



2015 Urban Water Management Plan

for the Estero Municipal Improvement District



Public Review Draft
May 2016



**ESTERO MUNICIPAL IMPROVEMENT DISTRICT
2015 URBAN WATER MANAGEMENT PLAN**



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ABBREVIATIONS

ABAG	Association of Bay Area Governments
AMI	advanced metering infrastructure
BAWSCA	Bay Area Water Supply and Conservation Agency
BWA	Bartle Wells Associates
Cal Water	California Water Service Company
CASGEM	California Statewide Groundwater Elevation Monitoring
ccf	hundred cubic feet
CDD	Community Development Department
Census	United States Census
CII	commercial, industrial, and institutional
CIP	Capital Improvement Plan
CUWCC	California Urban Water Conservation Council
CWC	California Water Code
DMM	demand management measures
DRT	Drought Response Tool
DOF	Department of Finance
DSS Model	Demand Management Decision Support System Model
DWR	Department of Water Resources
EKI	Erler & Kalinowski, Inc.
EOP	Emergency Operations Plan
ERP	Emergency Response Plan
ETo	reference evapotranspiration
GPCD	gallons per capita per day
gpf	gallons per flush
GRP	Groundwater Reliability Partnership
HET	High-Efficiency Toilet
HTWTP	Harry Tracy Water Treatment Plant
ISA	Interim Supply Allocation
ISG	Individual Supply Guarantee
ISL	Interim Supply Limitation
MCL	Maximum Contaminant Level
MG	million gallons
MGD	million gallons per day
gpm	gallons per minute
MPWD	Mid-Peninsula Water District
PG&E	Pacific Gas & Electric
R-GPCD	residential gallons per capita per day
RWQCB	Regional Water Quality Control Board
RWS	Regional Water System
SCVWD	Santa Clara Valley Water District
SFPUC	San Francisco Public Utilities Commission
SGMA	Sustainable Groundwater Management Act
Strategy	BAWSCA Long Term Reliable Water Supply Strategy
SWRCB	State Water Resources Control Board
Target	water use target
TDS	total dissolved solids
Title 22	California Code of Regulations, Title 22
USEPA	United States Environmental Protection Agency

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UWMP	Urban Water Management Plan
UWMP Act	Urban Water Management Planning Act
WCIP	Water Conservation Implementation Plan
WELO	Water Efficient Landscape Ordinance
WQD	Water Quality Division
WSA	Water Supply Assessment
WSAP	Water Shortage Allocation Plan
WSCP	Water Shortage Contingency Plan
WSIP	Water System Improvement Program
WWTP	wastewater treatment plant

1. INTRODUCTION AND PLAN PREPARATION

In 1983, the California Legislature enacted the Urban Water Management Planning Act (UWMP Act) (California Water Code Sections 10610 - 10657). The UWMP Act states that every urban water supplier that provides water to 3,000 or more customers, or that provides over 3,000 acre-feet of water annually, should make every effort to ensure the appropriate level of water service reliability to meet the needs of its customers during normal, dry, and multiple dry years. Historically, the UWMP Act required urban water suppliers to update their Urban Water Management Plan (UWMP or Plan) for submittal to the Department of Water Resources (DWR) in years ending in five and zero. However, because of recent changes in UWMP Act requirements, State law has extended the deadline for the 2015 Plans to 1 July 2016. On behalf of the Estero Municipal Improvement District (EMID), Erler & Kalinowski, Inc. (EKI) has prepared this 2015 update to EMID's UWMP in accordance with the UWMP Act.

1.1 COMPLIANCE WITH THE UWMP ACT, INCLUDING CHANGES SINCE 2010

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.

In 2015, the EMID provided water to more than 3,000 customers, and is therefore subject to requirements of the UWMP Act (see Appendix A, DWR Table 2-1). The EMID's 2015 UWMP is an individual UWMP that describes how the current and future water resources and demands within the EMID service area will be managed to provide an adequate and reliable water supply (see Appendix A, DWR Table 2-2). Additionally, and as applicable, EMID's 2015 UWMP reflects the following significant revisions to the UWMP Act that have been made since 2010.

- Demand Management Measures – California Water Code (CWC) Section 10631(f)(1) and (2) Assembly Bill 2067, 2014;
- Submittal date – CWC Section 10621(d) and Assembly Bill 2067, 2014;
- Electronic submittal – CWC Section 10644(a)(2) and Assembly Bill 2067, 2014;
- Standardized forms – CWC Section 10644(a)(2) and Assembly Bill 2067, 2014;
- Water Loss – CWC Section 10631(e)(1)(J) and (e)(3)(A) and (B) Senate Bill 1420, 2014;
- Estimating future water savings – CWC Section 10631(e)(4) and Senate Bill 1420, 2014;
- Voluntary reporting of energy intensity – CWC Section 10631.2(a) and (b) Senate Bill 1036, 2014; and
- Defining water features – CWC Section 10632(b) and Assembly Bill 2409, 2010.

The EMID's 2015 UWMP has been prepared in general accordance with the format suggested in DWR's *2015 Urban Water Management Plans Guidebook for Urban Water Suppliers*, dated March 2016 (Guidebook; DWR, 2016a). Text from the UWMP Act has been included in blue boxes at beginning of relevant sections of this UWMP. The information presented in the respective UWMP sections and the associated text, figures, tables and charts are collectively intended to fulfill the requirements of that sub-section of the UWMP Act. To the extent practicable, supporting documentation has also been provided in Appendices A through O.



Other sources for the information contained herein are provided in the references section of the document.

Per CWC Section 10644(a)(2), selected information for the 2015 UWMP updates must be presented in standardized tables for electronic submittal to DWR. A complete set of DWR tables is included in Appendix A. In addition, to the extent applicable, text and tables in the main body of the UWMP document have been cross-referenced to the companion DWR tables.

