, 2016	Public Hearing	UWMP considered for adoption by MPWD's Board
June 23, 2016	Adoption of UWMP	Board adoption of 2015 UWMP per Resolution
July 1, 2016	Final UWMP	Final UWMP released

[8] The MPWD has a single irrigation connection in the City of Redwood City and a single irrigation connection in the City of San Mateo.

3. SYSTEM DESCRIPTION

This section contains the general system description, service area boundary maps, service area climate information, and service area population and demographics.

3.1 General Description

The MPWD[9] is a "Special District", formed in 1929 under the County Water District Act of California. MPWD was incorporated in 1929, and it is located in east central San Mateo County on the San Francisco Peninsula, about 30 miles south of San Francisco. The MPWD currently supplies water to consumers in an area slightly larger than the city limits of the City of Belmont. Small portions of the service area are within the City Limits of the City of San Carlos, and parts of the unincorporated County of San Mateo.[10] The MPWD's service territory covers approximately 5 square miles and serves approximately 26,924 people. [11]

When formed, the MPWD consolidated the operations of seven small water systems serving about 320 customers. In the 1930s the MPWD contracted with the SFPUC to purchase water from the newly built Hetch Hetchy water project, eliminating local dependence on small, unreliable wells and gaining a more secure, reliable and expandable source of supply.

The MPWD regularly coordinates project planning activities with the cities of Belmont and San Carlos. Several multi-family and commercial projects are planned in the next year. These projects include[12]:

- Mixed use development (residential/commercial), including 73 residential units and 5,000 square feet of commercial/retail space at 490 El Camino Real in Belmont.
- Mixed use development (residential/commercial), including 32 residential units and 11,000 square feet of commercial/retail space at 576-600 El Camino Real in Belmont, and
- An Orchard Supply Hardware store on Industrial Road in San Carlos,
- Marriott Springhill Suites Hotel on Shoreway Road in Belmont. Construction of 4-story hotel with 169 rooms.
- Crystal Springs Upland School, 10 Davis Drive in Belmont. Demolition of existing commercial/office building with private middle school.
- Autobahn Motors at 700 Island Parkway in Belmont. Demolition of existing 51,000 square foot facility and construction of new 56,000 square foot facility.
- Firehouse Square mixed-use project, including residential units and commercial/retail space at 1350 Civic Lane in Belmont.

[9] Until July 2000, the Mid-Peninsula Water District was known as the Belmont County Water District.

[10] Source: http://www.midpeninsulawater.org/about.php The MPWD has a single irrigation connection in the City of Redwood City and a single irrigation connection in the City of San Mateo. For purposes of this report, these cities are classified as customers; they have not been contacted for assistance or coordination, nor have they been sent copies of the Draft 2015 UWMP.

[11] BAWSCA Regional Water Demand and Conservation Projections Report (MWM, September 2014).

[12] Source: City of Belmont:
http://www.belmont.gov/Home/Components/FacilityDirectory/FacilityDirectory/248/642
http://www.belmont.gov/Home/Components/FacilityDirectory/FacilityDirectory/98/664
http://www.belmont.gov/Home/Components/FacilityDirectory/FacilityDirectory/254/642
http://www.belmont.gov/Home/Components/FacilityDirectory/FacilityDirectory/130/642
http://www.belmont.gov/Home/Components/FacilityDirectory/FacilityDirectory/128/642
http://www.belmont.gov/Home/Components/FacilityDirectory/FacilityDirectory/26/664

Additional future commercial development projects in the MPWD service area include:

- A second hotel on Shoreway Road in Belmont, and
- The Palo Alto Medical Foundation Clinic in San Carlos will construct a hospital at its current site on Industrial Road.

Section 3.4 discusses additional information about growth in various sectors.

3.2 Service Area Boundary Maps

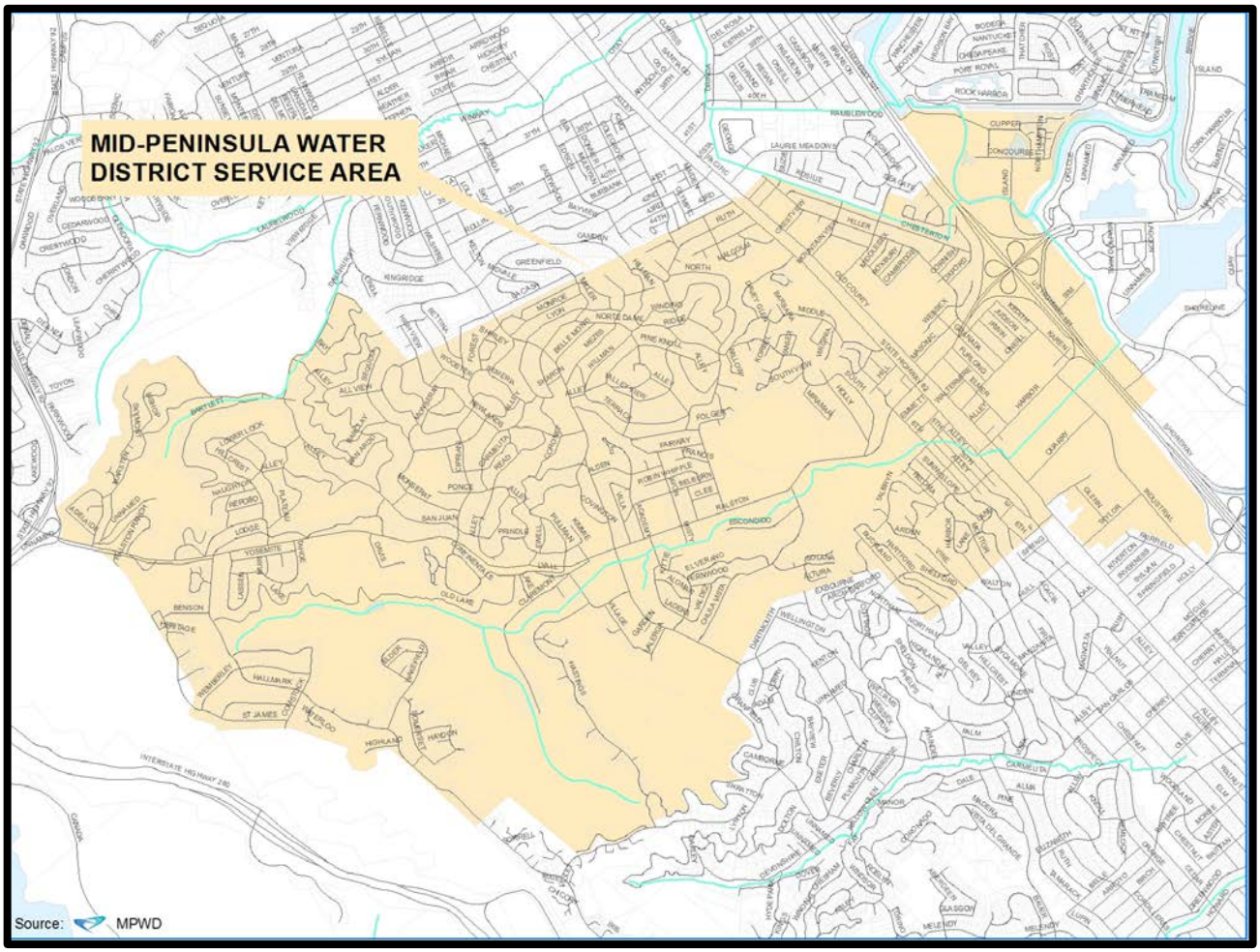
The MPWD is located in San Mateo County and the shaded (dark orange) area in Figure 3-1 illustrates the MPWD's boundaries.

Figure 3-1. Mid-Peninsula Water District Location and Service Area

Source: MPWD, 2016.

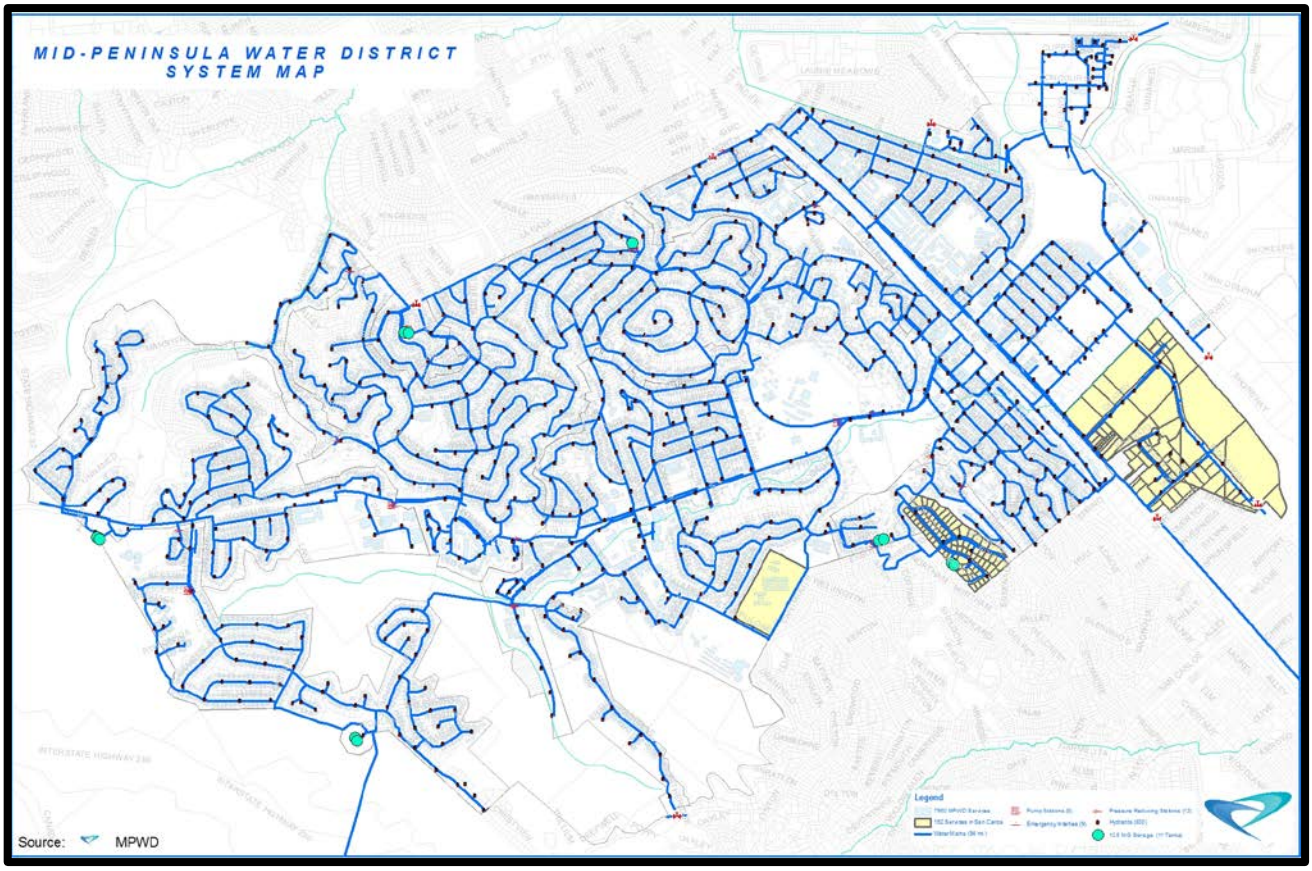
The street map shown in Figures 3-2 and 3-3 provide additional detail about MPWD's service area.

Figure 3-2. Mid-Peninsula Water District Street Map Showing Service Area Boundaries



Source: MPWD, 2016.

Figure 3-3: Mid-Peninsula Water District Map Showing the Distribution System



3.3 Service Area Climate

The MPWD service area has a semi-arid Mediterranean climate typified by moderate to warm summers and mild winters. The warmest months of the year are August and September, and the coldest are December and January. As shown in Table 3-0, the average daily maximum temperature in July is 82.2°F at the nearby Redwood City weather monitoring station. The average minimum temperature in the coolest month (January) is 39.3°F. Annually, on average, the District has 255 sunny days and 59 days with any measurable precipitation. The annual average maximum temperature is 71°F and the annual average minimum temperature is 47.1°F[13]

[13] Sources: http://www.wrcc.dri.edu/CLIMATEDATA.html, http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7864, and http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7339

Table 3-0: Mid-Peninsula Water District Climate Data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	58.1	61.7	65.4	69.9	74.5	79.5	82.2	81.8	80.6	74.5	65.4	58.7	**71**
Average Min. Temperature (F)	39.3	41.8	43.6	45.1	48.7	52.2	54.6	54.4	52.9	49	43.4	39.9	**47.1**
Average Total Precipitation (in.)	4.36	3.49	2.71	1.19	0.44	0.14	0.02	0.05	0.17	0.97	2.11	3.51	**19.16**

Notes:

1. Source: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7339
2. Period of Record Monthly Climate Summary: Redwood City, California (047339)
3. Period of Record: 04/01/1906 to 01/20/2015
4. Eto (Evapotranspiration) rates in inches/month from California Irrigation Management Information System (CIMIS) reference Evaporation Zones Map: averaged for Zone 3 (Coastal Valleys and Plains) and Zone 8 (Inland San Francisco Bay Area with some marine influence).
   Online: http://wwwcimis.water.ca.gov/App_Themes/images/etozonemap.jpg

The average annual precipitation is 19.16 inches, virtually all of which is rainfall, with about 90% falling between October and April. Rainfall amounts vary widely from year to year, with a low of 8.01 inches in 1976 and a high of 42.82 inches in 1983.[14]

The MPWD is located on the eastern slopes of the coastal mountains overlooking San Francisco Bay, and features hilly terrain, with elevations ranging from sea level to almost 900 feet. As a result, the service area is located where two reference evapotranspiration zones blend together; the MPWD's winters are warmer than most of the Inland San Francisco Bay zone (Zone 8), while the summers are warmer than typical for the Coastal Valleys and Plains zone (Zone 3). The Eto rates shown in Table 3-0 are an average of the rates for both zones.[15]

Relative to most other areas in California, the evapotranspiration rate is low, particularly during the summer months. Urban water consumption in the San Francisco Bay hydrologic region is among the lowest in the State. 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. [16]

3.3.1 Climate Change

A topic of growing concern for water planners and managers is climate change[17] and the potential impacts it could have on California's future water supplies.

The water sector is one of the largest generators and consumers of electricity in California and thus plays an important role in reducing energy demand and GHG emissions. In addition, natural gas is used for water heating purposes in the

[14] Source: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7339
[15] Source: http://www.landscaperesource.com/maps/eto/http://wwwcimis.water.ca.gov/App_Themes/images/etozonemap.jpg
[16] Source: BAWSCA, February 26, 2016, Common Language for BAWSCA Member Agencies' 2015 UWMP Updates.
[17] Sources: http://www.climatechange.ca.gov/ and http://www.water.ca.gov/climatechange/docs/Final-DWR-ClimateActionPlan.pdf

residential, commercial, and industrial sectors. The California Climate Strategy, led by DWR, is an integrated plan for addressing climate change. In 2009, SB X7-7 was enacted, requiring all water suppliers, both urban and agricultural, to increase water use efficiency. The goal of SB X7-7 for the urban sector was to reduce per capita water use 10% by 2015 and 20% by 2020. DWR released the California Department of Water Resources Climate Action Plan Phase I: Greenhouse Gas Emissions Reduction Plan in 2012. DWR's California Water Plan Update 2013[18] considers how climate change may affect water availability, water use, water quality, and the ecosystem.[19]

The 2015 Climate Change Research Plan for California identifies needs for the next three to five years. The California Water Scoping Plan Update outlines a comprehensive set of actions that will reduce overall GHG emissions in California water use by increasing efficiency, water recycling, water system energy efficiency, urban runoff reuse, and increased renewable energy production. California's climate change research efforts in the water sector have focused on impacts and adaptation. Climate change will affect all stakeholders and therefore coordination with and participation by all entities, especially the public, will be necessary to mitigate the impacts of the water sector on climate and to develop preparedness strategies.

Water Year 2015 has been noteworthy for much less precipitation and with temperatures much warmer than normal in California. According to DWR, most of all, Water Year 2015 will be remembered as the fourth year of one of the state's most severe dry periods on record. The statewide snowpack on April 1, 2015, held only 5% of the average water content on that date in records dating to 1950. The previous low record of 25% of average was set in 1977 during one of California's most significant droughts and was tied in 2014.[20] Of the nine April 1 snowpack values below 50% of average since 1950, three have occurred in the past three years of drought. Much of the precipitation in the Hetch Hetchy watershed, a significant part of the SFPUC water supply system, occurs from November through March. On April 1, 2015, snowpack for the Hetch Hetchy watershed was at 38% of normal levels. A more detailed discussion about climate change is in Section 6.12.

3.4 Service Area Population and Demographics

The population of the MPWD's service area in 2015 was approximately 26,924.[21] This includes all of the City of Belmont and 145 connections (72 commercial, 73 residential) in San Carlos and 60 connections in unincorporated San Mateo County.[22] Belmont is primarily residential, although there are significant commercial, institutional, and industrial elements in the local economy. According to ABAG's most recent data from 2013, a 28% job growth is expected in the Belmont area between 2010 and 2040, from 8,220 to 10,500.[23] The MPWD also serves 60 customers (46 commercial, 13 industrial, and 1 residential) in the unincorporated San Mateo County, Harbor Bay industrial area, so the actual number of employees served by the MPWD is larger than the ABAG job projection for Belmont alone.

The population of the area served by MPWD has grown slowly in recent years. Like most of the Bay Area, the MPWD experienced rapid growth following World War II. The 1950s and 1960s saw both population and housing growth and increased water demand. The rate of growth in the area served by the District tapered off dramatically in the 1970s and has remained low over the past 25 years. Between the 1980s and 1990s the population growth was about 1%. Between

[18] Sources: http://www.waterplan.water.ca.gov/cwpu2013/final/index.cfm and http://www.waterplan.water.ca.gov/docs/cwpu2013/Final/vol4/climate_change/03CA_Climate_Planning_Guide.pdf
[19] Source: http://www.waterplan.water.ca.gov/cwpu2013/final/index.cfm
[20] Source: http://plantingseedsblog.cdfa.ca.gov/wordpress/?p=9466
[21] BAWSCA's Regional Water Demand and Conservation Projections Report (MWM, September 2014).
[22] Association of Bay Area Governments (ABAG), *Projections 2013*, pg. 96. http://www.abag.ca.gov/abag/events/agendas/e051712a-Item%204.A.2.b,%20Appendices%20to%20Preferred%20Land%20Use%20Scenario.pdf
[23] Ibid.

1990s and 2000 the population growth increased to 3%, while between 2000 and 2010 it reached the highest growth in decades, at 6%. Between 2010 and 2015, the growth declined back to 1.6%.

The population forecast indicates that the MPWD will serve approximately 29,438 people in 2035.[24] The job growth rate is expected to be significantly greater than both population and household growth, as the area recovers from the loss of jobs experienced in the recent recession. While population and household growth in the next 20 years is projected to be less than 12%, the growth in employment is expected to be approximately 57%. Although job formation does not always correlate well with water demand in the CII sector,[25] it is expected that water sales to these sectors will increase over the next 20 years. Currently, about 20% of MPWD's water sales are in the CII sector, about the same as in 2005 when the economy was also strong.

The national economic recession from 2008 to 2011 also significantly affected the San Francisco Bay Area communities. However, by the spring of 2013, the Bay Area had regained all of the jobs lost during the 2007 to 2009 recession and in 2015 the regional economic outlook is strong. By 2015, the Bay Area and local economy experienced further growth.[26]

Despite the shortage of easy to develop land, the Association of Bay Area Governments, (ABAG) expects that the population of Belmont will grow by 11.9% over the next 25 years. The population projections are summarized in Table 3-1. As indicated, ABAG projects that Belmont population will grow from 26,924 to 29,438, between 2015 and 2035. The population of the area in San Carlos served by the District is expected to be stable, varying only in proportion to expected changes in persons per household.

At the beginning of 2015, the MPWD had 7,977 service connections of which 90% were residential services.

Table 3-1: Population – Current and Projected

Table 3-1 Retail: Population - Current and Projected						
Population Served	2015	2020	2025	2030	2035	2040*(opt)*
	26,924	27,560	28,259	28,793	29,438	30,203
NOTES: Source: Bay Area Water Supply and Conservation Agency (BAWSCA) Regional Water Demand and Conservation Projections Report, prepared by Maddaus Water Management (MWM), September 2014.						

3.4.1 Other Demographic Factors

No other significant demographic factors are present in the MPWD service area that may affect water management and planning per CWC 10631 guidebook section 3.4.1.

[24] Ibid.
[25] This is because there is a wide variation in water demand per employee, especially in the industrial and light industrial sectors.
[26] Source: http://reports.abag.ca.gov/sotr/2015/State_of_the_Region-lowres.pdf

4. SYSTEM WATER USE

This section discusses tracking and reporting water demands to analyze the current and projected use of water in the MPWD service area.

As discussed in Section 2.2 on Regional Planning, the MPWD is a member of BAWSCA, the water agency that provides regional water supply planning, resource development, and conservation program services to enhance the reliability of the 16 cities, 8 water districts, and 2 private water providers that provide water to 1.7 million people and nearly 40,000 commercial, industrial, and institutional accounts in Alameda, Santa Clara, and San Mateo Counties.

In June 2014, the MPWD, as a member of BAWSCA, participated in a 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 common methodology to support regional planning efforts, as well as individual agency efforts. As part of this Project, 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 specifically 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.

- **Historical View:** An analysis of historical data between 1995 and 2012 was done to assess the impacts of certain factors on water demands, such as water rates, economic conditions, and weather.
- **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 (data from 1995 through 2012 was used). Each BAWSCA member agency's model utilizes agency-specific data to analyze the impacts of a number of variables on water demands, including employment, retail water rates, population, and weather.

The DSS Model was used to project both long-range water demands and conservation savings for MPWD. 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. The total average year water demands in the service area, resulting from the DSS model, include future conservation savings from passive water savings (plumbing and building codes) projected to 2040. More information on the econometric modeling can be found in BAWSCA's Regional Water Demand and Conservation Projections Report (September 2014).[27]

As shown in Table 4-1, in calendar year 2015, the MPWD service area used a total of 839.78 million gallons. Of MPWD's total 2015 use, 51% was in the single-family residential sector, while 16.7% was in multi-family. In the Commercial, Institutional, and Industrial sector (CII), 17.4% was commercial and 2.5% was industrial. Water use by the Public

[27] Ibid.

Authority was 5.9% and system losses were determined to be 6.5%. Similarly, MPWD's 2014 Water Audit software reported a 6.2% water loss.

The water demand projections in Table 4-2 are drawn from data presented in the 2014 DSS model[28] developed by Maddaus Water Management (MWM) and utilized in BAWSCA's Water Conservation Implementation Plan. The model outputs include aggregations of data assembled for possible use by individual BAWSCA members in preparing the 2015 UWMPs. The projections utilized in Table 4-2 include "plumbing code reductions" to reflect on-going change-outs of existing plumbing fixtures for more water efficient devices and the implementation of conservation measures recommended in the Water Conservation Implementation Plan.

The 2015 GCPD actual consumption data (Table 4-1) shows that MPWD was able to surpass the 2015 target of 126 gpcd, using only 85 gpcd. The DSS projections for 2020 indicate that MPWD will also achieve the 2020 goal of 121 gpcd. The DSS projections are based on the regional 2013 population and employment projections and the demand projections in the BAWSCA Regional Water Demand and Conservation Projections Report.[29] For this 2015 UWMP, the MPWD reviewed and updated its demand projections and the SB X7-7 baselines and targets using 1997 to 2007 ABAG population data. This data was also used in MPWD's 2014 DSS Model for the 2014 BAWSCA regional Project. [30] Future demands could change, depending on local economic factors, including commercial and industrial activity and housing demand.

4.1 Recycled versus Potable and Raw Water Demand

In order to clearly distinguish recycled from potable and raw water demand, DWR guidance requires that these demands are discussed separately in the 2015 UWMP. Furthermore, the DWR 2015 UWMP guidance requires that recycled water is addressed comprehensively in Section 6.6, and a summary of recycled water demand is included in Table 4-3. Currently, MPWD does not have a recycled water supply or the funding and the infrastructure to deliver it. Additionally, the DWR guidance for Chapter 4 requires addressing water demands for potable, recycled, and raw water separately.

In 2015, MPWD did not use raw water or recycled water; the MPWD only used potable water.

4.2 Water Uses by Sector

Table 4-1 presents MPWD's 2015 potable water demand by customer class use type.[31] The 2015 losses represent non-revenue water, the difference between annual water production and sales to customers. Non-revenue water is the quantity of water that was produced but not sold. In conjunction with system accounting, audits are regularly performed to continue to identify and quantify legitimate uses of non-revenue water in order to determine the remaining potential for reducing real water losses.

[28] The DSS Model is a spreadsheet based end-use model in which water usage is broken down from total water production to specific water end uses, such as toilets, faucets, or irrigation. It was developed for the SFPUC in 2004 for the Wholesale Customer Water Demand Projections (SFPUC) and updated in 2008 for the Water Conservation Implementation Plan (BAWSCA). The update reflects plumbing code provisions adopted after 2004, and utilizes ABAG Projections 2013 for projections of population, employment, and household size.

[29] BAWSCA's Regional Water Demand and Conservation Projections Report (September 2014).

[30] MPWD, 2014 DSS Model, Maddaus Water Management, 2014.

[31] Sources: BAWSCA's Regional Water Demand and Conservation Projections Report (September 2014). 2015 actuals are taken from MPWD's Continental Utility Solutions, Inc. (CUSI) billing system; sectors are determined by a pre-set list made available through this same billing program.

Table 4-1: Demands for Potable and Raw Water – Actual

Table 4-1 Retail: Demands for Potable and Raw Water - Actual			
Use Type *(Add additional rows as needed)*	2015 Actual		
Drop down list *May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool*	Additional Description *(as needed)*	Level of Treatment When Delivered *Drop down list*	Volume
Single Family		Drinking Water	429.13
Multi-Family	Apartments	Drinking Water	140.15
Commercial		Drinking Water	145.91
Industrial		Drinking Water	20.67
Other	Public Authority	Drinking Water	49.35
Losses		Drinking Water	54.54
		TOTAL	839.75
NOTES: MG units. MPWD actual 2015 metered data. MPWD consumption data from MPWD's Continental Utility Solutions, Inc., (CUSI) billing system.			

Table 4-2 shows MPWD's future water demands.

Table 4-2: Demands for Potable and Raw Water – Projected

Table 4-2 Retail: Demands for Potable and Raw Water - Projected						
Use Type *(Add additional rows as needed)*	Additional Description *(as needed)*	Projected Water Use *Report To the Extent that Records are Available*				
Drop down list *May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool*		2020	2025	2030	2035	2040-opt
Single Family		612	613	610	613	621
Multi-Family	Apartments	187	186	183	183	184
Commercial		210	223	237	248	247
Industrial		54	50	47	43	40
Other	Public Authority	63	64	66	67	69
Losses		70	73	75	77	78
TOTAL		1,196	1,209	1,217	1,231	1,239
NOTES: MG units. Future projections source: BAWSCA Regional Water Demand and Conservation Projections Report (MWM, September 2014). Projected water use includes plumbing code savings.						

The following table summarizes total current and projected future potable needs (MG/year) for MPWD. The MPWD does not have the infrastructure to distribute and use recycled water. As discussed in section 6, the SFPUC's contractual commitment (Individual Supply Guarantee) meets the current and projected potable water needs of MPWD.

Table 4-3: Total Water Demands

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*	840	1,196	1,209	1,217	1,231	1,239
Recycled Water Demand* *From Table 6-4*	0	0	0	0	0	0
TOTAL WATER DEMAND	840	1,196	1,209	1,217	1,231	1,239
**Recycled water demand fields will be blank until Table 6-4 is complete.*						
NOTES: Units: MG. The 2015 data is from MPWD consumption data from MPWD's Continental Utility Solutions, Inc., (CUSI) billing system. Future projections source: BAWSCA Regional Water Demand and Conservation Projections Report (MWM, September 2014).						

4.3 Distribution System Water Losses

Distribution system water losses (also known as "real losses") are the physical water losses from the water distribution system and the supplier's storage facilities, up to the point of customer consumption. One of the California Urban Water Conservation Council's (CUWCC) Best Management Practices (BMP 1.2: Water Loss Control) concerns water loss. The CUWCC BMP 1.2 was drafted in 1991 based on a 10% unaccounted-for water standard of allowable water loss, and it references the AWWA M36 Manual as the guidance for completing full system water audits.

In 2014, the MPWD water loss was 6.2% of the total water demand. The MPWD's low water loss, compared to the 9.6% average reported by CUWCC[32], may be attributed to pro-active management of its distribution system.

Table 4-4: Water Loss Summary Most Recent 12 Month Period Available (as calculated in Appendix E: Using AWWA Water Audit Method)

Table 4-4 Retail: 12 Month Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss*
01/2014	57.21
** Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.*	
NOTES: Units: MG. Source: 2014 MPWD AWWA water loss worksheet. (See Appendix E.)	

[32] California Urban Water Conservation Council. BMP 1.2 audit data review, CUWCC, May 2013.

4.4 Estimating Future Water Savings

As explained in Section 4.2, forecast demands include projected plumbing and building code water savings. Plumbing codes and appliance standards for toilets, urinals, faucets, clothes washers, and showerheads will continue to reduce indoor residential and non-residential water demands in the future. This reduction in demand is accounted for in the 2014 DSS Model used to develop MPWD's demand projections.

4.5 Water Use for Lower Income Households

The Belmont Zoning Code facilitates a range of housing types and prices suitable to economic segments of the community. This includes low income, single-family and multi-family housing. Based on the State criteria for small cities in metropolitan areas, the default density standard for Belmont is 30 units per acre.

Belmont, like other communities in San Mateo County, the Bay Area, California, and beyond, experienced a drop-off in new housing construction due to the recent economic downturn. During 2007-2014, the City of Belmont issued building permits for 31 new housing units, an average of less than four units per year. The lack of housing construction was a direct result of the poor housing market and unfavorable market conditions. However, since 2013, the City of Belmont has seen a steady increase in both the number of housing units approved and permitted, and an overall increase in inquiries for multi-family projects. It is expected that housing production will increase significantly during the 2015-2023 planning period as the housing market continues to grow. The Zoning Ordinance allows for a variety of housing types that meet the needs of all economic segments of the community. In Belmont, multi-family units comprise approximately 36% of the existing housing stock.[33]

Based on the 2015-2023 Belmont Housing Element report, the estimated percent of households earning a low-income or lower is approximately 29% of the single and multi-family projected residential water use[34], (Table 4-5).

Table 4-5: Inclusion in Water Use Projections

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.	Appendix G, Table G-1
Are Lower Income Residential Demands Included In Projections?	Yes
NOTES: Future projections source: BAWSCA Regional Water Demand and Conservation Projections Report (MWM, September 2014). The 2014 MWM DSS Model demands include plumbing code savings. Source for low income water use: May 2015 Housing Element, Final Version, p. 2-12. Low income residents are 29% of Belmont residential sector. Total approximate use by low income residential sector is 165.1 MG/yr.	

[33] City of Belmont, *Belmont Housing Element 2015-2023,* pp. 2-11, May 2015. https://www.belmont.gov/home/showdocument?id=11986
[34] Ibid. pp. 2-11.

4.6 Climate Change

According to the San Francisco Bay Conservation and Development Commission (BCDC), "historical records show that sea level in San Francisco Bay has risen 18-20 cm (7 inches) over the past 150 years. The Intergovernmental Panel on Climate Change (IPCC) and the 2006 California Climate Action Team (CCAT) Report project that mean sea level will rise between 10 and 90 cm (12 and 36 inches) by the year 2100."[35] Sea level rise may impact the eastern edges of the City of Belmont; however, no housing has been proposed in potentially impacted areas.

The MPWD's supplier, 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. Both the SFPUC and BAWSCA participated in the 2013 update of the Bay Area Integrated Regional Water Management Plan (BAIRWMP), which included an assessment of the potential climate change vulnerabilities of the region's water resources and identified climate change adaptation strategies. In addition, the SFPUC continues to study the effect of climate change on the Regional Water System (RWS).

A detailed discussion about the current drought and potential impacts and mitigations to long-term climate change by SFPUC are discussed in Section 6.12.

[35] Ibid, pp. 3-7.

5. SB X7-7 BASELINES AND TARGETS

The Water Conservation Act of 2009 (SB X7-7) incorporated new provisions in the California Water Code establishing a program aimed at achieving a 20% reduction in statewide urban water use by 2020. [36] The law and implementing guidance promulgated by the DWR establishes procedures for water suppliers to determine their baseline water use, in gallons per capita per day (gpcd), and allows water suppliers the choice of complying individually or regionally by mutual agreement with other water suppliers. Suppliers can set their water use target using one of four Target Methods. MPWD is using Method 3, the Hydrologic Region Method, using the San Francisco Hydrologic Region and target of 124 gpcd.[37]

5.1 Updating Calculations from 2010 UWMP

In their 2015 UWMPs agencies may change the years they selected for their baseline periods as compared to their 2010 UWMPs. Agencies may choose to make this change based on changes to their calculated population, which may have affected the baseline and target gpcd values. In this 2015 UWMP, the MPWD has updated its 2010 baseline 10-year and 5-year periods to reflect updated and consistent use of population data.

5.1.1 Update of Target Method

The MPWD is using 1997 to 2006 for the 10-year baseline period and 2003 to 2007 for the 5-year baseline period.

The MPWD is using population data from the ABAG for the baseline calculations and updates to the target method.[38]

5.1.2 SB X7-7 Verification Form

In the 2015 UMWP, water agencies must demonstrate compliance with their established water use target for the year 2015. Compliance will be verified by DWR's review of the SB X7-7 Verification Form submitted with each agency's 2015 UWMP.

In 2015, based on MPWD's metered data, the per capita use in its service area was 85 gpcd. The MPWD is compliant with its established water use target for 2015 of 126 gpcd. The MPWD is currently on track to meet its 2020 target of 121 gpcd.

The SB X7-7 Verification Form is found in Appendix D and data is summarized in Tables 5-1 and 5-2 of this section.

5.2 Baseline Periods

Water use must be calculated in gpcd and reported for two baseline periods, the 10- or 15-year baseline and the 5-year baseline periods.

[36] SB X7-7 amends Division 6, Section 2.55 of the California Water Code. Entitled *Sustainable Water Use and Demand Reduction*, it was approved by the Governor of California on November 10, 2009.
[37] MPWD 2010 UWMP, June 2011.
[38] Source: BAWSCA Regional Water Demand and Conservation Projections Report, ABAG population data and Maddaus Water Management (MWM) analysis (MWM, September 2014). The BAWSCA Population methodology that used ABAG population data was thorough and addresses all the requirements of the Water Code. This method was approved by the Department of Water Resources, per email from: G. Huff, DWR, dated February 26, 2016, to M. Maddaus, Maddaus Water Management.

5.2.1 Determination of the 10-15 Year Baseline Period (Baseline gpcd)

Water suppliers must define a 10- to 15-year baseline period for water use and calculate the average water use, in gpcd, over that length of time. The MPWD used the 10-year and 5-year baseline periods, and did not use the 15-year baseline period, because MPWD does not use recycled water.

The MPWD's baseline water use is determined by dividing the total gross water use, by the total population served, resulting in gpcd. The average annual use during the specified 5-year and 10-year periods are used for determining base gpcd water use to assess compliance with the water use targets established in SB X7-7. The use of averages smooths out the effects of short-term water demand variations due to weather or other factors.

The law permits an agency to select its applicable 5-year base daily gpcd use from a continuous period ending no earlier than December 31, 2007 and ending no later than December 31, 2010. The 10-year base gpcd water use value can be selected from a continuous 10-year period ending no earlier than December 31, 2004 and no later than December 31, 2010.

The baseline data illustrates that the highest 10-year average gpcd period was from 1997 to 2006, at 132 gpcd (Table 5-1), therefore these 10 consecutive years were used for the 10-year baseline. The 1997 to 2006 data was used by the MPWD to determine compliance with the Water Conservation Act of 2009 (SB X7-7).

5.2.2 Determination of the 5-Year Baseline Period (Target Confirmation)

The highest calculated 5-year baseline water use was 126 gpcd, for the continuous 5-year period using data from 2003 to 2007. Therefore, the 2003 to 2007 data was also used by the MPWD in determining compliance with the Water Conservation Act of 2009 (SB X7-7).

5.3 Service Area Population

The MPWD service area comprises 70% residential, 20% commercial and industrial, and the remaining uses are by the public authority. Over the baseline years and until 2015, growth in the service area has been quite low. Between 1997 and 2007, the MPWD service area population increased by 3% and between 2003 and 2007 by only 1%. In the last 8 years, between 2007 and 2015, the MPWD service area increased by 2%.

5.3.1 Population Methodologies

The MPWD used population data from the ABAG for the 10-year and 5-year baseline calculations (Appendix D). The ABAG data was analyzed and verified by Maddaus Water Management for the MPWD service area. [39]

5.4 Gross Water Use

In the 2015 UWMP the MPWD uses Million Gallons (MG) as the units of measure based on SFPUC metered data for purchased water that enters the MPWD distribution system during a calendar year (January through December). The MPWD does not use other sources of water, such as groundwater, surface water, recycled water, or desalinized water, and does not have other exclusions for industrial water.

Gross water purchases from SFPUC are reported in SBX7-7 Tables (Appendix D) by MPWD for each year in the baseline periods as well as in 2015, the interim target compliance year.

[39] Ibid.

5.5 Baseline Daily per Capita Water Use

The MPWD's baseline gpcd use is the total water used (in gallons) divided by the total service area population. The baseline gpcd use is reported in SB X7-7, Table 5 (Appendix D).

5.6 2015 and 2020 Targets

As required by SB X7-7, MPWD must set a 2020 water use target and a 2015 interim water target using one of four methods. The MPWD chose Target Method 3 (SB X7-7, Table 7, Appendix D) as its preferred method for determining compliance with SB X7-7. Target Method 3 is the Hydrologic Region Method, and MPWD is using the San Francisco Hydrologic Region, where its service area is located. The San Francisco Hydrologic Region has a calculated target of 124 gpcd.

Method 3 requires the MPWD's 2020 conservation goal to be 95% of its 5-year baseline, which is 127 gpcd. Consequently, the MPWD 2020 target is 121 gpcd (i.e., 95% of 127 = 121; Table 7-F, Appendix D).

Table 5-1, summarizes the applicable Water Use Targets, compared to Average Baseline water use for MPWD, in gpcd.

Table 5-1: Baselines and Targets Summary

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	1997	2006	131	126	121
5 Year	2003	2007	127		
*All values are in Gallons per Capita per Day (GPCD)					
NOTES: MPWD updated baseline calculations are consistent with SB X7-7 analysis. Additional information is available in Appendix D.					

5.7 2015 Compliance Daily per Capita Water Use (gpcd)

As can be seen from the data in Table 5-2, based on MPWD's metered actual water consumption for 2015, the (gallons per capita per day) gpcd use was 85 gpcd, significantly lower than the 2015 interim target of 126 gpcd. The MPWD is in compliance with its 2015 interim target.

Table 5-2: 2015 Compliance

Table 5-2: 2015 Compliance *Retail Agency or Regional Alliance Only**								
Actual 2015 GPCD	2015 Interim Target GPCD	**Optional Adjustments to 2015 GPCD** adjustments not used			*From Methodology 8*	Enter "0" for	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		
85	126	0	0	0	0	85	85	Yes
**All values are in Gallons per Capita per Day (GPCD)*								
NOTES: Total MPWD consumption data from SFPUC's metered data. MPWD updated baseline calculations are consistent with SB X7-7 analysis. Additional information is available in Appendix D.								

5.8 Regional Alliance

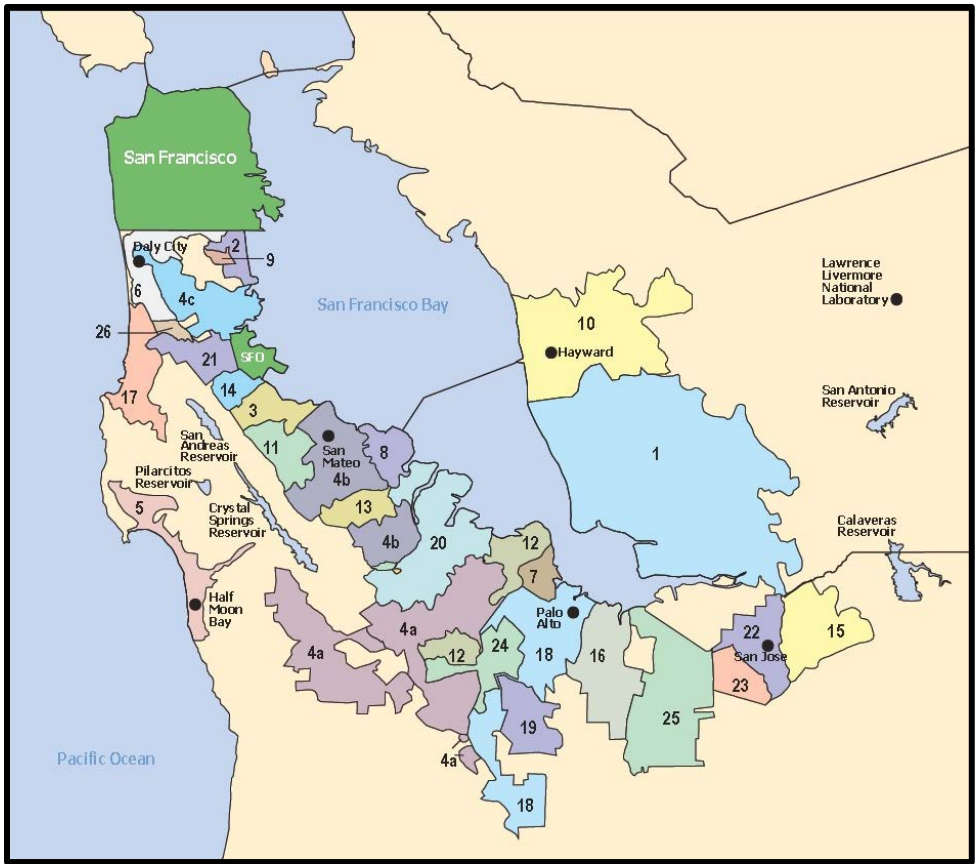
MPWD is complying with SB X7-7 as a retail agency, not as part of a regional alliance.

6. SYSTEM SUPPLIES

6.1 Purchased or Imported Water

The MPWD, a member of BAWSCA (Figure 6-1), purchases 100% of its water from the SFPUC. BAWSCA is a water agency that provides regional water supply planning, resource development, and conservation program services to enhance the reliability of the 16 cities, 8 water districts, and 2 private water providers that provide water to 1.7 million people and nearly 40,000 commercial, industrial, and institutional accounts in Alameda, Santa Clara, and San Mateo Counties. BAWSCA was enabled by a special act of the California Legislature and was formed by its member agencies in 2003. The SFPUC RWS (Figure 6-2) is a 167-mile, gravity-driven network of dams, reservoirs, tunnels, pump stations, aqueducts, and pipelines that collects Tuolumne River runoff on federal land near the Yosemite Valley and transports it to the San Francisco Bay Area. The SFPUC operates the RWS, which is the major source of supply for BAWSCA member agencies. In FY 2013-14, the BAWSCA member agencies reported SFPUC RWS purchases of 148.5 million gallons per day (mgd).[40]

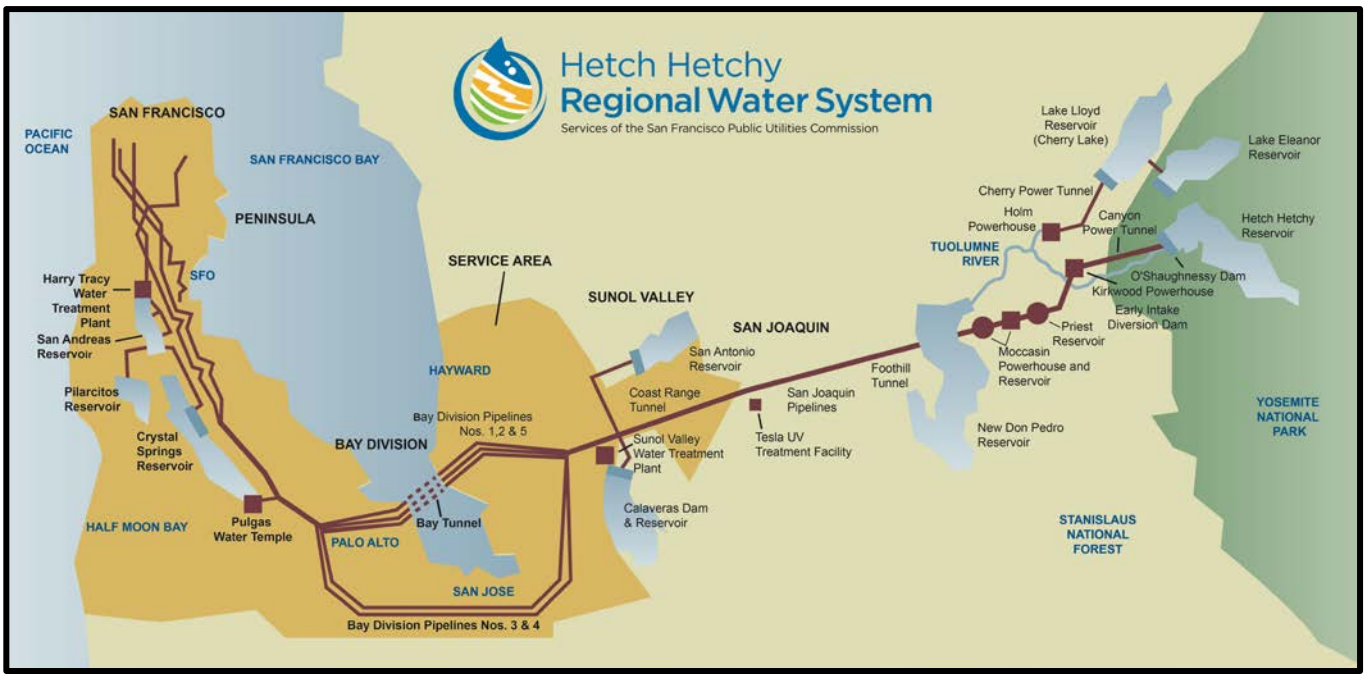
Figure 6-1: BAWSCA Members Map



Source: BAWSCA, 2016.

[40] Source: BAWSCA Annual Survey – FY 2013-14, p. ES-3, May 2015. http://bawsca.info/pdf/reports/BAWSCA_FY13-14_AnnualSurvey.pdf

Figure 6-2: SFPUC Regional Water System Map



Source: SFPUC, 2016.

MPWD's Individual Supply Guarantee

San Francisco has a perpetual commitment (Supply Assurance) to deliver 184 mgd to the permanent wholesale customers (collectively the BAWSCA agencies are referred to as the "wholesale customers"). The Supply Assurance is allocated among the 24 permanent wholesale customers through Individual Supply Guarantees (ISGs), which represent each wholesale customer's allocation of the 184 mgd Supply Assurance. The MPWD's ISG allocation from SFPUC is 3.891 mgd (1,420.22 MG per year). Two BAWSCA agencies do not have ISGs.

2018 Interim Supply Limitation[41]

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 SFPUC RWS watersheds to an average annual of 265 mgd through 2018. All 26 wholesale customers and San Francisco 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, the WSA provides a framework for administering the ISL.

Each BAWSCA agency's ISL is lower than their perpetual commitment (Supply Assurance) from SFPUC through 2018.

Interim Supply Allocations

The Interim ISAs refer to San Francisco's and each individual wholesale customer's share of the Interim Supply Limitation (ISL). On December 14, 2010, the SFPUC established each agency's ISA through 2018. In general, the SFPUC based the wholesale customer allocations on the lesser of the projected fiscal year 2017-18 purchase projections or Individual Supply Guarantees. The ISAs are effective only until December 31, 2018 and do not affect the Supply Assurance or the

[41] This section through section entitled "Interim Supply Allocations" is taken directly from the reference: Final Common Language for BAWSCA Member Agencies' 2015 UWMPs, forwarded by MPWD email on January 6, 2016.

ISG. The MPWD's individual ISA is 3.71 mgd (1,354.15 MG per year) compared with its Supply Assurance (ISG allocation) from SFPUC of 3.891 mgd (1,420.22 MG per year).[42]

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, discussed below, and expressly retain the right to challenge either or both, if and when imposed, in a court of competent jurisdiction.

6.2 Constraints on Water Sources

The SFPUC RWS's dominant supply is from the Tuolumne River watershed at high elevations in the Sierra Nevada Mountains. This main source of water for the SFPUC RWS is augmented by treated water produced by the SFPUC from its local watersheds and facilities in Alameda and San Mateo Counties.

The amount of imported water available to the SFPUC's customers is constrained by climate, hydrology, physical facilities, and the institutional parameters that allocate the water supply of the Tuolumne River. Due to these constraints, the SFPUC is dependent on reservoir and snow-pack storage to manage its water supplies.

6.2.1 SFPUC'S Water System Improvement Plan

The WSIP is a multi-billion-dollar, multi-year program to upgrade the SFPUC Regional and Local Water Systems. The program will deliver capital improvements that enhance the ability to provide reliable, affordable, high quality drinking water in an environmentally sustainable manner to its 26 BAWSCA customers and regional retail customers in Alameda, Santa Clara, and San Mateo Counties, and to 800,000 retail customers in the City and County of San Francisco.

Significant progress has been made on the implementation of the WSIP, and as of June 30, 2015, the overall completion of the Regional Program increased to 88.7%. SFPUC was on track to complete the construction of a new seismically-designed lifeline that will carry water from the Sunol Valley in the East Bay to the mid-peninsula area. That lifeline involves six segments contracted out separately and construction activities have now been completed on five of these segments. Construction of 13 regional projects valued at $2.5 billion was in progress as of the end of SFPUC's FY 2014-15 and construction of 32 regional projects was completed at the end of FY 2014-15. As of June 30, 2015, WSIP planning activities were complete at 100%, whereas environmental, design, and construction efforts were 97.0%, 98.1% and 87.7% complete, respectively.[43]

6.3 Groundwater

Local ground water resources are not considered to be adequate quality or quantity to be a viable augmenting resource, and have not been developed as a source of supply for the MPWD (Table 6-1). The MPWD does not have a conjunctive use program utilizing local groundwater resources.[44]

[42] The terms "perpetual commitment," "Supply Assurance," "Individual Supply Guarantees," and "ISG allocation" all refer to the same perpetual commitment from SFPUC to its Wholesale customers.

[43] SFPUC Fiscal Year 2014-2015 Annual Report, Water System Improvement Program, September 2015.

[44] MPWD relies 100% on the SFPUC regional water system. There are no other feasible water supplies for MPWD customers. The MPWD participates within the region as a member of BAWSCA to identify potential alternative water sources. Reference: http://www.midpeninsulawater.org/uploads/02 APPROVED2015StrategicPlan022615.pdf

Table 6-1: Groundwater Volume Pumped

Table 6-1 Retail: Groundwater Volume Pumped						
X	Supplier does not pump groundwater. The supplier will not complete the table below.					
Groundwater Type	Location or Basin Name	2011	2012	2013	2014	2015
	TOTAL	0	0	0	0	0
NOTE: MPWD does not have a groundwater source.						

6.4 Surface Water

Water drawn from streams, lakes, and reservoirs is considered a surface water supply. MPWD does not use the local surface water as a water supply. None of the local streams produce a sufficient quantity of water to be a viable source of supply, and no potential diversion and storage projects have been identified.

6.5 Stormwater

The MPWD does not use stormwater for its water supply. However, the MPWD promotes a rain barrel rebate program for its residents.

6.6 Wastewater and Recycled Water

In 2013, the former South Bayside System Authority (SBSA) facility, where MPWD's service area wastewater is treated, was renamed to "Silicon Valley Clean Water" (SVCW). The SVCW distribution infrastructure is limited to supplying recycled water for use in Redwood City.

The MPWD has discussed the feasibility of a potential water recycling pipeline project. Only one potential project was identified – recycled water distribution to the City of Belmont's sports complex at 550 Island Parkway in Belmont. An engineer's estimate has not been prepared for a projected cost. Redwood City's recycled water treatment plant is quite some distance away from Belmont and the sports complex site. The MPWD approached Belmont's Parks and Recreation Department about a possible joint project, but no funding has been identified to date. Both agencies are undergoing major capital improvement programs in their respective utilities that were identified to be system priorities comprising approximately $50 million. Distribution of recycled water is not part of MPWD's water system improvement priorities.

6.6.1 Recycled Water Coordination

The MPWD does not engage in wastewater collection, treatment or disposal. Though a portion of the wastewater generated within the MPWD's boundaries is recycled by SVCW for use in Redwood City, MPWD has no funding or plans to distribute recycled water.

6.6.2 Wastewater Collection, Treatment, and Disposal

The MPWD does not engage in wastewater collection, treatment, or disposal.

Wastewater Collected Within Service Area

The Cities of Belmont and San Carlos are responsible for the collection of sewage in the MPWD's service area. The SVCW, a four-member Joint Powers Authority, undertakes treatment and disposal. The members include the Cities of Belmont, San Carlos, and Redwood City, plus the SVCW. The SVCW operates a major sub-regional treatment plant south of the San Mateo Bridge, providing sewage treatment service to more than 200,000 people on the Peninsula, from Belmont and Redwood Shores south, to Menlo Park, and west to Portola Valley.

Table 6-2 lists the volume of wastewater collected within the service area.

Table 6-2: Wastewater Collected Within Service Area in 2015

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? *Drop Down List*	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? *Drop Down List*	Is WWTP Operation Contracted to a Third Party? *(optional)* *Drop Down List*
City of Belmont	Metered	593	Silicon Valley Clean Water (SVCW)	Silicon Valley Clean Water (SVCW)	No	Yes
City of San Carlos	Estimated	12	Silicon Valley Clean Water (SVCW)	Silicon Valley Clean Water (SVCW)	No	Yes
Unincorporated San Mateo Co.	Estimated	5	Silicon Valley Clean Water (SVCW)	Silicon Valley Clean Water (SVCW)	No	Yes
Total Wastewater Collected from Service Area in 2015:		611				
NOTES: Units: MG. MPWD does not engage in wastewater collection, treatment or disposal. The cities of Belmont and San Carlos are responsible for the collection of sewage in the MPWD's service area. Belmont data is from the wastewater treatment plant Silicon Valley Clean Water (SVCW); data for San Carlos and unincorporated San Mateo County is estimated (MPWD, 2016), based on winter water use. The SVCW, a four-member Joint Powers Authority, undertakes treatment and disposal. The members include the Cities of Belmont, San Carlos, and Redwood City, plus the SVCW.						

Wastewater Treatment and Discharge Within Service Area

The treatment plant has a designed capacity of 29 mgd (dry weather flows) and provides tertiary-level treatment. Almost all of the treated effluent is discharged to the San Francisco Bay, although there is an ample surplus of reclaimed water available for non-potable uses, such as irrigation and industrial applications.

The SVCW monitors flows from its various sub-regional pump stations and in 2015, sewage flows from the City of Belmont was 593 MG a year (1.6 mgd). Projections of future wastewater flows from the City of Belmont, prepared by

SVCW consultants, indicate that sewage generation will increase slowly over the next 20 years, from 593 MG/year in 2015 to 756 MG/year (2.07 mgd) in 2035.[45] As shown in Table 6-2, the City of Belmont accounts for more than 97% of the wastewater flows from the MPWD service area. The City of Belmont's Sanitary Sewer Rehabilitation Final Master Plan provides detailed information about the sanitary sewer rehabilitation program.[46]

[45] Whitley Burchett & Associates, 2008. Referenced in: MPWD's 2010 UWMP.

[46] Sanitary Sewer Rehabilitation Master Plan, RMC Water and Environment, September 2007.

Table 6-3: Wastewater Treatment and Discharge Within Service Area in 2015

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

6.6.3 Recycled Water System

The MPWD does not have a recycled water distribution system and does not have access to the recycled water available at the SVCW treatment plant, located south of the San Mateo Bridge.

In 2000, Redwood City and SBSA (now called SVCW) initiated the First Step project, which provided and distributed 0.25 mgd of non-potable unrestricted recycled water[47] for landscape irrigation to customers at the eastern end of the Redwood Shores area in Redwood City. The project was successful and has been extended since then. In 2005, the City of Redwood City and SVCW initiated design and construction of permanent recycled water treatment and storage facilities at the treatment plant, as well as an expanded distribution pipeline system. This project now supplies recycled water to customers in Redwood Shores, the "Greater Bayfront Area," and the Port of Redwood City. In 2014, the system delivered 244.4 MG of recycled water.[48] In the past few years, five dual media filters were added to increase production and satisfy the additional demand for recycled water from Redwood City. SVCW is adding two more dual media filters in 2016, which will provide additional recycled water production for Redwood City. In 2015, the SVCW facility delivered 264.52 MG of recycled water to Redwood City.[49]

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

Table 6-4 Retail: Current and Projected Recycled Water Direct Beneficial Uses Within Service Area								
X	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 *Drop down list*	2015	2020	2025	2030	2035	2040 (opt)
		Total:	0	0	0	0	0	0
**IPR - Indirect Potable Reuse*								
NOTE: Recycled water is not available within the MPWD service area.								

[47] Silicon Valley Clean Water website, January 25, 2016.
[48] Ibid.
[49] Personal communication with SVCW Facilities Director, Robert Huffstutter, on January 25, 2016.

Planned vs. Actual Use of Recycled Water

MPWD does not have access to recycled water and does not have funding to develop a recycled water distribution system. However, the available recycled water is beneficially used where the distribution system is available.

Table 6-5: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual

Table 6-5 Retail: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual		
X	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**
Total	0	0
NOTE: MPWD does not have an available a source of recycled water.		

Table 6-6: Methods to Expand Future Recycled Water Use

Table 6-6 Retail: Methods to Expand Future Recycled Water Use			
X	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
39	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use
		Total	0
NOTE: Recycled water is not available in the MPWD service area.			

6.7 Desalinated Water Opportunities

MPWD has sufficient water supplies in normal years and does not have the need or funding to develop or distribute desalinated water.

6.8 Exchanges or Transfers

6.8.1 Exchanges

No long-term water exchanges have been implemented by MPWD, however MPWD has assisted a neighboring agency with delivery of short-term emergency water. The MPWD has not received water from other agencies.

6.8.2 Transfers

The CWC defines a water transfer as a temporary or long-term change in the point of diversion, place of use, or purpose of use due to a transfer, sale, lease, or exchange of water or water rights. Temporary water transfers are one year or less (CWC Section 1725)[50]. Long-term water transfers are longer than one year (CWC Section 1728).[51]

The MPWD has not transferred water to another water user or received transferred water from other water suppliers.

6.8.3 Emergency Interties

The MPWD has emergency interties with Estero Municipal Improvement District, Redwood City, and California Water System (CWS) Mid-Peninsula District. All zones can meet the 8-hour criteria either separately or by pumping from zones with excess capacity.[52] MPWD also has redundancy built into the entire distribution system, enabling either of the two SFPUC RWS transmission mains (Bay Division Pipelines – BDPLs and Crystal Springs Bypass Tunnel) to supply water to all customers of the MPWD. The MPWD has the ability to transfer water between pressure zones in either a pump-up or flow-down mode in emergency conditions.[53]

6.9 Future Water Projects

The MPWD serves an area that is almost built out and the service area boundaries are set. Its supply assurance of 3.891 mgd, under the terms of the Water Supply Contract with the SFPUC, continues indefinitely and is sufficient to meet current and projected average-year water demands.

The MPWD participates with other BAWSCA agencies in coordination and implementation of feasibility studies related to alternative water supplies. BAWSCA has the authority to coordinate water conservation, supply and recycling activities for its agencies; acquire water and make it available to other agencies on a wholesale basis; finance projects, including improvements to the regional water system; and build facilities jointly with other local public agencies or on its own to carry out the agency's purposes.

The Bay Area Integrated Regional Water Management Plan (BAIRWMP, 2013) discusses regional water supply planning [54]. Any future feasible alternative water supply project that MPWD considers for implementation would be incorporated as part of the MPWD's annual strategic plan.

In 2015, the MPWD completed its water hydraulic modeling project analyzing the entire distribution system. As a result, priority capital projects were identified and a comprehensive Capital Improvement Program (CIP) was developed. The CIP has been incorporated into the 2016 MPWD Master Plan.

[50] California Water Code, Section 1725.
[51] Ibid, Section 1728.
[52] MPWD. Final Master Plan Update, July 2008, 2015 update (Reference communication with MPWD, 2016).
[53] BAWSCA Annual Survey, FY2013-14, May 2015.
[54] Bay Area Integrated Regional Water Management Plan (BAIRWMP, 2013). http://bairwmp.org/docs/2013-bairwm-plan-update/2013-final-plan/San Francisco Bay Area IRWMP Final September 2013.pdf Table 1-2, on pages 1-7 and 1-8.

Table 6-7: Expected Future Water Supply Projects or Programs

Table 6-7 Retail: Expected Future Water Supply Projects or Programs						
X	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.					
41	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 *Drop Down List*	Expected Increase in Water Supply to Agency *This may be a range*
	Drop Down List (y/n)	*If Yes, Agency Name*				
NOTES: The MPWD serves an area that is almost built out, and the MPWD's service area boundaries are set. MPWD's contractual supply assurance from SFPUC is: 3.891 mgd, which is projected to be sufficient in "average" conditions.						

6.10 Summary of Existing and Planned Sources of Water

The MPWD's water supply is sufficient to meet current and projected water demands, so the MPWD has no plans to increase its overall water supply. MPWD is focusing its efforts on rigorous conservation and maintenance of the system to ensure water use is efficient and waste is prevented.

Table 6-8: Water Supplies – Actual

Table 6-8 Retail: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2015		
Drop down list		Actual Volume	Water Quality *Drop Down List*	Total Right or Safe Yield *(optional)*
Purchased or Imported Water	SFPUC	839.75	Drinking Water	1,354
Total		839.75		1,354
NOTES: Units: MG. MPWD consumption data is from SFPUC's metered data.				

Table 6-9: Water Supplies – Projected

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)*
Add additional rows as needed											
Purchased or Imported Water	SFPUC	1,420	1,420	1,420	1,420	1,420	1,420	1,420	1,420	1,420	1,420
Total		1,420	1,420	1,420	1,420	1,420	1,420	1,420	1,420	1,420	1,420
NOTES: The MPWD's supply assurance from SFPUC is 3.891 mgd (1,420 MG per year) under the terms of the Water Supply Contract with the SFPUC. The MPWD's supply assurance continues indefinitely.											

6.11 Water Quality

The SFPUC maintains and monitors the water quality of the RWS, including the water imported from Hetch Hetchy. The Hetch Hetchy supply is treated with lime at River Rock for corrosion control and chlorination at Tesla Portal for disinfection. SFPUC also adds fluoride to the RWS. Water that is delivered to Bay Area reservoirs receives filtration and disinfection treatment at either the Sunol or Harry Tracy filtration plants. Water from either of these treatment plants may be commingled with Hetch Hetchy Water in Bay Area transmission pipelines.

The SFPUC and its wholesale customers were granted filtration avoidance for the Hetch Hetchy supply under Federal and State regulations in 1998. Under these regulations, public water systems serving water from the Hetch Hetchy supply, including MPWD, must demonstrate to the California Department of Health Services that the supply meets the State criteria for filtration avoidance.

Monitoring of the water quality within MPWD's distribution system is MPWD's responsibility. The MPWD regularly monitors the quality of water in its system and follows established sampling and testing protocols that have been approved by the State Water Resources Control Board, Division of Drinking Water Programs. Water quality monitoring is done weekly for bacteriological quality and disinfection residual, quarterly for trihalomethanes, and periodically for other parameters. The ongoing water quality sampling and testing efforts have consistently demonstrated that MPWD's water supply meets all applicable State and Federal drinking water standards.

MPWD also has an ongoing program of flushing distribution lines to remove sediment, encrustations, and other materials that accumulate as part of the water delivery and operations, as well as to mixing the water held in large storage tanks. These best management practices prevent water quality problems, such as taste, odor, and increased turbidity.

It is expected that the existing treatment systems and protocols for monitoring water quality will continue into the future with adjustments, as appropriate, to respond to any changes in regulatory requirements or in raw water sources and quality that could result from implementation of the WSIP or other future SFPUC projects.

6.12 Climate Change Impacts to Supply

Starting in 2011-12 and continuing through 2012-13, rainfall totals recorded in the BAWSCA service area were below average by 35% and 29%, respectively. In 2013-14 rainfall totals were also on average, 58% lower than the historical average from 1948 - 2014. Severe drought conditions decreased water levels in California's reservoirs and reduced flows in the state's rivers. Consequently, on January 17, 2014, Governor Brown proclaimed a state of emergency throughout California. In his April 1, 2015, Executive Order, Governor Brown mandated a 25% water use reduction for cities and towns throughout California.[55] On May 5, 2015, the State Water Resources Control Board (SWRB) adopted an Emergency Regulation to address specific provisions of the April 1 Executive Order, including the mandatory 25% statewide reduction in potable urban water use between June 2015 and February 2016. To reach the Governor's statewide 25% reduction mandate, the Emergency Regulation assigned each urban water supplier (serving more than 3,000 connections) a conservation standard that ranges between 8% and 36% based on their residential use in gallons per capita per day (R-gpcd). After the state of drought emergency was declared, all California water agencies received a mandated conservation standard. The mandated standard for Mid-Peninsula Water District is a 20% reduction from its 2013 average per capita consumption.

[55] Sources: http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/docs/040115_executive_order.pdf and http://www.waterboards.ca.gov/press_room/press_releases/2015/pr103015_sept_waterconservation.pdf

From June 2015 through May 2016, the MPWD exceeded the mandated requirement, by reducing 27.3%. The MPWD's system-wide per-capita water use in 2015 (gpcd) was 85 gpcd. The average gross per capita consumption in the BAWSCA service area was 124.3 gpcd in 2013-14, slightly lower than FY 2012-13. At the peak in FY 1986-87, gross per capita consumption was 186.5 gpcd.[56]

The issue of long-term climate change has become an important factor in water resources planning in California and is frequently considered in urban water management planning purposes, though the extent and precise effects of climate change remain uncertain. 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, observational data shows that a warming trend occurred during the latter part of the 20th century and virtually all projections indicate this will continue through the 21st century. These changes will have a direct effect on water resources in California. Thus, 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:

- 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, as well as an increased amount of precipitation falling as rain instead of 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
- Increased evaporation and concomitant increased irrigation needs
- Changes in urban and agricultural water demand

Both the SFPUC and BAWSCA participated in the 2013 update of the BAIRWMP, which includes an assessment of the potential climate change vulnerabilities of the region's water resources and identifies climate change adaptation strategies. In addition, the SFPUC continues to study the effect of climate change on the Regional Water System. These works are summarized below.

Bay Area Integrated Regional Water Management Plan

Climate change adaptation was established as an overarching theme for the 2013 BAIRWMP update.[57] 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. 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 by SFPUC in accordance with the DWR's *Climate Change Handbook for Regional Water Planning* [58]and using the most current science available for the Region. The vulnerability assessment,

[56] Sources: http://www.bawsca.org/docs/BAWSCA_FY13-14_AnnualSurvey.pdf

[57] Bay Area Integrated Regional Water Management Plan, 2013. http://bairwmp.org/docs/2013-bairwm-plan-update/2013-final-plan/San Francisco Bay Area IRWMP Final_September 2013.pdf

[58] Climate Change Handbook for Regional Water Planning, http://www.water.ca.gov/climatechange/CCHandbook.cfm.

summarized in the table below, 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.

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% 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 flashier 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.

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 cold water 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.

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.[59] Key conclusions from the report include the following:

- With differing increases in temperature alone, the median annual runoff at Hetch Hetchy would decrease by 0.7-2.1% from present-day conditions by 2040 and by 2.6-10.2% 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 7.6-8.6% from present-day conditions by 2040 and by 24.7-29.4% 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% from present-day conditions by 2100 utilizing the same climate change scenarios.
- In addition to the total change in runoff, there would be a shift in the annual distribution of runoff. Winter and early spring runoff would increase, while 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.

[59] SFPUC, Sensitivity of Upper Tuolumne River Flow to Climate Change Scenarios Report, January 2012.

7. WATER SUPPLY RELIABILITY ASSESSMENT

Since the MPWD purchases 100% of its water from the SFPUC, it is dependent on the SFPUC RWS reliability. The SFPUC's WSIP was discussed earlier in Section 6.2.1. The WSIP provides improvements in reliability of delivery of the SFPUC RWS including water supply reliability.

The SFPUC RWS supply is predominantly from the Sierra Nevada, delivered through the Hetch Hetchy aqueducts, but also includes treated water produced by the SFPUC from its local watersheds and facilities in Alameda and San Mateo Counties.

Water from the RWS is treated before delivery and supplied to MPWD from two connections, BDPL 1 and 2, and the Crystal Springs Bypass Tunnel. The SFPUC water is delivered to MPWD in two ways: via a 20-inch water transmission pipeline that is connected to the SFPUC system in Redwood City and via a 24-inch pipeline connected to a pump station on the SFPUC watershed property near the Pulgas Water Temple. The SFPUC serves its retail and wholesale water demands with an integrated operation of local Bay Area water production and imported water from Hetch Hetchy. The local watershed facilities capture local runoff and also serve as storage for the SFPUC system.

The amount of imported water available to the SFPUC's retail and wholesale customers is constrained by climate, 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 and snow-pack storage to manage its water supplies. A summary of SFPUC's vulnerability assessment related to climate change is included in Section 6.

BAWSCA, on behalf of its member agencies, is also working to facilitate local projects that augment water supply reliability. BAWSCA's key water management objective is to ensure that a reliable, high quality supply of water is available where and when people within the BAWSCA service area need it. A reliable supply of water is required to support the health, safety, employment, and economic opportunities of the existing and expected future residents in the BAWSCA service area and to supply water to the agencies, businesses, and organizations that serve those communities.

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 ensure that there will be sufficient and reliable water supplies for BAWSCA member agencies and their customers in the future.

Phase I was completed in 2010 and defined the magnitude of the water supply issue and the scope of work for the Strategy. 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:[60]

- There is no longer a regional normal year supply shortfall.
- There is a regional drought year supply shortfall of up to 43 mgd.
- In addition, the project evaluation analysis completed during Phase II of the Strategy resulted in the following key findings:
- Water transfers score consistently high across the various performance measures and within various portfolio constructs and thus represent a high priority element of the Strategy.

[60] The future projections are based on BAWSCA's Regional Water Demand and Conservation Projections Report (Maddaus Water Management/Western Policy Research, September 2014).

- 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[61].

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 in order to provide some level of increased water supply reliability for its member agencies. On an annual basis, BAWSCA will reevaluate the 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.[62]

7.1 Constraints on Water Sources

The MPWD's water supply relies on the SFPUC RWS's dominant supply that is from the Tuolumne River watershed at high elevations in the Sierra Nevada Mountains. This main source of water for the SFPUC RWS is augmented by treated water produced by the SFPUC from its local watersheds and facilities in Alameda and San Mateo Counties.

The amount of water available from SFPUC's RWS for MPWD is constrained by climate, hydrology, physical facilities, and the institutional parameters that allocate the water supply of the Tuolumne River. Climate change may affect the snow-pack storage and water availability in future.

7.2 Reliability by Type of Year

The SFPUC provided information to BAWSCA agencies for their 2015 UWMPs about its normal and dry-year water supplies and these are described below.[63]

Water Supply – All Year Types

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

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

In general, 85% of the supply comes from the Tuolumne River through Hetch Hetchy Reservoir and the remaining 15% 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.

[61] 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.
[62] Common Language for BAWSCA Member Agencies' 2015 UWMP Updates, email: A. Johnson, BAWSCA staff, February 26, 2016.
[63] Common Language for BAWSCA Member Agencies' 2015 UWMPs, dated January 5, 2016.

Water Supply – Dry-Year Types

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

The adopted WSIP includes the following water supply projects to meet dry-year demands with no greater than 20% 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 in progress. 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 in-stream 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 estimated final Environmental Impact Report will be released in the fall of 2016, and if approved, construction is planned to start spring of 2017 and take 18-months to complete.

- **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 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 SFPUC's 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 (730 MG/year).

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

7.2.1 Types of Years

Three types of water years: Average, Single-Dry, and Multiple-Dry years, are analyzed for availability of water supply for MPWD, starting with 2015, as the base year. The three categories of year types are shown in Table 7-1 and described in more detail below.

Table 7-1: Bases of Water Year Data

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**	
		n/a	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____
		X	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available	**% of Average Supply**
Average Year	2015	1,354	100%
Single-Dry Year	2015	1,088	80%
Multiple-Dry Years 1st Year	2015	1,088	80%
Multiple-Dry Years 2nd Year	2015	1,026	76%
Multiple-Dry Years 3rd Year	2015	1,026	76%
NOTES: Total allocation to the SFPUC wholesale customers for a projected single dry year 2015 and projected multiple dry year scenario beginning base year 2015. Source: Allocation to MPWD is calculated using BAWSCA Tier 2 Drought Implementation Plan (BAWSCA, SFPUC, January 2016).			

Average Year

An average year (or an averaged range of years) considered in this UWMP, is one that most closely represents the median water supply available to the MPWD from SFPUC. The UWMP Act uses the term "normal" conditions and in this 2015 UWMP, the terms "normal" and "average" are used interchangeably.

Single-dry Year

The single-dry year is the year that represents the lowest one-year water supply volume available from SFPUC to the MPWD. As can be seen in Table 7-1, for MPWD, the available water supply in a single-dry year is 80% (1,088 MG/year) of MPWD's average supply (1,354 MG/year).

Multiple-dry Year

The multiple dry year period, as defined by DWR, represents the lowest average water supply availability to the agency for consecutive multiple years (three years or more). As can be seen in Table 7-1, for MPWD, the available water supply

in a multiple-dry year for the first year is also 80% (1,088 MG/year) of MPWD's average supply (1,354.15 MG/year; as discussed earlier, until 2018, this is MPWD's ISA from SFPUC).

However, in a multiple-dry year, in the second and third years, the available water supply is 76% (1,026 MG/year) of MPWD's average supply (1,354 MG/year).

Sources for Water Data

The data presented in Table 7-1 was provided by BAWSCA, "Total Allocation to the SFPUC Wholesale Customers for a projected single dry year 2015 and projected multiple dry year scenario beginning base year 2015." Water supply allocation to MPWD is calculated using the BAWSCA *Tier 2 Drought Implementation Plan* (2009).[64]

7.2.2 Agencies with Multiple Sources of Water

The MPWD purchases 100% of its water supply from SFPUC and has no other sources.

7.3 Supply and Demand Assessment

In dry years, the yield of the RWS, which is the MPWD's sole source of supply, would decline. The SFPUC and BAWSCA agencies have developed an allocation plan that includes two tiers, described below, to address potential drought scenarios.

Tier 1 Drought Allocations

In July 2009, the wholesale customers (BAWSCA Agencies) and San Francisco adopted the Water Supply Agreement (WSA), which includes a Water Shortage Allocation Plan (WSAP) to allocate water from the RWS to retail and wholesale customers during system-wide shortages of 20% or less (the Plan). The WSAP has two components:

1. The Plan, which allocates water between San Francisco and the wholesale customers collectively; and
2. The Tier 2 Plan, which allocates the collective wholesale customer share among the wholesale customers.

The Plan allocates water between San Francisco and the wholesale customers collectively based on the level of shortage, as shown below.

[64] BAWSCA. *Tier 2 Drought Implementation Plan (DRIP),* 2009. BAWSCA, SFPUC January 5, 2016 Common Language for BAWSCA Member Agencies' 2015 UWMPs; allocation confirmed with A. Johnson, BAWSCA staff, February 19, 2016.

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 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 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 (2013 - 2016), the SFPUC has requested, but has not mandated, a 10% system-wide reduction since January 2014. The SFPUC has not yet been compelled to announce a water shortage emergency and implement the Plan because its customers have exceeded the 10% voluntary system-wide reduction in conjunction with the state-wide mandatory reductions assigned by the State Water Resources Control Board.

The Plan will expire at the end of the term of the WSA in 2034, unless mutually extended by San Francisco and the wholesale customers. [65]

Tier 2 Drought Allocations

In 2010, the wholesale customers negotiated and adopted the Tier 2 Drought Implementation Plan (Tier 2 Plan), which allocates the collective wholesale customer share among each of the 26 Wholesale customers. This Tier 2 allocation is based on a formula that takes into account multiple factors for each wholesale customer including:

- Individual Supply Guarantee (MPWD's ISG is: 3.891 mgd);
- Base/seasonal use of all potable available water supplies; and
- Residential per capita use (minimum allocation).

The water made available to the wholesale customers collectively will be allocated among them in proportion to each wholesale customer's Allocation Basis, expressed in millions of gallons per day (mgd), which in turn is the weighted average of two components. The first component is the wholesale customer's ISG (described earlier in Section 7), as stated in the WSA, and is fixed. The second component, the base/seasonal component, is variable and is calculated using the monthly water use for three consecutive years prior to the onset of the drought for each of the wholesale customers

[65] BAWSCA, SFPUC January 5, 2016 Common Language for BAWSCA Member Agencies' 2015 UWMPs; allocation confirmed with A. Johnson, BAWSCA staff, February 19, 2016.

for all available water supplies. The second component is accorded twice the weight of the first, fixed component in calculating the Allocation Basis. Minor adjustments to the Allocation Basis are then made to ensure a minimum cutback level, a maximum cutback level, and a sufficient supply for certain wholesale customers.

The Allocation Basis is used in a fraction, as numerator, over the sum of all wholesale customers' Allocation Bases to determine each wholesale customer's Allocation Factor. The final shortage allocation for each wholesale customer is determined by multiplying the amount of water available to the Wholesale customers collectively under the Plan, by the Wholesale Customer's Allocation Factor.

The Tier 2 Plan requires that the Allocation Factors be calculated by BAWSCA each year in preparation for a potential water shortage emergency. As the wholesale customers change their water use characteristics (e.g., increases or decreases in SFPUC purchases and use of other water sources, changes in monthly water use patterns, or changes in residential per capita water use), the Allocation Factor for each wholesale customer will also change. However, for long-term planning purposes, each wholesale customer shall use as its Allocation Factor, the value identified in the Tier 2 Plan when adopted. The current Tier 2 Plan will expire in 2018 unless it is extended by BAWSCA agencies.

Normal year SFPUC supply and the MPWD forecast demands are compared in Table 7-2. In normal years the SFPUC supply exceeds MPWD's forecast demand.

Table 7-2: Normal Year Supply and Demand Comparison

Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 *(Opt)*
Supply totals (*autofill from Table 6-9)*	1,420	1,420	1,420	1,420	1,420
Demand totals *(autofill from Table 4-3)*	1,196	1,209	1,217	1,231	1,239
Difference	224	211	204	189	181
NOTES: Units: MG. The MPWD's normal year contractual supply (100%) is 3.891 mgd. Source for demand forecasts: BAWSCA Regional Water Demand and Conservation Projections Report (MWM, September 2014).					

The single-dry year supply from SFPUC and the MPWD's forecast demand are compared in Table 7-3. In single-dry years the MPWD's forecast demand exceeds the supply form SFPUC. In dry years MPWD will employ its WSCP stages to reduce water demand, as needed. In 2015, through conservation, MPWD was able to reduce its water use to less than 840 MG. BAWSCA, working with its retail agencies, is also progressing on a strategy to invest in emergency supplies to supplement SFPUC supplies during shortages.

Table 7-3: Single Dry Year Supply and Demand Comparison

Table 7-3 Retail: Single-Dry Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 (Opt)
Supply totals	1,088	1,088	1,088	1,088	1,088
Demand totals	1,196	1,209	1,217	1,231	1,239
Difference	(108)	(121)	(129)	(143)	(151)
NOTES: Units: MG. Future projections source: BAWSCA Regional Water Demand and Conservation Projections Report (MWM, September 2014). In dry years MPWD will employ its Water Shortage Contingency Plan (WSCP) to reduce water demand, as needed. In 2015, through conservation, MPWD was able to reduce its water use to less than 840 MG. BAWSCA, working with its retail agencies, is also progressing on a strategy to invest in emergency supplies to supplement SFPUC supplies during shortages.					