1.2 COORDINATION AND OUTREACH

As described below and in Section 9, this UWMP has been prepared in coordination with the Bay Area Water Supply and Conservation Agency (BAWSCA), the BAWSCA member agencies, the San Francisco Public Utilities Commission (SFPUC), the public, and other appropriate entities.

1.2.1 Role of BAWSCA and the UWMP Common Language

Among its other functions, BAWSCA represents EMID and the 25 other water districts, cities, and utilities, collectively referred to as the “Wholesale Customers”, in negotiations and other coordination efforts with the SFPUC. Together with the SFPUC, BAWSCA developed common language for inclusion in each Wholesale Customers’ 2015 UWMP regarding the following common issues:

- Description of BAWSCA;
- Regional Water Demand and Conservation Projections;
- Long Term Reliable Water Supply Strategy (Strategy);
- Tier 1 and Tier 2 Water Shortage Allocations;
- SFPUC Regional Water System;
- Individual Supply Guarantees (ISGs);
- The 2018 Interim Supply Limitation (ISL);
- Interim Supply Allocations (ISAs);
- Environmental Enhancement Surcharge;
- 2018 SFPUC Decisions;
- Quantity and reliability of SFPUC’s Wholesale Water Supply;
- Climate Change; and
- The Current Drought (2012 to Present).

For clarification purposes, and as shown below, the common language provided by BAWSCA is shown in grey font and has been indented for emphasis; it is otherwise presented unchanged from the original text provide by BAWSCA. As a result, there may be some redundancy in the information presented and the number of times that certain terms are abbreviated or defined. A description of BAWSCA’s role generally and related to the 2015 UWMP development process is provided below.

BAWSCA provides regional water reliability planning and conservation programming for the benefit of its 26 member agencies that purchase wholesale water supplies from the San Francisco Public Utilities Commission. Collectively, the BAWSCA member agencies deliver water to over 1.74 million residents and nearly 40,000



commercial, industrial and institutional accounts in Alameda, San Mateo and Santa Clara Counties.

BAWSCA also represents the collective interests of these wholesale water customers on all significant technical, financial and policy matters related to the operation and improvement of the SFPUC's Regional Water System (RWS).

BAWSCA's role in the development of the 2015 UWMP updates is to work with its member agencies and the SFPUC to seek consistency among the multiple documents being developed.

1.2.2 Wholesale Coordination

10631. (j) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).

The SFPUC is a wholesale water supplier to all of the BAWSCA member agencies, and is the only wholesale water supplier to EMID. As part of the coordination effort for the 2015 UWMP, and in compliance with CWC Section 10631(j), EMID supplied BAWSCA with its water demand projections through 2040 for transmittal to the SFPUC.¹

Additionally, as described in more detail in Section 6, EMID has relied upon the water supply reliability projections provided by the SFPUC for the purposes of analyzing the reliability of its SFPUC supplies during normal and dry years through 2040 (see Appendix A, DWR Table 2-4)².

1.2.3 Agency Coordination

10620. (d) (2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

As a member of BAWSCA and the BAWSCA Water Management Representative Committee, EMID has coordinated closely with BAWSCA and its 25 other member agencies throughout the update of EMID's UWMP. On 26 January 2016, EMID staff attended a webinar on supply reliability hosted by BAWSCA. During the webinar, BAWSCA and the member agencies reviewed the water supply reliability projections provided by the SFPUC, as well as the updated

¹ Email from EMID to BAWSCA, dated 3 February 2016.

² Email from BAWSCA dated 6 January 2016, and information provided by the SFPUC, Appendix H.

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dry year supply allocations described in Section 6. The EMID also attends monthly water management meetings with BAWSCA and its member agencies that, among other topics, include discussion of items pertinent to the preparation of the 2015 UWMPs.

The San Mateo Wastewater Treatment Plant (WWTP) receives wastewater from the EMID service area, and is jointly owned by the Cities of Foster City and San Mateo through a Joint Powers Agreement (JPA). The City of San Mateo operates the WWTP as the lead agency of the JPA, and therefore serves as the wastewater agency serving the EMID service area. The EMID has been working closely with the City of San Mateo to assess potential recycled water supplies for its service area. A summary of recent recycled water supply feasibility and market assessments conducted by EMID and the City of San Mateo is provided in Section 5.

In addition, EMID notified local and regional water retailers and public agencies of EMID's intent to prepare this 2015 UWMP and the associated public hearing. A total of 45 recipients from 29 agencies and groups received notices as listed in Table 1-1, including the SFPUC, BAWSCA, each BAWSCA member agency, the City of San Mateo, and San Mateo County. A sample copy of the notices is provided in Appendix B.

[[Will describe comments received from the agencies, if any]]

1.2.4 Public Participation

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

[[The following section will be updated with relevant dates.]]

The EMID has established a webpage on the Foster City website to inform the public of key 2015 UWMP preparation activities, including the availability of the Public Review Draft 2015 UWMP and the 6 June 2016 Public Hearing to adopt the 2015 UWMP. A copy of the Public Review Draft 2015 UWMP was posted on this webpage for public review on XX 2016.

The EMID issued a press release on XXX 2016, informing the public that the Draft 2015 UWMP would be available for review at the Foster City City Hall and City Library as well as on the Foster City website, and that a public hearing would be held on 6 June 2016. A copy of the press release is included in Appendix C.