The multiple-dry year supply from SFPUC and the MPWD's forecast demand are compared in Table 7-4. In multiple-dry years the MPWD's forecast demand exceeds the supply from SFPUC. In years two and three of multiple-dry years, the MPWD's shortfall is the same. In multiple-dry years MPWD will employ its WSCP stages to reduce water demand, as needed. In 2015, through conservation, MPWD was able to reduce its water use to less than 840 MG. BAWSCA, working with its retail agencies, is also progressing on a strategy to invest in emergency supplies to supplement SFPUC supplies during shortages.

Table 7-4: Multiple Dry Years Supply and Demand Comparison

Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2020	2025	2030	2035	2040 (Opt)
First year	Supply totals	1,088	1,088	1,088	1,088	1,088
	Demand totals	1,196	1,209	1,217	1,231	1,239
	Difference	(108)	(121)	(129)	(143)	(151)
Second year	Supply totals	1,026	1,026	1,026	1,026	1,026
	Demand totals	1,196	1,209	1,217	1,231	1,239
	Difference	(170)	(183)	(191)	(205)	(213)
Third year	Supply totals	1,026	1,026	1,026	1,026	1,026
	Demand totals	1,196	1,209	1,217	1,231	1,239
	Difference	(170)	(183)	(191)	(205)	(213)
NOTES: Units: MG. Source: BAWSCA Regional Water Demand and Conservation Projections Report (MWM, September 2014). In dry years MPWD will employ its WSCP to reduce water demand, as needed. In 2015, through conservation, MPWD was able to reduce its water use to less than 840 MG. BAWSCA, working with its retail agencies, is also progressing on a strategy to invest in emergency supplies to supplement SFPUC supplies during shortages.						

7.4 Regional Supply Reliability

Reliability of the SFPUC Regional Water System

The SFPUC's WSIP provides goals and objectives to improve the infrastructure for 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% 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.

Projected SFPUC Regional Water System Supply Reliability

The SFPUC has provided an update for the BAWSCA agencies about projected RWS supply reliability, including the impact of recent actions for dry-year reliability on the Water Shortage Allocation Plan. This update assumes that the BAWSCA agencies purchase 184 mgd (the total contractual volume) from the RWS through 2040 and that the dry-year water supply projects included in the WSIP are implemented without additional requirements for fish flows. [66]

Impact of Recent SFPUC Actions, WSIP Projects on Dry-Year Reliability

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.

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 WSAP as described above.

[66] BAWSCA. *Tier 2 Drought Implementation Plan (DRIP),* 2009. BAWSCA, SFPUC January 5, 2016 Common Language for BAWSCA Member Agencies' 2015 UWMPs; allocation confirmed with A. Johnson, BAWSCA staff, February 19, 2016.

8. WATER SHORTAGE CONTINGENCY PLANNING

The MPWD's Water Shortage Contingency Plan (WSCP) is the result of a strategic planning process to prepare for, and respond to, water shortages. Such planning and preparation help to maintain reliable supplies and reduce the impacts of supply interruptions. Section 10632 of the California Water Code requires UWMPs to include the preparation of a water shortage contingency analysis.

The 2016 WSCP update was developed separately from the UWMP and supersedes earlier WSCPs. It is included in Appendix C. Section 8 in this UWMP summarizes the key aspects of MPWD's 2016 WSCP.

The WSCP is applicable to a range of temporary, short- and long-term emergency conditions when the supply volume or system delivery capability is impaired, including but not limited to:

- Main break or other distribution system failure,
- Water treatment plant failure,
- Natural disaster (flood, earthquake, wind damage, etc.),
- Fire,
- Water quality issue with supply reservoirs or system contamination, and/or
- Drought conditions.

The number of stages for action in a WSCP is at the discretion of the water supplier. MPWD's WSCP includes four (4) stages (consistent with MPWD's Ordinance 112, Attachment 103A, Schedule of Rates and Fees) with the following conditions: (1 - "**Water Alert**") Slightly Restricted, (2 - "**Water Warning**") Moderately Restricted, (3 - "**Water Crisis**") Severely Restricted, and (4 - "**Water Emergency**") Extremely Restricted. The stages reflect decreasing water supplies with increasing levels of prohibitions and consumption reduction measures. The WSCP also addresses a reduction of 50% in the water supply, as required by CWC 10632 (a)(1). [67]

The voluntary conservation and mandatory measures, implemented in response to the increasingly severe shortages during current 2013 - 2016 drought, provide the MPWD with recent and relevant guidance for planning future responses to severe water shortages. However, since we cannot predict the specific conditions leading to activation of the various Stages in the MPWD's WSCP, by design the WSCP is flexible and can be tailored by MPWD management in response to specific conditions at the time the WSCP is needed.

Under "normal or average" conditions, the MPWD continues ongoing conservation measures and prohibits water waste. The Mediterranean climate in MPWD's service area is typified by normal variability in weather, so annual fluctuations in rainfall, up to 10% of "normal" are not unusual. Normal conditions are the typical water supply conditions, where the SFPUC water supply is sufficient to meet MPWD's projected demand. MPWD's website (https://www.midpeninsulawater.org/conservation_overview.php) includes information about on-going conservation under Normal conditions, such as:

- Water saving tips,
- Free water conservation kits,

[67] CWC 10632 (a)(1) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50% reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.

- Rebate programs,
- Leak detection assistance,
- A water conservation calculator,
- Links to the Association of California Water Agencies (ACWA) and the DWR "Save our Water", and
- Related BAWSCA and SFPUC information.

8.1 Stages of Action

Since the MPWD relies 100% on the SFPUC RWS for its water supply, in drought conditions or any other long-term water supply shortage, the MPWD will respond to SFPUC requests and State mandates and coordinate with SFPUC, BAWSCA, and BAWSCA agencies. The MPWD will implement water shortage mitigation measures that will result in use restrictions proportional and responsive to the severity and duration of the reductions needed. Recently, such use restrictions have been associated with droughts, such as the current 2013 through 2016 state-wide restricted water supply conditions.[68] In June 2015, MPWD passed its Water Service Ordinance 112, Attachment 103A, Schedule of Rates and Fees. Attachment A defines four UWMP Water Shortage Response Stages corresponding with Water Supply Reduction requirements. The same Stage Water Supply Reduction requirements are included in the MPWD's updated 2016 WSCP.

The following four Stages and their respective water reduction requirements are consistent with MPWD's Ordinance Water Service Ordinance 112, Attachment 103A, Schedule of Rates and Fees[69] and identify the MPWD voluntary and mandatory actions with increasing need for water reductions.

In **Stage 1**, the water supply conditions would be slightly restricted by SFPUC or State regulators. In this Stage, a "**Water Alert**" is in effect, and voluntary conservation is up to 11%. The MPWD continues ongoing conservation measures and prohibits water waste. At this Stage, MPWD initiates public awareness of predicted water shortage and encourages voluntary conservation.

Stage 2 includes voluntary (2A) and mandatory (2B) parts. In **Stage 2A**, the water supply conditions would be moderately restricted by SFPUC or State regulators. In this Stage, a "**Water Warning**" is in effect, because supplies are moderately restricted. The MPWD would encourage voluntary measures to decrease "normal" demand up to 18%. If the voluntary measures (Stage 2A) do not produce the desired reductions, in order not to enact Stage 3, the MPWD would increase public messaging and heighten understanding of the worsening water supply conditions and potential need to start initial mandatory shortage mitigation measures. If additional mandatory restrictions are needed to enforce the conservation measures of Stage 2, **Stage 2B** conservation measures could be used, that require up to 18% mandatory reduction in potable water use.

In **Stage 3**, the water supply conditions would be severely restricted by SFPUC or State regulators. In this Stage a "**Water Crisis**" would be declared, because supplies are severely restricted. The MPWD would require mandatory measures to decrease "normal" demand up to 32%. The MPWD would further increase public messaging and heighten understanding of the worsening water supply conditions and continued need to enforce mandatory shortage mitigation measures. If increased mandatory restrictions are needed to enforce Stage 3 and not enact Stage 4, these additional measures could include significant restrictions on landscape irrigation.

[68] Source: http://www.water.ca.gov/waterconditions/declaration.cfm.
[69] Water Service Ordinance 112, Attachment 103A, Schedule of Rates and Fees. June 25, 2015. Online: https://www.midpeninsulawater.org/uploads/ORDINANCE%20No.%20112%20Attachment%20A.pdf

In **Stage 4**, the water supply conditions would be extremely restricted by SFPUC or State regulators. In this Stage a "**Water Emergency**" would be declared, because supplies are severely restricted. The MPWD would require mandatory measures to decrease "normal" demand up to 50%. The MPWD could restrict potable water use for only essential needs and domestic sanitation. In Stage 4, landscape irrigation and other outdoor uses would be extremely restricted or prohibited, depending on MPWD's total measured consumption and ongoing compliance with required water reductions.

The programmatic responses in all the WSCP Stages provide guidance. The MPWD's actual response to a water shortage emergency will always require action by the General Manager and nothing in this Plan is intended to limit the MPWD's available options in tailoring a unique and specific program to respond to any future water shortages. The MPWD has in the past, and will continue in the future, to respond to water supply shortages on a case-by-case basis.

Although the circumstances surrounding future droughts, or any other long-term supply shortages, may differ from the situations that the MPWD has faced in the past thirty years, a systematic approach and framework are in place with MPWD's updated WSCP. This approach includes practical, initial voluntary conservation stages, followed by mandatory water restrictions in response to increasingly severe water shortages. The shortages and regulatory requirements faced by MPWD during the current 2013 - 2016 drought and state mandated prohibitions[70] identified new drought conservation measures and experiences that are included in this updated WSCP.[71] In 2015, MPWD approved tiered pricing and water shortage emergency rates with its Water Service Ordinance 112, Attachment 103A, Schedule of Rates and Fees.[72] These rates could or would be enacted, when MPWD determines the emergency rates are needed.[73]

The MPWD's four Stages of Action and percent reductions to increasingly restrictive water supply conditions are consistent with and presented in Table 8-1.

[70] California State Department. Executive Order B-36-15, November 13, 2015. Online: https://www.gov.ca.gov/docs/11.13.15_EO_B-36-15.pdf

[71] Mid-Peninsula Water District. 2016 Water Shortage Contingency Plan.

[72] Water Service Ordinance 112, Attachment 103A., Schedule of Rates and Fees, June 25, 2015. Online: https://www.midpeninsulawater.org/uploads/ORDINANCE%20No.%20112%20Attachment%20A.pdf

[73] Ibid.

Table 8-1: Shortage Stages and corresponding necessary percent supply reductions

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)*
1	up to 11%	Water Alert - Slightly restricted water supplies up to 11%. Voluntary reductions.
2A, 2B	12% - 18%	Water Warning - Moderately restricted water supplies (12%-18%). 2A - voluntary, 2B - mandatory reductions. Continue to look for all ways to reduce water use indoors and outdoors (e.g., increasingly shorter showers, reduced irrigation, etc.)
3	19% - 32%	Water Crisis - Severely restricted water supplies (19%-32%). Mandatory reductions. Implement all possible ways to reduce water use indoors and outdoors (e.g., concentrate efforts to reduce landscape irrigation, turn off decorative water features, increase rebates for efficient water equipment, etc.)
4	33% - 50%	Water Emergency - Extremely restricted water supplies (33%-50%). Mandatory reductions. Prioritize water use for essential domestic sanitation and other critical needs.
[1] *One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.*		
Sources: MPWD Water Demand Offset Charges, UWMP Water Shortage Response Stages, Water Service Ordinance 112 Attachment 103A, Schedule of Rates and Fees, June 25, 2015. MPWD Ordinance No. 111, MPWD, 2014. Ordinance 103, Section 4.2 discusses water waste; Ordinance 115 - Efficient Landscaping. Attachment A, Schedule of Rates and Fees, June 25, 2015. MPWD Ordinance Nos. 103 and 111, 2014, MPWD.		

As can be seen in Table 8-1, in the event of a severe drought, it is possible that the MPWD will have to ask its customers to respond even more aggressively than they did during the current drought and Governor's Executive Order and State Emergency Regulations[74], requiring a 25% State–wide water use reduction. From June 2015 to May 2016, the MPWD achieved a 27.3 reduction[75], surpassing the 25% mandated throughout California.

In the future, however, a program requiring a 32% - 50% reduction in demand could possibly be more difficult to implement than it was during the recent severe drought, due to permanent changes and reduced water use in the service area for the long term. The MPWD has experienced on-going implementation of conservation and increasing installation of water-efficient technologies throughout the service area. For example, plumbing fixture replacements

[74] State Water Resources Control Board. Resolution No. 2015-0032, May 2015. Online: http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/docs/emergency_regulations/rs2015_0032_with_adopted_regs.pdf

[75] MPWD website: https://www.midpeninsulawater.org/billing_inserts.php

and increased efficiency of landscaping water use (e.g., climate-appropriate landscaping, efficient weather-based irrigation controllers, etc.) have lowered the base per-capita and per-connection levels of consumption.

8.2 Prohibitions on End Uses

In the past, in 2015, and extending into 2016, in response to Governor's Executive Orders and State Emergency Regulations[76],[77] the MPWD has implemented various increasingly restrictive mandatory drought measures. The following are state-mandated prohibitions in place, starting in 2015:

- Using potable water to irrigate ornamental turf on public street medians
- Using potable water to irrigate landscapes of new homes and buildings inconsistent with CBSC and DHCD requirements
- Using outdoor irrigation during and 48 hours following measurable precipitation
- Using potable water in decorative water features that do not recirculate the water
- Using hoses with no shutoff nozzles to wash cars.
- Runoff when irrigating with potable water, and
- Using potable water to wash sidewalks and other hardscapes.
- Hotel and motel must provide guests with the option of not having towels and linen laundered daily
- Restaurants and other service food establishments can only serve water to customers on request

Water waste is prohibited in all Normal conditions and Water Shortage Stages in the MPWD service area.[78] The MPWD has adopted the Mandatory Restrictions on Outdoor Water Use Ordinance 111.

Table 8-2 lists the different restrictions and prohibitions on end uses, as well as any penalties, charges or other enforcements, that MPWD has developed.

[76] State Water Resources Control Board. Resolution No. 2015-0032, May 2015. http://www.waterboards.ca.gov/water_issues/programs/conservation_portal/emergency_regulation.shtml

[77] Executive Order B27-16, May 9, 2016, Making water Conservation a Way of Life. https://www.gov.ca.gov/docs/5.9.16_Attested_Drought_Order.pdf

[78] MPWD. Ordinance 103, Section 4.2 discusses water waste. http://midpeninsulawater.org/uploads/Ordinance_Current_Water_Service.pdf

Table 8-2: Restrictions and Prohibitions on End Uses

Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses			
Stage	Restrictions and Prohibitions on End Users ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement? *Drop Down List*
1	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner		No
1	Other - Require automatic shut of hoses		No
1	Landscape - Limit landscape irrigation to specific times	Prohibited between the hours of 10AM-6PM	No
2	Other	Never during or within 48 hours of a rain event	Yes
2	Other	Watering of medians prohibited	Yes
2	CII - Lodging establishment must offer opt out of linen service	Include all measures from Stage 1	Yes
2	Other - Prohibit use of potable water for washing hard surfaces	Include all measures from Stage 1	Yes
2	Landscape - Restrict or prohibit runoff from landscape irrigation	Include all measures from Stage 1	Yes
2	CII - Restaurants may only serve water upon request	Include all measures from Stage 1	Yes
2	Water Features - Restrict water use for decorative water features, such as fountains	Include all measures from Stage 1	Yes
3	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	Include all measures from Stage 1,2	Yes
3	Landscape - Other landscape restriction or prohibition	Include all measures from Stage 1,2	Yes
3	Other water feature or swimming pool restriction	Include all measures from Stage 1,2	Yes
4	CII - Other CII restriction or prohibition	Include all measures from Stage 1,2,3	Yes
4	Landscape - Prohibit certain types of landscape irrigation	Include all measures from Stage 1,2,3	Yes
NOTES: Each subsequent Stage includes all restrictions and prohibitions of previous Stage(s). Reference: MPWD 2016 Water Shortage Contingency Plan, Appendix C.			

8.2.1 Landscape Irrigation

The section below includes examples of restrictions or prohibitions for landscape irrigation. On December 16, 2015, the MPWD adopted Ordinance 115, titled "Adopted Water Efficient Landscape Ordinance". This Ordinance is effective as of February 1, 2016. [79]

[79] http://midpeninsulawater.org/uploads/Approved_Ordinance_No0.115_WELO_B.pdf

Note that "Other landscape restriction or prohibition" is a category that will be used to include prohibitions that do not fall into the listed categories. The specific categories of prohibitions, as prescribed by DWR, are listed in Table 8-2.

- Restrict or prohibit runoff from landscape irrigation - Examples include: irrigation runoff is to be prevented; excessive irrigation runoff is prohibited; cycle and soak management is strongly encouraged.
- Limit landscape irrigation to specific times -— includes: landscape irrigation is limited to between the hours of 6:00pm and 10:00 am.
- Limit landscape irrigation to specific days - Examples include: even numbered addresses are allowed to water only on Tuesday, Thursday, and Saturday; Landscape irrigation is allowed only two days per week; Landscape irrigation is allowed only one day per week.
- Prohibit certain types of landscape irrigation - Examples include: the use of sprinkler irrigation is prohibited; irrigation of turf is prohibited, except with recycled water; only irrigation of trees and shrubs is allowed.
- Other landscape restriction or prohibition - Examples include: any other landscape restriction or prohibition utilized by the agency. This allows flexibility for MPWD to define prohibitions on a case-by-case basis.

8.2.2 Commercial, Industrial, and Institutional (CII)

The following categories of prohibitions on CII are listed in Table 8-2. The section below includes examples of restrictions or prohibitions that may fall within these categories. Note that "Other CII restriction or prohibition" is a category that will be used to include prohibitions that do not fall into the listed categories.

- Lodging establishments must offer opt out of linen service – Examples include: Lodging establishments are required to place notices in each room that inform the guest that they may opt out of linen service.
- Restaurants may only serve water upon request.
- Commercial kitchens are required to use pre-rinse spray valves – Examples include: Any commercial kitchen is required to use a pre-rinse spray valve as part of their dish-washing operation.
- Other CII restriction or prohibition – Examples include: Any other CII restriction or prohibition selected by the agency that does not fall into the categories listed above. This allows flexibility for MPWD to define prohibitions on a case-by-case basis.

8.2.3 Water Features and Swimming Pools

This section includes examples of restrictions or prohibitions that may fall within the water features and swimming pools categories. Note that "Other water feature or swimming pool restriction" is also a category included in prohibitions that does not fall into the listed categories below.

- Restrict water use for decorative water features, such as fountains – Examples include: Decorative water features may only be operated if they use recirculating water; Decorative water features shall not be allowed to operate.
- Require covers for pools and spas – Examples include: Every swimming pool and spa is required to cover the surface of the pool or spa with a cover that reduces evaporation during hours that the pool or spa is not in use; Allow filling of swimming pools only when an appropriate pool cover is in place.
- Other water feature or swimming pool restriction – Examples include: Any other restriction or prohibition selected by the MPWD for reducing water use. This allows flexibility for MPWD to define prohibitions on a case-by-case basis.

8.2.4 Defining Water Features

When MPWD includes a limitation on, or prohibition of, water use for water features, this prohibition or limitation is restricted to decorative water features (e.g., fountains) only and does not apply to swimming pools or spas, which must be listed separately. If MPWD includes limitations on pools or spas, MPWD will list those separately from limitations on water features.

8.2.5 Other

This section includes examples of restrictions or prohibitions that may fall within these categories (Table 8-2). Note that "Other" is a category that will be used to include prohibitions that do not fall into the previously listed categories.

- Customers must repair leaks, breaks, and malfunctions in a timely manner – Examples include: Broken or malfunctioning sprinkler heads must be repaired within 48 hours after the customer receives a notification from the MPWD; All leaks or breaks must be repaired by the customer within 48 hours of receiving a notification from the water agency.
- MPWD requires that all hoses must have automatic shut off nozzles.
- MPWD may prohibit use of potable water for construction and dust control.
- MPWD may prohibit use of potable water for washing hard surfaces – Examples include: Potable water may not be used to wash hard surfaces, such as driveways or sidewalks, except in cases of preparing surfaces for painting, and for health and safety.
- MPWD may prohibit vehicle washing except at facilities using recycled or recirculating water.
- Other prohibitions may include: Any other restriction or prohibition selected by the MPWD to reduce water consumption that does not fall into the categories above. This allows flexibility for MPWD to define prohibitions on a case-by-case basis.

8.3 Penalties, Charges, Other Enforcement of Prohibitions

MPWD works collaboratively with its customers and provides timely information about water conservation on its web site. During the 2015 drought emergency restrictions, the MPWD customers and community, through their active support for conservation, illustrated great community resolve by reducing water use by 27.3% (June 2015 – May 2016)[80], above the 2015, 25% State –wide reduction, mandated by the Governor's Executive Order. In future, if severe potable water reductions are mandated, MPWD could enforce water use prohibitions and water shortage emergency rates, using MPWD's Ordinances: 111 and 112, Attachment 103A Schedule of Rates and Fees. [81]

8.4 Consumption Reduction Methods

In addition to measures already listed, the MPWD's response to a water shortage, requiring the adoption of mandatory water restrictions, could include water budgets, or consumption limits on a per capita basis for residential customers, and a percentage reduction from a normal base year use for nonresidential customers. The MPWD's program could also include higher limitations on water used outdoors than on indoor water use.

[80] Source: file://localhost/MPWD data, website/ https/::www.midpeninsulawater.org:billing_inserts.php
[81] MPWD. Water Service Ordinance 112, Attachment 103A, Schedule of Rates and Fees, June 25, 2015. Online: https://www.midpeninsulawater.org/uploads/ORDINANCE%20No.%20112%20Attachment%20A.pdf

8.4.1 Categories of Consumption Reduction Methods

The section below includes examples of categories of consumption reduction methods. Note that "Other" is a category that will be used to include consumption reduction methods that do not fall into the listed categories.

- Expand Public Information Campaign – Examples include: begin or increase the media campaign; creating web site information, bill inserts with conservation information; writing articles for local newspaper; conducting water efficiency workshops for different customer sectors.
- Improve Customer Billing – Examples include: Increasing billing frequency; change bill format to report consumption in gallons per capita per day; adding information to the bill that compares the customer's use to the water use of similar customers.
- Increase Frequency of Meter Reading – Example includes: MPWD's continuing to employ Advanced Metering Infrastructure (AMI) so that meters are read in real time and customers can monitor their water use trends and get various notifications.
- Offer Water Use Surveys – Examples include: actively reach out to high water users to offer water use surveys; expanding water use survey program to include new sectors.
- Provide Rebates or Giveaways of Plumbing Fixtures and Devices – Examples include: implementing new giveaway programs (shower head, aerator, etc.), expanding existing rebate programs, offering a higher dollar value for each rebate, and expanding funding for existing rebate or giveaway programs.
- Provide Rebates for Landscape Irrigation Efficiency – Examples include: Expanding on landscape efficiency rebate programs like weather-based irrigation controllers, efficient sprinkler heads, or the addition of a landscape conversion direct install program.
- Reduce System Water Loss – Examples include: continuing to implement a water audit program to identify leaks in the water system; expanding the leak repair program to control system losses (using AWWA distribution system audit protocols).
- Implement Water Waste Prohibitions – Examples include: Implement a Water Waste Patrol program; increase means for Water Waste Patrol; increase authority of Water Waste Patrol.
- Use MPWD's tiered pricing and water shortage emergency rates, as needed to reduce water use (Water Service Ordinance 112, Attachment 103A, Schedule of Rates and Fees).
- Other – Any other consumption reduction method that the MPWD may take that does not fall into the categories listed above. This allows flexibility for MPWD to define prohibitions on a case-by-case basis.

Table 8-3 lists and defines MPWD's consumption reduction methods.

Table 8-3: Stages of WSCP – Consumption Reduction Methods

Table 8-3 Retail Only: Stages of Water Shortage Contingency Plan - Consumption Reduction Methods		
Stage	Consumption Reduction Methods by Water Supplier ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool*	Additional Explanation or Reference *(optional)*
1	Expand Public Information Campaign	
1	Provide Rebates for Turf Replacement	
1	Other	HET Rebates
1	Other	WM Rebates
1	Other	Rain Barrel Rebates
2	Increase Water Waste Patrols	In addition to Stage 1
2	Increase Frequency of Meter Reading	In addition to Stage 1
2	Decrease Line Flushing	In addition to Stage 1
3	Implement or Modify Drought Rate Structure or Surcharge	In addition to Stage 1, 2
3	Offer Water Use Surveys	In addition to Stage 1, 2
4	Moratorium or Net Zero Demand Increase on New Connections	In addition to Stage 1, 2, 3
4	Reduce System Water Loss	In addition to Stage 1, 2, 3
NOTES: Each subsequent Stage includes all restrictions and prohibitions of previous Stage(s). Source: MPWD 2016 Water Shortage Contingency Plan, Appendix C.		

8.5 Determining Water Shortage Reductions

Since SFPUC meters all the water supplied to MPWD and all MPWD customers are also metered monthly, with currently 50% AMI meters installed, the MPWD is able to measure water consumption and reductions. Using the metered data and monitoring consumption trends, the MPWD is able to determine the effectiveness of its water shortage contingency measures that are implemented. Based on the meter data, MPWD could make adjustments in Stage requirements. The MPWD collects sufficient data, in the normal course of operations, to evaluate trends in water use, determine actual reductions in demand, by user category, and compare use trends for specific years or to a given base year. MPWD also coordinates with BAWSCA and SFPUC and receives monthly (or more frequent, if necessary) updates about the state of the SFPUC water supply.

8.6 Revenue and Expenditure Impacts

Pursuant to California Government Code 53756, the MPWD adopted a pass-through provision for any additional increases in SFPUC wholesale water rates above projected SFPUC rates. Future pass-throughs would be implemented by increasing the MPWD's proposed Water Consumption Charges by exact amount of the increase in cents per hcf in excess of the assumed SFPUC wholesale rates. Prior to initiating a pass-through for SFPUC wholesale rates, the MPWD will send notification to all customers at least 30 days prior to implementation.

Moreover, in order to help MPWD recover its costs of service and remain financially stable during periods of emergency water shortages and reduced water sales, the MPWD adopted Water Shortage Emergency Rates. These emergency rates would be implemented in response to escalating drought conditions and water supply shortages, or in response to additional State-mandated cutbacks in water use in excess of 20%, and would replace MPWD's regular Water Consumption Charges. Water Shortage Emergency Rates may be implemented upon declaration of a water shortage emergency pursuant to Water Code Section 350 and/or Water Code Section 31026. Prior to initiating Water Shortage Emergency Rates, MPWD would send notification to all customers at least thirty (30) days prior to implementation.

Water Shortage Emergency Rates may be implemented by authorization of MPWD's Board of Directors, which correspond with a 50% cutback in water demand from usage in 2013. Additional information is available in Section 7.1 of MPWD's WSCP.

8.6.1 Drought Rate Structures and Surcharges

The MPWD passed tiered pricing and water shortage emergency rates that could or would be enacted during water shortages.[82] Further rate increases could also be part of a drought rate structure (see: Tables 9, 10, MPWD 2016 WSCP).

8.6.2 Use of Financial Reserves

If needed, the MPWD could use financial reserves to address decreased water sales during a water shortage.

8.6.3 Other Measures

If needed, the MPWD could use other measures, including using new water-efficient technologies and/or new Best Management Practices.

8.7 Resolution or Ordinance

MPWD has experience implementing water shortage programs. This MPWD 2015 WSCP supersedes earlier WSCPs and is adopted by the MPWD Board by Resolution No. 2016-04 on June 23, 2016.

8.8 Catastrophic Supply Interruption

In the event of an emergency caused by various conditions, as shown in Table 5, MPWD's Emergency Operations Center (EOC) may be activated to act as a coordination center for all of the MPWD's emergencies. The MPWD is updating its Emergency Operations and Response Plan[83], which is designed to provide guidance and direction for MPWD's staff both during an emergency and in mobilizing the post disaster response.

The MPWD's primary EOC is located at the MPWD office at 3 Dairy Lane in Belmont. A backup emergency operations center is located at 1510 Folger Street in Belmont. The backup location has emergency radio transmitters and power can be provided with portable generators. District phone service can also be paired with any cell or land line. System maps and mobile radios are also available and stocked in all MPWD maintenance vehicles.

The MPWD actively participates with the San Mateo County Emergency Managers Association (EMA). MPWD staff attends monthly meetings in addition to annual and periodic emergency drills and community tabletop exercises. As part of the SFPUC RWS, the MPWD also partners with BAWSCA members agencies and the SFPUC to participate in emergency training exercises.

The EOC is equipped with radios, telephones, emergency power equipment, and supplementary documents and supplies. Also available are facility diagrams and summaries of exchange capacities at interconnections between adjoining water systems and information on designated emergency connection sites. In addition, emergency pumps and equipment for portable hydrant systems are available at the MPWD Headquarters. The EOC would be the central point of coordination for government services, communications, and emergency public information.

---

[82] MPWD Ordinance 111, Implementing Stage 2 Water Shortage Response of Water Shortage Contingency Plan Regarding Mandatory Restrictions on Outdoor Water Use.
http://midpeninsulawater.org/uploads/Ordinance_No_111_Mandatory_Outdoor_Water_Use_Restrictions.pdf

[83] MPWD Emergency Operations and Response Plan, December 2008.

Communication protocols have been established and damage evaluation procedures have been defined. In the immediate period following a major disaster, such as an earthquake, the MPWD's initial task would be to evaluate the water supply system and file a status report with the General Manager as quickly as possible. If a water shortage emergency were to be declared, the Board of Directors would be assembled to make a Declaration of the Water Shortage Emergency. The Board President and/or the General Manager would be responsible for media contacts and press briefings as necessary.

The MPWD has assembled an inventory of technological resources, equipment, materials, supplies, and maintains key vehicles in a "ready to respond" condition. The MPWD also has arrangements with several local contractors for emergency backhoe and underground work in the event there is more damage than the MPWD staff can manage.

The goal of the MPWD's post-disaster response is to keep the water transmission and storage system intact and operational to the greatest extent possible. Emergency response protocols specify the leadership role of the Field Operations Manager (or his/her designee), procedures for activating the EOC, mobilization of necessary staff and other support, and taking action to cope with the particular situation. The repair or shut-down work would be coordinated from the EOC and field crews would report progress to the emergency operations team. Regular progress reports would then be filed with the appropriate police department and/or fire district.

Communication from MPWD about the emergency would be broadcast to alert the service area and notices would be issued via public announcements (e.g., radio, TV, social media, web site). Written notices may also be employed (e.g., letters or door hangers, or other means) to advise customers of the water shortage and anticipated duration of the shortage. All customers would then be similarly noticed when the shortage is resolved.

8.9 Minimum Supply Next Three Years

As the main water supplier to MPWD, the SFPUC has estimated the minimum supply MPWD would receive from SFPUC for 2016, 2017, and 2018. A discussion about the SFPUC RWS is in Section 7 of this UWMP.

Table 8-4: Minimum Supply Next Three Years

Table 8-4 Retail: Minimum Supply Next Three Years			
Available Water Supply	2016	2017	2018
MGD	2.98	2.81	2.81
MG	1,088	1,026	1,026
NOTES: Sources: SFPUC Letter of Regional Water System Supply Reliability (January 5, 2016) and BAWSCA Tier 2 DRIP Model (UWMP Tier 2 Allocation Scenarios, January 8, 2016). The MPWD's 2015 demand was less than 840 MG.			

In 2015, the SFPUC updated predictive models of the supplies, discussed below, identifying single and multiple year drought scenarios in which aggregate demand on the SFPUC RWS would have to be reduced.[84]
Using these models, the SFPUC has assessed the water supply reliability under the following planning scenarios:

- Projected single dry year supply for base year 2015
- Projected multiple dry year supply beginning with base year 2015

[84] Final Common Language for BAWSCA Member Agencies' 2015 UWMPs, BAWSCA email and letter from SFPUC to BAWSCA dated January 5, 2016.

- Projected supply reliability for base year 2015 through 2040

In its letter to BAWSCA, SFPUC presents a summary (Table 1) for 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. SFPUC used their Fiscal Year 2015 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 the RWS reservoir and pipeline capacities and in-stream flow requirements as they existed in 2015 (pre-Water System Improvement Program [WSIP] completion).

For future demands, the SFPUC proposes to expand their water supply portfolio by increasing the types of water supply resources, including long-term conservation savings.

In the same document, SFPUC also summarizes the water supply resources (Table 2) assumed to be available through 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.
To address the allocation of potable water supply during dry years, the Water Shortage Allocation Plan (WSAP) was utilized to allocate shortages between the SFPUC and the Wholesale Customers collectively (Tier 1). The WSAP implements the two-tier method for allocating water between the SFPUC retail customers and wholesale customers collectively that was adopted by the Wholesale Customers 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 adopted the Tier 2 Plan, the second component of the WSAP, which allocates the collective wholesale customer share among each of the 26 SFPUC wholesale customers.[85]

Finally, the SFPUC estimated the frequency and severity of anticipated shortages for the period 2015 (base year) through 2040. For this analysis, SFPUC 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. See copy of the SFPUC Letter of Supply Reliability 2015-2040 in Appendix I.

Compared to the reliability projections by SFPUC that were provided previously for the 2010 UWMP update, SFPUC indicates slightly higher shortages and lower Wholesale allocations for dry years 2 and 3. Also, the updated modeling 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 that were not included in the previous reliability analysis.

[85] Ibid.

9. DEMAND MANAGEMENT MEASURES

The goal of the Demand Management Measures (DMM) section in an UWMP is to provide a comprehensive description of the water conservation programs that a supplier has implemented, is currently implementing, and plans to implement in order to meet its urban water use reduction targets.

The MPWD is a CUWCC signatory member and has the option of submitting their 2013–2014 Best Management Practice (BMP) annual reports in lieu of describing the Demand Management Measures (DMMs) in this UWMP. In its 2015 UWMP, the MPWD is submitting its CUWCC 2013–2014 BMP annual reports in lieu of the DMMs. The MPWD is on track with the CUWCC BMPs and is in full compliance with the CUWCC's Memorandum of Understanding (MOU).

Regional Water Demand and Conservation Projections

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

Through the Demand Study process, BAWSCA and the wholesale customers (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 and the data from that model is useful in supporting ongoing demand and conservation planning efforts, including MPWD's 2015 UWMP preparation.

9.1 Demand Management Measures for Retail Agencies

THE MPWD is on track with the CUWCC BMPs and the CUWCC's MOU (see Appendix J for the CUWCC BMP reports).

9.1.1 Water Waste Prevention Ordinances

MPWD prohibits water waste (Ordinance 103, Section 4.2). [86] The water waste prevention ordinance is in place at all times and is not dependent upon a water shortage for implementation.

9.1.2 Metering

The MPWD meters all its customers and it is in the process of completing AMI installations. Currently MPWD has approximately 4000 AMI meters (approximately 50%) in place.

[86] MPWD Ordinance 103, Section 4.2 discusses water waste.
http://midpeninsulawater.org/uploads/Ordinance_Current_Water_Service.pdf and
https://www.midpeninsulawater.org/rules_and_tips.php

9.1.3 Conservation Pricing

MPWD has tiered pricing and water shortage emergency rates that could or would be enacted.

9.1.4 Public Education and Outreach

MPWD has instituted public education and outreach efforts. Outreach efforts depend on the situation and may include the following:

- Marketing of rebates and giveaways
- Communicating water use via water bills (e.g., increased frequency of billing, an easy to understand bill format, or bills that compare a customer's water use to the water use of similar customers);
- Providing school education programs
- Information booths at fairs and public events
- Newsletters
- Informative websites, online tools, or social media
- Newspaper articles
- Other activities not listed here

9.1.5 Programs to Assess and Manage Distribution System Real Loss

The MPWD performs water audits and manages water losses. The 2014 American water Works Association (AWWA) Water Audit summary report is in Appendix E.

9.1.6 Water Conservation Program Coordination and Staffing Support

MPWD has a Water Conservation Administrative Specialist who works with MPWD and BAWSCA staff to coordinate Water Conservation activities.

9.1.7 Other Demand Management Measures

For CUWCC activities, see CUWCC BMPs (Appendix J).

9.2 Implementation over the Past Five Years

As a CUWCC member, the MPWD is submitting their 2013–2014 BMP annual reports in lieu of describing the Demand Management Measures (DMMs) in this UWMP. The MPWD is on track and in full compliance with the CUWCC's MOU. (Appendix J). The MPWD has also achieved its 2015 SB X7-7 target.

9.3 Planned Implementation to Achieve Water Use Targets

MPWD is on track and in full compliance with the CUWCC's MOU (Appendix J).

9.4 Members of the California Urban Water Conservation Council (CUWCC)

The MPWD is a CUWCC member and is submitting their 2013–2014 BMP annual reports in lieu of describing the DMMs in this UWMP. The option of submitting the CUWCC BMP report in lieu of describing the DMMs is only available if the supplier is in full compliance with the CUWCC's MOU. The submitted reports are in Appendix J and include documentation from the CUWCC that the MPWD has met the MOU coverage requirements and is in full compliance with the MOU.

Table 9-1 below lists all the CUWCC BMPs and MPWD's full compliance.

Table 9-1: Summary Showing MPWD's Compliance with CUWCC MOU

CUWCC BMP Retail Coverage Report			
2013		2014	
BMP 1.1 Operation Practices	ON TRACK	BMP 1.1 Operation Practices	ON TRACK
BMP 1.2 Water Loss Control	ON TRACK	BMP 1.2 Water Loss Control	ON TRACK
BMP 1.3 Metering With Commodity	ON TRACK	BMP 1.3 Metering With Commodity	ON TRACK
BMP 1.4 Retail Conservation Pricing	ON TRACK	BMP 1.4 Retail Conservation Pricing	ON TRACK
BMP 2.1 Public Outreach	ON TRACK	BMP 2.1 Public Outreach	ON TRACK
BMP 2.2 School Education Programs	ON TRACK	BMP 2.2 School Education Programs	ON TRACK

10. PLAN ADOPTION, SUBMITTAL AND IMPLEMENTATION

This UWMP also includes an updated Water Shortage Contingency Plan (WSCP, 2016) as required under the provisions of AB 11X of (1991), and addresses changes required by subsequent legislation including the Water Conservation Act of 2009 (SB X7-7). The MPWD's UWMP also incorporates the water conservation initiatives that the MPWD has adopted, as a signatory, under the terms of the MOU with the CUWCC for urban water conservation in California.

The MPWD's Draft 2015 UWMP was presented in a public meeting on May 26, 2016. The MPWD's Draft 2015 UWMP was also presented to the MPWD's Board of Directors for review and adoption on June 23, 2016. The MPWD's 2015 UWMP was adopted by the MPWD Board on June 23, 2016. The MPWD's 2015 UWMP supersedes the 2010 Plan and it will be implemented until 2020. The MPWD's 2015 UWMP will be filed with the Water Efficiency Office in the Department of Water Resources, the California State Library, the Bay Area Water Supply and Conservation Agency, the San Francisco Water Department, San Mateo County and the Cities of Belmont and San Carlos, as required, and will be used by the MPWD staff during the current five-year planning cycle. As required by Section 10621 (a) of the Water Code, the MPWD will update the Plan every five years, with the next update in 2020.

10.1 Notice of Public Hearing

As required, the MPWD notified the public, water agencies, cities, San Mateo County, and other public support agencies, about the preparation of MPWD's 2015 UWMP and opportunities for input and public comments. The MPWD's 2015 UWMP hearing was advertised several times, including in the Daily Journal for two consecutive weeks, and online 60 days prior to the meeting. Additionally, a public hearing notice was posted on the District's web site https://www.midpeninsulawater.org/.

A public hearing was be held on May 26, 2016 and presented to the Board for adoption at the June 23, 2016 Board Meeting, the Board had an opportunity to discuss and receive comments regarding MPWD's 2015 UWMP demand reduction targets, selected methods, and economic impacts.

The notices about the 2015 UWMP preparation and public hearing listed on the MPWD's website and the Daily Journal are in Appendix K and Appendix L.

10.1.1 Notice to Cities and Counties

Notifications in excess of 60-days were provided on January 25, 2016 to San Mateo County, cities, and other agencies, as listed below in Table 10-1.

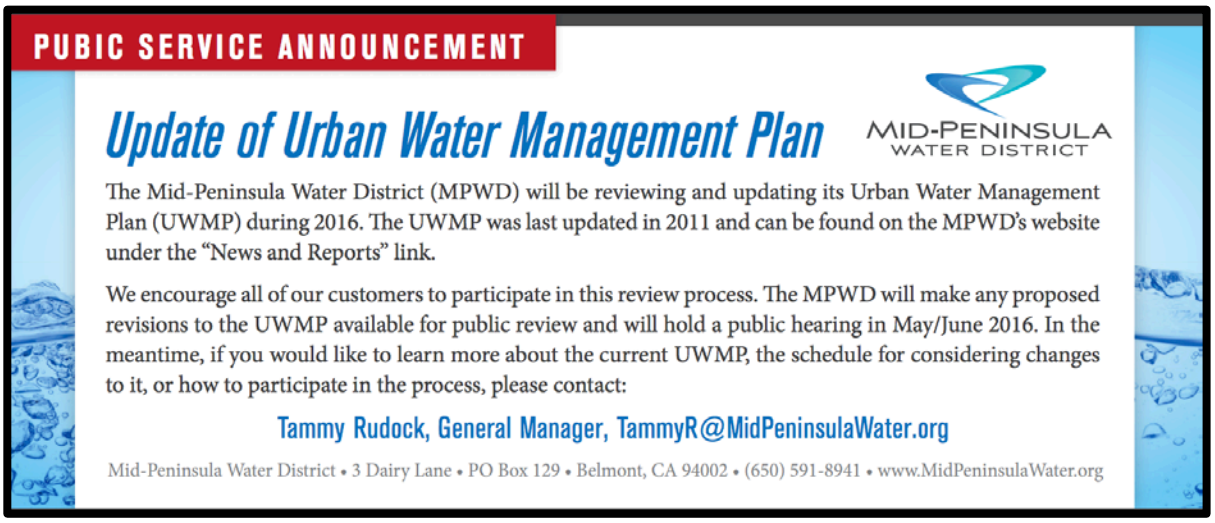
Table 10-1: Notification to Cities and Counties

Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
City of Belmont, Police Dept.	☑	☑
City of Belmont, Community Development Director	☑	☑
City of Belmont, Parks and Recreation Director	☑	☑
City of Belmont, City Manager	☑	☑
City of Belmont, Fire Dept.	☑	☑
Redwood City, County Manager	☑	☑
Redwood City, Silicon Valley Clean Water, General Manager	☑	☑
SFPUC, Assistant General Manager	☑	☑
City of San Carlos, City Manager's Office	☑	☑
San Mateo LAFCO	☑	☑
City of Belmont, Public Works Director	☑	☑
Westborough Water District	☑	☑
Town of Hillsborough	☑	☑
Stanford University, Stanford	☑	☑
Purissima Hills Water District, Los Altos	☑	☑
San Jose Municipal Water District, San Jose	☑	☑
North Coast County Water District, Pacifica	☑	☑
Estero Municipal Improvement District, Foster City	☑	☑
City of East Palo Alto, City Manager	☑	☑

Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
Coastside County Water District, Half Moon Bay	☑	☑
City of Sunnyvale	☑	☑
BAWSCA, CEO	☑	☑
City of Santa Clara	☑	☑
City of San Bruno	☑	☑
City of Redwood City	☑	☑
City of Palo Alto	☑	☑
City of Mountain View	☑	☑
City of Milpitas	☑	☑
City of Millbrae	☑	☑
City of Menlo Park	☑	☑
City of Hayward	☑	☑
City of Daly City	☑	☑
City of Burlingame	☑	☑
City of Brisbane	☑	☑
California Water Service Company	☑	☑
Alameda County Water District	☑	☑
County Name	60 Day Notice	Notice of Public Hearing
San Mateo County	☑	☑
NOTES: MPWD sent initial notices on January, 25, 2016. The notice was also published in the Daily Journal on February 4, 2016 and February 11, 2016. Information about the 2015 UWMP preparation was also listed on MPWD's website. See Appendix K for initial notice and Appendix L for Daily Journal public announcement.		

Figure 10-1 shows the MPWD's public notification initially sent on January 25, 2016, and later published in the Daily Journal on February 4 and February 11, 2016. The notice was also posted on MPWD's website (March 2016) about MPWD's preparation of the 2015 UWMP.

Figure 10-1: Notification and Publication about MPWD's 2015 UWMP



10.1.2 Notice to the Public

The public was notified more than 60 days prior to the adoption meeting via newspaper and the MPWD's website: https://www.midpeninsulawater.org/

10.2 Public Hearing and Adoption

The MPWD's Board of Directors held two public meetings on May 26, 2016 and June 23, 2016, to discuss and hear comments about the MPWD's 2015 UWMP. At the second public meeting, on June 23, 2016, the MPWD Board of Directors were given the opportunity to adopt the UWMP by resolution. The MPWD's 2015 UWMP was made available for public review at the MPWD office, the public library, and on MPWD's web site.

10.2.1 Adoption

The UWMP was adopted on June 23, 2016. The Final UWMP incorporates comments made by various agency and public reviewers. A copy of the resolution adopting the UWMP for implementation is provided in Appendix M.

10.3 Plan Submittal

To satisfy California Water Code (CWC) Section 10635(b), within 30 days of adoption, and per 10621 (d), MPWD has updated its 2015 Plan and is submitting its Plan to DWR by July 1, 2016. To satisfy CWC Section CWC 10644, the MPWD is submitting a copy of the 2015 UWMP to the DWR (electronically) and to the California Library Records Hall (Sacramento) in CD or hard copy. In accordance with the CWC Section 10635, that requires that within 60 days after the submittal of its 2015 UWMP, the MPWD is submitting a copy to the City of Belmont, City of San Carlos, and San Mateo County where the MPWD provides water.

10.4 Public Availability

The MPWD's Water Shortage Contingency plan is available on MPWD's website and to the City of Belmont, City of San Carlos, and San Mateo County where the MPWD provides water. The MPWD's Water Shortage Contingency plan is enclosed in MPWD's 2015 UWMP as Appendix C.

The Final UWMP will be available for public viewing at the following website link: https://www.midpeninsulawater.org/. Comments and response to comments to the Final UWMP made by the DWR will be added to the website for the public's information. A copy of the Draft 2015 UWMP, along with any comments or response to comments, was available for public viewing at the Belmont Library, Belmont City Hall, San Carlos City Hall, and MPWD's District office during normal business hours. As required by CWC 10645, not later than 30 days after filing a copy of its 2015 UWMP with the DWR, the MPWD shall make the 2015 UWMP available for public review during normal business hours.

11. REFERENCES

Alliance for Water Efficiency. The Status of Legislation, Regulation, Codes & Standards on Indoor Plumbing Water Efficiency, January 2016. Website: http://www.allianceforwaterefficiency.org/Codes-Standards-White-Paper.aspx

Association of Bay Area Governments (ABAG). *Bay Area Plan Projections 2013*.
website: http://abag.ca.gov/planning/housing/projections13.html

Ibid, *Projections 2009*, p. 51, Population of Belmont, plus an estimated 130 residents of San Carlos that are served by the District.

American Water Works Association. *Manual of Water Supply Practice, M36, Water Audits and Loss Control Programs*, (3rd edition). AWWA, 2009. Website: http://www.awwa.org

BAWSCA Annual Survey, FY2013-14, May 2015. Website: http://bawsca.info/pdf/reports/BAWSCA_FY13-14_AnnualSurvey.pdf

Ibid. Common Language for BAWSCA Member Agencies' 2015 UWMP Updates, January 6, 2016.

Ibid. Common Language for BAWSCA Member Agencies' 2015 UWMP Updates, revised February 26, 2016.

Ibid. *Tier 2 Drought Implementation Plan (DRIP),* 2009.

Ibid. Website: http://bawsca.org/

Bay Area Integrated Regional Water Management Plan (BAIRWMP, 2013). Website: http://bairwmp.org/docs/2013-bairwm-plan-update/2013-final-plan/San Francisco Bay Area IRWMP Final_September 2013.pdf

Brown and Caldwell, Maddaus Water Management. *Water Conservation Implementation Plan*, prepared for Bay Area Water Supply & Conservation Agency (BAWSCA), September 2009.

California Climate Change Website: http://www.climatechange.ca.gov/

California Department of State. Mid-Peninsula Certificate of Incorporation, July 3, 1929.

California Department of Water Resources. Climate Action Plan, Phase 1: Greenhouse Gas Emissions Reduction Plan. Website: http://www.water.ca.gov/climatechange/docs/Final-DWR-ClimateActionPlan.pdf

California Department of Food and Agriculture. Website: http://plantingseedsblog.cdfa.ca.gov/wordpress/?p=9466

California Green Building Standards Code (CALGreen). Website:
http://www.usgbc-ncc.org/index.php?option=com_content&view=article&id=401&Itemid=90

California Irrigation Management System Reference EvapoTranspiration (ETo) Zones.
Website: http://wwwcimis.water.ca.gov/App_Themes/images/etozonemap.jpg

California State Department. Executive Order B-36-15, November 13, 2015.
Website: https://www.gov.ca.gov/docs/11.13.15_EO_B-36-15.pdf

California State Department. Executive Order B-37-16, May 9, 2016. Website:

https://www.gov.ca.gov/docs/5.9.16_Attested_Drought_Order.pdf

California Water Code (CWC) 10632 (a)(1). Website: http://www.leginfo.ca.gov/.html/wat_table_of_contents.html

California Urban Water Conservation Council. *Best Management Practices (BMP) Cost and Savings Study.* CUWCC, 2005.

California Urban Water Conservation Council. *Memorandum of Understanding,* CUWCC, adopted December 1991, amended September 2014. Website: https://www.cuwcc.org/Resources/Memorandum-of-Understanding

California Irrigation Management Information System, Evaporation Zones Map – averaged for Zone 3 (Coastal Valleys and Plains) and Zone 8 (Inland San Francisco Bay Area with some marine influence).
Website: http://wwwcimis.water.ca.gov/App_Themes/images/etozonemap.jpg

City of Belmont, *Belmont Housing Element*, p. 2-51; p. 4-31.

City of Redwood City, *Connections: Recycled Water Project Update*, Summer, 2010.

Consortium for Efficient Energy. Website. www.cee1.org

CUWCC. Website: https://www.cuwcc.org/Resources/Planning-Tools-and-Models?folderId=776&view=gridview&pageSize=10

DeOreo, W.B., P.W. Mayer, Leslie Martien, Matthew Hayden, Andrew Funk, Michael Kramer-Duffield, Renee Davis, James Henderson, Bob Raucher, Peter Gleick, and Matt Heberger, *California Single-Family Water Use Efficiency Study*. Sacramento, California: Department of Water Resources, 2011.
Website: http://www.energy.ca.gov/appliances/2013rulemaking/documents/responses/Water_Appliances_12-AAER-2C/California_IOU_Response_to_CEC_Invitation_to_Participate-Water_Meters_REFERENCE/DeOreo_2011_California_Single-Family_Water_Use_Efficiency_Study.pdf

DeOreo, W.B., P.W. Mayer, E.M. Opitz, B. Dziegielewski, J.C. Kiefer, W.Y. Davis, and J.O. Nelson. *Residential End Uses of Water, Version 2 - 4309.* Denver, Colorado: AWWA Research Foundation, 2016.

Department of Water Resources (DWR) SB X7-7 amends Division 6, Part Section 2.55 of the California Water Code. Entitled *Sustainable Water Use and Demand Reduction*, November 10, 2009.

Department of Water Resources, California Climate Strategy. Website: http://www.climatechange.ca.gov/ and http://www.water.ca.gov/climatechange/docs/Final-DWR-ClimateActionPlan.pdf

Department of Water Resources U.S. Environmental Protection Agency, Resources Legacy Fund, and The U.S. Army Corps of Engineers, the Climate Change Handbook for Regional Water Planning provides a framework for considering climate change in water management planning. Climate Change Handbook for Regional Water Planning.
Website: http://www.water.ca.gov/climatechange/CCHandbook.cfm.

Dziegielewski, B., J. C. Kiefer, W. DeOreo, P. Mayer, E. M. Opitz, G. A. Porter, G. L. Lantz, and J. O. Nelson. *Commercial and Institutional End Uses of Water*. Denver, Colorado: AWWA, Research Foundation and American Water Works Association with Cooperation of the U.S. Bureau of Reclamation, 2000. Catalog No.90806. 264 pp. ISBN 1-58321-035-0.
Website: http://ufdc.ufl.edu/WC13511002/00001

Energy Star Unit Shipment and Market Penetration Report Calendar Year 2011 Summary.
Website: http://www.energystar.gov/ia/partners/downloads/unit_shipment_data/2011_USD_Summary_Report.pdf

Kennedy/Jenks Consultants, Environmental Science Associates, Kearns & West, Zentraal. Bay Area Integrated Regional Water Management Plan (BAIRWMP, 2013). Website: http://bairwmp.org/docs/2013-bairwm-plan-update/2013-final-plan/San Francisco Bay Area IRWMP Final_September 2013.pdf

Koeller & Company. “High Efficiency Plumbing Fixtures - Toilets and Urinals," 2005.

Maddaus Water Management, Western Policy Research. Regional Water Demand and Conservation Projections, prepared for BAWSCA, September 2014.

Mid-Peninsula Water District. *2010 Urban Water Management Plan*, prepared by Donaldson Associates, June 2011.
Website: https://www.midpeninsulawater.org/images/files/MPWD_FinalUWMP_2010.pdf

Ibid. *Emergency Action Plan*, December 2008.

Ibid. *Final Master Plan Update*, July 2008, 2015 update (Reference communication with MPWD, 2016).

Ibid. Notice of Public Hearing on Proposed Water Rate Increases, June 25, 2015.
Website: https://www.midpeninsulawater.org/rates_notices.php

Ibid. Ordinance 109, January 2014.
Website: https://www.midpeninsulawater.org/uploads/121913Ordinance109REV.pdf

Ibid. Ordinance 110 February 2014. Website:
https://www.midpeninsulawater.org/uploads/121913Ordinance110REV.pdf

Ibid. Ordinance 111, September 2014. Website:
https://www.midpeninsulawater.org/uploads/Ordinance_No_111_Mandatory_Outdoor_Water_Use_Restrictions.pdf

Ibid. Ordinances and Resolutions. Website: http://midpeninsulawater.org/board_ordinances.php

Ibid. Water Service Ordinance 112, Attachment 103A, Schedule of Rates and Fees, June 25, 2015.
Website: https://www.midpeninsulawater.org/uploads/ORDINANCE%20No.%20112%20Attachment%20A.pdf

Ibid. Website: http://www.midpeninsulawater.org/about.php

Oak Ridge National Laboratory, Energy Division, "Bern Clothes Washer Study, Final Report," prepared for U.S. Department of Energy, March 1998.
Website: http://web.ornl.gov/sci/ees/etsd/btric/eere_research_reports/appliances/other_appliances/laundry_equipment/ornl_m_6382/ornl_m_6382.html

Pacific Institute, California Urban Water Use Data Table, February 2016.
Website: http://www2.pacinst.org/gpcd/table.html

Personal communication between M. Maddaus, MWM and G. Huff, DWR, February 10, and February 26, 2016. BAWSCA Population methodology that used ABAG population data was thorough and addresses all the requirements of the Water Code. Method approved by the Department of Water Resources (DWR), per email from: G. Huff, DWR, dated February 26, 2016, to M. Maddaus, MWM.

Plumbing Efficiency Research Coalition. Water Consumption by Water-Using Plumbing Products and Appliances – 1980-2012, PERC Phase 1 Report, Table 2-A, November 2012. Website: http://www.map-testing.com/content/info/menu/perc.html

RMC Water and Environment. *Sanitary Sewer Rehabilitation Master Plan*, September 2007.
Website: https://www.belmont.gov/home/showdocument?id=9518

San Francisco Public Utilities Commission, Sensitivity of Upper Tuolumne River Flow to Climate Change Scenarios Report, January 2012. Website: http://reports.abag.ca.gov/sotr/2015/State_of_the_Region-lowres.pdf

State of California, Department of State. Certificate of Incorporation, July 3, 1929.

State Water Resources Control Board. Resolution No. 2015-0032, May 2015.
Website: http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/docs/emergency_regulations/rs2015_0032_with_adopted_regs.pdf

URS Corporation, co-authored by Maddaus Water Management. Wholesale Customer Water Demand Projections – Technical Report, prepared for San Francisco Public Utilities Commission (SFPUC), November 2004.

U.S. Census, 2010. Website. http://www.census.gov/2010census/

Western Regional Climate Center. Website: http://www.wrcc.dri.edu/CLIMATEDATA.html

Ibid. San Mateo, California Climate Summary. Website: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7864

Ibid. Redwood City, California Climate Summary. Website: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7339

Water Resources Control Board, Final California Water Plan, updated October 30, 2014.
Website: http://www.waterplan.water.ca.gov/cwpu2013/final/index.cfm

Water Resources Control Board, California Adaptation Planning Guide, V4 Reference Guide, Update 2013.
Website: http://www.waterplan.water.ca.gov/docs/cwpu2013/Final/vol4/climate_change/03CA_Climate_Planning_Guide.pdf

Water Resources Control Board, State of California, Executive Order B-29-15, April 1, 2015.
Website: http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/docs/040115_executive_order.pdf

Water Resources Control Board, Media Release, October 30, 2015.
Website: http://www.waterboards.ca.gov/press_room/press_releases/2015/pr103015_sept_waterconservation.pdf

Water Resources Control Board, Water Conservation Portal – Conservation Reporting.
Website: http://www.waterboards.ca.gov/water_issues/programs/conservation_portal/conservation_reporting.shtml

Water Resources Control Board, Water Conservation Portal – Emergency Conservation Regulation. Website:

http://www.waterboards.ca.gov/water_issues/programs/conservation_portal/emergency_regulation.shtml

12. APPENDICES

A. UWMP Checklist

B. Water Code Changes Since 2010 UWMP

C. Water Shortage Contingency Plan (WSCP)

D. SB X7-7 Verification Form

E. DWR Water Audit Method

F. Demand Methodology

G. Passive Savings Projection Background

H. Water Waste Prevention Ordinance

I. SFPUC Letter of Supply Reliability 2015-2040

J. CUWCC Best Management Practices Reports

K. Notification of UWMP Update

L. Public Notice of UWMP Hearing

M. Adoption Resolution

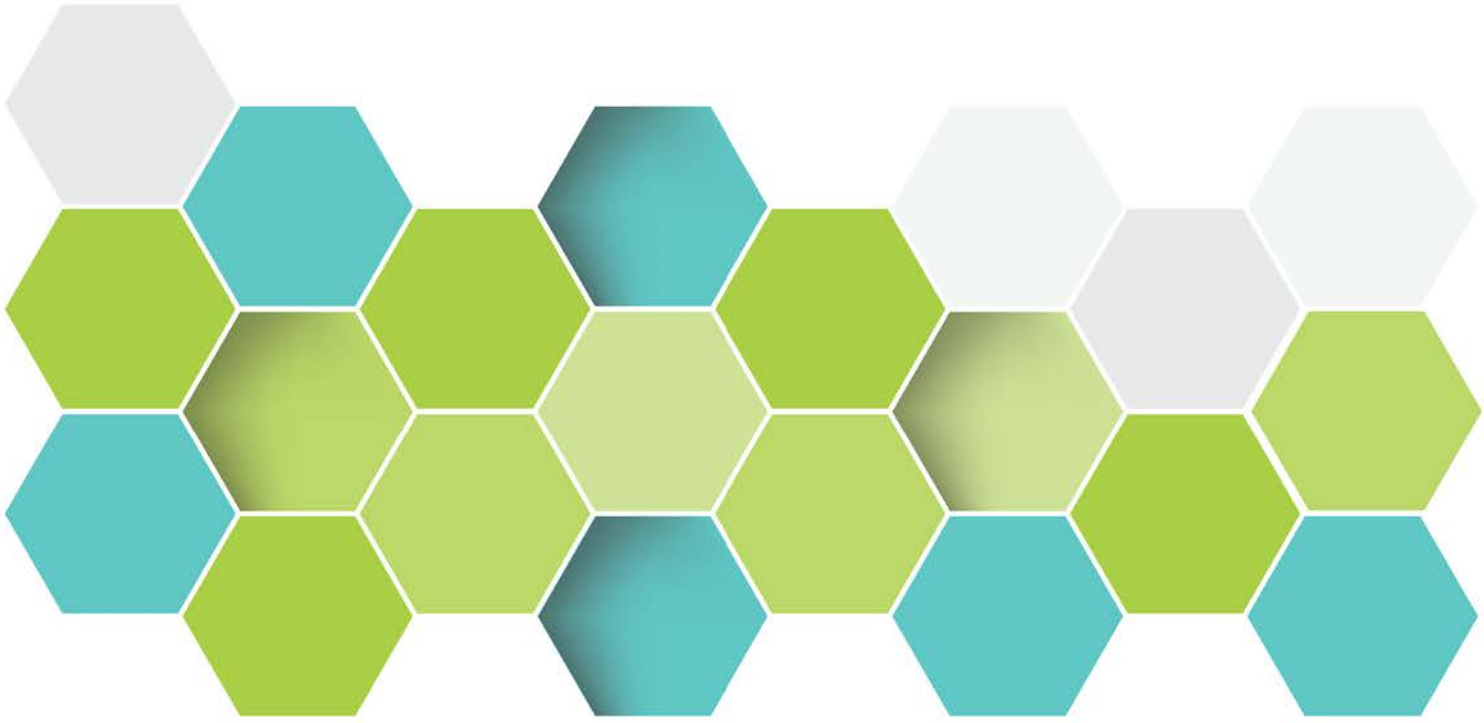
N. Documentation of 2015 UWMP Submittal

APPENDICES

MID-PENINSULA WATER DISTRICT

2015 Urban Water Management Plan

JUNE 23, 2016



IN ASSOCIATION WITH:

ManageWater Consulting, Inc.

MADDAUS WATER MANAGEMENT INC.

TABLE OF CONTENTS

LIST OF ACRONYMS

AB	Assembly Bill
ABAG	Association of Bay Area Governments
ACS	American Community Survey
ACWA	Association of California Water Agencies
AF	acre-foot/acre-feet (1 AF = 325,851 gallons)
AFY	acre-feet per year
AMI	Automated Meter Infrastructure
AWWA	American Water Works Association
AWWARF	American Water Works Association Research Foundation
BARDP	Bay Area Regional Desalination Project
BAWSCA	Bay Area Water Supply and Conservation Agency
BDPL	Bay Division Pipeline
BMP	Best Management Practice
CII	Commercial, Industrial, and Institutional
CIMIS	California Irrigation Management Information System
CPI	Consumer Price Index
CUWCC	California Urban Water Conservation Council
CWC	California Water Code
DMM	Demand Management Measure
DRIP	Drought Implementation Plan
DWR	Department of Water Resources
DSS	Decision Support System
EOC	Emergency Operations Center
Eto	Evapotranspiration rate
FY	Fiscal Year
gpcd	Gallons per capita per day
gpf	Gallons per flush
hcf unit	A billing unit of 100 cubic feet or 748 gallons
HE	High Efficiency
HEU	High Efficiency Urinal
HHLSM	Hetch Hetchy Local Simulation Model
ILI	Infrastructure Leakage Index
IRR	Irrigation
ISA	Interim Supply Allocation
ISG	Individual Supply Guarantee
ISL	Interim Supply Limitation
MF	Multi-family
MG	Million gallons
mgd	Million gallons a day
MOU	Memorandum of Understanding
MPWD	Mid-Peninsula Water District
MWM	Maddaus Water Management, Inc.
ND	New Development
NRW	Non-revenue water
PEIR	Program Environmental Impact Report
PV	Present value
PWSS	Public Water System Statistics
RWS	Regional Water System (also Hetch Hetchy System)
SB	Senate Bill
SBSA	South Bay Systems Authority
SF	Single Family
SFPUC	San Francisco Public Utilities Commission
SMP	Surface Mining Permit
UHET	Ultra-High Efficiency Toilet
ULFT	Ultra-Low Flow Toilet
UWMP	Urban Water Management Plan
WCIP	Water Conservation Implementation Plan
WF	Water factor
WSA	Water Supply Agreement
WSAP	Water Shortage Allocation Plan
WSIP	Water System Improvement Program

APPENDIX A – UWMP CHECKLIST

UWMP Checklist Arranged by Subject

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location *(Optional Column for Agency Use)*
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 1.2.1 p.6**
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	**Sections 2.2, 10, Table 10-1 p.9, pp.73-76 App. K,L**
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	**Sections 2.5, 10 pp.11-13, pp.73-76 App. K, L**
10631(a)	Describe the water supplier service area.	System Description	Section 3.1	**Sections 3.1, 3.2 p.14-17**
10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.3	**Section 3.3 p. 17-19**
10631(a)	Provide population projections for 2020, 2025, 2030, and 2035.	System Description	Section 3.4	**Section 3.4 p.19 - 20**
10631(a)	Describe other demographic factors affecting the supplier's water management planning.	System Description	Section 3.4	**Section 3.4 p.19-20**
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 p.19-20**
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 p.21-23**
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 p.24 App. E**
10631.1(a)	Include projected water use needed for	System Water	Section 4.5	**Sections**

	lower income housing projected in the service area of the supplier.	Use		**4.2, 4.5 pp.23-25**
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 p.27-29 APP D**
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	**Sections 5.5, 5.6 P.29 APP D**
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 if the suppliers base GPCD is at or below 100.	Baselines and Targets	Section 5.7.2	**Sections 5.6, 5.7 pp.29-30**
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 p.30 APP D**
10608.24(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	**Section 5.7, Table 5-2, No adjustment made p.30 App. D**
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	**Does not apply, MPWD is a retail 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 pp.29-30 App D**
10631(b)	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, 2030, and 2035.	System Supplies	Section 6	**Sections 6.1- 6.10 pp.31-42**
10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2	**Section 6.3, Ground-water is not a source, p.33**
10631(b)(1)	Indicate whether a groundwater management plan has been adopted by the water supplier or if there is any other	System Supplies	Section 6.2.2	**Section 6.3, ground-water is not**

	specific authorization for groundwater management. Include a copy of the plan or authorization.			**a source, p.33**
10631(b)(2)	Describe the groundwater basin.	System Supplies	Section 6.2.1	**Section 6.3, Ground-water not a source , p33**
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 6.3, Ground-water not a source, p.33**
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 6.3, Ground-water not a source, p.33**
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 6.3, Ground-water not a source, p.33**
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 6.3, Ground-water not a source, p.33**
10631(d)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System Supplies	Section 6.7	**Sections 6.8- 6.8.3, p. 39-40**
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	**Sections 6.9-6.10 pp.40-42**
10631(h)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6	**Section 6.7 p.39**
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	**Sections 2.5.1, 4 (2014, BAWSCA Regional project) p.12, 21-25 APP G**

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	**Not applicable, MPWD is a retail 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	**Sections 6.6-6.6.2 p.34**
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	**Sections 6.6.1-6.6.2- p.34-36**
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 6.6.2 p.34-36**
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 6.6.3 p.38**
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 6.6.3 p.38**
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 6.6.3 p.38**
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 6.6.3 p.38**
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 6.6.3 p.38**
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	**Sections 6.9-6.10, 7-7.1pp.40-41, 48-49**

10631(c)(1)	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage.	Water Supply Reliability Assessment	Section 7.1	**Sections 6.12, 7-7.2 pp.43-50**
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 7.2.1 p.51**
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	**Sections 7.2-7.3 pp.49-52**
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	**Sections 6.11-6.12 pp.43-45**
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	**Sections 7.2-7.4 pp.49-56**
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	**Sections 8-8.1 pp.57-60 APP C**
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 p.68**
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 pp.67-68 APP C**
10632(a)(4)	Identify mandatory prohibitions against specific water use practices during water shortages.	Water Shortage Contingency Planning	Section 8.2	**Section 8.2 pp.61-62 APP C**
10632(a)(5)	Specify consumption reduction methods in the most restrictive stages.	Water Shortage Contingency Planning	Section 8.4	**Sections 8.4 pp.64-66 APP C**
10632(a)(6)	Indicated penalties or charges for excessive use, where applicable.	Water Shortage Contingency Planning	Section 8.3	**Section 8.3 pp.64-65 APP C**
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 Shortage Contingency Planning	Section 8.6	**Section 8.6 p.66-67 APP C**

	water supplier, and proposed measures to overcome those impacts.			
10632(a)(8)	Provide a draft water shortage contingency resolution or ordinance.	Water Shortage Contingency Planning	Section 8.7	**Section 8.7, p.67 APP C**
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 p.66 APP C**
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	**MPWD is compliant with CUWCC MOU, Section 9, pp.70-72 APP.J**
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	**Does not apply, MPWD is a retail supplier**
10631(i)	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	**MPWD is CUWCC compliant, on track, Sections 9-9.4, pp.70-72 APP.J**
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 pp.73-76**
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 pp.73-77 APPS. K,M**
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	**Sections 10.3-10.4 pp.76-77**
10635(b)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county	Plan Adoption, Submittal, and Implementation	Section 10.4.4	**Section 10.4 pp.77**

	within which it provides water, no later than 60 days after the submission of the plan to DWR.			
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	**Sections 10. 2-10.3 pp.76-77 APPS. K, L**
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	**Sections 10.1- 10.2.1 pp.73-76 APPS. K, L**
10642	Provide supporting documentation that the plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.3.1	**Section 10.2-10.3 APPS. M, N**
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 10.3 Appendix N**
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 10.3	**Section 10.3 Appendix N**
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 10.3 p.76**
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 10.3-10.4 pp.76-77**

APPENDIX B – WATER CODE CHANGES SINCE 2010 UWMP

The table below lists the changes made to the Water Code since the completion of the 2010 Urban Water Management Plan.

Changes to the Water Code since 2010 UWMP

Change Number	Topic	CWC Section	Legislation Bill	Summary	Section in MPWD's 2015 UWMP
1	Demand Management Measures	10631 (f)(1) and (2)	AB 2067, 2014	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.	Chapter 9
2	Submittal Date	10621 (d)	AB 2067, 2014	Requires each urban water supplier to submit its 2015 plan to the Department of Water Resources by July 1, 2016.	Chapter 10
3	Electronic Submittal	10644 (a) (2)	SB 1420, 2014	Requires the plan, or amendments to the plan, to be submitted electronically to the department.	Chapter 10
4	Standardized Forms	10644 (a) (2)	SB 1420, 2014	Requires the plan, or amendments to the plan, to include any standardized forms, tables, or displays specified by the department.	Water agencies are required to submit UWMP data electronically to DWR using standardized tables. MPWD has chosen to include the UWMP standardized forms as tables throughout this UWMP.
5	Water Loss	10631 (e) (1) (J) and (e) (3) (A) and (B)	SB 1420, 2014	Requires the plan to quantify and report on distribution system water loss.	Section 4.3, Appendix E
6	Estimating Future Water Savings	10631 (e) (4)	SB 1420, 2014	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.	Section 4.4, Appendix G

7	Defining Water Features	10632	AB 2409, 2010	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.	Section 8.1.4

APPENDIX C – WATER SHORTAGE CONTINGENCY PLAN

Due to the length of the Water Shortage Contingency Plan, it is included as a separate document.

SB X7-7 Table-1: Baseline Period Ranges			
Baseline	**Parameter**	**Value**	**Units**
10- to 15-year baseline period	2008 total water deliveries	1,193	Million Gallons
	2008 total volume of delivered recycled water	0	Million Gallons
	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	1997	
	Year ending baseline period range[3]	2006	
5-year baseline period	Number of years in baseline period	5	Years
	Year beginning baseline period range	2003	
	Year ending baseline period range[4]	2007	

[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.*

Reference: Bay Area Supply and Conservation Agency (BAWSCA) Regional Water Demand and Conservation Projections Report, Association of Bay Area Governments (ABAG) population data and Maddaus Water Management (MWM) analysis (MWM, September 2014). The BAWSCA Population methodology that used ABAG population data was thorough and addresses all the requirements of the Water Code. This method was approved by the Department of Water Resources (DWR), per email from: G. Huff, DWR, dated February 26, 2016, to M. Maddaus, MWM.

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
Reference: Bay Area Supply and Conservation Agency (BAWSCA) Regional Water Demand and Conservation Projections Report, Association of Bay Area Governments (ABAG) population data and Maddaus Water Management (MWM) analysis (MWM, September 2014). The BAWSCA Population methodology that used ABAG population data was thorough and addresses all the requirements of the Water Code. This method was approved by the Department of Water Resources (DWR), per email from: G. Huff, DWR, dated February 26, 2016, to M. Maddaus, MWM.	

SB X7-7 Table 3: Service Area Population		
Year		**Population**
10 to 15 Year Baseline Population		
Year 1	1997	25,683
Year 2	1998	25,684
Year 3	1999	25,684
Year 4	2000	25,684
Year 5	2001	25,835
Year 6	2002	25,986
Year 7	2003	26,139
Year 8	2004	26,292
Year 9	2005	26,446
Year 10	2006	26,436
5 Year Baseline Population		
Year 1	2003	26,139
Year 2	2004	26,292
Year 3	2005	26,446
Year 4	2006	26,436
Year 5	2007	26,427
2015 Compliance Year Population		
2015		26,924
Reference: Bay Area Supply and Conservation Agency (BAWSCA) Regional Water Demand and Conservation Projections Report, Association of Bay Area Governments (ABAG) population data and Maddaus Water Management (MWM) analysis (MWM, September 2014). The BAWSCA Population methodology that used ABAG population data was thorough and addresses all the requirements of the Water Code. This method was approved by the Department of Water Resources (DWR), per email from: G. Huff, DWR, dated February 26, 2016, to M. Maddaus, MWM.		

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	1997	1,260	-	-	-	-	-	1,260
Year 2	1998	1,186	-	-	-	-	-	1,186
Year 3	1999	1,190	-	-	-	-	-	1,190
Year 4	2000	1,338	-	-	-	-	-	1,338
Year 5	2001	1,278	-	-	-	-	-	1,278
Year 6	2002	1,274	-	-	-	-	-	1,274
Year 7	2003	1,206	-	-	-	-	-	1,206
Year 8	2004	1,300	-	-	-	-	-	1,300
Year 9	2005	1,204	-	-	-	-	-	1,204
Year 10	2006	1,189	-	-	-	-	-	1,189
10 - 15 year baseline average gross water use								**1,242**
5 Year Baseline - Gross Water Use								
Year 1	2003	1,206	-	-	-	-	-	1,206
Year 2	2004	1,300	-	-	-	-	-	1,300
Year 3	2005	1,204	-	-	-	-	-	1,204
Year 4	2006	1,189	-	-	-	-	-	1,189
Year 5	2007	1,202	-	-	-	-	-	1,202
5 year baseline average gross water use								**1,220**
2015 Compliance Year - Gross Water Use								
2015		840	-		-	-	-	**840**
NOTE: The units are in million gallons (MG) and remain consistent throughout the UWMP, as reported in Table 2-3.								

SB X7-7 Table 4-A: Volume Entering the Distribution System(s) Complete one table for each source.				
Name of Source	SFPUC			
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	1997	1,260	0	1,260
Year 2	1998	1,186	0	1,186
Year 3	1999	1,190	0	1,190
Year 4	2000	1,338	0	1,338
Year 5	2001	1,278	0	1,278
Year 6	2002	1,274	0	1,274
Year 7	2003	1,206	0	1,206
Year 8	2004	1,300	0	1,300
Year 9	2005	1,204	0	1,204
Year 10	2006	1,189	0	1,189
5 Year Baseline - Water into Distribution System				
Year 1	2003	1,206	0	1,206
Year 2	2004	1,300	0	1,300
Year 3	2005	1,204	0	1,204
Year 4	2006	1,189	0	1,189
Year 5	2007	1,202	0	1,202
2015 Compliance Year - Water into Distribution System				
2015		840	0	840
** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*				
NOTES: Units: MG				

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	1997	25,683	1,260	134
Year 2	1998	25,684	1,186	127
Year 3	1999	25,684	1,190	127
Year 4	2000	25,684	1,338	143
Year 5	2001	25,835	1,278	135
Year 6	2002	25,986	1,274	134
Year 7	2003	26,139	1,206	126
Year 8	2004	26,292	1,300	135
Year 9	2005	26,446	1,204	125
Year 10	2006	26,436	1,189	123
10-15 Year Average Baseline GPCD				**131**
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	2003	26,139	1,206	126
Year 2	2004	26,292	1,300	135
Year 3	2005	26,446	1,204	125
Year 4	2006	26,436	1,189	123
Year 5	2007	26,427	1,202	125
5 Year Average Baseline GPCD				**127**
2015 Compliance Year GPCD				
2015		26,924	840	**85**

Reference: Annual gross water use: MG. Bay Area Supply and Conservation Agency (BAWSCA) Regional Water Demand and Conservation Projections Report, Association of Bay Area Governments (ABAG) population data and Maddaus Water Management (MWM) analysis (MWM, September 2014). The BAWSCA Population methodology that used ABAG population data was thorough and addresses all the requirements of the Water Code. This method was approved by the Department of Water Resources (DWR), per email from: G. Huff, DWR, dated February 26, 2016, to M. Maddaus, MWM.

SB X7-7 Table 6: Gallons per Capita per Day *Summary From Table SB X7-7 Table 5*	
10-15 Year Baseline GPCD	131
5 Year Baseline GPCD	127
2015 Compliance Year GPCD	85
NOTES: Baseline GPCD has been updated for MPWD's 2015 UWMP, specifically the 10-year and 5-year baseline GCPD. For 2015 data, MPWD's actual metered data was used.	

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: MPWD is using Method 3, the Hydrologic Region Method, Using the San Francisco Hydrologic Region. Reference, MPWD 2010 UWMP.		

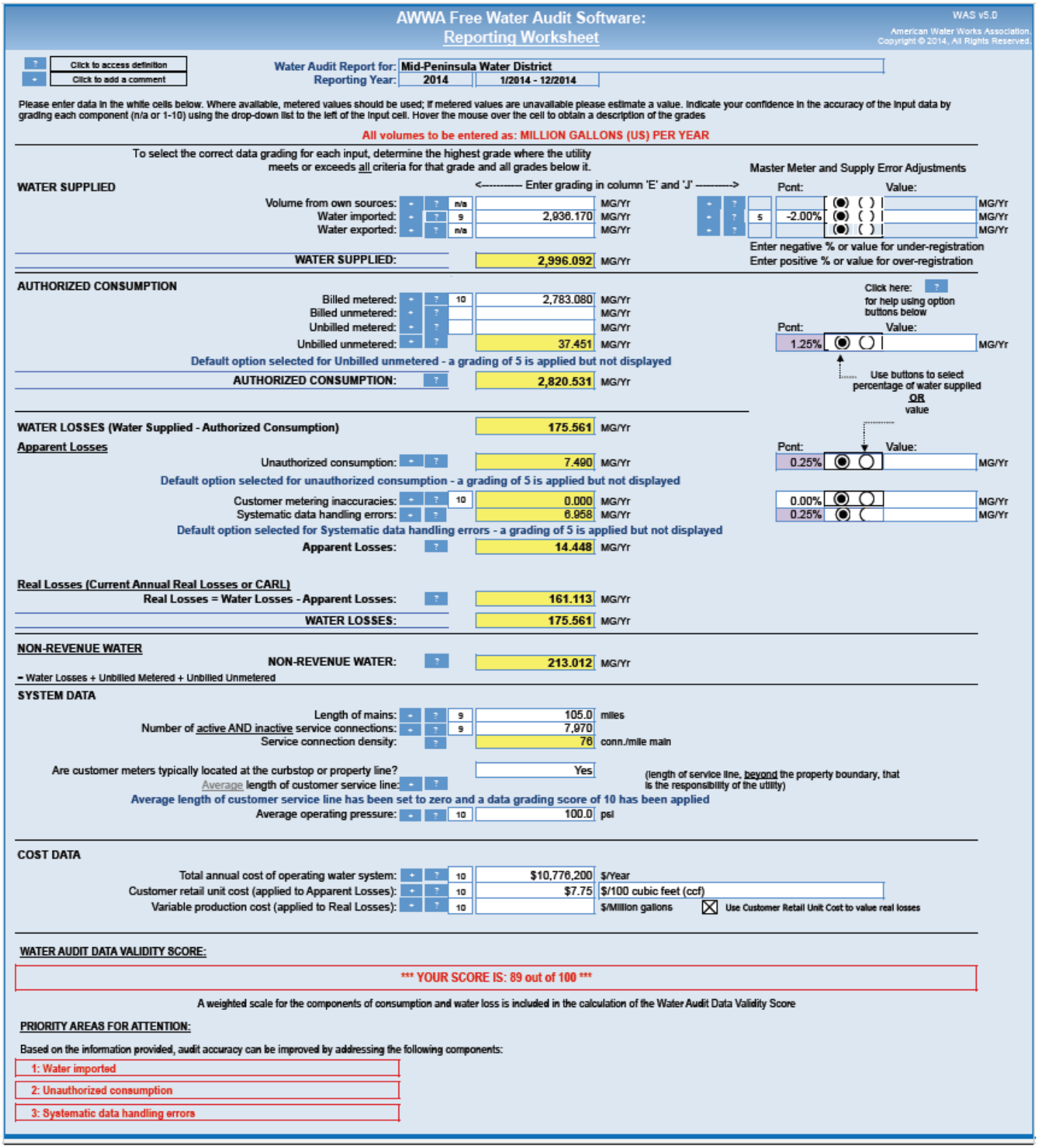
SB X7-7 Table 7-E: Target Method 3				
Agency May Select More Than One as Applicable	Percentage of Service Area in This Hydrological Region	Hydrologic Region	"2020 Plan" Regional Targets	Method 3 Regional Targets (95%)
☐		North Coast	137	130
☐		North Lahontan	173	164
☐		Sacramento River	176	167
☑		San 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**

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**
127	121	124	**121**
[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: MPWD is using Method 3, the Hydrologic Region Method, Using the San Francisco Hydrologic Region. Reference, MPWD 2010 UWMP.			