On 18 May and 25 May 2016, the EMID published a notice in the *Foster City Islander* newspaper informing the public that the 2015 UWMP would be available for public review at Foster City City Hall and the City Library as well as on the Foster City website, consistent with

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**Table 1-1
Notification to Cities, Counties, and Other Agencies (DWR Table 10-1)**

Estero Municipal Improvement District, California

Entity Name	Notification Required (a)	60-Day Notice (b)	Notice of Public Hearing (c)	Provided Comments
Alameda County Water District		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Bay Area Water Supply and Conservation Agency		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
California Water Service		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
City of Brisbane		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
City of Burlingame		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
City of Daly City		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
City of East Palo Alto		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
City of Foster City/Estero Municipal Improvement District	yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
City of Hayward		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
City of Menlo Park		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
City of Millbrae		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
City of Milpitas		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
City of Mountain View		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
City of Palo Alto		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
City of Redwood City		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
City of San Bruno		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
City of San Mateo	yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
City of Santa Clara		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
City of Sunnyvale		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Coastside County Water District		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
County of San Mateo	yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Mid-Peninsula Water District		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
North Coast County Water Dist.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Purissima Hills Water District		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
San Francisco Public Utilities Commission		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
San Jose Municipal Water System		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Stanford University		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Town of Hillsborough		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Westborough Water District		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

Abbreviations:

CWC = California Water Code

DWR = California Department of Water Resources

Notes:

- (a) The notifications listed in this table is required to be sent to any city or county within which the water supplier provides water, per CWC Sections 10621 and 10642.
- (b) The 60-day notice was distributed to recipients on 22 January 2016.
- (c) The notice of public hearing was distributed to recipients on **XX 2016**.



requirements of California Government Code 6066³. The notice also informed the public that the 2015 UWMP public hearing would be held at Foster City City Hall on 6 June 2016. A copy of the newspaper announcement is included in **Appendix C**.

1.3 UWMP STRUCTURE, STANDARD UNITS, AND BASIS FOR REPORTING

Per CWC Section 10644(a)(2), selected information for the 2015 UWMP updates must be presented in standardized tables for electronic submittal to DWR. A complete set of DWR tables is included as Appendix A. In addition, to the extent applicable, tables and text in the main body of the UWMP document have been cross-referenced to the companion DWR tables.

Per the Guidebook, the UWMP preparer is requested to complete a checklist of specific UWMP requirements to assist the DWR review of the submitted UWMP. The completed checklist is included in Appendix D.

Information presented in this UWMP is reported on a fiscal year basis. As such, “2015” refers to Fiscal Year 2014-15, and so forth. The units of measure for reporting water volumes is million gallons (MG) and is maintained consistently throughout the Plan, unless otherwise noted (see Appendix A, DWR Table 2-3).

Further, consistent with the Guidebook, the terms “water use”, “water consumption”, and “water demand” are used interchangeably in this UWMP.

³ Government Code section 6066. Publication of notice pursuant to this section shall be once a week for two successive weeks. Two publications in a newspaper published once a week or oftener, with at least five days intervening between the respective publication dates not counting such publication dates, are sufficient. The period of notice commences upon the first day of publication and terminates at the end of the fourteenth day, including therein the first day.



2. SERVICE AREA AND SYSTEM DESCRIPTION

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

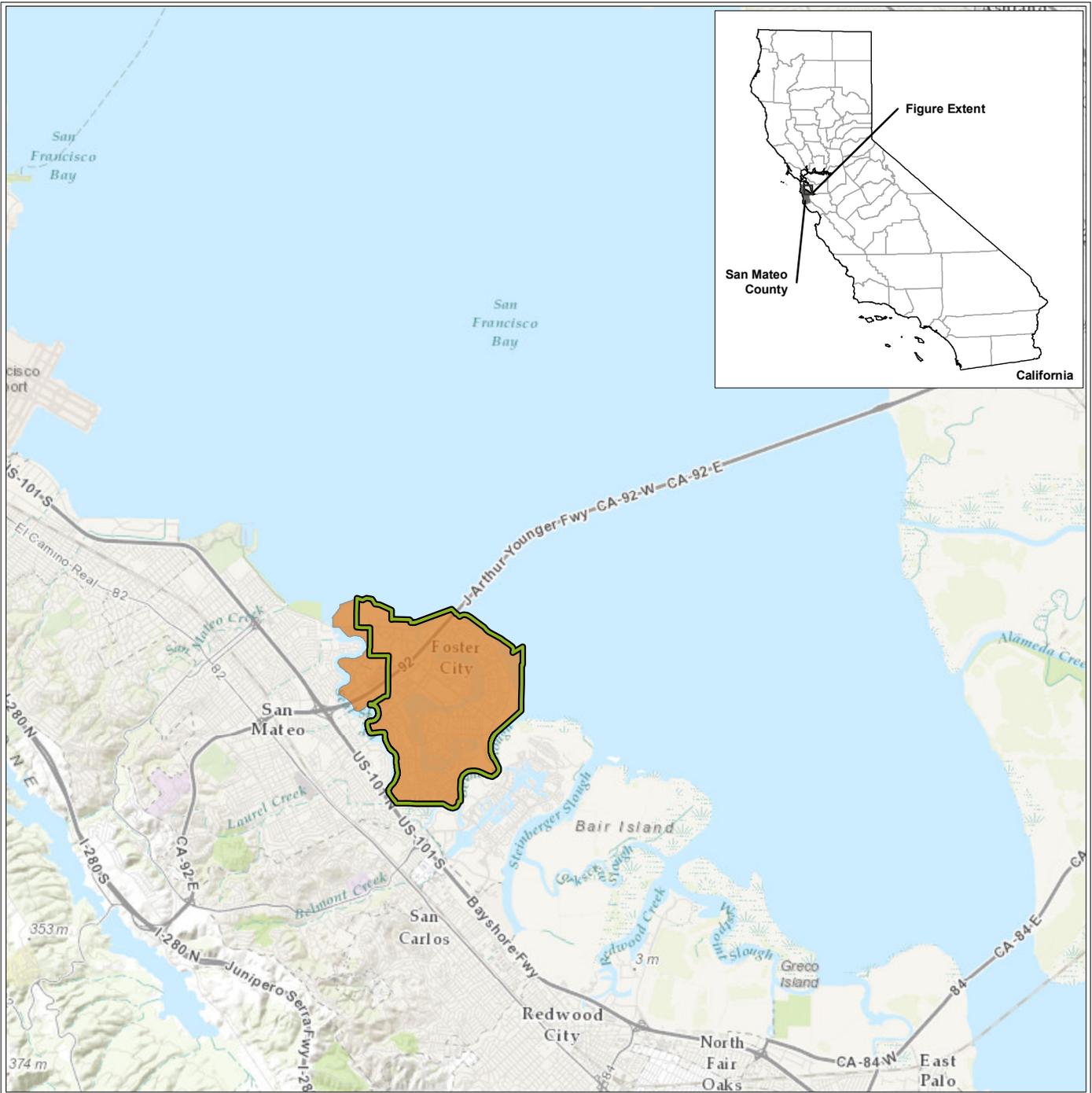
10631. (a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