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**
121	131	**126**
NOTES: MPWD is using Method 3, the Hydrologic Region Method, Using the San Francisco Hydrologic Region. Reference, MPWD 2010 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				
85	126	-	-	-	-	85	85	**YES**
NOTES: Source of 2015 data provided by MPWD based on actual metered data. No adjustments were made for extraordinary events, economy, or weather.								

APPENDIX E – AWWA WATER AUDIT METHOD



AWWA Free Water Audit Software:
Reporting Worksheet

WAS v5.0
American Water Works Association.
Copyright © 2014, All Rights Reserved.

? Click to access definition
+ Click to add a comment

Water Audit Report for: Mid-Peninsula Water District
Reporting Year: 2014 1/2014 - 12/2014

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.

<---------- Enter grading in column 'E' and 'J' ---------->

Master Meter and Supply Error Adjustments

WATER SUPPLIED			Pcnt:	Value:	
Volume from own sources:	n/a				MG/Yr
Water imported:	9	2,936.170 MG/Yr			MG/Yr
Water exported:	n/a		5 -2.00%		MG/Yr
WATER SUPPLIED:		2,996.092 MG/Yr			

Enter negative % or value for under-registration
Enter positive % or value for over-registration

AUTHORIZED CONSUMPTION			Pcnt:	Value:	
Billed metered:	10	2,783.080 MG/Yr			
Billed unmetered:		MG/Yr			
Unbilled metered:		MG/Yr			
Unbilled unmetered:		37.451 MG/Yr	1.25%		MG/Yr
AUTHORIZED CONSUMPTION:		2,820.531 MG/Yr			

Click here: ? for help using option buttons below

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

Use buttons to select percentage of water supplied OR value

WATER LOSSES (Water Supplied - Authorized Consumption)					
		175.561 MG/Yr			
Apparent Losses			Pcnt:	Value:	
Unauthorized consumption:		7.490 MG/Yr	0.25%		MG/Yr
Customer metering inaccuracies:	10	0.000 MG/Yr	0.00%		MG/Yr
Systematic data handling errors:		6.958 MG/Yr	0.25%		MG/Yr
Apparent Losses:		14.448 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

Real Losses (Current Annual Real Losses or CARL)		
Real Losses = Water Losses - Apparent Losses:		161.113 MG/Yr
WATER LOSSES:		175.561 MG/Yr

NON-REVENUE WATER		
NON-REVENUE WATER:		213.012 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA			
Length of mains:	9	105.0	miles
Number of active AND inactive service connections:	9	7,970	
Service connection density:		76	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:	10	100.0	psi

COST DATA			
Total annual cost of operating water system:	10	$10,776,200	$/Year
Customer retail unit cost (applied to Apparent Losses):	10	$7.75	$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	10		$/Million gallons

☒ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 89 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: Water imported
2: Unauthorized consumption
3: Systematic data handling errors

APPENDIX F – DEMAND METHODOLOGY

Plumbing codes and appliance standards for toilets, urinals, clothes washers, and showerheads will continue to reduce indoor residential and non-residential water demands in the future. This reduction in demand is accounted for in Maddaus Water Management Decision Support System (DSS) Model. Background on the DSS Model as well as details on the method of determining plumbing code savings is presented in the following sections.

DSS Model Overview

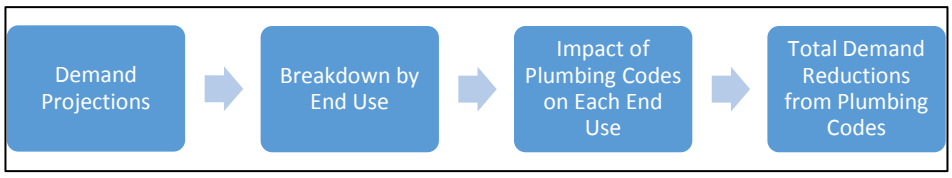
The DSS Model prepares long-range, detailed demand projections. The purpose of the extra detail is to enable a more accurate assessment of the impact of water efficiency programs on demand. A rigorous modeling approach is especially important if the project will be subject to regulatory or environmental review.

The DSS Model is an end-use model that breaks down total water production (water demand in the service area) to specific water end-uses. The model uses a bottom-up approach that allows for multiple criteria to be considered when estimating future demands, such as the effects of natural fixture replacement, plumbing codes, and conservation efforts. The DSS Model may also use a top-down approach with a utility prepared water demand forecast.

To forecast urban water demands using the DSS Model, customer demand data are obtained from the water agency being modeled. The demand data are reconciled with available demographic data to characterize the water usage for each customer category in terms of number of users per account and per capita water use. The data are further analyzed to approximate the split of indoor and outdoor water usage in each customer category. The indoor/outdoor water usage is 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 are combined with the number of water users to calibrate the volume of water allocated to specific end uses in each customer category. In other words, the DSS Model checks that social norms from end studies on water use behavior (e.g., for flushes per person per day) are not exceeded.

The DSS Model evaluates conservation measures using benefit cost analysis with the present value of the cost of water saved ($/Acre-Foot). Benefits are based on savings in water and wastewater facility operations and maintenance (O&M). The figure below illustrates the process for forecasting conservation water savings, including the impacts of fixture replacement due to plumbing codes and standards already in place.

The DSS Model has been used for practical applications of conservation planning in over 250 service areas representing 20 million people including extensive efforts nationally in California, Colorado, Hawaii, Idaho, Utah, Georgia, Florida,



North Carolina, Tennessee, Oregon, Texas, Ohio, and internationally in Australia, New Zealand and Canada. The California Urban Water Conservation Council did a peer review and has endorsed the model since 2006. The model is offered to all of their members for use to estimate water demand, plumbing code and conservaiton program savings. For more information please see the CUWCC Website: https://www.cuwcc.org/Resources/Planning-Tools-and-Models?folderId=776&view=gridview&pageSize=10

APPENDIX G – PASSIVE SAVINGS PROJECTION BACKGROUND

DSS Model Assumptions

The table below shows the key assumptions used in the DSS Model in determining projected demands with and without plumbing codes. 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 G-1. List of Key Assumptions

Parameter	Model Input Value, Assumptions, and Key References			
Model Start Year	2013			
Water Demand Factor Year (Base Year)	2003-2013			
Non-Revenue Water in Start Year	5.7% This value is based on 2002-2012 production and consumption and can be found in the green NRW section of the DSS Model.			
Population Projection Source	ABAG, 2013			
Employment Projection Source	ABAG, 2013			
Base year Water Use Profile				
Customer Categories	**Start Year Accounts**	**Total Water Use Distribution**	**Indoor Use %**	**Residential Indoor Water Use**
Single Family	7,152	53.6%	67.0%	53
Apartments	207	16.6%	93.0%	51
Commercial	525	14.0%	69.0%	N/A
Industrial	51	4.7%	82.0%	N/A
Other / Public Authority	106	5.4%	39.0%	N/A
Total	8041	(+ 5.7% NRW) = 100%	N/A	N/A
Residential End Uses	Key Reference: CA DWR Report "California Single Family Water Use Efficiency Study," (DeOreo, 2011 – Page 28, Figure 3: Comparison of household end-uses) and AWWARF Report Key Reference: AWWARF Report "Residential End Uses of Water, Version 2 - 4309" (DeOreo, 2016). Table 2-A. Water Consumption by Water-Using Plumbing Products and Appliances - 1980-2012. PERC Phase 1 Report. Plumbing Efficiency Research Coalition. 2013. http://www.map-testing.com/content/info/menu/perc.html Model Input Values are found in the "End Uses" section of the DSS Model on the "Breakdown" worksheet.			
Non-Residential End Uses, %	Key Reference: AWWARF Report "Commercial and Institutional End Uses of Water" (Dziegielewski, 2000 – Appendix D: Details of Commercial and Industrial Assumptions, by End Use). Santa Clara Valley Water District Water Use Efficiency Unit. "SCVWD CII Water Use and Baseline Study." February 2008. Model Input Values are found in the "End Uses" section of the DSS Model on the "Breakdown" worksheet.			

Parameter	Model Input Value, Assumptions, and Key References
Efficiency Residential Fixture Current Installation Rates	U.S. Census, Housing age by type of dwelling plus natural replacement plus rebate program (if any). Key Reference: California Urban Water Conservation Council Potential Best Management Practice Report "High Efficiency Plumbing Fixtures – Toilets and Urinals" (Koeller, 2005 – Page 42, Table 8 and Table 9: Residential toilet installation rates in California). Key Reference: Consortium for Efficient Energy (www.cee1.org). Model Input Values are found in the "Codes and Standards" green section of the DSS Model by customer category fixtures.
Water Savings for Fixtures, gal/capita/day	Key Reference: AWWARF Report "Residential End Uses of Water, Version 2 - 4309" (DeOreo, 2016). Key Reference: CA DWR Report "California Single Family Water Use Efficiency Study" (DeOreo, 2011 – Page 28, Figure 3: Comparison of household end-uses). WCWCD supplied data on costs and savings; professional judgment was made where no published data was available. Key Reference: California Energy Commission, Staff Analysis of Toilets, Urinals and Faucets, Report # CEC-400-2014-007-SD, 2014. Model Input Values are found in the "Codes and Standards" green section on the "Fixtures" worksheet of the DSS Model.
Non-Residential Fixture Efficiency Current Installation Rates	Key Reference: 2010 U.S. Census, Housing age by type of dwelling plus natural replacement plus rebate program (if any). Assume commercial establishments built at same rate as housing, plus natural replacement. Santa Clara Valley Water District Water Use Efficiency Unit. "SCVWD CII Water Use and Baseline Study." February 2008. Model Input Values are found in the "Codes and Standards" green section of the DSS Model by customer category fixtures.
Residential Frequency of Use Data, Toilets, Showers, Washers, Uses/user/day	Key Reference: AWWARF Report "Residential End Uses of Water, Version 2 - 4309" (DeOreo, 2016). Summary values of the report can be found in the following presentation: http://watersmartinnovations.com/documents/pdf/2014/sessions/2014-T-1458.pdf Key Reference: California Energy Commission, Staff Analysis of Toilets, Urinals and Faucets, Report # CEC-400-2014-007-SD, 2014. Key Reference: Alliance for Water Efficiency, The Status of Legislation, Regulation, Codes & Standards on Indoor Plumbing Water Efficiency, January 2016. Model Input Values are found in the "Codes and Standards" green section on the "Fixtures" worksheet of the DSS Model and confirmed in each "Service Area Calibration End Use" worksheet by customer category.

Parameter	Model Input Value, Assumptions, and Key References
Non-Residential Frequency of Use Data, Toilets, Urinals, and Uses/user/day	Key References: Estimated based on AWWARF Report "Commercial and Institutional End Uses of Water" (Dziegielewski, 2000 – Appendix D: Details of Commercial and Industrial Assumptions, by End Use). Based on three studies of office buildings in which the numbers varied from 2.0 to 3.45 toilet flushes per employee per day: Darell Rogers cited in Schultz Communications (1999); Konen Plumbing Engineer July/August 1986); and Eva Opitz cited in PMCL (1996). Fixture uses over a 5-day work week are prorated to 7 days. Non-residential 0.5gpm faucet standards per Table 2-A. Water Consumption by Water-Using Plumbing Products and Appliances - 1980-2012. PERC Phase 1 Report. Plumbing Efficiency Research Coalition. 2013. http://www.map-testing.com/content/info/menu/perc.html Model Input Values are found in the "Codes and Standards" green section on the "Fixtures" worksheet of the DSS Model, and confirmed in each "Service Area Calibration End Use" worksheet by customer category.
Natural Replacement Rate of Fixtures (% per year)	Residential Toilets 2% (1.28 gpf and lower), 3% (1.6 gpf toilets), 4% (3.5 gpf and higher toilets)
	Non-Residential Toilets 2% (1.6 gpf and lower), 3% (3.5 gpf and higher toilets)
	Residential Showers 4% (corresponds to 25-year life of a new fixture)
	Residential Clothes Washers 10% (based on 10-year washer life). Key References: "Residential End Uses of Water" (DeOreo, 2016) and "Bern Clothes Washer Study, Final Report" (Oak Ridge National Laboratory, 1998).
	Model Input Value is found in the "Codes and Standards" green section on the "Fixtures" worksheet of the DSS Model.
Residential Future Water Use	Increases Based on Population Growth and Demographic Forecast
Non-Residential Future Water Use	Increases Based on Employment Growth and Demographic Forecast

The DSS Model forecasts service area water fixture use. In the codes and standards part of the DSS Model, specific fixture end use type (point of use fixture or appliance), average water use, and lifetime are compiled. Additionally, state and national plumbing codes and appliance standards for toilets, urinals, showers, and clothes washers are modeled by customer category. These fixtures and plumbing codes can be added to, edited, or deleted by the user. This yields two demand forecasts: 1) with plumbing codes, and 2) without plumbing codes.

Plumbing Codes and Legislation

The DSS Model incorporates the following items as a "code" meaning that the savings are assumed to occur and are therefore "passive" savings.

- National Plumbing Code
- CALGreen
- AB 715
- AB 407

National Plumbing Code

The Federal Energy Policy Act of 1992, as amended in 2005, mandates that only fixtures meeting the following standards can be installed in new buildings:

- Toilet – 1.6 gal/flush maximum
- Urinals – 1.0 gal/flush maximum
- Showerhead – 2.5 gal/min at 80 psi
- Residential faucets – 2.2 gal/min at 60 psi
- Public restroom faucets – 0.5 gal/min at 60 psi
- Dishwashing pre-rinse spray valves – 1.6 gal/min at 60 psi

Replacement of fixtures in existing buildings is also governed by the Federal Energy Policy Act, which mandates that only devices with the specified level of efficiency (as shown above) can be sold as of 2006. The net result of the plumbing code is that new buildings will have more efficient fixtures and old inefficient fixtures will slowly be replaced with new, more efficient models. The national plumbing code is an important piece of legislation and must be carefully taken into consideration when analyzing the overall water efficiency of a service area.

In addition to the plumbing code, the U.S. Department of Energy regulates appliances, such as residential clothes washers, further reducing indoor water demands. Regulations to make these appliances more energy efficient have driven manufactures to dramatically reduce the amount of water these machines use. Generally, front loading washing machines use 30-50% less water than conventional models (which are still available). In a typical analysis, the DSS Model forecasts a gradual transition to high efficiency clothes washers (using 12 gallons or less) so that by the year 2025 that will be the only type of machines available for purchase. In addition to the industry becoming more efficient, rebate programs for washers have been successful in encouraging customers to buy more water efficient models. Given that machines last about 10 years, eventually all machines on the market will be the more water efficient models. Energy Star washing machines have a water factor (WF) of 6.0 or less - the equivalent of using 3.1 cubic feet (or 23.2 gallons) of water per load. The maximum water factor for residential clothes washers under current federal standards is 9.5. The water factor equals the number of gallons used per cycle per cubic foot of capacity. Prior to year 2000, the water factor for a typical new residential clothes washer was about 12. In March 2015, the federal standard reduced the maximum water factor for top- and front-loading machines to 8.4 and 4.7, respectively. In 2018, the maximum water factor for top-loading machines will be further reduced to 6.5. For commercial washers, the maximum water factors were reduced in 2010 to 8.5 and 5.5 for top- and front-loading machines, respectively. Beginning in 2015, the maximum water factor for Energy Star certified washers was 3.7 for front-loading and 4.3 for top-loading machines. In 2011, the EPA estimated that Energy Star washers comprised more that 60% of the residential market and 30% of the commercial market (Energy Star, 2011). A new Energy Star compliant washer uses about two-thirds less water per cycle than washers manufactured in the 1990s.

State Building Code – 2010 CALGreen

The 2010 CALGreen requirements effect all new development in the State of California after January 1, 2011. The new development requirements under CALGreen are listed in the following figure. The DSS Model includes the CALGreen requirements that effect all new development in the State of California after January 1, 2011. The DSS Model modeled water savings from the CALGreen building code by adding Multi-family and Commercial customer categories as appropriate to applicable conservation measures.

Table G-2. 2010 CALGreen Building Code Summary Table

2010 CALGreen Building Code						
Building Class	**Component**	**Effective Date***	**Indoor Fixtures Included**	**Indoor Requirement**	**Landscaping & Irrigation Requirements**	**Are the Requirements Mandatory?**
Residential	Indoor	1/1/2011	Toilets, Showers, Lavatory & Kitchen Faucets, Urinals	Achieve 20% savings overall below baseline		Yes
	Outdoor	1/1/2011			Provide weather adjusting controllers	Yes
Non Residential	Indoor	1/1/2011	Submeter leased spaces	Only if building >50,000 sq. ft. & if leased space use >100 gpd		Yes
			Toilets, Showers, Lavatory & Kitchen Faucets, Wash Fountains, Metering Faucets, Urinals	Achieve 20% savings overall below baseline		Yes
	Outdoor	1/1/2011			Provide water budget	> 1,000 sq. ft. landscaped area
					Separate meter	As per Local or DWR ordinance
					Prescriptive landscaping requirements	> 1,000 sq. ft. landscaped area
					Weather adjusting irrigation controller	Yes

* Effective date is 7/1/2011 for toilets.

State Plumbing Code – AB 715

Plumbing codes for toilets, urinals, showerheads, and faucets were initially adopted by California in 1991, mandating the sale and use of ultra-low flush 1.6 gallon per flush (gpf) toilets (ULFTs), 1 gpf urinals, and low-flow showerheads and faucets. CCR Title 20 California State Law (AB 715) required High Efficiency Toilets and High Efficiency Urinals be exclusively sold in the state by 2014. Effective January 1, 2014, Assembly Bill (AB) 715 (enacted in 2007) required that toilets and urinals sold and installed in California cannot have flush ratings exceeding 1.28 and 0.5 gallons per flush, respectively.

California State Law – SB 407

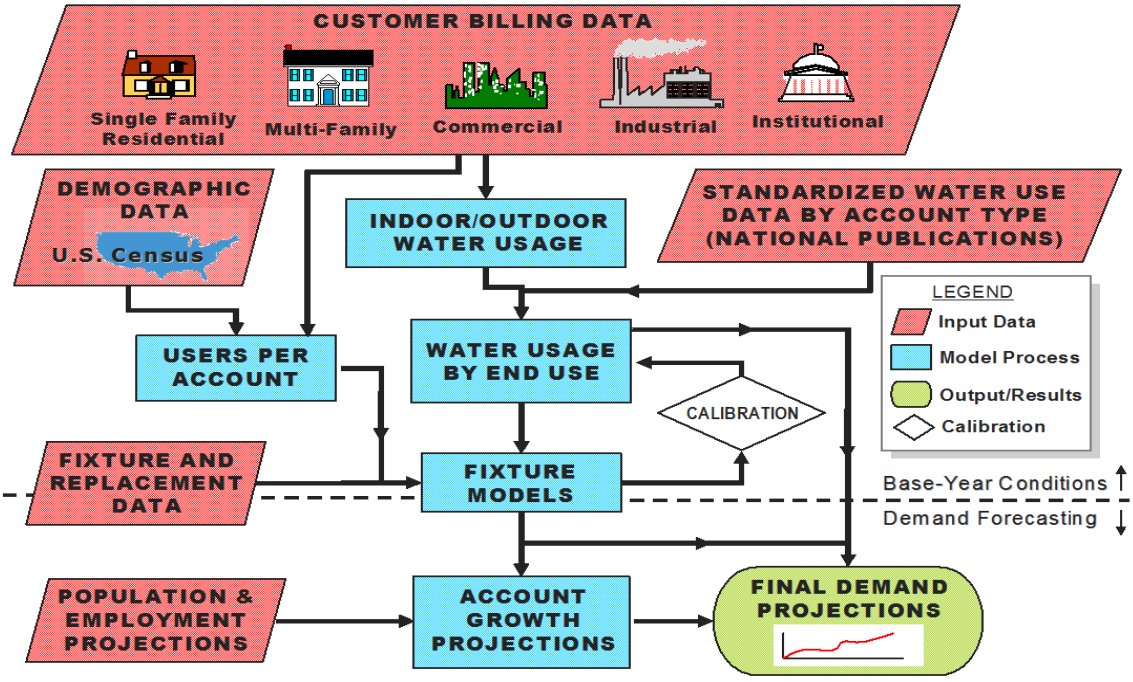
SB 407 addresses plumbing fixture retrofits on resale or remodel. The DSS Model carefully takes into account the overlap with SB 407, the plumbing code (natural replacement), CALGreen, AB 715 and rebate programs (such as toilet rebates). SB 407 (enacted in 2009) requires that properties built prior to 1994 be fully retrofitted with water conserving fixtures by the year 2017 for single-family residential houses and 2019 for multi-family and commercial properties. SB

407 program length is variable and continues until all the older high flush toilets have been replaced the service area. The number of accounts with high flow fixtures is tracked to make sure that the situation of replacing more high flow fixtures than actually exist does not occur. SB 837 (enacted in 2011) requires that sellers of real property disclose on their Real Estate Transfer Disclosure Statement whether their property complies with these requirements. Additionally, SB 407 conditions issuance of building permits for major improvements and renovations upon retrofit of non-compliant plumbing fixtures. Each of these laws is intended to accelerate the replacement of older, low efficiency plumbing fixtures, and ensure that only high-efficiency fixtures are installed in new residential and commercial buildings.

Plumbing code related water savings are considered reliable, long-term savings, and can be counted on over time to help reduce the City's overall system water demand. The demand projections including plumbing code savings further assumes no active involvement by the water utility, and that the costs of purchasing and installing replacement equipment (and new equipment in new construction) are borne solely by the customers, occurring at no direct utility expense. The inverse of the Fixture Life is the natural replacement rate, expressed as a percent (i.e., 10 years is a rate of 10% per year).

The following figure conceptually describes how plumbing codes are incorporated into the flow of information in the DSS Model.

Figure G-1. DSS Model Overview Used to Make Potable Water Demand Projections



DSS Model Fixture Replacement

The DSS Model is capable of modeling multiple types of fixtures, including fixtures with slightly different design standards. For example, currently toilets can be purchased that flush at a rate of 0.8 gallons per flush (gpf), 1.0 gallon per flush or 1.28 gallons per flush. The 1.6 gpf and higher gallons per flush toilets still exist but can no longer be purchased in California. Therefore, they cannot be used for replacement or new installation of a toilet. So, the DSS Model utilizes a fixture replacement table to decide what type of fixture should be installed when a fixture is replaced or a new fixture is installed. The replacement of the fixtures is listed as a percentage, as shown in the following figure. A value of 100% would indicate that all the toilets sold would be of one particular flush volume. A value of 75% means that three out of every four toilets installed would be of that particular flush volume type. The DSS Model contains a pair of replacement tables for each fixture type and customer category combination (i.e., Residential Single Family toilets,

Residential Multi-family toilets, Commercial toilets, Residential clothes washing machines, Commercial washing machines, etc.).

In the following example, the DSS Model includes the effects of the Federal Policy Act and AB 715 on each toilet fixture type. This DSS Model feature determines the "saturation" of 1.6 gpf toilets as the Federal Policy Act was in effect from 1992-2014 for 1.6 gpf toilet replacements.

Figure G-2. Example Toilet Replacement Percentages by Type of Toilet

Replacement Appliance Market Shares					
Year	High Use Toilet Residential	1.6 gpf ULFT Residential	1.28 gpf HET Residential	<1.0 gpf Toilet Residential	Total
2015	0%	0%	100%	0%	100%
2020	0%	0%	90%	10%	100%
2025	0%	0%	75%	25%	100%
2030	0%	0%	65%	35%	100%
2040	0%	0%	50%	50%	100%
New Appliance Market Shares					
Year	High Use Toilet Residential	1.6 gpf ULFT Residential	1.28 gpf HET Residential	<1.0 gpf Toilet Residential	Total
2015	0%	0%	100%	0%	100%
2020	0%	0%	90%	10%	100%
2025	0%	0%	75%	25%	100%
2030	0%	0%	65%	35%	100%
2040	0%	0%	50%	50%	100%

APPENDIX H – WATER WASTE PREVENTION ORDINANCE

Web page links to MPWD Ordinances cited in this WSCP

1. MPWD Ordinance 112, Amendment to MPWD's Water Service Ordinance

http://www.midpeninsulawater.org/uploads/Complete%20Ordinance%20112.pdf

2. Water Service Ordinance 112, Attachment 103A, Schedule of Rates and Fees

http://midpeninsulawater.org/uploads/ORDINANCE%20No.%20112%20Attachment%20A.pdf

3. MPWD Ordinance 115, Water Efficient Landscaping

http://midpeninsulawater.org/uploads/Approved_Ordinance_No0.115_WELO_B.pdf

4. Water Service Ordinance 103, Establishing, Updating and Re-codifying the Rules Regulations and Fees for Water Service by Mid-Peninsula Water District and Superseding all Prior District Ordinances and Amendments Thereto

http://midpeninsulawater.org/uploads/Ordinance_Current_Water_Service.pdf

5. MPWD Ordinance 111, Implementing Stage 2 Water Shortage Response of Water Shortage Contingency Plan Regarding Mandatory Restrictions on Outdoor Water Use

http://midpeninsulawater.org/uploads/Ordinance_No_111_Mandatory_Outdoor_Water_Use_Restrictions.pdf

6. MPWD Ordinance #113, Amending Ordinance # 111 Implementing Stage 2 Water Shortage Response of Water Shortage Contingency Plan Regarding Mandatory Restrictions on Outdoor Water Use

file://localhost/Users/margaretlaporte/Downloads/ORDINANCE No. 113 Amend Ord 111 WSCP Stage 2.pdf

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).

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						

CUWCC BMP Retail Coverage Report 2013

Foundational Best Managemant Practices for Urban Water Efficiency

BMP 1.1 Operation Practices **ON TRACK**

14 Mid-Peninsula Water District

1. Conservation Coordinator provided with necessary resources to implement BMPs?

Name: Jeanette Kalabolas

Title: Conservation Coordinator

Email: jeanettek@midpeninsulawater.org

2. Water Waste Prevention Documents

WW Document Name	WWP File Name	WW Prevention URL	WW Prevention Ordinance Terms Description
Option A Describe the ordinances or terms of service adopted by your agency to meet the water waste prevention requirements of this BMP.		http://www.midpeninsulawater.org/board_ordinances.php	Listed under Current Water Service Ordinance; Article 4, Section 4.2, pg. 9 - Water Waste
Option B Describe any water waste prevention ordinances or requirements adopted by your local jurisdiction or regulatory agencies within your service area.			
Option C Describe any documentation of support for legislation or regulations that prohibit water waste.			
Option D Describe your agency efforts to cooperate with other entities in the adoption or enforcement of local requirements consistent with this BMP.			
Option E Describe your agency support positions with respect to adoption of legislation or regulations that are consistent with this BMP.			
Option F Describe your agency efforts to support local ordinances that establish permits requirements for water efficient design in new development.			

At Least As effective As No

Exemption No

Comments:

CUWCC BMP Coverage Report 2013

Foundational Best Management Practices For Urban Water Efficiency

BMP 1.2 Water Loss Control

ON TRACK

14 Mid-Peninsula Water District

Completed Standard Water Audit Using AWWA Software?	Yes
AWWA File provided to CUWCC?	Yes
AWWA-WAS-V5-FY2013.xls	
AWWA Water Audit Validity Score?	89
Complete Training in AWWA Audit Method	Yes
Complete Training in Component Analysis Process?	Yes
Component Analysis?	Yes
Repaired all leaks and breaks to the extent cost effective?	Yes
Locate and Repar unreported leaks to the extent cost effective?	Yes
Maintain a record keeping system for the repair of reported leaks, including time of report, leak location, type of leaking pipe segment or fitting, and leak running time from report to repair.	Yes

Provided 7 Types of Water Loss Control Info

Leaks Repairs	Value Real Losses	Value Apparent Losses	Miles Surveyed	Press Reduction	Cost Of Interventions	Water Saved (AF)
31			105	False	85875.74	

At Least As effective As No

Compliant w/exhibit 1 of the MOU, however attached below is a copy of the Districts bi-annual leak survey report to further support water loss controls.

Exemption No

Comments:

CUWCC BMP Coverage Report 2013

Foundational Best Management Practices For Urban Water Efficiency

BMP 1.3 Metering With Commodity

ON TRACK

14 Mid-Peninsula Water District

Numbered Unmetered Accounts	No
Metered Accounts billed by volume of use	Yes
Number of CII Accounts with Mixed Use Meters	
Conducted a feasibility study to assess merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters?	No
Feasibility Study provided to CUWCC?	No

Date: 1/1/0001

Uploaded file name:

Completed a written plan, policy or program to test, repair and replace meters	Yes

At Least As effective As Yes

In the process of changing entire system to AMI metering. To date 9 of 18 routes have been converted. Project is expected to take approximately 7 more years based on an alloted annual budget to complete.

Exemption No

Comments:

CUWCC BMP Coverage Report 2013

Foundational Best Management Practices For Urban Water Efficiency

BMP 1.4 Retail Conservation Pricing

On Track

14 Mid-Peninsula Water District

Implementation (Water Rate Structure)

Customer Class	Water Rate Type	Conserving Rate?	(V) Total Revenue Comodity Charges	(M) Total Revenue Fixed Carges
Single-Family	Increasing Block	Yes	4512524.79	1412495.63
Multi-Family	Increasing Block	Yes	1306875.78	115705.55
Commercial	Increasing Block	Yes	1323837.2	184367.23
Industrial	Increasing Block	Yes	242803.65	22608.32
Other	Increasing Block	Yes	531512.12	60168.48
			7917553.54	**1795345.21**

Calculate: V / (V + M) **82 %**

Implementation Option: Use Annual Revenue As Reported

☐ Use 3 years average instead of most recent year

Canadian Water and Wastewater Association

Upload file:

Agency Provide Sewer Service: No

At Least As effective As No

Exemption No

Comments:

CUWCC BMP Coverage Report 2013

Foundational Best Management Practices For Urban Water Efficiency

BMP 2.1 Public Outreach

ON TRACK

14 **Mid-Peninsula Water District** **Retail**

Does your agency perform Public Outreach programs? Yes

The list of wholesale agencies performing public outreach which can be counted to help the agency comply with the BMP

Bay Area Water Supply & Conservation Agency (BAWSCA), Nicole Sandkulla, NSandkulla@bawsca.org

The name of agency, contact name and email address if not CUWCC Group 1 members

Did at least one contact take place during each quater of the reporting year? No

Public Outreach Program List	Number
Newsletter articles on conservation	1
Flyers and/or brochures (total copies), bill stuffers, messages printed on bill, information packets	12
General water conservation information	2
Website	365
Total	**380**

Did at least one contact take place during each quater of the reporting year? Yes

Number Media Contacts	Number
News releases	1
Articles or stories resulting from outreach	1
Newspaper contacts	1
Online Advertisings	1
Total	**4**

Did at least one website update take place during each quater of the reporting year? Yes

Public Information Program Annual Budget

Annual Budget Category	Annual Budget Amount
Water Conservation	60000
Total Amount:	**60000**

Description of all other Public Outreach programs

Comments:

At Least As effective As No

Exemption No 0

CUWCC BMP Coverage Report 2013

Foundational Best Management Practices For Urban Water Efficiency

BMP 2.2 School Education Programs

ON TRACK

14 Mid-Peninsula Water District **Retail**

Does your agency implement School Education programs? Yes

The list of wholesale agencies performing public outreach which can be counted to help the agency comply with the BMP

California Department of Water Resources (DWR)

Bay Area Water Supply & Conservation Agency (BAWSCA), Andree Johnson, AJohnson@bawsca.org

Agencies Name	ID number
California Department of Water Resources (DWR)	6283

Materials meet state education framework requirements? Yes

Resource Action Programs - WaterWise & LivingWise Education Kits

Materials distributed to K-6? Yes

water & energy activity include take home materials such as garden hose spray nozzle, fluorescent light, water timer, rain gauge, digital thermometer, watering schedule, rebate program applications, etc... for home implementation

Materials distributed to 7-12 students? No (Info Only)

Annual budget for school education program: 60000.00

Description of all other water supplier education programs

Partner w/Public Works - Public Education Week

Comments:

At Least As effective As No

Exemption No 0

CUWCC BMP Retail Coverage Report 2014

Foundational Best Managemant Practices for Urban Water Efficiency

BMP 1.1 Operation Practices

ON TRACK

14 Mid-Peninsula Water District

1. Conservation Coordinator provided with necessary resources to implement BMPs?

Name:	Jeanette Kalabolas
Title:	Water Conservation Administrative Specialist
Email:	jeanettek@midpeninsulawater.org

2. Water Waste Prevention Documents

WW Document Name	WWP File Name	WW Prevention URL	WW Prevention Ordinance Terms Description
Option A Describe the ordinances or terms of service adopted by your agency to meet the water waste prevention requirements of this BMP.		http://www.midpeninsulawater.org/board_ordinances.php	Listed under Current Water Service Ordinance; Article 4, Section 4.2, pg. 9 - Water Waste
Option B Describe any water waste prevention ordinances or requirements adopted by your local jurisdiction or regulatory agencies within your service area.			
Option C Describe any documentation of support for legislation or regulations that prohibit water waste.			
Option D Describe your agency efforts to cooperate with other entities in the adoption or enforcement of local requirements consistent with this BMP.			
Option E Describe your agency support positions with respect to adoption of legislation or regulations that are consistent with this BMP.			
Option F Describe your agency efforts to support local ordinances that establish permits requirements for water efficient design in new development.			

At Least As effective As No

Exemption No

Comments:

CUWCC BMP Coverage Report 2014

Foundational Best Management Practices For Urban Water Efficiency

BMP 1.2 Water Loss Control — ON TRACK

14 Mid-Peninsula Water District

Completed Standard Water Audit Using AWWA Software?	Yes
AWWA File provided to CUWCC?	Yes
AWWA-WAS-V5-FY2014.xls	
AWWA Water Audit Validity Score?	89
Complete Training in AWWA Audit Method	Yes
Complete Training in Component Analysis Process?	Yes
Component Analysis?	Yes
Repaired all leaks and breaks to the extent cost effective?	Yes
Locate and Repar unreported leaks to the extent cost effective?	Yes
Maintain a record keeping system for the repair of reported leaks, including time of report, leak location, type of leaking pipe segment or fitting, and leak running time from report to repair.	Yes

Provided 7 Types of Water Loss Control Info

Leaks Repairs	Value Real Losses	Value Apparent Losses	Miles Surveyed	Press Reduction	Cost Of Interventions	Water Saved (AF)
39			105	False	90141.73	

At Least As effective As No

Exemption No

Comments:

BMP 1.3 Metering With Commodity

ON TRACK

14 Mid-Peninsula Water District

Numbered Unmetered Accounts	No
Metered Accounts billed by volume of use	Yes
Number of CII Accounts with Mixed Use Meters	
Conducted a feasibility study to assess merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters?	No
Feasibility Study provided to CUWCC?	No

Date: 1/1/0001

Uploaded file name:

Completed a written plan, policy or program to test, repair and replace meters	Yes

At Least As effective As Yes

In the process of changing entire system to AMI metering. To date 16 of 18 routes have been converted (half out service territory). Project is expected to take approximately 5 more years based on an allotted annual budget to complete.

Exemption No

Comments:

CUWCC BMP Coverage Report 2014

Foundational Best Management Practices For Urban Water Efficiency

BMP 1.4 Retail Conservation Pricing

On Track

14 Mid-Peninsula Water District

Implementation (Water Rate Structure)

Customer Class	Water Rate Type	Conserving Rate?	(V) Total Revenue Comodity Charges	(M) Total Revenue Fixed Carges
Single-Family	Increasing Block	Yes	4089136.8	1541751.07
Multi-Family	Increasing Block	Yes	1292905.95	126482.1
Commercial	Increasing Block	Yes	1323953.51	207808.94
Industrial	Increasing Block	Yes	24923.65	224727.25
Other	Increasing Block	Yes	489786.67	66116.45
			7220706.58	**2166885.81**

Calculate: V / (V + M) **77 %**

Implementation Option: Use Annual Revenue As Reported

☐ Use 3 years average instead of most recent year

Canadian Water and Wastewater Association

Upload file:

Agency Provide Sewer Service: No

At Least As effective As No

Exemption No

Comments:

CUWCC BMP Coverage Report 2014

Foundational Best Management Practices For Urban Water Efficiency

BMP 2.1 Public Outreach

ON TRACK

14 **Mid-Peninsula Water District** **Retail**

Does your agency perform Public Outreach programs? Yes

The list of wholesale agencies performing public outreach which can be counted to help the agency comply with the BMP

Bay Area Water Supply & Conservation Agency (BAWSCA), Andree Johnson, AJohnson@bawsca.org

The name of agency, contact name and email address if not CUWCC Group 1 members

Did at least one contact take place during each quater of the reporting year? No

Public Outreach Program List	Number
Newsletter articles on conservation	1
Flyers and/or brochures (total copies), bill stuffers, messages printed on bill, information packets	12
General water conservation information	9
Website	365
Total	**387**

Did at least one contact take place during each quater of the reporting year? Yes

Number Media Contacts	Number
Newspaper contacts	18
Online Advertisings	2
Total	**20**

Did at least one website update take place during each quater of the reporting year? Yes

Public Information Program Annual Budget

Annual Budget Category	Annual Budget Amount
Water Conservation	79353
Total Amount:	**79353**

Description of all other Public Outreach programs

Comments:

At Least As effective As No

Exemption No 0

CUWCC BMP Coverage Report 2014

Foundational Best Management Practices For Urban Water Efficiency

BMP 2.2 School Education Programs

ON TRACK

14 Mid-Peninsula Water District **Retail**

Does your agency implement School Education programs? Yes

The list of wholesale agencies performing public outreach which can be counted to help the agency comply with the BMP

Bay Area Water Supply & Conservation Agency (BAWSCA), Andree Johnson, AJohnson@bawsca.org

Materials meet state education framework requirements? Yes

Resource Action Programs - WaterWise & LivingWise Education Kits

Materials distributed to K-6? Yes

water & energy activity include take home materials such as garden hose spray nozzle, fluorescent light, water timer, rain gauge, digital thermometer, watering schedule, rebate program applications, etc... for home implementation

Materials distributed to 7-12 students? No (Info Only)

Annual budget for school education program: 79353.00

Description of all other water supplier education programs

Partner w/Public Works - Public Education Week

Comments:

At Least As effective As No

Exemption No 0

CUWCC BMP Coverage Report 2014

14 Mid-Peninsula Water District

GPCD in 2006 (Baseline): 134.22

GPCD in 2014 100.7

GPCD Target for 2018: 110.10

Biennial GPCD Compliance Table

ON TRACK

		Target		Highest Acceptable Bound	
Year	Report	% Base	GPCD	% Base	GPCD
2010	1	96.4%	**129.40**	100%	**134.20**
2012	2	92.8%	**124.60**	96.4%	**129.40**
2014	3	89.2%	**119.70**	92.8%	**124.60**
2016	4	85.6%	**114.90**	89.2%	**119.70**
2018	5	82.0%	**127.00**	82.0%	**110.10**

APPENDIX K – NOTIFICATION OF UWMP UPDATE

The following is an example of the 60-day letter sent out by MPWD notifying the proper agencies of MPWD's planned UWMP update. Table 10-1 in Section 10 lists the specific agencies that received a letter.