The Estero Municipal Improvement District (EMID) serves a population of approximately 36,200 and is located on the San Francisco Bay Peninsula, midway between San Francisco and San Jose (Figure 2-1). The EMID service area is located approximately ten miles south of the San Francisco International Airport and adjacent to the entrance of the San Mateo/Hayward Bridge. The EMID service area consists of the City of Foster City and the area immediately adjacent to the west, referred to as the Mariner's Island area of the City of San Mateo (Figure 2-2). The EMID's customers are mostly residential with a broad cross-section of offices, commercial businesses, and a small number of industrial businesses.

Prior to being developed as Foster City, a massive construction and landfilling project was undertaken in order to convert the prior baylands to the land grade that underlies Foster City today (EMID, 2011). Approximately eighteen million cubic yards of fill were imported to provide gradient for stormwater runoff, cover for utility lines, and support for buildings (EMID, 2011). Approximately 212 acres of lagoons were created for collection of stormwater, which is pumped into the San Francisco Bay (EMID, 2011). In order to fund these significant infrastructure projects, and to serve the community during the early years prior to incorporation or annexation, the EMID was created by the State of California (EMID, 2011). The State legislation provided for the turnover of control to the residents as they began occupying the city. By 1971, more than 10,000 residents had moved into the area, and they voted for incorporation as a new city: Foster City (EMID, 2011). Since then, public facilities, commercial development, and new homes have continued to be developed. Today, the City of Foster City is largely build-out, but the population is expected to increase in the future due to multiple planned redevelopment projects. The EMID is governed by a board of five directors, who also serve as the City Council for Foster City.

The EMID is a member of Bay Area Water Supply and Conservation Agency (BAWSCA) and purchases all of its potable water from the San Francisco Public Utilities Commission Regional Water System (SFPUC RWS). The EMID is governed by the Foster City City Council and run by Foster City's Public Works Department. Water distribution, wastewater collection, water conservation, and maintenance of water quality are EMID's main water resource functions, as treated water purchased from the SFPUC RWS does not require further water treatment.

As required by the Urban Water Management Planning Act (UWMP Act), specific information about the EMID service area, population, and climate is provided below. A brief description of EMID's potable water distribution system is also included herein.



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Regional Vicinity Map

Estero Municipal Improvement District
 2015 Urban Water Management Plan
 Foster City, CA
 May 2016
 EK1 B60003.00
 Figure 2-1

Legend

-  Foster City Boundary
-  EMID

Abbreviations

EMID = Estero Municipal Improvement District

Notes

1. All locations are approximate.

Sources

World Topographic base map provided by ArcGIS Online (ESRI, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBease, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, OpenStreetMap contributors, and the GIS User Community), obtained 13 May 2016.



(Approximate Scale in Miles)



2.1 POPULATION AND EMPLOYMENT TRENDS WITHIN THE EMID SERVICE AREA

The EMID's water distribution system provides water retail service to Foster City and a small portion of the City of San Mateo (Mariner's Island) through approximately 8,400 connections. The historical and projected population and employment data from 2000 through 2040 within the EMID service area are shown in Tables 2-1 and 2-2 and the associated charts. Consistent with Department of Water Resources (DWR) requirements, the historical and current population served by EMID has been estimated herein using the DWR Population Tool, which is based off of United States Census (Census) data, as documented in Section 4.1.

2.1.1 Future Population Growth

The EMID service area is largely built-out and population growth is attributed primarily to redevelopment projects within the existing urban footprint. Table 2-1 shows the projected population for the service area through 2040. The projected population growth for the Foster City portion of the service area was provided by the Foster City CDD based on planned housing projects through 2020 and projected growth rates by the Association of Bay Area Governments (ABAG) for 2020 through 2040; these projections are documented in Appendix E. The planned housing developments are described and addressed in Water Supply Assessments (WSAs) prepared by EMID and Maddaus Water Management in 2012 and 2016, respectively. The projected population growth associated with the Mariner's Island portion of the EMID service area is based on Census projections for 2010 through 2014 for Census Tract 6079, plus an assumed increase based on planned housing projects, per EMID.

The total projected population within the EMID service area is expected to be 39,600 by 2040, which is equivalent to a 0.4% average annual increase over 25 years relative to 2015.