MID-PENINSULA
WATER DISTRICT
3 Dairy Lane, Belmont, CA 94002
tel: 650.591.8941 • fax: 650.591.4998
www.midpeninsulawater.org

January 25, 2016

Captain Patrick Halleran
Belmont Police Department
City of Belmont
1 Twin Pines Lane #160
Belmont, CA 94002

Re: Notice of Preparation of Urban Water Management Plan – 2015 Update

The Urban Water Management Planning Act (California Water Code §§10608-10656) requires the Mid-Peninsula Water District (MPWD) to update its Urban Water Management Plan (UWMP) every five years. The MPWD is currently reviewing its existing UWMP, which was updated in 2010, and will be considering revisions to the plan. The updated UWMP is due by July 1, 2016. We invite your agency's participation in this revision process.

A draft of the 2015 UWMP will be made available for public review and a public hearing will be scheduled later this year. In the meantime, if you would like more information regarding the MPWD's 2010 UWMP and the schedule for preparing the 2015 UWMP, or if you would like to participate in the preparation of the 2015 UWMP, please contact me at:

Mid-Peninsula Water District
3 Dairy Lane
Post Office Box129
Belmont, CA 94002
tammyr@midpeninsulawater.org

Sincerely,

Tammy A. Rudock
General Manager

— hitting four 3s along the way. Ofa Sili added 14 and Baer had 12. Sparrow finished with a double-double, scoring 10 points and grabbing 10 boards.

Not only was M-A getting it done offensively, they flipped a switch defensively as well. After out-rebounding the Knights by just one board in the first half, 14-13, the Bears dominated the glass over the final two periods, pulling down 21 rebounds to just five for Hillsdale.

"We can't get any put backs," Ciardella said.

In the fourth quarter, the tsunami that was M-A just kept surging. Kailahi opened the final period by converting a rare four-point play. She was fouled while draining a 3 and then hit the free throw to put the Bears up 50-32 and it was all but over at that point.

Again, Hillsdale managed only one basket in the quarter: this time a 3 from Emily Nepomuceno with 2:30 to play.

"We just fell apart (in the second half)," Ciardella said.

It was a completely different story in the first half, however, Despite starting five guards against the biggest and most physical team in the PAL, the Knights came out on fire.

Especially Marissa Otonari, who canned four 3-pointers in the first six minutes of the game. With the game tied at 6, Otonari buried her first 3 to put Hillsdale up 9-6.

"We were hot in the beginning," Ciardella said. "[Otonari is] capable of that (hitting 3s in bunches). She's a streak shooter.

"We have four or five guards who are capable of doing that."

It was the first of four straight 3s — Nepomuceno sandwiched a 3 between Otonari's barrage — and suddenly, Hillsdale was 10, 18-8 with 1:53 left in the first quarter.

Izumi would lead the Knights with 14 points, with Nepomuceno chipping in nine.

M-A, meanwhile, struggled with its outside shooting. The Bears went into the post early to Sili, but the Knights' 2-3 zone slowly started to take away the inside.

And with shooting guard Carly McLanahan sitting the game out, it took a while for the rest of the Bears to find its rhythm.

Coleman, however, remained confident her team would find their stroke.

"We have plenty of guards who can shoot," Coleman said.

The roles remained the same in the second quarter. The Knights built their biggest lead of the game, 13 points, following a Nepomuceno 3 that gave her team a 27-14 with 4:12 to play in the half.

The Knights were still up 12, 30-18, following an Izumi 3-pointer off an in-bound play, but the Bears rallied with five points in the final 32 seconds. Sili knocked down a pair of free throws before Kailahi drained her 3 to end the half.

"To end a half on a positive note is good going into the locker room," Coleman said. "Credit to Hillsdale. They came out playing really hard. They played as if they wanted to stay undefeated. ... I think (my team was) a little disappointed to let Hillsdale play its game (in the first two quarters)."

— who were named to the various teams.

Kelepi Lataimua, a running back/defensive back from Serra, was named honorable mention for the overall all-state team.

Menlo-Atherton defensive lineman Bryce Rodgers was named second-team defense in the medium school division.

A pair of Sacred Heart Prep players were selected for the small school team. Andrew Daschbach, a tight end/defensive end who will play baseball at Stanford, was named first team multi-purpose, while offensive lineman Justin Harmon was named second-team offense.

Devin Asiasi, who went to Henry Ford Elementary and Clifford Middle schools in Redwood City before moving to the East Bay and playing at De La Salle, was named an overall all-state multi-purpose player as a tight end and defensive lineman. Wednesday, Asiasi, one of the top college recruits in the country, committed to play football at University of Michigan.

***

Menlo-Atherton has announced the hiring of Brandon Johnson, who will take over the boys' water polo program.

He takes over for Giovanni Napolitano, who coached the Bears from 2013 through this season.

Johnson, who is a PE teacher at Herbert Hoover Middle School in San Francisco, was a three-time All-American at U.C. Irvine and went on to play for the United States National team for five years and played three years professionally in Australia.

Since turning in his player's cap for a coach's whistle, Johnson has served as an assistant with the Anteaters and also coached in the USA Water Polo program as the U18 Olympic development coach. His previous high school stop was at Palo Alto High School and is currently a coach on the Stanford Water Polo Club staff.

"I'm grateful to be given the opportunity to take over such a fantastic program," Johnson said in a press release from the school. "I can't wait to continue to build on the success that M-A water polo has had and look forward to the continued growth of the program."

Nathan Mollat can be reached by email: nathan@smdailyjournal.com or by phone: 344-5200 ext. 117. You can follow him on Twitter @CheckkThissOut.

Sanchez and Nikhil Goel. Peay added his second goal in the second half, with Mummery rounding out the scoring by netting the Gators' final two goals. Sandwiched between Peay and Mummery was a strike from Connor Johnston.

San Mateo 2, Westmoor 1

Aaron Baca had a goal and an assist to help lead the Bearcats to a PAL Ocean Division victory over the Rams.

Baca set up the first goal for San Mateo (6-4-2 PAL Ocean, 8-6-4 overall), which was scored by Alejandro Alvarez. Baca then supplied the game winner with a goal scored on a shot from near midfield.

Girls' basketball

Crystal Springs 48, Shasta-Daly City 25

The Gryphons beat Shasta in a non-league game, clinching a spot in the Central Coast Section tournament in the process.

Despite being winless in WBAL play, the Gryphons needed a .500 or better non-league record to grab a postseason berth.

Mission accomplished.

Sharleen Garcia led the Gryphons with a game-high 20 points. Natalie Brewster finished with nine.

Girls' soccer

St. Ignatius 5, Notre Dame-Belmont 1

The Tigers may have suffered their 10th consecutive loss — including nine straight in West Catholic League play — but for the first time in the new year, they scored a goal.

Ava Cholakian goal in the 75th minute snapped a 795-minute goalless drought. Notre Dame's last goal came in a 4-1 loss to La Reina-Thousand Oaks Dec. 19.

Boys' basketball — Tuesday

Sacred Heart Prep 70, Menlo School 57

The Gators outscored the Knights 19-8 in the fourth quarter to pull away for the WBAL win between rivals.

Mason Randall had a monster game for SHP (10-1 WBAL, 12-9 overall) scoring a game high 30 points. Justin Harmon added 13 for the Gators.

Menlo (6-6, 8-14) was led by Jared Lucian, who finished with 16 points.

Girls' basketball — Tuesday

Menlo School 56, Sacred Heart Prep 53

The Gators led the Knights 45-42 after three quarters, but the Knights rallied to outscore the Gators 14-8 over the final eight minutes to pull out the win.

Menlo (7-1 WBAL Foothill, 18-4 overall) was led by Sam Erisman, who finished with 21 points. Hannah Paye chipped in with 16, while Kenzie Duffner pulled down 14 rebounds.

Riley Hemm poured in 21 points for SHP (4-4, 16-5), while Ma'ata Makoni added 10 for the Gators.

Girls' soccer — Tuesday

Mercy-Burlingame 10, Mercy-SF 0

The Crusaders geared up for Thursday's showdown with Crystal Springs by pummelling the Skippers in a WBAL Skyline matchup.

Sarah Feller paced the onslaught with three goals and two assists. Ronia Salamy added two goals, while Emily Naughton picked up a pair of assists to go along with a goal of her own.

Rounding out the scoring for Mercy-Burlingame (7-1-1 WBAL Skyline, 9-5-1 overall) were Kathleen Napier, Ixclli Gallindo, who struck twice, and Alyssa Parodi.

Mercy-Burlingame will be at Crystal Springs at 3:30 p.m. today with the WBAL's Skyline Division title on the line. Mercy-Burlingame won the first matchup 3-2.

MID-PENINSULA
WATER DISTRICT

PUBLIC HEARING ON URBAN WATER USE TARGETS
IN URBAN WATER MANAGEMENT PLAN

California law requires that, in conjunction with the Mid-Peninsula Water District's update to its Urban Water Management Plan, the community be given an opportunity to give input on the Mid-Peninsula Water District (MPWD) urban water use targets in the Urban Water Management Plan, any impacts to the local economy, and method of determining its urban water use target. The MPWD Board of Directors will hold a public hearing to adopt an urban water use target and updates to its Urban Water Management Plan for 2015-2020, including a Water Shortage Contingency Plan. The public hearing will be held:

Thursday, May 26, 2016, at 6:30PM
at the MPWD, 3 Dairy Lane, in Belmont, CA

The proposed 2015 Urban Water Management Plan is available for public review at the following locations:

1. MPWD, 3 Dairy Lane, in Belmont, CA;
2. MPWD website: www.midpeninsulawater.org;
3. Belmont Library, 1110 Alameda de las Pulgas, in Belmont, CA;
4. Belmont City Hall, One Twin Pines Lane, in Belmont, CA; and
5. San Carlos City Hall, 600 Elm Street, in San Carlos, CA.

Additional notice regarding the time and place of the public hearing will be published in accordance with Government Code Section 6066.

Please provide any written comments to the **MPWD, 3 Dairy Lane, in Belmont, CA 94002, Attention: Tammy Rudock, General Manager,** or via email: tammyr@midpeninsulawater.org, **by 4:30PM on Wednesday, May 25, 2016.** Alternatively, comments may be provided during the public hearing on May 26th.

Date: May 12, 2016

12323220.1

203 Public Notices

FICTITIOUS BUSINESS NAME STATEMENT

NOTICE OF PETITION TO ADMINISTER ESTATE OF

STATEMENT OF ABANDONMENT OF THE USE OF A FICTITIOUS BUSINESS NAME STATEMENT

SUMMONS (CITACION JUDICIAL)

210 Lost & Found

PUBLIC HEARING ON URBAN WATER USE TARGETS IN URBAN WATER MANAGEMENT PLAN

California law requires that, in conjunction with the Mid-Peninsula Water District's update to its Urban Water Management Plan, the community be given an opportunity to give input on the Mid-Peninsula Water District (MPWD) urban water use targets in the Urban Water Management Plan, any impacts to the local economy, and method of determining its urban water use target. The MPWD Board of Directors will hold a public hearing to adopt an urban water use target and updates to its Urban Water Management Plan for 2015-2020, including a Water Shortage Contingency Plan. The public hearing will be held:

Thursday, May 26, 2016, at 6:30PM
at the MPWD, 3 Dairy Lane, in Belmont, CA

The proposed 2015 Urban Water Management Plan is available for public review at the following locations:

1. MPWD, 3 Dairy Lane, in Belmont, CA;
2. MPWD website: www.midpeninsulawater.org;
3. Belmont Library, 1110 Alameda de las Pulgas, in Belmont, CA;
4. Belmont City Hall, One Twin Pines Lane, in Belmont, CA; and
5. San Carlos City Hall, 600 Elm Street, in San Carlos, CA.

Additional notice regarding the time and place of the public hearing will be published in accordance with Government Code Section 6066.

Please provide any written comments to the **MPWD, 3 Dairy Lane, in Belmont, CA 94002, Attention: Tammy Rudock, General Manager**, or via email: tammyr@midpeninsulawater.org, **by 4:30PM on Wednesday, May 25, 2016**. Alternatively, comments may be provided during the public hearing on May 26th.

Date: May 12, 2016

Published in the San Mateo Daily Journal, May 17 and May 24, 2016.

distracted kids: Abbr.
41 KP duty need
46 Back in time
47 Black __: spy doings
48 Critic Reed
49 Punching tool
52 Sales enticement
54 National park on the Maine coast
56 Clerical worker, facetiously
60 April honoree?
63 German automaker
64 Occupy, as one's time
65 Bridges in Hollywood
66 TMZ twosome
67 Creepy
68 Vexes
69 Gather in the fields
70 Expression of disdain

DOWN
1 Prince's lookalike, in a Twain novel
2 Assert without proof

gp.?
34 Golf ball support
35 Musical gift
36 Box for practice
37 Theater section

By Jeff Stillman
©2016 Tribune Content Agency

203 Public Notices

FICTITIOUS BUSINESS NAME STATEMENT #269333
The following person is doing business as: CR Trucking & Hauling, 3425 Oakmont Drive, SOUTH SAN FRANCISCO, CA 94080. Registered Owner: Rolando V. Lazaro, same address. The business is conducted by an individual. The registrant commenced to transact business under the FBN on 05/01/2016
/s/Rolando V. Lazaro/
This statement was filed with the Assessor-County Clerk on 05/10/2016. (Published in the San Mateo Daily Journal, 05/24/16, 05/31/16, 06/07/16, 06/14/16

FICTITIOUS BUSINESS NAME STATEMENT #269355
The following person is doing business as: Interior by Janis, 3860 Brisbane Blvd., BRISBANE, CA 94005. Registered Owner: Janina Cabrera, 3708 Kenwood Ave., SAN MATEO, CA 94403. The business is conducted by an individual. The registrant commenced to transact business under the FBN on May 19, 2016
/s/Janina Cabrera/
This statement was filed with the Assessor-County Clerk on 05/19/2016. (Published in the San Mateo Daily Journal, 05/24/16, 05/31/16, 06/07/16, 06/14/16

FICTITIOUS BUSINESS NAME STATEMENT #269214
The following person is doing business as: Vielbaum Consulting, 812 Foothill Drive, SAN MATEO, CA 94402. Registered Owner: Deborah Ann Vielbaum, same address. The business is conducted by an individual. The registrant commenced to transact business under the FBN on June 15, 2016
/s/DeborahAnn Vielbaum/
This statement was filed with the Assessor-

203 Public Notices

be eligible for free legal services from a nonprofit legal services program. You can locate these nonprofit groups at the California Legal Services Web site (www.lawhelpcalifornia.org), the California Courts Online Self-Help Center (www.courtinfo.ca.gov/selfhelp), or by contacting your local court or county bar association. NOTE: The court has a statutory lien for waived fees and costs on any settlement or arbitration award of $10,000 or more in a civil case. The court's lien must be paid before the court will dismiss the case.
AVISO! Lo han demandado. Si no responde dentro de 30 dias, la corte puede decidir en su contra sin escuchar su version. Lea la informacion a continuacion.
Tiene 30 dias de calendario despues de que le entreguen esta citacion y papeles legales para presentar una respuesta por escrito en esta corte y hacer que se entregue una copia al demandante. Una carta o una llamada telefonica no lo protegen. Su respuesta por escrito tiene que estar en formato legal correcto si desea que procesen su caso en la corte. Es posible que haya un formulario que usted pueda usar para su respuesta. Puede encontrar estos formularios de la corte y mas informacion en el Centro de Ayuda de las Cortes de California (www.courtinfo.ca.gov/selfhelp/espanol/), en la biblioteca de leyes de su condado o en la corte que le quede mas cerca. Si no puede pagar la cuota de presentacion, pida al secretario de la corte que le de un formulario de exencion de pago de cuotas. Si no presenta su respuesta a tiempo, puede perder el caso por incumplimiento y la corte le podra quitar su sueldo, dinero y bienes sin mas advertencia. Hay otros requisitos legales. Es recomendable que llame a un abogado inmediatamente. Si no conoce a un abogado, puede llamar a de servicio de re-

210 Lost & Found

LOST - MY COLLAPSIBLE music stand, clip lights, and music in black bags were taken from my car in Foster City and may have been thrown out by disappointed thieves. Please call (650)704-3595

LOST - Woman's diamond ring. Lost 12/18, Broadway, Redwood City. REWARD! (650)339-0410

LOST CAT Our Felicity, weighs 7 lbs, she has a white nose, mouth, chin, all four legs, chest stomach, around her neck. Black mask/ears, back, tail. Nice REWARD. Please email us at jpanda@msn.com or call 650-578-8745. She drinks water out of her paws.

Books

JACK REACHER adventure novels by lee child great read entire collection. $40 obo (650)591-6842

NICHOLAS SPARKS Hardback Books 2 @ $3.00 each - (650)341-1861

QUALITY BOOKS used and rare. World & US History and classic American novels. $5 each/obo (650)345-5502

STEPHEN KING Hardback Books 2 @ $3.00 each - (650)341-1861

294 Baby Stuff

CHILD CRAFT convertible Crib/ Toddler Bed. Dark wood, very good condition, $99/offer 650-218-4254

GRACO DOUBLE Stroll $90 My Cell 650-537-1066. Will email pictures upon

297 Bicycles

2 BIKES for kids $80. Will email pictures upon request (650) 537-1066

ADULT BIKES 1 regular and 2 with balloon tires $30 Each (650) 347-2386

MAGNA-GLACIERPOINT 26" 15 speed. Hardly used . Bluish purple color .$ 59.00 San Mateo 650-255-3614.

298 Collectibles

1920'S AQUA Glass Beaded Flapper Purse (drawstring bag) & Faux Pearl Flapper Collar. $99. 650-762-6048

1940 VINTAGE telephone bench maple antiques collectibles $75 (650)755-9833

CIGAR BANDS, 100 years old $99 (415)867-6444

FROM TV series Vegas, 57T-Bird model kit, unopened, $10,650-591-9769 San Carlos

GEOFFREY BEENE Jacket, unused, unworn, tags , pink, small, sleeveless, zippers, paid $88, $15, (650) 578-9208

LENNOX RED Rose, Unused, hand painted, porcelain, authenticity papers, $12.00, (650) 578 9208.

MILLER LITE Neon sign , work good $99 call 650-218-6528

RENO SILVER LEGACY Casino four rare memorabilia items, casino key, two coins, small charm. $95. (650)676-0974

SANDY SCOTT Etching, Artists proof: "Opening Day at Cattail Marsh". Retriever holding pheasant. $99. 650-654-9252.

298 Collectible

STAR WARS Lando Calrissian card action figure, autographed Billy Dee Williams. $99 Steve 6814

THE SAN Francisco newspaper, 11/26/1924 full $15,650-591-9769 San Carlos

299 Compute

MONITOR FOR computer. Model L9QX. $25. (650)592-

VIEW SONIC Monitor, 17 Condition $25.00 650-218-

300 Toys

3-STORY BARBIE Dollhouse staircase and elevator. $6 6142

AMERICAN GIRL 18" doll blonde/blue, new in box, $65 1480 local.

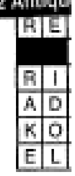
PUZZLES 300-1000 pc perf for $2.00 ea. 650-593-4058

STAR WARS – one 4" ora tion figure, Luke Skywalker all $10 Steve 650-518-661

STAR WARS – one 4" ora tion figure, Momaw Nado head). **$8** Steve 650-518-

STAR WARS SDCC Commander $29 OBO Dar 650-303-5568 lv msg

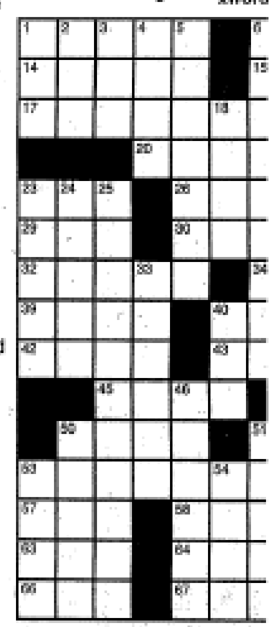
302 Antiqu



34 Powder holder
36 Gael, for one
39 Wild (over)
40 *Command to an attack dog
41 Joint for a dummy
42 The Emerald Isle
43 Rodriguez of the Yankees
44 Starter for 007's car?
45 First name in perfume
47 __ Bator
49 Conclusion
50 Actor Lugosi
51 Sudden gush
52 Dorm VIPs
53 Tropical plain
55 Spat
57 Needle aperture
58 Unemotional, and a hint to the hidden word in the answers to starred clues
63 Came in first
64 Pedro's January
65 Brings in at harvest time
66 Pecan or almond
67 Short-straw picker
68 Win an Olympics prize

22 Stinkers
23 Latte-colored
24 Ex-NBA star Odom
25 *Many a news story, alas
27 *Add zest to
31 Cousin of org

xword



By Melissa Brown and C.C. Burnik
©2016 Tribune Content Agency, L

PUBLIC HEARING ON URBAN WATER USE TARGETS IN URBAN WATER MANAGEMENT PLAN

California law requires that, in conjunction with the Mid-Peninsula Water District's update to its Urban Water Management Plan, the community be given an opportunity to give input on the Mid-Peninsula Water District (MPWD) urban water use targets in the Urban Water Management Plan, any impacts to the local economy, and method of determining its urban water use target. The MPWD Board of Directors will hold a public hearing to adopt an urban water use target and updates to its Urban Water Management Plan for 2015-2020, including a Water Shortage Contingency Plan. The public hearing will be held:

Thursday, May 26, 2016, at 6:30PM
at the MPWD, 3 Dairy Lane, in Belmont, CA

The proposed 2015 Urban Water Management Plan is available for public review at the following locations:

1. MPWD, 3 Dairy Lane, in Belmont, CA;
2. MPWD website: www.midpeninsulawater.org;
3. Belmont Library, 1110 Alameda de las Pulgas, in Belmont, CA;
4. Belmont City Hall, One Twin Pines Lane, in Belmont, CA; and
5. San Carlos City Hall, 600 Elm Street, in San Carlos, CA.

Additional notice regarding the time and place of the public hearing will be published in accordance with Government Code Section 6066.

Please provide any written comments to the **MPWD, 3 Dairy Lane, in Belmont, CA 94002, Attention: Tammy Rudock, General Manager**, or via email: tammyr@midpeninsulawater.org, **by 4:30PM on Wednesday, May 25, 2016**. Alternatively, comments may be provided during the public hearing on May 26th.

Date: May 12, 2016

Published in the San Mateo Daily Journal, May 17 and May 24, 2016.

MID-PENINSULA
WATER DISTRICT

PUBLIC HEARING ON URBAN WATER USE TARGETS
IN URBAN WATER MANAGEMENT PLAN FOR 2015-2020,
INCLUDING A WATER SHORTAGE CONTINGENCY PLAN

California law requires that, in conjunction with the Mid-Peninsula Water District's update to its Urban Water Management Plan, the community be given an opportunity to give input on the Mid-Peninsula Water District (MPWD) urban water use targets in the Urban Water Management Plan, any impacts to the local economy, and method of determining its urban water use target. The MPWD Board of Directors will hold a public hearing to adopt an urban water use target and updates to its Urban Water Management Plan for 2015-2020, including a Water Shortage Contingency Plan. The public hearing will be held:

Thursday, June 23, 2016, at 6:30PM
at the MPWD, 3 Dairy Lane, in Belmont, CA

The proposed 2015 Urban Water Management Plan is available for public review at the following locations:

1. MPWD, 3 Dairy Lane, in Belmont, CA;
2. MPWD website: www.midpeninsulawater.org;
3. Belmont Library, 1110 Alameda de las Pulgas, in Belmont, CA;
4. Belmont City Hall, One Twin Pines Lane, in Belmont, CA; and
5. San Carlos City Hall, 600 Elm Street, in San Carlos, CA.

Additional notice regarding the time and place of the public hearing will be published in accordance with Government Code Section 6066.

Please provide any written comments to the **MPWD, 3 Dairy Lane, in Belmont, CA 94002, Attention: Tammy Rudock, General Manager**, or via email: tammyr@midpeninsulawater.org, **by 4:30PM on Wednesday, June 22, 2016**. Alternatively, comments may be provided during the public hearing on June 23rd.

Date: May 31, 2016

12323220.1

This notice was posted on MPWD's web site and also published in the Belmont City Manager's Weekly Update, June 3, 2016, p.15.

127 Elderly Care

FAMILY RESOURCE GUIDE

The San Mateo Daily Journal's once-a-week resource guide for children and families.

Every Tuesday & Weekend

Look for it in today's paper to find information on family resources in the local area, including childcare.

203 Public Notices

FICTITIOUS BUSINESS NAME STATEMENT #299249

following person is doing business GD Trading, 398 3rd Ave, COLMA, 94014. Registered Owner: Cui Lian g, same address. The business is ducted by an Individual. The regis- commenced to transact business the FBN on 04-06-2011

/s/Cui Lian Wong/

statement was filed with the Assess--County Clerk on 05/13/2016. (Pub- ed in the San Mateo Daily Journal, 24/16, 06/01/16, 06/07/16, 06/14/16

203 Public Notices

CASE# CIV 536845
ORDER TO SHOW CAUSE FOR CHANGE OF NAME
SUPERIOR COURT OF CALIFORNIA, COUNTY OF SAN MATEO, 400 COUNTY CENTER RD, REDWOOD CITY CA 94063
PETITION OF
Kristen Mallory Richards
TO ALL INTERESTED PERSONS:
Petitioner: Kristen Mallory Richards filed a petition with this court for a decree changing name as follows:
Present name: Kristen Mallory Richards
Proposed Name: Kristen Mallory Slater
THE COURT ORDERS that all persons interested in this matter shall appear before this court at the hearing indicated below to show cause, if any, why the petition for change of name should not be granted. Any person objecting to the name changes described above must file a written objection that includes the reasons for the objection at least two court days before the matter is scheduled to be heard and must appear at the hearing to show cause why the petition should not be granted. If no written objection is timely filed, the court may grant the petition without a hearing. A hearing on the petition shall be held on 7/22/16 at 9 a.m., Dept. PJ, Room 2D, at 400 County Center, Redwood City, CA 94063. A copy of this Order to Show Cause shall be published at least once each week for four successive weeks prior to the date

Tundra | **Tundra** | **Tundra**

Over the Hedge | **Over the Hedge** | **Over the Hedge**

PUBLIC HEARING ON URBAN WATER USE TARGETS IN URBAN WATER MANAGEMENT PLAN FOR 2015-2020, INCLUDING A WATER SHORTAGE CONTINGENCY PLAN

California law requires that, in conjunction with the Mid-Peninsula Water District's update to its Urban Water Management Plan, the community be given an opportunity to give input on the Mid-Peninsula Water District (MPWD) urban water use targets in the Urban Water Management Plan, any impacts to the local economy, and method of determining its urban water use target. The MPWD Board of Directors will hold a public hearing to adopt an urban water use target and updates to its Urban Water Management Plan for 2015-2020, including a Water Shortage Contingency Plan. The public hearing will be held:

Thursday, June 23, 2016, at 6:30PM
at the MPWD, 3 Dairy Lane, in Belmont, CA

The proposed 2015 Urban Water Management Plan is available for public review at the following locations:

1. MPWD, 3 Dairy Lane, in Belmont, CA;
2. MPWD website: www.midpeninsulawater.org;
3. Belmont Library, 1110 Alameda de las Pulgas, in Belmont, CA;
4. Belmont City Hall, One Twin Pines Lane, in Belmont, CA; and
5. San Carlos City Hall, 600 Elm Street, in San Carlos, CA.

Additional notice regarding the time and place of the public hearing will be published in accordance with Government Code Section 6066.

Please provide any written comments to the **MPWD, 3 Dairy Lane, in Belmont, CA 94002, Attention: Tammy Rudock, General Manager**, or via email: tammyr@midpeninsulawater.org, **by 4:30PM on Wednesday, June 22, 2016.** Alternatively, comments may be provided during the public hearing on June 23rd.

Date: May 31, 2016

Published in the San Mateo Daily Journal, June 14 and June 21, 2016.

Public Notices

OUS BUSINESS NAME
ATEMENT #268529

203 Public Notices

FICTITIOUS BUSINESS NAME
STATEMENT #268480

The following person is doing business as: Tall Subjects Media, 410 Coronado Ave, HALF MOON BAY, CA 94019. Registered Owner: Richard Robertson, same address. The business is conducted by an Individual. The registrant commenced to transact business under the FBN on N/A.

/s/Richard Robertson/

This statement was filed with the Assessor-County Clerk on 5/26/2016. (Published in the San Mateo Daily Journal, 6/7/16, 6/14/16, 6/21/16, 6/28/16).

FICTITIOUS BUSINESS NAME
STATEMENT #268513

The following person is doing business as: Peninsula Gallery, 1818 South El Camino Real, SAN MATEO, CA 94402. Registered Owner: Mary Neely Dzurnia, 5836 Cobble Grace Drive, SAN JOSE, CA 95135. The business is conducted by an Individual. The registrant commenced to transact business under the FBN on May 1, 2013.

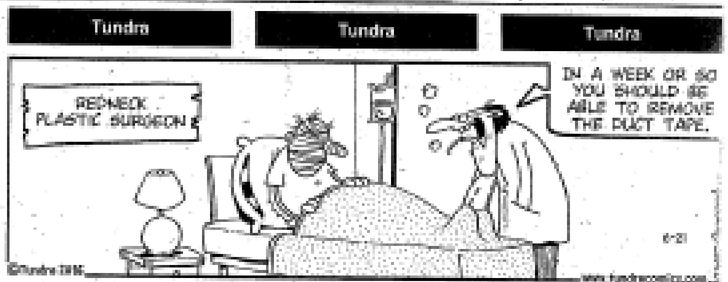
/s/Mary Neely Dzurnia/

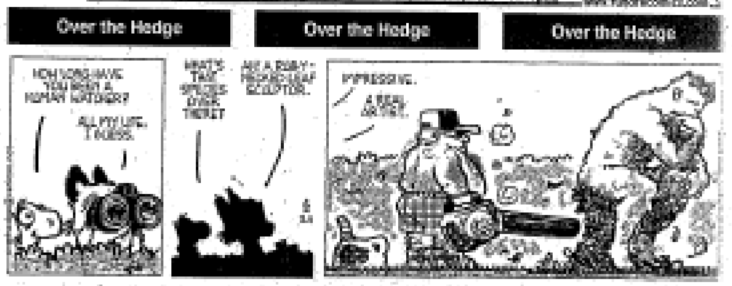
This statement was filed with the Assessor-County Clerk on 6/03/2016. (Published in the San Mateo Daily Journal, 6/14/16, 6/21/16, 6/28/16, 7/5/16).

FICTITIOUS BUSINESS NAME
STATEMENT #268482

FICTITIOUS BUSINESS NAME
STATEMENT #268530

The following person is doing business





210 Lost & Found

FOUND: LADIES watch outside Safeway Millbrae 11/13/14 call Mel, (415)379-0604

FOUND: RING Silver color ring found on 1/29/2014 in Burlingame, Parking Lot M (next to Delfrona), Brand-inscribed. Gary @ (650)347-2301

LOST - MY COLLAPSIBLE music stand, clip lights, and music in black bags were taken from my car in Foster City and may have been thrown out by disappointed thieves. Please call (650)704-3085

295 Art

CLASSIC LAMBORGHINI Countach Print, Perfect for garage, Size medium framed, Good condition, $25. 510-684-0187

COOL HOT Rod Print "Eddies Market." Perfect for Garage, Excellent Condition $50. 510-684-0187

HONDA 750 Poster, Rare History of Honda 750 by Cycle World, mounted on Foam Board, $40. 510-684-0187

296 Appliances

298 Collectibles

BELLER LITE Neon sign, work good $50 call 650-219-8889

RENO SILVER LEGACY Casino four rare memorabilia items, casino key, two coins, small charm. $95. (650)570-0974

SCHILLER HIPPIE poster, linen, Sparta graphics 1968. Mint condition. $800.00. (650)701-0276

SF GIANTS Messenger Bag - Stadium giveaway. New. Great for laptop/business or school papers. $10 650-684-0252

ACCOUNT EXECUTIVE

repreneurial Account Executive to sell advertising to local ertising and marketing solutions a plus.

ides exclusive territory or category with compensation tives, all offered in a dynamic, locally-owned company r path to Sales Management also available.

stomer-focused, and without fail, a self-starter. You will agement activities in an assigned territory or category. l services including print advertising, targeted inserts, marketing, social media, and more.

no sales experience as long as you have the attitude and

ke sure you have the following traits:

tant change
h computers

en and understanding of marketing

of like mind and talent, as we collaboratively guide this rritory. Come join the Daily Journal cause and help us y, on the industry, and on the world.

com

**PUBLIC HEARING ON URBAN WATER USE TARGETS
IN URBAN WATER MANAGEMENT PLAN FOR 2015-2020,
INCLUDING A WATER SHORTAGE CONTINGENCY PLAN**

California law requires that, in conjunction with the Mid-Peninsula Water District's update to its Urban Water Management Plan, the community be given an opportunity to give input on the Mid-Peninsula Water District (MPWD) urban water use targets in the Urban Water Management Plan, any impacts to the local economy, and method of determining its urban water use target. The MPWD Board of Directors will hold a public hearing to adopt an urban water use target and updates to its Urban Water Management Plan for 2015-2020, including a Water Shortage Contingency Plan. The public hearing will be held:

**Thursday, June 23, 2016, at 6:30PM
at the MPWD, 3 Dairy Lane, in Belmont, CA**

The proposed 2015 Urban Water Management Plan is available for public review at the following locations:

1. MPWD, 3 Dairy Lane, in Belmont, CA;
2. MPWD website: www.midpeninsulawater.org;
3. Belmont Library, 1110 Alameda de las Pulgas, in Belmont, CA;
4. Belmont City Hall, One Twin Pines Lane, in Belmont, CA; and
5. San Carlos City Hall, 600 Elm Street, in San Carlos, CA.

Additional notice regarding the time and place of the public hearing will be published in accordance with Government Code Section 6066.

Please provide any written comments to the **MPWD, 3 Dairy Lane, in Belmont, CA 94002, Attention: Tammy Rudock, General Manager**, or via email: tammyr@midpeninsulawater.org, **by 4:30PM on Wednesday, June 22, 2016.** Alternatively, comments may be provided during the public hearing on June 23rd.

Date: May 31, 2016

Published in the San Mateo Daily Journal, June 14 and June 21, 2016.

RESOLUTION 2016-05

ADOPTING THE MPWD 2015-2020 URBAN WATER MANAGEMENT PLAN AND SBX7-7 WATER USE TARGETS

* * *

MID-PENINSULA WATER DISTRICT

WHEREAS, the California Legislature has enacted the Urban Water Management Planning Act, California Water Code Sections 10610 - 10656, as amended, which requires every urban water supplier providing water to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually to prepare an Urban Water Management Plan (UWMP) that has as its primary objective the conservation and efficient use of water; and

WHEREAS, the Mid-Peninsula Water District (MPWD), is an urban water supplier providing water to a population over 25,000; and

WHEREAS, the UWMP must be reviewed at least once every five years by the MPWD, which must amend the UWMP, as necessary, after it has conducted a review; and

WHEREAS, on June 23, 2011, the MPWD adopted an UWMP covering the period 2010-2015, pursuant to Resolution No. 2011-05; and

WHEREAS, the MPWD has prepared and made available for public inspection a draft Urban Water Management Plan 2015-2020 in accordance with applicable law; and

WHEREAS, the UWMP will facilitate local and regional water planning activities and support the MPWD's long-term water resource planning goals; and

WHEREAS, the draft UWMP 2015-2020 also includes a Water Shortage Contingency Plan and an assessment of past and present water usage to determine baselines and targets as required by SBx7-7, the Water Conservation Act of 2009; and

WHEREAS, the preparation of the updated UWMP has been coordinated with other public agencies to the extent practicable, and staff has encouraged the active involvement of diverse social,

12403798.1

cultural and economic sectors of the population within the MPWD's retail water service area during preparation of the UWMP; and

WHEREAS, the UWMP must be adopted by July 1, 2016, after it is first made available for public inspection and a public hearing is noticed and held, and it must be filed with the California Department of Water Resources within thirty days of adoption; and

WHEREAS, in accordance with applicable law, a noticed public hearing on the draft UWMP was held by the MPWD Board of Directors on June 23, 2016, at which time all public comments were heard and considered.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Mid-Peninsula Water District as follows:

1. The 2015-2020 Urban Water Management Plan of the Mid-Peninsula Water District, including the SBx7-7 Implementation Plan and Water Use Targets as well as a Water Shortage Contingency Plan is hereby adopted.

2. The General Manager is hereby authorized and directed to file the 2015-2020 Urban Water Management Plan of the Mid-Peninsula Water District with the California Department of Water Resources, the California State Library, and the County of San Mateo by July 1, 2016.

3. The General Manager is hereby authorized and directed to implement the Urban Water Management Plan 2015-2020, including the Demand Management and Water Conservation Programs as set forth in said Urban Water Management Plan.

4. It was found and determined that, under the California Water Code Section 10652, the adoption of the 2015-2020 Urban Water Management Plan of the Mid-Peninsula Water District and this Resolution does not constitute a project under the California Environmental Quality Act, and no environmental assessment is required.

REGULARLY PASSED AND ADOPTED this 23rd day of June 2016, by the following vote.

AYES: Warden, Vella, Linvill, Zucca
NOES: 0
ABSENT: Stuebing

President, Board of Directors

ATTEST:

District Secretary

12403756.1

APPENDIX N – DOCUMENTATION OF 2015 UWMP SUBMITTAL

1. Documentation pending DWR response to MPWD's submittal of the 2015 MPWD UWMP. Once response is received from DWR, MPWD will post it with the 2015 UWMP on its web site.

2. A CD or hard copy of MPWD's 2015 UWMP will be submitted to the California Library of Records Hall within 30 days of adoption.

3. MPWD will submit this 2015 UWMP to any city or county within which it provides water no later than 30 days after its adoption.

MID-PENINSULA
WATER DISTRICT

Water Shortage Contingency Plan

JUNE 23, 2016

IN ASSOCIATION WITH:

ManageWater Consulting, Inc.

MADDAUS
WATER
MANAGEMENT
INC.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CREDITS

MPWD Board of Directors

Matthew P. Zucca, President

Dave Warden, Vice President

Al Stuebing, Director

Louis J. Vella, Director

Betty L. Linvill, Director

MPWD Staff

Tammy Rudock, General Manager

Jeanette Kalabolas, Water Conservation Administrative Specialist

Rene Ramirez, Operations Manager

Brent Chester, Field Operations Supervisor

Consulting Team

Marty Laporte, ManageWater Consulting, Inc.

Lisa Maddaus, Maddaus Water Management, Inc.

1. WATER SHORTAGE CONTINGENCY PLAN OVERVIEW

The purpose of this Water Shortage Contingency Plan (WSCP) is to provide direction on specific actions to be taken by the Mid-Peninsula Water District (MPWD) staff and customers in response to increasingly severe water supply shortage conditions. In case of a catastrophic water supply interruption and water system failure or water quality issues requiring immediate response and action, please refer to the MPWD's Emergency Operations and Response Plan.[1]

This WSCP addresses all the requirements of Section 10632 of the California Water Code that states that the Urban Water Management Plan (UWMP) shall provide an urban water shortage contingency analysis that includes information on the estimated three-year minimum water supply, actions in the event of a water shortage, water waste prohibitions, non-essential water uses during a water shortage, mechanisms for determining water use reductions, revenue and expenditure impacts and the emergency preparedness and plans for catastrophic events (Attachment A). In an effort to provide a uniform basis for requesting cutbacks in consumption by customers (e.g., sacrificial behaviors and changes in fixtures and appliances) and operational changes (e.g., reduced system flushing) due to cutbacks in supply from minor to emergency conditions, the MPWD has a program of four (4) stages of actions based on the severity of the water shortage.

This MPWD 2016 WSCP supersedes earlier WSCP's and is adopted by the MPWD Board by Resolution No. 2016-04 on June 23, 2016. The MPWD's 2016 WSCP is the result of a strategic planning process to prepare for and respond to water shortages. Such planning and preparation will help maintain reliable supplies and reduce the impacts of supply interruptions. As required by Section 10632, the 2016 WSCP discusses the following:

- Stages of Action
- Consumption Reduction Methods
- Determining Water Shortage Reductions
- Minimum Supply Next Three Years
- Prohibitions on End Uses
- Penalties, Charges, Other Enforcement of Prohibition
- Revenue and Expenditure Impacts

The 2016 WSCP can be amended as needed without amending the MPWD's UWMP. This WSCP is applicable to a range of temporary, short- and long-term water shortage conditions, including droughts.

[1] MPWD Emergency Operations and Response Plan, 2008.

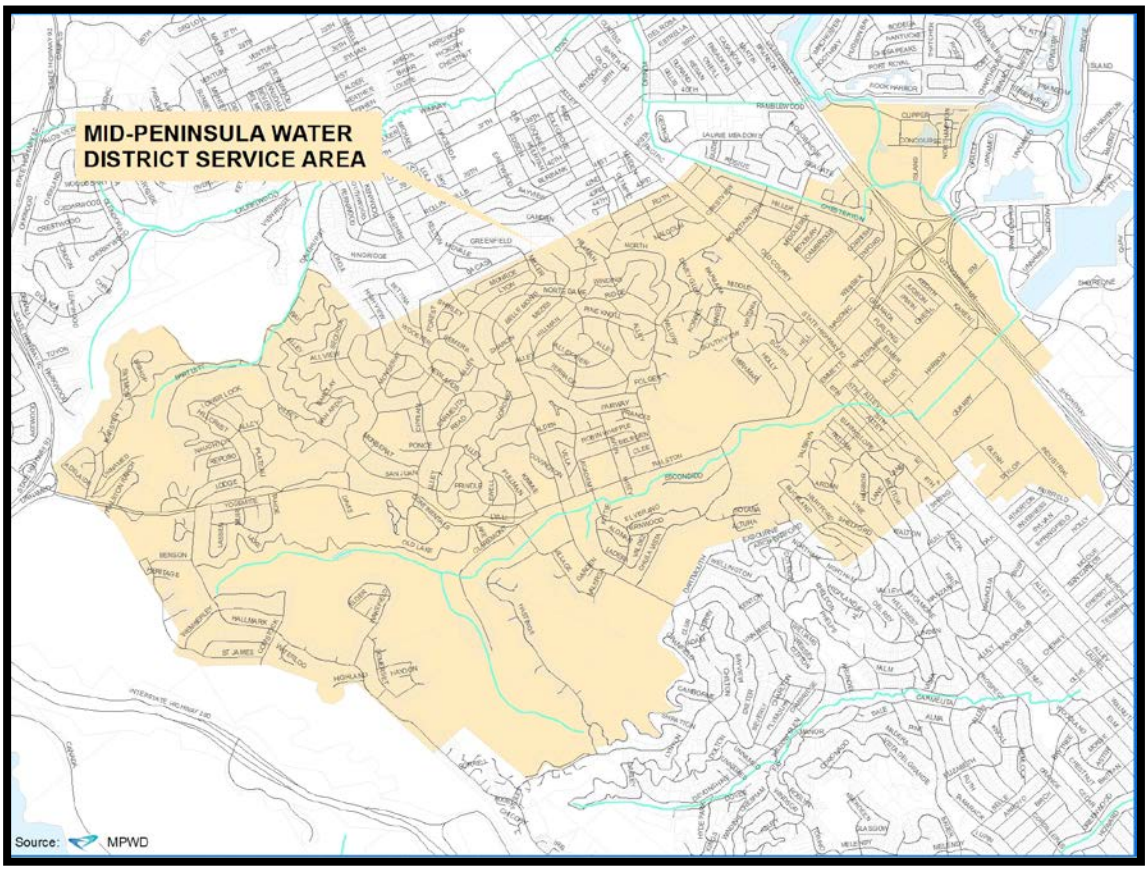
2. BACKGROUND AND SOURCES OF SUPPLY UNDER SHORTAGE CONDITIONS

This section describes sources of supply including details on MPWD's water system, water supply from SFPUC, system demands, and the BAWSCA Drought Water Shortage Allocation Plan.

2.1 MPWD's Water System

The MPWD service area comprises approximately 5 square miles, serving a 26,924[2] population in the City of Belmont, parts of San Carlos, and San Mateo County in 2015. The street map shown in Figure 1 illustrates MPWD's service area.

Figure 1. MPWD Street Service Area Boundaries



The MPWD operates and maintains a complex distribution system that includes 9 pressure zones, 20 pumps, 11 water tanks, 13 water regulating valves, 813 fire hydrants, and 105 miles of water mains.[3]

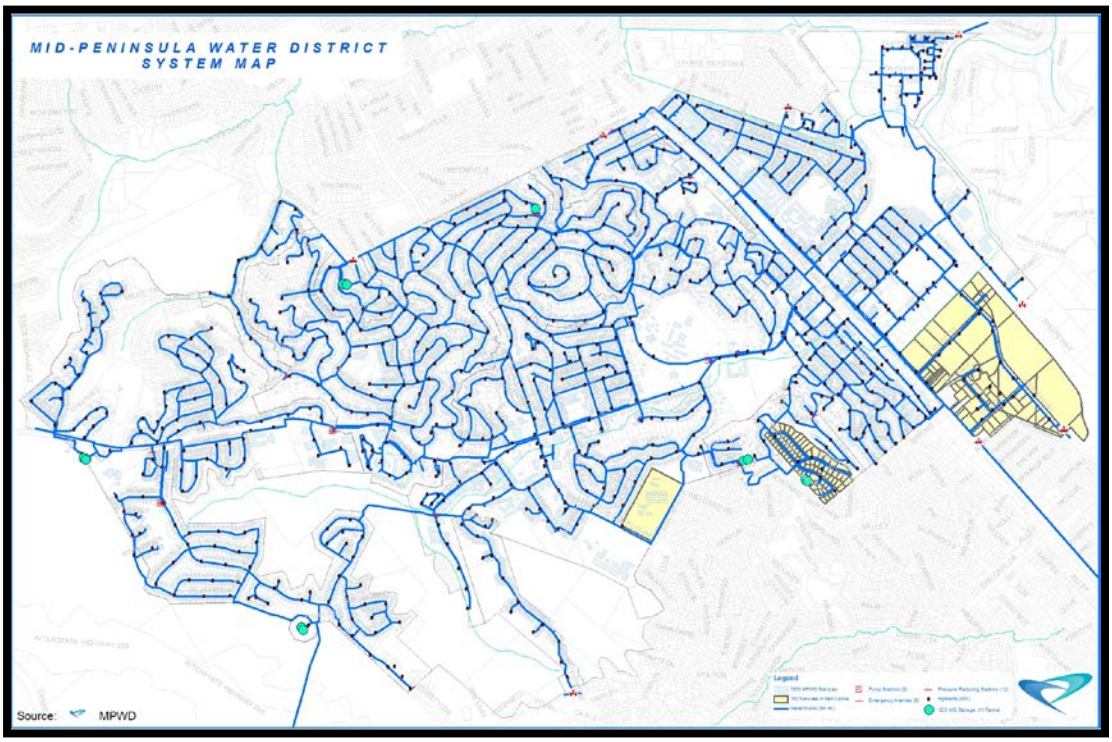
[2] BAWSCA Regional Water Demand and Conservation Projections Report (Maddaus Water Management, September 2014).

[3] BAWSCA Annual Survey, FY2013-14, May 2015.

MPWD has the ability to transfer water between pressure zones either in a pump-up or flow-down mode. The MPWD also has redundancy built into the distribution system so that it can, if necessary, supply all customers from either one of the SFPUC connections (see Section 2.2 for further details on SFPUC water supply).

The MPWD's distribution system is shown in Figure 2.

Figure 2. MPWD Distribution System Map

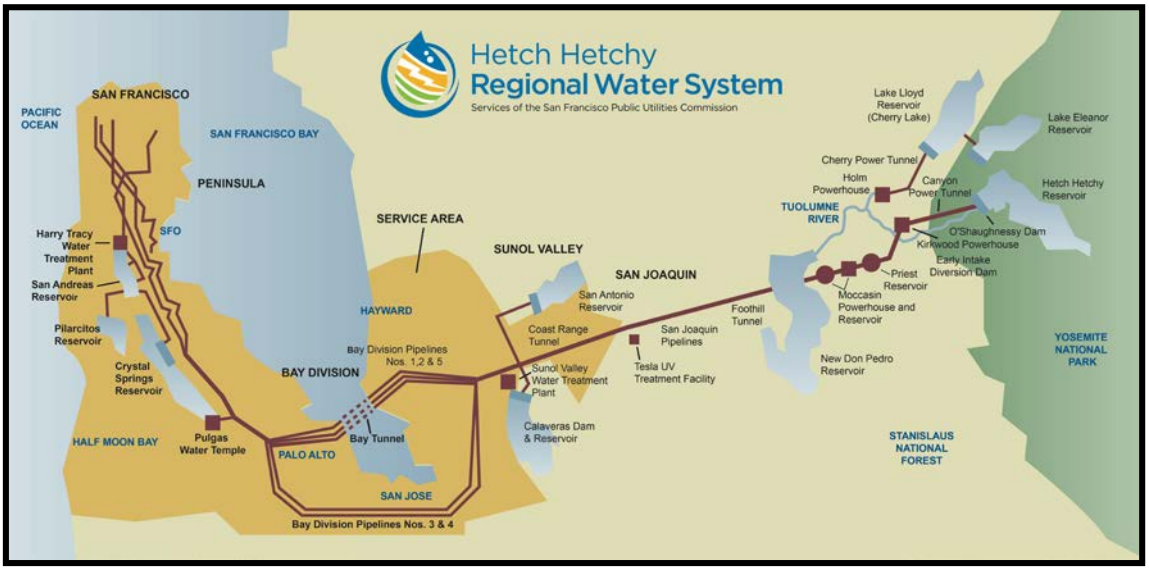


The MPWD started implementing Automated Metering Infrastructure (AMI) technology in 2012. The AMI technology has many benefits, especially for tracking water use or misuse in near "real time." The new AMI meters alert staff to potential water leaks on a daily basis. This is extremely helpful to customers in conserving water and saving money on water bills. Approximately 50% or 4,000 AMI meters were in place at the end of 2015.

2.2 Water Supply from SFPUC

The MPWD purchases 100% of its water from the San Francisco Public Utilities Commission (SFPUC) Regional Water System (RWS), making MPWD dependent on SFPUC's supply reliability. The SFPUC RWS is shown in Figure 3.

Figure 3. SFPUC Regional Water System Map



(Source: SFPUC, 2016)

The SFPUC RWS supply is predominantly from the Sierra Nevada, delivered through the Hetch Hetchy aqueducts, but it also includes treated water produced by the SFPUC from its local watersheds and facilities in Alameda and San Mateo Counties. Water from the RWS is treated before delivery and supplied to MPWD from two connections, Bay Division Pipelines (BDPL) 1 and 2, and the Crystal Springs Bypass Tunnel. The SFPUC water is delivered to MPWD in two ways: 1) via a 20-inch water transmission pipeline that is connected to the SFPUC system in Redwood City and, 2) via a 24-inch pipeline connected to a pump station on the SFPUC watershed property near the Pulgas Water Temple.

The amount of imported water available to the SFPUC's customers is constrained by climate, hydrology, physical facilities, and the institutional parameters that allocate the water supply of the Tuolumne River, source for SFPUC. Due to these constraints, the SFPUC is very dependent on reservoir and snow-pack storage to manage its water supplies. A vulnerability assessment related to climate change is included in Section 6 of the MPWD's 2015 UWMP. SFPUC water supplies during dry years are discussed in Section 7 of the MPWD's 2015 UWMP.

2.3 Bay Area Water Supply & Conservation Agency Drought Water Shortage Allocation Plan

The MPWD is a member agency of the Bay Area Water Supply and Conservation Agency (BAWSCA) and participates in a number of the regional water conservation initiatives coordinated by BAWSCA. BAWSCA was created on May 27, 2003 to represent the interests of 16 cities, 8 water districts, and 2 private water providers. All BAWSCA agencies purchase water on a wholesale basis from the SFPUC RWS.

Annually by April 15, SFPUC is required (by contract) to communicate to MPWD if water shortage conditions requiring demand reductions are expected. Independently, MPWD also monitors the water supply conditions and potential for water shortages. Table 1 presents SFPUC deliveries to the Wholesale (BAWSCA) Customers for projected single- and multiple-dry year supply, beginning base year 2015.

For the single- and multiple-year shortage projections, the SFPUC used their fiscal year 2015 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 the RWS reservoir and pipeline capacities and in-stream flow requirements as they existed in 2015 (prior to Water System Improvement Program [WSIP] completion). Additional information on the SFPUC WSIP is in MPWD's 2015 UWMP, Section 6.2.1.

Table 1. SFPUC summary for deliveries to the Wholesale Customers for projected single- and multiple-dry year supply, beginning base year 2015[4]

	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	152.6	152.6	129.2	129.2
MGD = million gallons per day					

To address the allocation of potable water supply during dry years, the Water Shortage Allocation Plan (WSAP) was utilized to allocate shortages between the SFPUC and the Wholesale Customers collectively (Tier 1). The WSAP implements the two-tier method for allocating water between the SFPUC retail customers and wholesale customers collectively that was adopted by the Wholesale Customers 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 adopted the Tier 2 Plan, the second component of the WSAP, which allocates the collective wholesale customer share among each of the 26 wholesale customers.[5] Table 2 illustrates the Tier 1 and Tier 2 allocations.

[4] Ibid

[5] Final Common Language for BAWSCA Member Agencies' 2015 UWMPs, BAWSCA transmittal, January 5, 2016.

Table 2. Level of SFPUC system-wide reduction in water use required as part of the Tier 1 (SFPUC percent of total) and remaining percent of total for Tier 2 for BAWSCA agencies

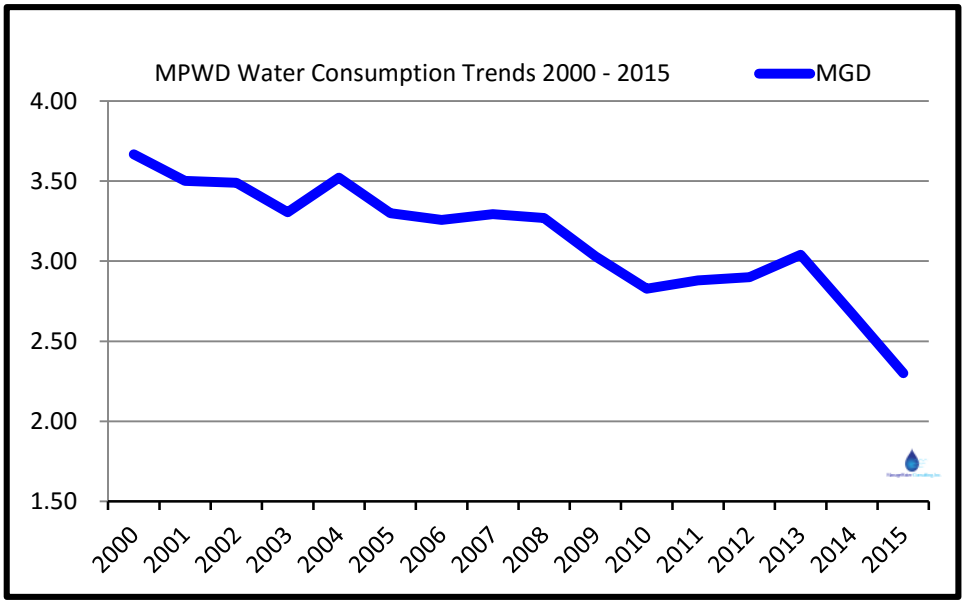
Level of Required System-Wide Reduction in Water Use	Share of Available Water	
	SFPUC Share (Tier 1)	Wholesale Customers Share (Supply available for BAWSCA Tier 2 drought formula)
5% or less	35.50%	64.50%
6% through 10%	36.00%	64.00%
11% through 15%	37.00%	63.00%
16% through 20%	37.50%	62.50%

2.4 MPWD's Water Demand Trends, 2000 To 2015

The MPWD serves customers in the City of Belmont, parts of San Carlos, and San Mateo County. The population in the service area has grown steadily, as discussed in MPWD's 2015 UWMP, Section 3. In 2000, the population of the MPWD was about 25,684,[6] while in 2015 the service area population was approximately 26,924, an increase of 5 percent.[7] However, due to continued conservation efforts and from 2013 to 2015 drought year restrictions, during this period, the cumulative water use in the MPWD service area decreased by 37%, as shown in Figure 4.

[6] 1980 U. S. Census data for Belmont plus 100 people for the San Carlos area served by the MPWD.
[7] BAWSCA Regional Water Demand and Conservation Projections Report (MWM, September 2014).

Figure 4. MPWD's water consumption trends from 2000 to 2015



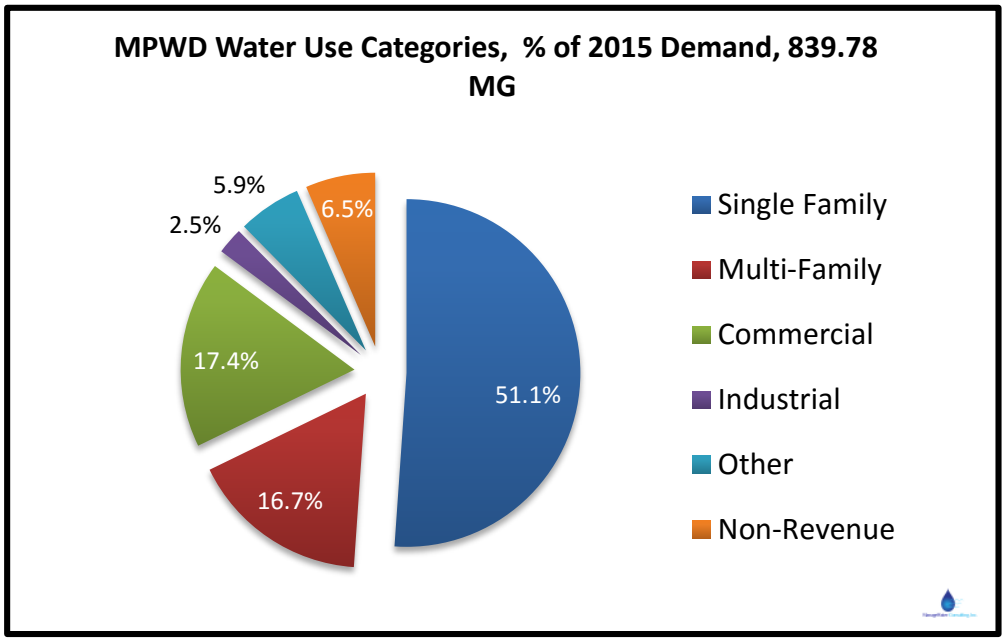
(Data source: MPWD, 2015 UWMP)

Under "Normal" conditions, the MPWD continues ongoing conservation measures and prohibits water waste. The Mediterranean climate in MPWD's service area is typified by normal seasonal dry summers, wet winters and year-on-year variability in weather. Annual fluctuations in rainfall, up to 10% of "normal," are not unusual. Normal conditions are typical water supply conditions where the SFPUC water supply is sufficient to meet MPWD's projected demand. MPWD's website (https://www.midpeninsulawater.org/conservation_overview.php) includes information about on-going conservation under Normal conditions, such as:

- Water saving tips;
- Free water conservation kits;
- Rebate programs;
- Leak detection assistance;
- A water conservation calculator;
- Links to the Association of California Water Agencies (ACWA) and the DWR "Save our Water"; and
- Related BAWSCA and SFPUC information

As shown in Figure 5, in 2015, the MPWD service area used a total of 839.78 million gallons. Of MPWD's total 2015 use, 51% was in the single-family residential sector, while 16.7% was in multifamily. In the Commercial, Institutional, and Industrial sector (CII), 17.3% was commercial and 2.5% was industrial. Water use by the Public Authority was 6% and system losses were determined to be 6.5%. Similarly, MPWD's internal 2014 Water Audit software reported a 6.2% water loss.

Figure 5. MPWD's customer categories and their water consumption, percent of total MPWD 2015 Demand



3. IMPLEMENTATION OF MPWD'S WATER SHORTAGE CONTINGENCY PLAN

MPWD works and coordinates with BAWSCA and SFPUC to stay current about water supply conditions. MPWD attends monthly BAWSCA agency and frequent SFPUC meetings and during water shortages receives monthly or more frequent water supply status reports. The information from BAWSCA and SFPUC keep MPWD staff informed on current conditions and forecasts.

Additionally, MPWD monitors state directives and policies from the California State Water Resources Control Board (SWRCB) and Department of Water Resources (DWR). When water shortage conditions are announced, MPWD intensifies its efforts to monitor the evolving conditions and develop responses to projected shortfalls. During the 2013 to 2015 drought, MPWD reported its water consumption and reduction to DWR monthly.

Actions that may be taken by the MPWD for drought and other water shortage conditions include:

- Review, communicate, and comply with legal and regulatory requirements for drought preparedness. This includes mandatory regulations by Governor Executive Orders, State Water Resources Control Board or other authority associated with reduction targets or other mandates.
- Review and update MPWD's WSCP or Ordinances[8] as needed based on new monitoring data, changes in supply, operational changes, or changes in expected water demands.
- Provide education and outreach to customers on efficient and reasonable uses of water and best ways to save, with increased intensity in messaging during times of drought.
- Continue MPWD's water loss management procedures (including leak identification and repair).
- Enforce prohibition of wasted water per the MPWD Ordinance 103, Section 4.2.[9]
- Enforce conservation policies and water-efficient plumbing codes.
- On an as-needed basis and at a minimum of every 5 years, review and refine the rate stabilization policy relating to drought impacts.
- Update educational materials on an as-needed basis.
- Invoke drought/emergency water rates as needed.

Commencing with the 2015 UWMP, DWR requires, for purposes of developing the water shortage contingency analysis, that the urban water supplier shall analyze and define water features that are

[8] Water Service Ordinance 103 Section 4.2 discusses water waste. Ordinance 112 is also important because it amends sections in Ordinance 103. Ordinance 111 implemented Stage 2 water shortage response to the MPWD's WSCP regarding mandatory restrictions on outdoor water use. Ordinance 113 amended sections in Ordinance 111.

[9] Water Service Ordinance 103, Establishing, Updating and Re-codifying the Rules Regulations and Fees for Water Service by Mid-Peninsula Water District and Superseding all Prior District Ordinances and Amendments Thereto. http://midpeninsulawater.org/uploads/Ordinance_Current_Water_Service.pdf

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.[10]

Based on clarification from DWR[11], this WSCP is required to specify that any water restrictions specific to ponds, lakes, waterfalls, and fountains are not applicable for swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code. All ponds, lakes, waterfalls, and fountains shall have recirculating systems. A once-through water supply to these water features is prohibited.

The 2015 UWMP also requires analysis of three types of water years: Average, Single-Dry, and Multiple-Dry years are analyzed for availability of water supply for MPWD, with 2015 as the base year. The three categories of year types are discussed in detail in Section 7 of the MPWD's 2015 UWMP. Table 3 presents the estimates of minimum water supply for the next three years starting with 2015. (Water Code Section 10632[b]). This table is Table 7-4 in MPWD's 2015 UWMP.

Table 3. Minimum Supply Next Three Years

	2016	2017	2018
Available Water Supply	2.98	2.81	2.81
NOTES: Unit: MGD. Source: SFPUC Letter of Regional Water System Supply Reliability (January 5, 2016) and BAWSCA Tier 2 DRIP Model (UWMP Tier 2 Allocation Scenarios, January 8, 2016).			

In 2015, the SFPUC updated predictive models of the supplies discussed below (Table 4), identifying single- and multiple-year drought scenarios in which aggregate demand on the SFPUC RWS would have to be reduced.[12]

[10] California Water Code, Urban Water Management Planning Act: www.leginfo.ca.gov

[11] Direct communication with Gwen Huff, DWR, January 2016.

[12] Final Common Language for BAWSCA Member Agencies' 2015 UWMPs, BAWSCA email, SFPUC January 5, 2016.

Table 4. Bases of Water Year Data

Year Type	Base Year	Available Supplies if Year Type Repeats	
		Agency may provide volume only, percent only, or both	
		Volume Available (MG)	% of Average Supply
Average Year	2015	1,354	100%
Single-Dry Year	2015	1,088	80%
Multiple-Dry Years, 1st Year	2015	1,088	80%
Multiple-Dry Years, 2nd Year	2015	1,026	76%
Multiple-Dry Years, 3rd Year	2015	1,026	76%
NOTES: Total Allocation to the SFPUC Wholesale Customers for a projected single-dry year 2015 and projected multiple-dry year scenario beginning base year 2015. Allocation to MPWD calculated using BAWSCA Tier 2 Drought Implementation Plan (DRIP). Source: BAWSCA, SFPUC, January 5, 2016.			

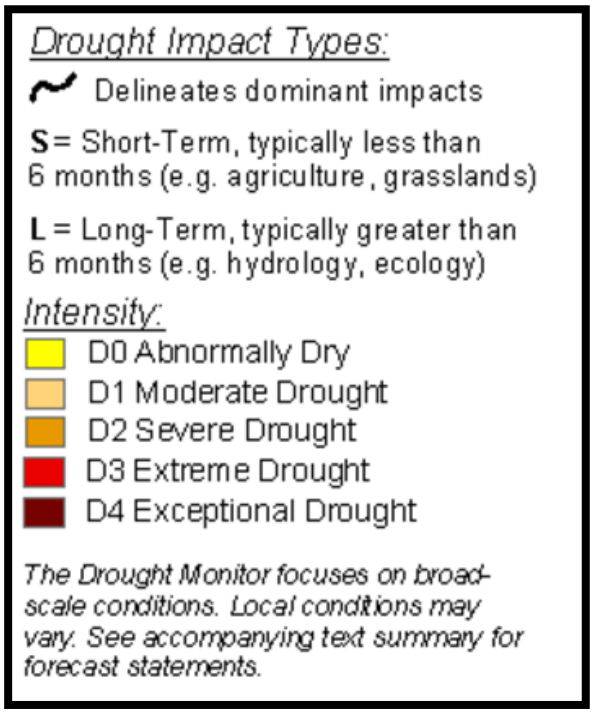
Water supply allocation to MPWD is calculated using the BAWSCA *Tier 2 Drought Implementation Plan* (2009).[13]

An average year (or an averaged range of years) is one that most closely represents the median water supply available to the MPWD from SFPUC. The multiple-dry year period, as defined by DWR, represents the lowest average water supply availability to the agency for consecutive multiple years (i.e., three years or more).

A standard scale for severity of drought has been defined by the National Drought Mitigation Center's Drought Monitor (http://droughtmonitor.unl.edu) and the California Department of Water Resources has adapted this scale for use in California as shown in Figure 6, below.

[13] BAWSCA. *Tier 2 Drought Implementation Plan (DRIP),* 2009.

Figure 6. National Drought Mitigation Center's Drought Monitor Impact Types



Source: National Drought Mitigation Center.

3.1 Potential Catastrophic Conditions Leading to Water Shortages

In the event of an emergency caused by various conditions, as shown in Table 5, MPWD's Emergency Operations Center (EOC) may be activated to act as a coordination center for all of the MPWD's emergencies. The MPWD is updating its Emergency Operations and Response Plan[14], which is designed to provide guidance and direction for MPWD's staff both during an emergency and in mobilizing the post disaster response.

The MPWD's primary EOC is located at the MPWD office at 3 Dairy Lane in Belmont. The backup location has emergency radio transmitters and power can be provided with portable generators. District phone service can also be paired with any cell or land line. System maps and mobile radios are also available and stocked in all MPWD maintenance vehicles.

The MPWD actively participates with the San Mateo County Emergency Managers Association (EMA). MPWD staff attends monthly meetings in addition to annual and periodic emergency drills and community tabletop exercises. As part of the SFPUC RWS, the MPWD also partners with the BAWSCA members' agencies and the SFPUC to participate in emergency training exercises.

[14] MPWD Emergency Operations and Response Plan, December 2008.

The EOC is equipped with radios, telephones, emergency power equipment, and supplementary documents and supplies. Also available are facility diagrams and summaries of exchange capacities at interconnections between adjoining water systems and information on designated emergency connection sites. In addition, emergency pumps and equipment for portable hydrant systems are available at the MPWD Headquarters. The EOC would be the central point of coordination for government services, communications, and emergency public information.

Communication protocols have been established and damage evaluation procedures have been defined. In the immediate period following a major disaster, such as an earthquake, the MPWD's initial task would be to evaluate the water supply system and file a status report with the General Manager as quickly as possible. If a water shortage emergency were to be declared, the Board of Directors would be assembled to make a Declaration of the Water Shortage Emergency. The Board President and/or the General Manager would be responsible for media contacts and press briefings as necessary.

The MPWD has assembled an inventory of technological resources, equipment, materials, supplies, and maintains key vehicles in a "ready to respond" condition. The MPWD also has arrangements with several local contractors for emergency backhoe and underground work in the event there is more damage than the MPWD staff can manage.

The goal of the MPWD's post-disaster response is to keep the water transmission and storage system intact and operational to the greatest extent possible. Emergency response protocols specify the leadership role of the Field Operations Manager (or his/her designee), procedures for activating the EOC, mobilization of necessary staff and other support, and taking action to cope with the particular situation. The repair or shut-down work would be coordinated from the EOC and field crews would report progress to the emergency operations team. Regular progress reports would then be filed with the appropriate police department and/or fire district.

Communication from MPWD about the emergency would be broadcast to alert the service area and notices would be issued via public announcements (e.g., radio, TV, social media, web site). Written notices may also be employed (e.g., letters or door hangers, or other means) to advise customers of the water shortage and anticipated duration of the shortage. All customers would then be similarly noticed when the shortage is resolved.

Table 5 lists possible emergencies that could cause water shortages along with a summary of response actions.

Table 5. Preparation Actions for Water Shortage Emergencies

Preparation Actions for a Catastrophe	
Possible Emergency	Summary of Actions
Extreme Weather, e.g., Drought	Identify applicable measures from MPWD's WSCP. Portable and emergency generators available for MPWD facilities.
Earthquake	Shut-off isolation valves and above-ground use of flexible piping for ruptured mains.
Fire	Use of storage supplies and supplementation with regulator operations as needed
Flood	Use of storage supplies.
Toxic Spills	Use of storage supplies
Power Outage or grid failure	Portable and emergency generators available for MPWD facilities

3.1.1 Response to Short-term Water Shortages

Temporary, short-term supply interruptions may invoke the need for MPWD staff to alert customers, SFPUC, BAWSCA, and regulatory agencies of any stage or shortage as conditions warrant. The General Manager is responsible to define the issues and identify options for response. The appropriate stage of action would be determined based on the severity and projected duration of the shortage. For example, an emergency condition where more than 50% of the supply is unavailable may warrant an alert for Stage 4 – Water Emergency (see Table 6) even during short-term impairment.

3.1.2 Response to Long-term Water Shortages, Including Droughts

As in past long-term water shortage conditions, the MPWD will work with and coordinate its response actions with BAWSCA and SFPUC and, as in the recent drought, with regulatory mandates.

For example, in 2013-14 rainfall totals were on average 58% lower than the historical average from 1948-2014. Severe drought conditions decreased water levels in California's reservoirs and reduced flows in the state's rivers. Consequently, Governor Brown declared a drought emergency. [15] In his April 1, 2015 Executive Order, Governor Brown mandated a 25% water use reduction for cities and towns throughout

[15] http://www.water.ca.gov/waterconditions/declaration.cfm

California.[16] On May 5, 2015, the State Water Resources Control Board adopted an Emergency Regulation to address specific provisions of the April 1 Executive Order, including the mandatory 25% statewide reduction in potable urban water use between June 2015 and February 2016. To reach the Governor's statewide 25% reduction mandate, the Emergency Regulation assigned each urban water supplier (who serves more than 3,000 connections) a conservation standard that ranges between 8% and 36% based on their residential use in gallons per capita per day (R-GPCD). After the state of drought emergency was declared, all California water agencies received a mandated conservation standard.

The mandated standard for MPWD is a 20% reduction from its 2013 average gross per capita per day (gpcd) consumption. From June 2015 to May 2016, the MPWD achieved a 27.3 reduction[17], surpassing the 25% mandated throughout California. The MPWD's system-wide water use in 2015 was 85 gpcd (total use divided by total population).

3.1.3 Roles and Responsibilities

The MPWD General Manager is responsible for monitoring all potential water shortage conditions and makes recommendations to the MPWD Board regarding the implementation of the Water Shortage Contingency Plan stages 1, 2, 3, or 4. The MPWD General Manager also manages issues of timing, policy, public relations, financial solvency, customer education, facility operations, environmental considerations, and public health. The MPWD General Manager routinely updates the MPWD Board of Directors about water supply conditions at regular and special board meetings. During extreme water shortage situations, updates may occur more often by e-mail or by phone, consistent with the requirements of the Ralph M. Brown Open Meetings Act.[18]

It is the responsibility of the MPWD Board of Directors to declare a water shortage. The specific stages and triggers to activate each stage, based on a percentage reduction in water supply will be determined in cooperation with the SFPUC, BAWSCA, and regulatory requirements specific to the shortage conditions.

The concluding task in any water shortage management effort is the final report to the Board, as well as communication with the MPWD's customers summarizing the event and its consequences for MPWD.

[16] Sources:
http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/docs/040115_executive_order.pdf
and http://www.waterboards.ca.gov/press_room/press_releases/2015/pr103015_sept_waterconservation.pdf

[17] MPWD website: https://www.midpeninsulawater.org/billing_inserts.php

[18] http://www.leginfo.ca.gov/cgi-bin/displaycode?section=gov&group=54001-55000&file=54950-54963

4. MPWD'S WATER SHORTAGE STAGES OF ACTION

The number of stages of action in a WSCP is at the discretion of the water supplier. Not including "Normal" supply conditions and routine on-going conservation, the MPWD's WSCP includes four (4) "Stages of Action" to be taken in response to water supply shortages (Water Code §10632[a][1]). The MPWD's 4 Stages of Action and percent reductions to increasingly restrictive water supply conditions, including a reduction of up to 50% are consistent with MPWD's Water Service Ordinance 112, Attachment "103A" Schedule of Rates and Fees.[19] The MPWD's 4 Stages of Action are presented in Table 6 (Table 8-1 in MPWD's 2015 UWMP).

The MPWD has in the past, and will continue in the future, to respond to water supply shortages on a case-by-case basis. For droughts or any other water supply shortage, the MPWD will respond to state mandates and coordinate with SFPUC, BAWSCA, and BAWSCA agencies. The MPWD will implement a program of water conservation measures that will result in use restrictions proportional and responsive to the severity and duration of the reductions needed.

[19] Water Service Ordinance 112, Attachment 103A, Schedule of Rates and Fees
http://midpeninsulawater.org/uploads/ORDINANCE%20No.%20112%20Attachment%20A.pdf

Table 6. Shortage Stages and Corresponding Necessary Percent Supply Reductions

Stages of Water Shortage Contingency Plan		
Stage	Complete Both	
	Percent Supply Reduction* *Numerical value as a percent*	Water Supply Condition (*Narrative description)*
1	up to 11%	Water Alert - Slightly restricted water supplies. Voluntary reductions.
2A, 2B	12% - 18%	Water Warning - Moderately restricted water supplies. 2A - voluntary, 2B - mandatory reductions. Continue to look for all ways to reduce water use indoors and outdoors (e.g., increasingly shorter showers, reduced irrigation)
3	19% - 32%	Water Crisis - Severely restricted water supplies. Mandatory reductions. Implement all possible ways to reduce water use indoors and outdoors (e.g., concentrate efforts to reduce landscape irrigation, turn off decorative water features, increase rebates for efficient water equipment)
4	33% - 50%	Water Emergency - Extremely restricted water supplies. Mandatory reductions. Prioritize water use for essential domestic sanitation and other critical needs.
**At least one stage in the Water Shortage Contingency Plan must address a water shortage of 50%.*		
NOTES: MPWD Water Demand Offset Charges, UWMP Water Shortage Response Stages, Water Service Ordinance 112 Attachment 103A, Schedule of Rates and Fees, June 25, 2015.		

Although the circumstances surrounding future droughts, or any other long-term supply shortages, may differ from the situations that the MPWD has faced in previous shortages, a systematic approach and framework are in place with MPWD's updated WSCP. This approach includes practical, initial voluntary conservation stages, followed by mandatory water rationing in response to increasingly severe water shortages.

5. PROHIBITIONS ON END USES

In the past and in 2015 extending into 2016, in response to Governor's Executive Order and State Emergency Regulations[20], the MPWD has implemented various increasingly restrictive mandatory drought measures. The following are state-mandated prohibitions in place, starting in 2015:

- Using potable water to irrigate ornamental turf on public street medians
- Using potable water to irrigate landscapes of new homes and buildings inconsistent with California Building Standards Code (CBSC) and Department of Housing and Community Development (DHCD) requirements
- Using outdoor irrigation during, and 48 hours following, measurable precipitation
- Using potable water in decorative water features that do not recirculate the water
- Using hoses with no shutoff nozzles to wash cars
- Runoff when irrigating with potable water
- Using potable water to wash sidewalks and driveways

Water waste is prohibited in all Normal conditions and Water Shortage Stages in the MPWD service area. The MPWD has adopted the Mandatory Restrictions on Outdoor Water Use Ordinance 111.[21]

Table 7 lists the different restrictions and prohibitions on end uses, as well as any penalties, charges or other enforcements that MPWD has developed.

[20] State Water Resources Control Board. Resolution No. 2015-0032, May 2015. http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/docs/emergency_regulations/rs2015_0032_with_adopted_regs.pdf

[21] MPWD Ordinance 103, Section 4.2. Ordinance 111 implemented Stage 2 water shortage response to the MPWD's WSCP regarding mandatory restrictions on outdoor water use. Ordinance 113 amended sections in Ordinance 111.

Table 7. Restrictions and Prohibitions on End Uses

Stage	Restrictions and Prohibitions on End Users	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement?
1	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner		No
1	Other - Require automatic shut of hoses		No
1	Landscape - Limit landscape irrigation to specific times	Prohibited between the hours of 10AM-6PM	No
2	Other	Never during or within 48 hours of a rain event	Yes
2	Other	Watering of medians prohibited	Yes
2	CII - Lodging establishment must offer opt out of linen service	Include all measures from Stage 1	Yes
2	Other - Prohibit use of potable water for washing hard surfaces	Include all measures from Stage 1	Yes
2	Landscape - Restrict or prohibit runoff from landscape irrigation	Include all measures from Stage 1	Yes
2	CII - Restaurants may only serve water upon request	Include all measures from Stage 1	Yes
2	Water Features - Restrict water use for decorative water features, such as fountains	Include all measures from Stage 1	Yes
3	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	Include all measures from Stage 1,2	Yes
3	Landscape - Other landscape restriction or prohibition	Include all measures from Stage 1,2	Yes
3	Other water feature or swimming pool restriction	Include all measures from Stage 1,2	Yes
4	CII - Other CII restriction or prohibition	Include all measures from Stage 1,2,3	Yes
4	Landscape - Prohibit certain types of landscape irrigation	Include all measures from Stage 1,2,3	Yes
NOTES: Each subsequent Stage includes all restrictions and prohibitions of previous Stage(s).			

5.1 Landscape Irrigation

This section includes examples of restrictions or prohibitions for landscape irrigation. On December 16, 2015, the MPWD adopted Ordinance 115, titled "Water Efficient Landscape Ordinance," effective as of February 1, 2016. [22]

The specific categories of prohibitions, as prescribed by DWR, are listed below (MPWD's 2015 UWMP, Table 8.2):

- Restrict or prohibit runoff from landscape irrigation; encourage cycle and soak management.
- Limit landscape irrigation to specific times, such as early mornings and after sunset.
- Limit landscape irrigation to specific days.
- Prohibit certain types of landscape irrigation such as using sprinklers; using potable water to irrigate decorative turf; limiting irrigation to only to trees and shrubs.
- Other landscape restriction or prohibition, such as other landscape restrictions or prohibitions utilized that do not fall into the above listed categories. This allows flexibility for MPWD to define prohibitions on a case-by-case basis.

5.2 Commercial, Industrial, and Institutional (CII)

The categories of prohibitions on CII are listed below (Table 8.2. in MPWD's 2015 UWMP):

- Lodging establishments must offer opt out of linen service and are required to place notices in each room that inform the guest that they may opt out of linen service.
- Restaurants may only serve water upon request.
- Commercial kitchens are required to use pre-rinse spray valves as part of their dish-washing operation.
- Other CII restrictions or prohibitions, include: any other CII restriction or prohibition selected by the agency that does not fall into the categories listed above. This allows flexibility for MPWD to define prohibitions on a case-by-case basis.