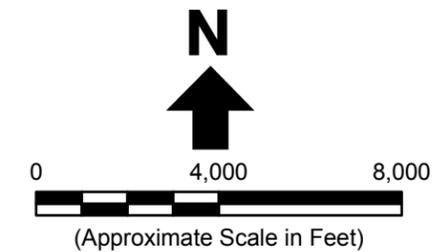
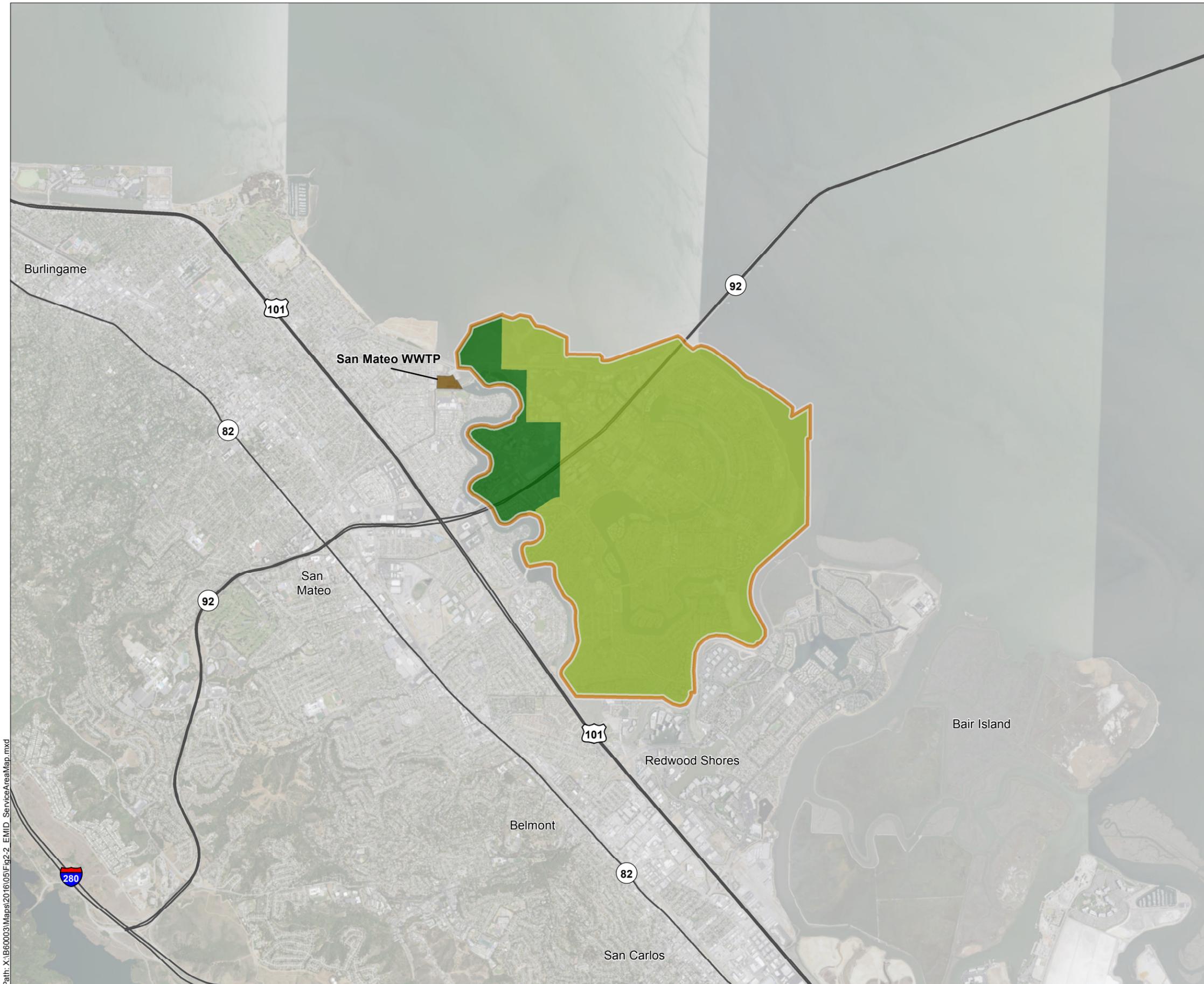
2.1.2 Future Employment Growth

The EMID also supplies water to its commercial, industrial, and institutional (CII) customers, which were collectively estimated to provide 23,533 jobs within the EMID service area in 2015. The projected employment growth for the Foster City portion of the service area was estimated by the Foster City CDD based on planned and approved development projects through 2030 and projections by ABAG for 2035-2040. The planned development projects are described and addressed in a WSAs prepared by EMID and Maddaus Water Management in 2012 and 2106, respectively. Projected employment growth for the Mariner's Island portion of the service area is based on the number of jobs in the Mariner's Island area reported by the 2010 San Mateo General Plan, with an assumed annual growth rate of 1.3% relative to 2010, consistent with ABAG projections for the City of San Mateo (City of San Mateo 2015; ABAG, 2013). Additional detail is provided in Appendix G.

As shown in Table 2-2 and the associated chart, significant employment growth is anticipated in the EMID service area. By 2040, employment within the EMID service area is anticipated to grow to 35,910 jobs, an increase of 53% relative to 2015.

2.2 CLIMATE

The EMID service area is located within a region characterized by a Mediterranean climate with cool, wet winters and warm, dry summers. As shown in Table 2-3, rainfall in the area averages 19.2 inches per year and is generally confined to the wet season from late October to early May.



- Legend**
- EMID Service Area
 - Foster City
 - Mariner's Island (City of San Mateo)
 - San Mateo WWTP

Abbreviations
 EMID = Estero Municipal Improvement District
 WWTP = Wastewater Treatment Plant

Notes
 1. All locations are approximate.

Sources
 Aerial base map provided by ArcGIS Online (ESRI, DigitalGlobe, GeoEye, Earthstar Geopgraphics, CNES/Airbus DS, USDA, AEX, Getmapping, Aerigrd, IGN, IGP, swisstopo, and the GIS User Community), obtained 5 May 2016.