5.3 Water Features and Swimming Pools

The section below includes examples of restrictions or prohibitions that may fall within the water features and swimming pools categories:

- Restrict water use for decorative water features, such as decorative fountains, and they may only be operated if they use recirculating water. During certain Stages, decorative water features shall not be allowed to operate.

---

[22] MPWD Ordinance 115, "Water Efficient Landscape Ordinance," effective as of February 1, 2016. http://midpeninsulawater.org/uploads/Approved_Ordinance_No0.115_WELO_B.pdf

- Require covers for pools and spas because they reduce evaporation during hours that the pool or spa is not in use; allow filling of swimming pools only when an appropriate pool cover is in place.
- Other water feature or swimming pool restrictions for reducing water that does not fall into the above listed categories. This allows flexibility for MPWD to define prohibitions on a case-by-case basis.

5.4 Defining Water Features

When MPWD includes a limitation on, or prohibition of, water use for water features, this prohibition or limitation is restricted to decorative water features (e.g., fountains) only and does not apply to swimming pools or spas. If MPWD includes limitations on pools or spas, MPWD will list those separately from limitations on water features.

5.5 Other Requirements

This "Other requirements" category will be used to include prohibitions that do not fall into the previously listed categories:

- Customers must repair leaks, breaks, and malfunctions in a timely manner – Examples include: broken or malfunctioning sprinkler heads must be repaired within 48 hours after the customer receives a notification from the MPWD; Broken pipes must be repaired by the customer within 48 hours of receiving a notification from the water agency.
- MPWD requires that all hoses must have automatic shut off nozzles.
- MPWD may prohibit use of potable water for construction and dust control.
- MPWD may prohibit use of potable water for washing hard surfaces, such as driveways or sidewalks, except in cases of preparing surfaces for painting, and for health and safety.
- MPWD may prohibit vehicle washing except at facilities using recycled or recirculating water.

MPWD works collaboratively with its customers and provides timely information about water conservation measures on its website[23]. During the 2015 drought emergency restrictions, the MPWD customers and community, through their active support for conservation, illustrated great community resolve by reducing water use by 27.3% (June 2015 – May 2016)[24], which is greater than the 2015 25% state-wide reduction mandated by the Governor's Executive Order. In the future, if severe potable water reductions are mandated, MPWD could enforce water use prohibitions and water shortage emergency rates using MPWD's Ordinance 112, Attachment 103A, Schedule of Rates and Fees with Ordinances 111 and 113[25].

[23] https://www.midpeninsulawater.org/rules_and_tips.php
[24] Source: file://localhost/MPWD data, website/ and https://www.midpeninsulawater.org/billing_inserts.php
[25] MPWD Water Service Ordinance 112, Attachment 103A, Schedule of Rates and Fees, June 25, 2015. Online: https://www.midpeninsulawater.org/uploads/ORDINANCE%20No.%20112%20Attachment%20A.pdf

6. CONSUMPTION REDUCTION METHODS

In addition to measures already listed, the MPWD's response to water shortage requiring the adoption of mandatory water restrictions could include water budgets, or consumption limits on a per capita basis for residential customers and a percentage reduction from a normal base year level of usage for nonresidential customers. The MPWD's program could also include higher limitations on water used outdoors than on indoor water use.

6.1 Categories of Consumption Reduction Methods

The section below includes examples of categories of consumption reduction methods:

- Expand public information campaign by increasing media campaigns; examples include: creating web site information; bill inserts with conservation information; writing articles for local newspaper; conducting water efficiency workshops for different customer sectors.
- Improve customer billing by increasing billing frequency, examples include: format changes to report consumption in gallons per capita per day, adding information to the bill that compares the customer's water use to that of similar customers.
- Increase frequency of meter reading continuing to employ Advanced Metering Infrastructure (AMI) so that meters are read in real time and customers can monitor their water use trends and get various notifications.
- Offer water use surveys and actively reach out to high water users to offer water use surveys; expand water use survey program to include additional sectors.
- Provide rebates or giveaways of plumbing fixtures and devices, examples include: implementing new giveaway programs (shower head, aerator, etc.), expand existing rebate programs; offering a higher dollar value for each rebate; expanding funding for existing rebate or giveaway programs.
- Provide rebates for landscape irrigation efficiency, examples include: expanding on landscape efficiency rebate programs like weather-based irrigation controllers, efficient sprinkler heads, or the addition of a landscape conversion direct install program.
- Reduce system water loss and continue to implement a water audit program to identify leaks in the water system; expanding the leak repair program to control system losses (using AWWA distribution system audit protocols).
- Implement water waste prohibitions, such as implementing a Water Waste Patrol, increase means for Water Waste Patrol, increase authority for Water Waste Patrol.
- Use MPWD's tiered pricing and water shortage emergency rates, as needed to reduce water use (Water Service Ordinance 112, Attachment 103A, Schedule of Rates and Fees).[26]

[26] Water Service Ordinance 112, Attachment "103A", Schedule of Rates and Fees, June 25, 2015. https://www.midpeninsulawater.org/uploads/ORDINANCE%20No.%20112%20Attachment%20A.pdf

- Other – Any other consumption reduction method that the MPWD may take that does not fall into the categories listed above. This allows flexibility for MPWD to define prohibitions on a case-by-case basis.

Table 8 (Table 8-3 in MPWD's 2015 UWMP) lists and defines MPWD's consumption reduction methods.

Table 8. Stages of WSCP – Consumption Reduction Methods

Stage	Consumption Reduction Methods by Water Supplier	Additional Explanation or Reference
1	Expand Public Information Campaign	
1	Provide Rebates for Turf Replacement	
1	Other	HET Rebates
1	Other	WM Rebates
1	Other	Rain Barrel Rebates
2	Increase Water Waste Patrols	In addition to Stage 1
2	Increase Frequency of Meter Reading	In addition to Stage 1
2	Decrease Line Flushing	In addition to Stage 1
3	Implement or Modify Drought Rate Structure or Surcharge	In addition to Stage 1, 2,
3	Offer Water Use Surveys	In addition to Stage 1, 2
4	Moratorium or Net Zero Demand Increase on New Connections	In addition to Stage 1, 2, 3
4	Reduce System Water Loss	In addition to Stage 1, 2, 3
NOTES: Each subsequent Stage includes all restrictions and prohibitions of previous Stage(s).		

6.2 Determining Water Shortage Reductions

Since SFPUC meters all the water supplied to MPWD and all MPWD customers are also metered monthly, with currently 50% or 4,000 AMI meters installed, the MPWD is able to measure water consumption and reductions. Using the metered data and monitoring consumption trends, the MPWD is able to determine the effectiveness of its water shortage contingency measures that are implemented. Based on the meter data, MPWD could make adjustments in Stage requirements. The MPWD collects sufficient data, in the normal course of operations, to evaluate trends in water use, determine actual reductions in demand by user category, and compare use trends for specific years or to a given base year. MPWD also coordinates with BAWSCA and SFPUC and receives monthly (or more frequent, if necessary) updates about the state of the SFPUC water supply.

6.3 MPWD's Normal Supply and Routine On-going Conservation

Under "Normal Supply" operations, the SFPUC's supply and the RWS distribution system are able to meet all the water demands of its customers in the near future. The MPWD requests efficient and reasonable use and that MPWD's staff continue to implement on-going conservation measures.

Triggering Mechanism	Normal water year conditions forecasted by SFPUC and DWR. SFPUC is able to supply 184 MGD, 100% of contractual water supply, to BAWSCA agencies. SFPUC is able to supply MPWD 100% of its contractual supply: normal year supply before 2018 is 3.71 MGD, after year 2018 in 3.891 MGD.
Consumption Limits	Service area-wide target for reduction (SBX 7-7 Method 3, discussed in 2015 UWMP in Section 5). Voluntary conservation encouraged and participation in the MPWD's water conservation program.
MPWD Actions	During Stage "Normal," all normal conservation programs would continue.
Requested Consumer Action	Follow the basic conservation measures set forth under Normal Supply Conditions of the four-stage conservation program described herein.
Penalties	For the first and subsequent water waste violations, penalties will be issued according to MPWD's Ordinance 103, Article 4.2, and MPWD Ordinance 111, Section 4.

6.4 Stage 1 - Water Alert

Under Stage 1, there is a probability that the MPWD would not be able to meet all the water demands of its customers.

Triggering Mechanism	Any short-term water system operational issues deemed by the General Manager to warrant calling this stage, based on a minor shortage targeting the need for an up to 11% cutback in demand. For long-term supply conditions, evidence of an abnormally dry water year conditions forecast for the Hetch Hetchy Watershed by SFPUC and the DWR. Less than full storage is anticipated in Hetch Hetchy and local reservoirs, and there may be inability to provide full water supply to all customers.

Consumption Limits	Service area-wide target for reduction up to 11%.
MPWD Actions	Continue the basic conservation program elements and initiate public information campaign. Explain the supply condition to the public. Request voluntary drought curtailment of water use by customers.
Requested Consumer Actions	Customers will be asked to implement Stage 1 shortage mitigation measures and adhere to the MPWD Water Ordinance 103, Article 4.2 Water Waste.
Penalties	For the first and subsequent water waste violations, penalties will be issued according to MPWD's Ordinance 103, Article 4.2, and MPWD Ordinance 111, Section 4.

6.5 Stage 2 - Water Warning

Under Stage 2, the MPWD's supply or distribution system would not be able to meet all the water demands of its customers using Stage 1 requirements.

Triggering Mechanism	Any short-term water system operational issues deemed by the General Manager to warrant calling this stage, based on a moderate shortage targeting the need for a 12-18% cutback in demand. For long-term supply conditions, evidence of more severe drought conditions forecast for the Hetch Hetchy Watershed by SFPUC and the DWR. Less than full storage is anticipated in Hetch Hetchy and local reservoirs, and there may be inability to provide full water supply to all customers, and/or if goal of 11% demand cutbacks in Stage 1 is not achieved.
Consumption Limits	Service area-wide target for reduction: 12-18%.
MPWD Actions	Continue voluntary conservation program and MPWD actions listed through Stage 1, mandate compliance with Stage 2 shortage mitigation measures. Customers will be educated by the MPWD on ways to achieve reduced consumption based on their unique home or business opportunities to save for the duration of the water crisis condition. If voluntary compliance does not achieve the needed results, mandatory 12-18% conservation may be enabled in Stage 2 by

	the General Manager. Continue with a more rigorous public information campaign. Explain supply shortage and disseminate technical information as needed.
Requested Customer Actions	Customers will be notified in writing and through other media (e.g., MPWD web site) about Stage 2 shortage mitigation measures becoming effective and compliance being required.
Penalties	For the first and subsequent water waste violations, penalties will be issued according to MPWD's Ordinance 103, Article 4.2, and MPWD Ordinance 111, Section 4.

6.6 Stage 3 - Water Crisis

Under Stage 3, the MPWD's supply or distribution system is not able to meet all the water demands of its customers using Stage 2 requirements.

Triggering Mechanism	Any short-term water system operational issues deemed by the General Manager to warrant calling this stage based on a severe shortage targeting the need for a 19 -32% cutback in demand. For long-term supply conditions, evidence of increasingly severe or persistent drought conditions are occurring or forecast for the Hetch Hetchy Watershed by SFPUC and the DWR. Less than full storage is anticipated in Hetch Hetchy and local reservoirs, and there may be inability to provide full water supply to all customers, and/or the goal of 18% demand cutbacks in Stage 2 is not achieved.
Consumption Limits	Service area-wide target for reduction: 19-32%.
MPWD Actions	Continue all conservation program and MPWD action elements through Stage 2, and mandate adherence to all shortage mitigation measures required under Stage 3. Customers will be educated by the MPWD on ways to achieve reduced consumption based on their unique home or business opportunities to save for the duration of the water crisis condition. Institute mandatory reductions in water use and implement a rationing program.
Requested Customer Actions	Customers will be requested to comply with all Stage 3 shortage mitigation measures identified by MPWD.

Penalties

For the first and subsequent water waste violations, penalties will be issued according to MPWD's Ordinance 103, Article 4.2.

6.7 Stage 4 - Water Emergency

Under Stage 4, the MPWD is experiencing major failure of a supply, storage facility, or distribution system and the MPWD's supply or distribution system is not able to meet all the water demands of its customers using Stage 3 requirements.

Triggering Mechanism

Any short-term water system operational issues deemed by the General Manager to warrant calling this stage based on an extreme shortage targeting the need for up to 50% cutback in demand. For long-term supply shortage conditions, such as evidence of exceptional, extreme or persistently severe drought conditions, existing or forecast for the Hetch Hetchy Watershed by SFPUC and the DWR. Much less than full storage is anticipated in Hetch Hetchy and local reservoirs, and inability to provide full water supply to all customers is expected, and/or goals for up to 32% demand cutbacks in Stage 3 are not being achieved.

Consumption Limits

Service area-wide target for reduction: 33-50%.

Customers will be educated by the MPWD on ways to achieve reduced consumption based on their unique home or business opportunities to save for the duration of the water crisis condition. All customers may be required to restrict consumption beyond 50% of normal demands for the duration of the water emergency. If conditions warrant, the MPWD may implement a rationing program for an indefinite period of time to ensure, to the extent possible, that there is adequate water for essential uses.

MPWD Actions

Continue all conservation programs and MPWD action elements through Stage 3, and mandate that all Stage 4 shortage mitigation measures be implemented immediately and strictly enforced. Intensify media outreach program with regular updates on the state of the emergency.

Requested Customer Actions

Customers will be requested to comply with all Stage 4 shortage mitigation measures identified by MPWD.

Penalties

For the first and subsequent water waste violations, penalties will be issued according to MPWD's Ordinance 103, Article 4.2, and MPWD Ordinance 111, Section 4. Written notice shall be issued to customers using more than their customer category allocation (defined as more than 20% above allowable use) and without a MPWD approved variance (e.g., medical need). While maintaining adequate minimum fire flows for those homes with fire sprinklers, the MPWD may install a flow restrictor on the service line if customer's average daily usage is not reduced to within the allocation threshold after 10 days from the date of the written notice. A flow restrictor may be installed for a minimum of 10 days. The flow restrictor may remain in place during the irrigation season until December 1st or the MPWD may suspend service temporarily until the cause of the violation is corrected. The flow restrictor may be removed based on the General Manager's approval and payment of all outstanding penalty and water service charges have been paid. A minimum of a reconnection fee will be charged per MPWD Water Service Ordinance 103. A customer may appeal the termination of water service or installation of a flow restrictor in writing to the General Manager per MPWD Ordinance 111, Section 5.

7. REVENUE AND EXPENDITURE IMPACTS

Pursuant to California Government Code 53756, the MPWD adopted a pass-through provision for any additional increases in SFPUC wholesale water rates above projected SFPUC rates. Future pass-throughs would be implemented by increasing the MPWD's proposed Water Consumption Charges by exact amount of the increase in cents per hundred cubic feet (HCF, 748 gallons) in excess of the assumed SFPUC wholesale rates. Prior to initiating a pass-through for SFPUC wholesale rates, the MPWD will send notification to all customers at least 30 days prior to implementation.

Moreover, in order to help MPWD recover its costs of service and remain financially stable during periods of emergency water shortages and reduced water sales, the MPWD adopted Water Shortage Emergency Rates. These emergency rates could be implemented in Stage 3, in response to escalating drought conditions and water supply shortages, or in response to additional State-mandated cutbacks in water use in excess of 20%, and would replace MPWD's regular Water Consumption Charges. Water Shortage Emergency Rates may be implemented upon declaration of a water shortage emergency pursuant to Water Code Section 350 and/or Water Code Section 31026. Prior to initiating Water Shortage Emergency Rates, MPWD would send notification to all customers at least thirty (30) days prior to implementation.

Water Shortage Emergency Rates may be implemented by authorization of MPWD's Board of Directors, which correspond with a 50% cutback in water demand from usage in 2013.

7.1 Revenue and Expenditure Impacts

MPWD's expenditures do not decline in proportion to reduced water sales, because a large part of the expenditures is related to fixed capital costs or on-going maintenance and operations. Nonetheless, if MPWD's water shortage management program is successful, it would lead to reduced water sales and likely have some impact on revenues. However, in June 2015, to minimize the potential financial impacts of water supply shortages that necessitate water consumption reductions, MPWD adopted tiered pricing and water shortage emergency rates, and a pass-through provision for additional increases to SFPUC wholesale water rates that could or would be enacted. Measures to overcome revenue and expenditure impacts are shown in Tables 9 and 10, respectively.

Table 9. Measures to Overcome Revenue Impacts

Measures to Overcome Revenue Impacts	
Rate Adjustment	Summary of Effects
Implement emergency water shortage rates	Offset loss in revenue
Use of financial reserves	Offset loss in revenue

Table 10. Measures to Overcome Expenditure Impacts

Measures to Overcome Expenditure Impacts	
Rate Adjustment	Summary of Effects
SFPUC pass-through rate adjustment	Offset increase in wholesale water rates
Water Capacity Charges	Support Capital Improvement Program
Water Demand Offset Charges	Support water conservation programs

7.2 Drought Rate Structures and Surcharges

The MPWD passed tiered pricing and water shortage emergency rates that could or would be enacted during water shortages.[27] Further rate increases could also be part of a drought rate structure.

[27] MPWD Ordinance 111, Implementing Stage 2 Water Shortage Response of Water Shortage Contingency Plan Regarding Mandatory Restrictions on Outdoor Water Use.
http://midpeninsulawater.org/uploads/Ordinance_No_111_Mandatory_Outdoor_Water_Use_Restrictions.pdf

ATTACHMENT A

California Water Code Section 10632

Urban Water Management Planning Shortage Contingency Analysis Requirements

www.leginfo.ca.gov

http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=200920100AB2409

Section 10632 of the California Water Code states that the Urban Water Management Plan shall provide an urban water shortage contingency analysis that includes information on the estimated three-year minimum water supply, actions in the event of a water shortage, water waste prohibitions, non-essential water uses during a water shortage, mechanisms for determining water use reductions, revenue and expenditure impacts and the emergency preparedness and plans for catastrophic events.

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 December 31, 2015, 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.

ATTACHMENT B

Resolution No. 2016-04 for the MPWD 2016 Water Shortage Contingency Plan, adopted by the MPWD Board on June 23, 2016.

RESOLUTION 2016-04

ADOPTING THE MPWD WATER SHORTAGE CONTINGENCY PLAN

* * *

MID-PENINSULA WATER DISTRICT

WHEREAS, the California Water Code Section 10632, as amended, requires every urban water supplier providing water to more than 3,000 customers or supplying more than 3,000 acre-feet of water to prepare, as part of a Urban Water Management Plan (UWMP), a Water Shortage Contingency Plan (WSCP) that has as its primary objective the conservation and efficient use of water; and

WHEREAS, the Mid-Peninsula Water District (MPWD), is an urban water supplier providing water to a population over 25,000; and

WHEREAS, on June 23, 2011, the MPWD adopted an UWMP covering the period 2010-2015, pursuant to Resolution No. 2011-05, which included a WSCP; and

WHEREAS, the MPWD has prepared and made available for public inspection a draft Urban Water Management Plan 2015-2020, in accordance with applicable law, which included a WSCP; and

WHEREAS, the preparation of the updated UWMP, including the WSCP, has been coordinated with other public agencies to the extent practicable, and staff has encouraged the active involvement of diverse social, cultural and economic sectors of the population within the MPWD's retail water service area during preparation of the UWMP, including the WSCP; and

WHEREAS, the UWMP, including the WSCP, must be adopted by July 1, 2016, after it is first made available for public inspection and a public hearing is noticed and held, and it must be filed with the California Department of Water Resources within thirty days of adoption; and

WHEREAS, in accordance with applicable law, a noticed public hearing on the draft UWMP, including the WSCP, was held by the MPWD Board of Directors on June 23, 2016, at which time all public comments were heard and considered.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Mid-Peninsula Water District as follows:

12405285.1

1. The MPWD Water Shortage Contingency Plan is hereby adopted.

2. It was found and determined that the adoption of the MPWD Water Shortage Contingency Plan and this Resolution does not constitute a project under the California Environmental Quality Act, and no environmental assessment is required.

REGULARLY PASSED AND ADOPTED this 23rd day of June 2016, by the following vote.

AYES: Warden, Vella, Linvill, Zucca

NOES: 0

ABSENT: Stuebing

President, Board of Directors

ATTEST:

District Secretary

ATTACHMENT C

Web page links to MPWD Ordinances cited in this WSCP

1. MPWD Ordinance 112, Amendment to MPWD's Water Service Ordinance

http://www.midpeninsulawater.org/uploads/Complete%20Ordinance%20112.pdf

2. Water Service Ordinance 112, Attachment 103A, Schedule of Rates and Fees

http://midpeninsulawater.org/uploads/ORDINANCE%20No.%20112%20Attachment%20A.pdf

3. MPWD Ordinance 115, Water Efficient Landscaping

http://midpeninsulawater.org/uploads/Approved_Ordinance_No0.115_WELO_B.pdf

4. Water Service Ordinance 103, Establishing, Updating and Re-codifying the Rules Regulations and Fees for Water Service by Mid-Peninsula Water District and Superseding all Prior District Ordinances and Amendments Thereto

http://midpeninsulawater.org/uploads/Ordinance_Current_Water_Service.pdf

5. MPWD Ordinance 111, Implementing Stage 2 Water Shortage Response of Water Shortage Contingency Plan Regarding Mandatory Restrictions on Outdoor Water Use

http://midpeninsulawater.org/uploads/Ordinance_No_111_Mandatory_Outdoor_Water_Use_Restrictions.pdf

6. MPWD Ordinance #113, Amending Ordinance # 111 Implementing Stage 2 Water Shortage Response of Water Shortage Contingency Plan Regarding Mandatory Restrictions on Outdoor Water Use

https://www.midpeninsulawater.org/uploads/ORDINANCE%20No.%20113%20Amend%20Ord%20111%20WSCP%20Stage%202.pdf

US EPA Water Utility Response Checklists

https://www.epa.gov/waterutilityresponse/access-incident-action-checklists-water-utilities

ATTACHMENT D

ADOPTED TEXT OF EMERGENCY REGULATION Article 22.5.

Drought Emergency Water Conservation. Sec. 863.

http://www.waterboards.ca.gov/water_issues/programs/conservation_portal/docs/emergency_reg/final_reg_enacted.pdf

ADOPTED TEXT OF EMERGENCY REGULATION Article 22.5. Drought Emergency Water Conservation. Sec. 863. Findings of Drought Emergency. (a) The State Water Resources Control Board finds as follows: (1) On January 17, 2014, the Governor issued a proclamation of a state of emergency under the California Emergency Services Act based on drought conditions; (2) On April 25, 2014, the Governor issued a proclamation of a continued state of emergency under the California Emergency Services Act based on continued drought conditions; (3) On April 1, 2015, the Governor issued an Executive Order that, in part, directs the State Board to impose restrictions on water suppliers to achieve a statewide 25 percent reduction in potable urban usage through February, 2016; require commercial, industrial, and institutional users to implement water efficiency measures; prohibit irrigation with potable water of ornamental turf in public street medians; and prohibit irrigation with potable water outside newly constructed homes and buildings that is not delivered by drip or microspray systems; (4) On November 13, 2015, the Governor issued an Executive Order that directs the State Board to, if drought conditions persist through January 2016, extend until October 31, 2016 restrictions to achieve a statewide reduction in potable usage; (5) The drought conditions that formed the basis of the Governor's emergency proclamations continue to exist; and (6) The drought conditions will likely continue for the foreseeable future and additional action by both the State Water Resources Control Board and local water suppliers will likely be necessary to prevent waste and unreasonable use of water and to further promote conservation. Authority: Section 1058.5, Water Code. References: Article X, Section 2, California Constitution; Sections 102, 104, 105, and 275, Water Code; Light v. State Water Resources Control Board (2014) 226 Cal.App.4th 1463. Sec. 864. End-User Requirements in Promotion of Water Conservation. (a) To prevent the waste and unreasonable use of water and to promote water conservation, each of the following actions is prohibited, except where necessary to address an immediate health and safety need or to comply with a term or condition in a permit issued by a state or federal agency: (1) The application of potable water to outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures; (2) The use of a hose that dispenses potable water to wash a motor vehicle, except where the hose is fitted with a shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use; (3) The application of potable water to driveways and sidewalks; (4) The use of potable water in a fountain or other decorative water feature, except where the water is part of a recirculating system; (5) The application of potable water to outdoor landscapes during and within 48 hours after measurable rainfall; (6) The serving of drinking water other than upon request in eating or drinking establishments, including but not limited to restaurants, hotels, cafes, cafeterias, bars, or other public places where food or drink are served and/or purchased; (7) The irrigation with potable water of ornamental turf on public street medians; and (8) The irrigation with potable water of landscapes outside of newly constructed homes and buildings in a manner inconsistent with regulations or other requirements established by the California Building Standards Commission and the Department of Housing and Community Development. (b) To promote water conservation, operators of hotels and motels shall provide guests with the option of choosing not to have towels and linens laundered daily. The hotel or motel shall prominently display notice of this option in each guestroom using

clear and easily understood language. (c) Immediately upon this subdivision taking effect, all commercial, industrial and institutional properties that use a water supply, any portion of which is from a source other than a water supplier subject to section 865, shall either: (1) Limit outdoor irrigation of ornamental landscapes or turf with potable water to no more than two days per week; or (2) Reduce potable water usage supplied by sources other than a water supplier by 25 percent for the months of June 2015 through October 2016 as compared to the amount used from those sources for the same months in 2013. (d) The taking of any action prohibited in subdivision (a) or (e), or the failure to take any action required in subdivision (b) or (c), is an infraction punishable by a fine of up to five hundred dollars ($500) for each day in which the violation occurs. The fine for the infraction is in addition to, and does not supersede or limit, any other remedies, civil or criminal. (e)(1) To prevent the waste and unreasonable use of water and to promote water conservation, any homeowners' association or community service organization or similar entity is prohibited from: (A) Taking or threatening to take any action to enforce any provision of the governing documents or architectural or landscaping guidelines or policies of a common interest development where that provision is void or unenforceable under section 4735, subdivision (a) of the Civil Code; or (B) Imposing or threatening to impose a fine, assessment, or other monetary penalty against any owner of a separate interest for reducing or eliminating the watering of vegetation or lawns during a declared drought emergency, as described in section 4735, subdivision (c) of the Civil Code. (2) As used in this subdivision: (A) "Architectural or landscaping guidelines or policies" includes any formal or informal rules other than the governing documents of a common interest development. (B) "Homeowners' association" means an "association" as defined in section 4080 of the Civil Code. (C) "Common interest development" has the same meaning as in section 4100 of the Civil Code. (D) "Community service organization or similar entity" has the same meaning as in section 4110 of the Civil Code. (E) "Governing documents" has the same meaning as in section 4150 of the Civil Code. (F) "Separate interest" has the same meaning as in section 4185 of the Civil Code. (3) If a disciplinary proceeding or other proceeding to enforce a rule in violation of subdivision (e)(1) is initiated, each day the proceeding remains pending shall constitute a separate violation of this regulation. Authority: Section 1058.5, Water Code. References: Article X, Section 2, California Constitution; Sections 4080, 4100, 4110, 4150, 4185, and 4735, Civil Code; Sections 102, 104, 105, 275, 350, and 10617, Water Code; Light v. State Water Resources Control Board (2014) 226 Cal.App.4th 1463. Sec. 865. Mandatory Actions by Water Suppliers. (a) As used in this section: (1) "Distributor of a public water supply" has the same meaning as under section 350 of the Water Code, except it does not refer to such distributors when they are functioning solely in a wholesale capacity, but does apply to distributors when they are functioning in a retail capacity. (2) "R-GPCD" means residential gallons per capita per day. (3) "Total potable water production" means all potable water that enters into a water supplier's distribution system, excluding water placed into storage and not withdrawn for use during the reporting period, or water exported outsider the supplier's service area. (4) "Urban water supplier" means a supplier that meets the definition set forth in Water Code section 10617, except it does not refer to suppliers when they are functioning solely in a wholesale capacity, but does apply to suppliers when they are functioning in a retail capacity. (b) In furtherance of the promotion of water conservation each urban water supplier shall: (1) Provide prompt notice to a customer whenever the supplier obtains information that indicates that a leak may exist within the end-user's exclusive control. (2) Prepare and submit to the State Water Resources Control Board by the 15th of each month a monitoring report on forms provided by the Board. The monitoring report shall include the amount of potable water the urban water supplier produced, including water provided by a wholesaler, in the preceding calendar month and shall compare that amount to the amount produced in the same calendar month in 2013. The monitoring report shall specify the population served by the urban water supplier, the percentage of water produced that is used for the residential sector, descriptive statistics on water conservation compliance and enforcement efforts, the number of days that outdoor irrigation is allowed, and monthly commercial, industrial and institutional sector use. The monitoring report shall also estimate the gallons of water per

person per day used by the residential customers it serves. (c)(1) To prevent the waste and unreasonable use of water and to meet the requirements of the Governor's November 13, 2015 Executive Order, each urban water supplier shall reduce its total potable water production by the percentage identified as its conservation standard in this subdivision. Each urban water supplier's conservation standard considers its service area's relative per capita water usage. (2) Each urban water supplier whose source of supply does not include groundwater or water imported from outside the hydrologic region in which the water supplier is located, and that has a minimum of four years' reserved supply available, may submit to the Executive Director for approval a request that, in lieu of the reduction that would otherwise be required under paragraphs (3) through (10), the urban water supplier shall reduce its total potable water production by 4 percent for each month as compared to the amount used in the same month in 2013. Any such request shall be accompanied by information showing that the supplier's sources of supply do not include groundwater or water imported from outside the hydrologic region and that the supplier has a minimum of four years' reserved supply available. (3) Each urban water supplier whose average July-September 2014 R-GPCD was less than 65 shall reduce its total potable water production by 8 percent for each month as compared to the amount used in the same month in 2013. (4) Each urban water supplier whose average July-September 2014 R-GPCD was 65 or more but less than 80 shall reduce its total potable water production by 12 percent for each month as compared to the amount used in the same month in 2013. (5) Each urban water supplier whose average July-September 2014 R-GPCD was 80 or more but less than 95 shall reduce its total potable water production by 16 percent for each month as compared to the amount used in the same month in 2013. (6) Each urban water supplier whose average July-September 2014 R-GPCD was 95 or more but less than 110 shall reduce its total potable water production by 20 percent for each month as compared to the amount used in the same month in 2013. (7) Each urban water supplier whose average July-September 2014 R-GPCD was 110 or more but less than 130 shall reduce its total potable water production by 24 percent for each month as compared to the amount used in the same month in 2013. (8) Each urban water supplier whose average July-September 2014 R-GPCD was 130 or more but less than 170 shall reduce its total potable water production by 28 percent for each month as compared to the amount used in the same month in 2013. (9) Each urban water supplier whose average July-September 2014 R-GPCD was 170 or more but less than 215 shall reduce its total potable water production by 32 percent for each month as compared to the amount used in the same month in 2013. (10) Each urban water supplier whose average July-September 2014 R-GPCD was 215 or more shall reduce its total potable water production by 36 percent for each month as compared to the amount used in the same month in 2013. (d)(1) Beginning June 1, 2015, each urban water supplier shall comply with the conservation standard specified in subdivision (c), with any modifications to the conservation standard pursuant to subdivision (f) applying beginning March 1. (2) Compliance with the requirements of this subdivision shall be measured monthly and assessed on a cumulative basis through October 2016. (e)(1) Each urban water supplier that provides potable water for commercial agricultural use meeting the definition of Government Code section 51201, subdivision (b), may subtract the amount of water provided for commercial agricultural use from its potable water production total, provided that any urban water supplier that subtracts any water provided for commercial agricultural use from its total potable water production shall: (A) Impose reductions determined locally appropriate by the urban water supplier, after considering the applicable urban water supplier conservation standard specified in subdivision (c), for commercial agricultural users meeting the definition of Government Code section 51201, subdivision (b) served by the supplier; (B) Report its total potable water production pursuant to subdivision (b)(2) of this section, the total amount of water supplied for commercial agricultural use, and shall identify the reduction imposed on its commercial agricultural users and each recipient of potable water for commercial agricultural use; (C) Certify that the agricultural uses it serves meet the definition of Government Code section 51201, subdivision (b); and (D) Comply with the Agricultural Water Management Plan requirement of paragraph 12 of the April 1, 2015 Executive Order for all commercial

agricultural water served by the supplier that is subtracted from its total potable water production. (2) Submitting any information pursuant to subdivision (e)(1)(B) or (C) of this section that is found to be materially false by the Board is a violation of this regulation, punishable by civil liability of up to five hundred dollars ($500) for each day in which the violation occurs. Every day that the error goes uncorrected constitutes a separate violation. Civil liability for the violation is in addition to, and does not supersede or limit, any other remedies, civil or criminal. (f) In consideration of the differences in climate affecting different parts of the state, growth experienced by urban areas and significant investments that have been made by some suppliers towards creating new, local, drought-resilient sources of potable water supply, an urban water supplier's conservation standard identified in subdivision (c) shall be reduced by an amount, not to exceed eight (8) percentage points total, as follows: (1) For an urban water supplier whose service area evapotranspiration (ETo) for the months of July through September exceeds the statewide average evapotranspiration, as determined by the Board, for the same months by five (5) percent or more, the supplier's conservation standard identified in subdivision (c) shall be reduced: (A)By two (2) percentage points if the supplier's service area evapotranspiration exceeds the statewide average by five (5) percent or more but less than ten (10) percent; (B) By three (3) percentage points if the supplier's service area evapotranspiration exceeds the statewide average by ten (10) percent or more but less than twenty (20) percent; (C) By four (4) percentage points if the supplier's service area evapotranspiration exceeds the statewide average by twenty (20) percent or more. (D)Statewide average evapotranspiration is calculated as the arithmetic mean of all urban water suppliers' service area default evapotranspiration values for the months of July through September. Default service area evapotranspiration will be based on the California Irrigation Management System (CIMIS) ETo Zones Map zone for which the supplier's service area has the greatest area of overlap. In lieu of applying its default service area evapotranspiration, a supplier may use specific data from CIMIS stations within its service area that have at least a five-year period of record, or a three-year continuous period of record, to identify a more specifically-applicable evapotranspiration for its service area. If no CIMIS station exists within the supplier's service area, a weather station of comparable accuracy, meeting the preceding period of record requirements, may be used. To qualify for the in-lieu climate adjustment, the supplier shall submit the following data to the Board by March 15, 2016 for each station: station ID; station location; and monthly average evapotranspiration, in inches per month, for July, August, and September for either the five-year period of record or the three-year continuous period of record. (2) To account for water efficient growth experienced in the state since 2013, urban water suppliers' conservation standards shall be reduced by the product of the percentage change in potable water production since 2013 and the percentage reduction in potable water use required pursuant to subdivision (c), rounded to the nearest whole percentage point. Change in potable water production since 2013 shall be calculated as the sum of the following: (A)The number of additional permanent residents served since January 1, 2013, multiplied by the average residential water use per person for that supplier's service area during the months of February through October, 2015, in gallons; and (B) The number of new commercial, industrial and institutional connections since January 1, 2013, multiplied by the average commercial, industrial and institutional water use per connection for that supplier's service area during the months of February through October, 2015, in gallons. (C) To qualify for the growth credit the supplier shall submit to the Board the following data by March 15, 2016: the number of additional permanent residents served since January 1, 2013 and the number of new commercial, industrial and institutional connections since January 1, 2013. (3) For an urban water supplier that supplies, contracts for, or otherwise financially invests in, water from a new local, drought-resilient source of supply, the use of which does not reduce the water available to another legal user of water or the environment, the conservation standard identified in subdivision (c) shall be reduced: (A)By one (1) percentage point if the supplier's qualifying source of supply is one (1) percent or more but less than two (2) percent of the supplier's total potable water production; (B) By two (2) percentage points if the supplier's qualifying source of supply is two (2) percent or more but less than

three (3) percent of the supplier's total potable water production; (C) By three (3) percentage points if the supplier's qualifying source of supply is three (3) percent or more but less than four (4) percent of the supplier's total potable water production; (D)By four (4) percentage points if the supplier's qualifying source of supply is four (4) percent or more but less than five (5) percent of the supplier's total potable water production; (E) By five (5) percentage points if the supplier's qualifying source of supply is five (5) percent or more but less than six (6) percent of the supplier's total potable water production; (F) By six (6) percentage points if the supplier's qualifying source of supply is six (6) percent or more but less than seven (7) percent of the supplier's total potable water production; (G)By seven (7) percentage points if the supplier's qualifying source of supply is seven (7) percent or more but less than eight (8) percent of the supplier's total potable water production; (H)By eight (8) percentage points if the supplier's qualifying source of supply is eight (8) percent or more of the supplier's total potable water production. (I) To qualify for this reduction the supplier must certify, and provide documentation to the Board upon request demonstrating, the percent of its total potable water production that comes from a local, drought-resilient source of supply developed after 2013, the supplier's investment in that local, drought-resilient source of supply, and that the use of that supply does not reduce the water available to another legal user of water or the environment. To qualify for this reduction an urban water supplier shall submit the required certification to the Board by March 15, 2016. (J) Certifications that do not meet the requirements of subdivision (f)(3)(I), including certifications for which documentation does not support that the source of supply is a local, drought-resilient source of supply, the use of which does not reduce the water available to another legal user of water or the environment, will be rejected. Submitting a certification or supporting documentation pursuant to subdivision (f)(3)(I) that is found to be materially false by the Board is a violation of this regulation, punishable by civil liability of up to five hundred dollars ($500) for each day in which the violation occurs. Every day that the error goes uncorrected constitutes a separate violation. Civil liability for the violation is in addition to, and does not supersede or limit, any other remedies, civil or criminal. (4) No urban water supplier's conservation standard shall drop below eight (8) percent as a consequence of the reductions identified in this subdivision. No reduction pursuant to this subdivision shall be applied to any urban water supplier whose conservation standard is four (4) percent based on subdivision (c)(2). (g)(1) To prevent waste and unreasonable use of water and to promote water conservation, each distributor of a public water supply that is not an urban water supplier shall take one or more of the following actions: (A) Limit outdoor irrigation of ornamental landscapes or turf with potable water by the persons it serves to no more than two days per week; or (B) Reduce by 25 percent its total potable water production relative to the amount produced in 2013. (2) Each distributor of a public water supply that is not an urban water supplier shall submit a report by September 15, 2016, on a form provided by the Board, that either confirms compliance with subdivision (g)(1)(A) or identifies total potable water production, by month, from December, 2015 through August, 2016, and total potable water production, by month, for the same months in 2013. Authority: Section 1058.5, Water Code. References: Article X, Section 2, California Constitution; Sections 102, 104, 105, 275, 350, 1846, 10617 and 10632, Water Code; Light v. State Water Resources Control Board (2014) 226 Cal.App.4th 1463. Sec. 866. Additional Conservation Tools. (a)(1) To prevent the waste and unreasonable use of water and to promote conservation, when a water supplier does not meet its conservation standard required by section 865 the Executive Director, or the Executive Director's designee, may issue conservation orders requiring additional actions by the supplier to come into compliance with its conservation standard. (2) A decision or order issued under this article by the Board or an officer or employee of the Board is subject to reconsideration under article 2 (commencing with section 1122) of chapter 4 of part 1 of division 2 of the Water Code. (b) The Executive Director, or his designee, may issue an informational order requiring water suppliers, or commercial, industrial or institutional properties that receive any portion of their supply from a source other than a water supplier subject to section 865, to submit additional information relating to water production, water use or water conservation. The failure to provide the information requested

within 30 days or any additional time extension granted is a violation subject to civil liability of up to $500 per day for each day the violation continues pursuant to Water Code section 1846. (c) Orders issued under previous versions of this subdivision shall remain in effect and shall be enforceable as if adopted under this version. Authority: Section 1058.5, Water Code. References: Article X, Section 2, California Constitution; Sections 100, 102, 104, 105, 174, 186, 187, 275, 350, 10 51, 1122, 1123, 1825, 1846, 10617 and 10632, Water Code; Light v. State Water Resources Control Board (2014) 226 Cal.App.4th 1463.

Additional References – Please see 2015 MPWD UWMP References