**Erler &
 Kalinowski, Inc.**

EMID Service Area Map

Estero Municipal Improvement District
 2015 Urban Water Management Plan
 Foster City, CA
 May 2016

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EKI B60003.00
 Figure 2-2

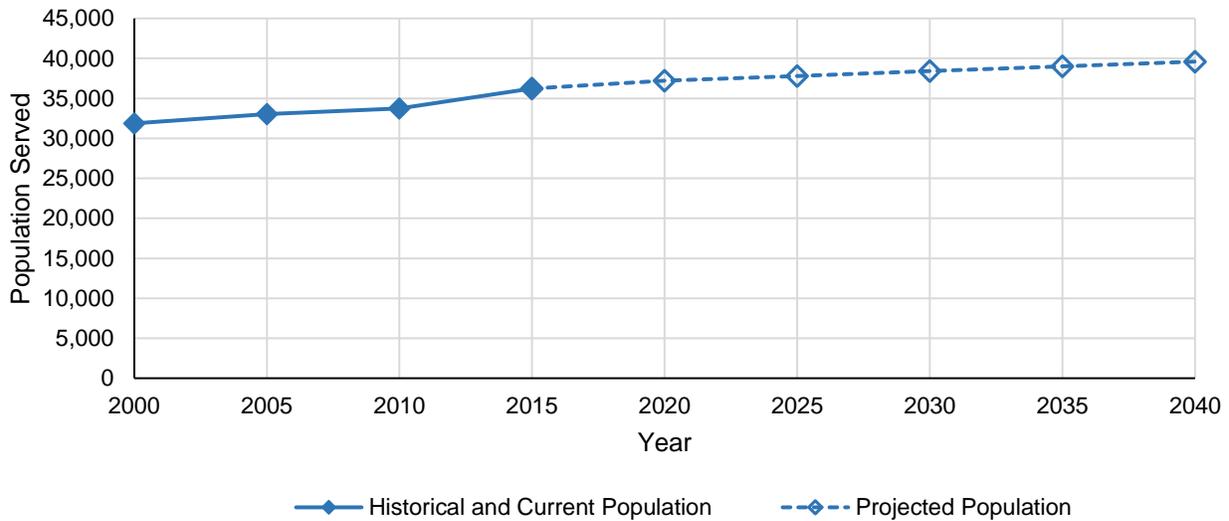
Path: X:\B60003\Maps\2016\05\Fig2-2_EMID_ServiceAreaMap.mxd



Table 2-1
Historical and Projected Service Area Population (DWR Table 3-1)
 Estero Municipal Improvement District, California

Historical and Current Service Area Population (a)					
	2000	2005	2010	2015	--
Population Served	31,876	33,049	33,749	36,231	--
Projected Service Area Population					
	2020	2025	2030	2035	2040
Foster City (a)	33,800	34,400	35,000	35,600	36,200
Mariner's Island (b)	3,400	3,400	3,400	3,400	3,400
Population Served	37,200	37,800	38,400	39,000	39,600

Current and Projected Population



Abbreviations:

ABAG = Association of Bay Area Governments
 DWR = California Department of Water Resources
 EMID = Estero Municipal Improvement District

Notes:

- (a) Historical and current population data are further documented in Tables 3-1 and 4-1.
- (b) Projected population growth was provided by the Foster City Community Development Department and is based on planned housing projects (described in Reference 1) through 2020 and projected growth rates by ABAG for 2020 through 2040; these projections are documented in Appendix E.
- (c) Projected population growth associated with Mariner's Island is based on Census projections for 2010 through 2014 for Census Tract 6079, plus an assumed increase based on planned housing projects, per EMID.

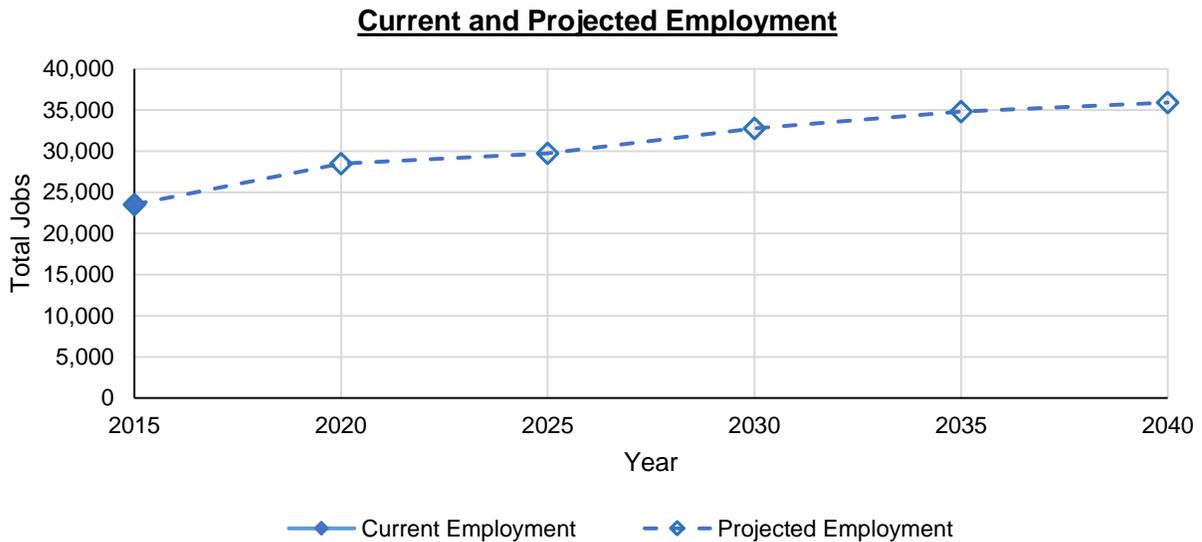
References:

- (1) *Water Supply Assessment Report for Gilead Integrated Corporate Campus Master Plan Project, 15-Acres Project, 400 Mariners Island Blvd., City Of San Mateo (Tidelands Park) Residential Project, Chess Hotel Project, Chess/Hatch Drive Office Project, Bayside Towers Iii Project, Visa V Project, Marina Project*, prepared by City of Foster City Estero Municipal Improvement District, updated and approved on 5 November 2012.



Table 2-2
Current and Projected Service Area Employment
 Estero Municipal Improvement District, California

Current and Projected Service Area Employment						
	2015	2020	2025	2030	2035	2040
Foster City (a)	15,250	19,700	20,450	22,950	24,500	25,100
Mariner's Island (b)	8,283	8,788	9,294	9,799	10,305	10,810
Total Jobs	23,533	28,488	29,744	32,749	34,805	35,910



Abbreviations:

ABAG = Association of Bay Area Governments

Notes:

- (a) Projected employment growth was provided by the Foster City Community Development Department and is based on planned development projects (described in Reference 1) through 2030 and projections by ABAG for 2035 - 2040, and is documented in Appendix E.
- (b) Projected employment growth for Mariner's Island is based on the number of jobs in the Mariner's Island area reported by the 2010 San Mateo General Plan, with an assumed growth through 2040 consistent with ABAG projections for the City of San Mateo.

References:

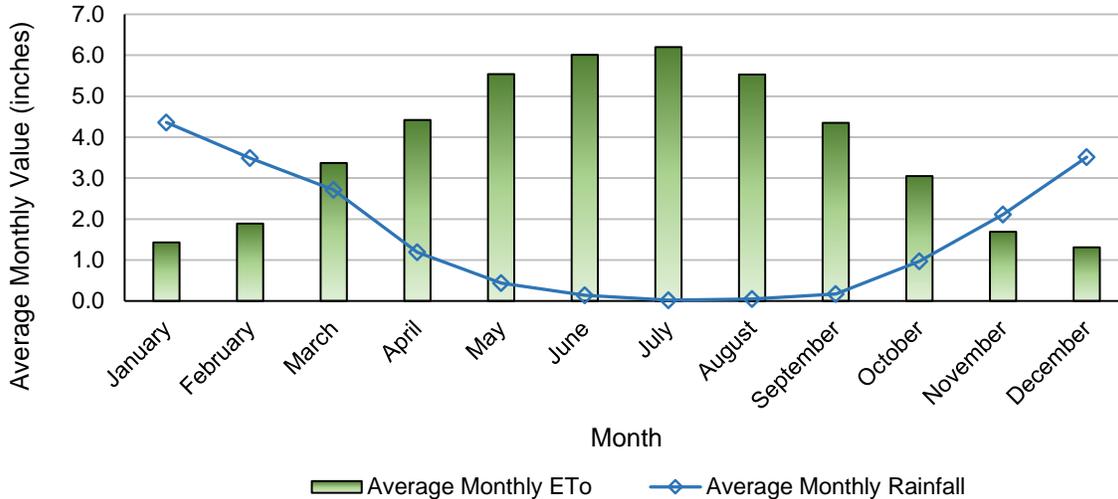
- (1) *Water Supply Assessment Report for Gilead Integrated Corporate Campus Master Plan Project, 15-Acres Project, 400 Mariners Island Blvd., City Of San Mateo (Tidelands Park) Residential Project, Chess Hotel Project, Chess/Hatch Drive Office Project, Bayside Towers III Project, Visa V Project, Marina Project*, prepared by City of Foster City Estero Municipal Improvement District, updated and approved on 5 November 2012.
- (2) *City of San Mateo General Plan "Vision 2030,"* Land Use Element, Amended by the City Council on April 6, 2015, <http://www.cityofsanmateo.org/DocumentCenter/Home/View/44794>.
- (3) Association of Bay Area Governments (ABAG), Projections 2013.



Table 2-3
Average Monthly Climatic Conditions
 Estero Municipal Improvement District, California

Month	Average Temperature (a)		Standard Average ETo (b) (inches)	Average Rainfall (a) (inches)
	Min (°F)	Max (°F)		
January	39.3	58.1	1.4	4.36
February	41.8	61.7	1.9	3.49
March	43.6	65.4	3.4	2.71
April	45.1	69.9	4.4	1.19
May	48.7	74.5	5.5	0.44
June	52.2	79.5	6.0	0.14
July	54.6	82.2	6.2	0.02
August	54.4	81.8	5.5	0.05
September	52.9	80.6	4.4	0.17
October	49	74.5	3.1	0.97
November	43.4	65.4	1.7	2.11
December	39.9	58.7	1.3	3.51
Annual	47.1	71.0	45	19.2

Average Monthly Climatic Conditions



Abbreviations:

ETo = reference evapotranspiration
 °F = Degrees Fahrenheit

Notes:

- (a) Temperature and Precipitation data are from the Western Regional Climate Center for Station #047339 REDWOOD CITY from 1 April 1906 to 20 January 2015.
- (b) Reference evapotranspiration data are from the Department of Water Resources, California Irrigation Management Information System.



The average reference evapotranspiration (ET_o) for the region is 45 inches per year. The ET_o is a standard measurement related to the water demand by plants in a specific region. Because the average annual ET_o is approximately 25 inches more than the average annual precipitation, and because 90% of the annual precipitation occurs between the months of November and April, growing turf or other plantings in this region requires a significant amount of irrigation during the dry season. This irrigation demand contributes to the overall and observed seasonal variation in water demand throughout the EMID service area (see Section 7.3).

2.3 EMID WATER DISTRIBUTION SYSTEM

The EMID potable water distribution system has only one pressure zone and there is adequate pressure from the SFPUC supply to distribute water directly into the distribution system without pumping (EMID, 2011).

Water from the SFPUC RWS enters the EMID distribution system through a single 24-inch transmission line connected to the SFPUC's 54-inch main, Crystal Springs No. 2 (EMID, 2011). The connection point is located in the City of San Mateo on Crystal Springs Road. The EMID owns and operates three steel water storage tanks and one concrete water storage tank. Each steel tank can store four million gallons and the concrete tank can store eight million gallons, for a total of twenty million gallons of storage capacity (EMID, 2011).

There are two interconnections between EMID's system and adjacent distribution systems: one intertie with California Water Service Company's (Cal Water's) Mid-Peninsula District system and one intertie with the Mid-Peninsula Water District (MPWD) system. EMID currently has emergency transfer agreements with both Cal Water and MPWD (EMID, 2011).

The EMID is planning to conduct Water Distribution System Master Plan Study starting in 2017, which will include the development of a comprehensive hydraulic model or an update to the existing model. The Water Distribution System Master Plan is intended to identify deficiencies and prioritize improvements to be included in the long-range (20-year) Capital Improvement Plan (CIP).

The EMID is also conducting a Levee Protection Planning and Improvements Project, which will raise the levee surrounding the service area to meet the required elevation per Title 44 of the Code of Federal Regulations (CFR), section 65.10. This levee improvement project will provide long-term protection of the service area and infrastructure from flooding and sea level rise. It is anticipated that the construction phase of this project is will be conducted in 2017 through 2020.

In addition to the major projects identified above, the following water system improvement projects are also planned or have been completed since the 2010 UWMP:

- Installation of system-wide automatic metering infrastructure (AMI) (completed in 2015);
- Replacement of two natural gas powered engines/pumps at the Water booster Pump Station (completed January 2016);
- Water system improvements and valve replacements – includes the replacement and addition of several valve and bypass tees (construction anticipated Winter 2016);
- Recoating of Water Tanks 1, 2, and 3 (construction anticipated 2017-2018); and
- Ongoing water system improvements and seismic improvements at Water Booster Pump Station and water tanks 1, 2, and 3 (planned 2018-2019).



3. SYSTEM WATER DEMANDS

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

10631 (e) (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors including, but not necessarily limited to, all of the following uses:

- (A) Single family residential.*
- (B) Multifamily.*
- (C) Commercial.*
- (D) Industrial.*
- (E) Institutional and governmental.*
- (F) Landscape.*
- (G) Sales to other agencies.*
- (H) Saline water intrusion barriers, groundwater recharge, or conjunctive use or any combination thereof.*
- (I) Agricultural.*
- (J) Distribution system water loss.*

10631. (e) (2) The water use projections shall be in the same five-year increments described in subdivision (a).

For the purposes of this Urban Water Management Plan (UWMP), potable water demand is defined as the volume of potable water that the Estero Municipal Improvement District (EMID) purchases from the San Francisco Public Utilities Commission Regional Water System (SFPUC RWS). Among other things, water demand is dependent on climate, population, industry, and the types of development present in a community. Sections 3.1 and 0 describe the historical and projected water demands for the residential, commercial, industrial, institutional, and landscape irrigation sectors within the EMID service area (water use sectors A through F and J, as described per California Water Code (CWC) Section 10631(e)(1)(A) through (F)). As described in Section 3.3, this discussion does not include demands for water use sectors per CWC Section 10631(e)(1)(G) through (I) as they are not applicable or present within the EMID service area.

3.1 CURRENT AND HISTORIC TOTAL WATER DEMAND

All demands within the EMID service area are currently met with potable water, which is purchased wholesale from the SFPUC RWS. The current and historical total water demands within the EMID service area include the water consumed by metered accounts in the service area (“metered water consumption”), unmetered water used by the Fire Department (“unmetered water consumption”), and the water that is lost within the distribution system (“losses”).

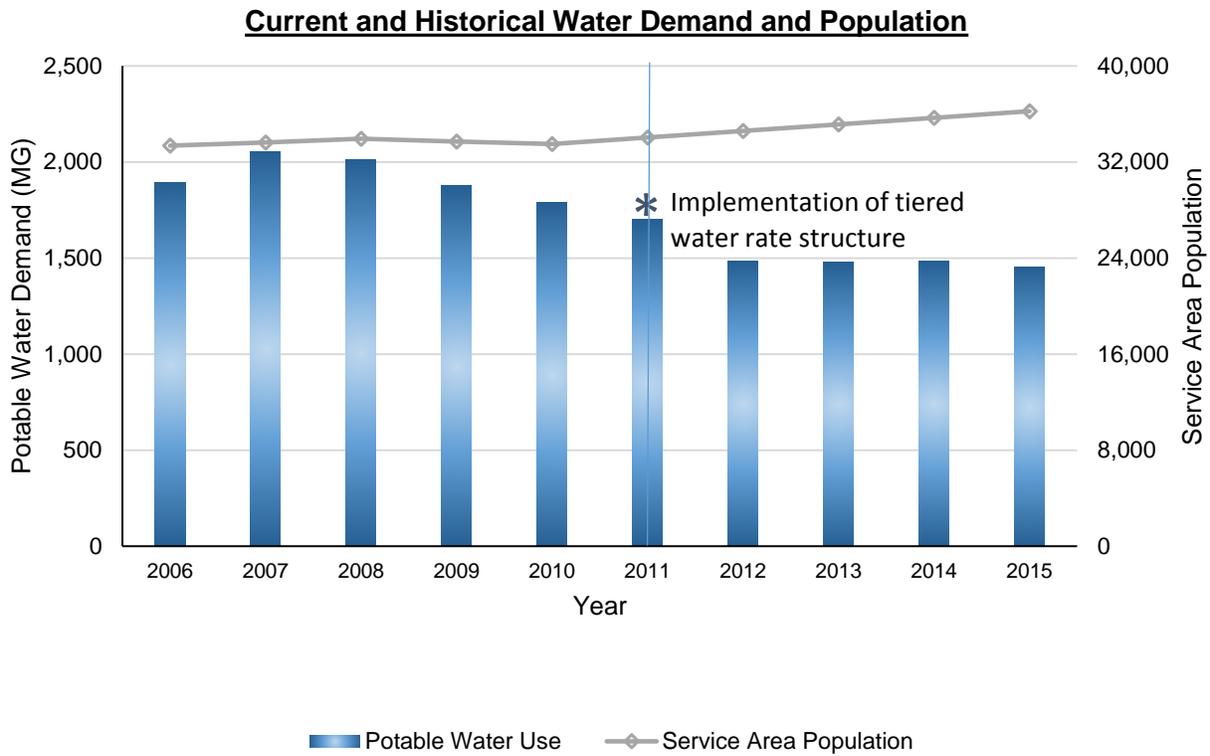
3.1.1 Current and Historical Potable Water Demand

Total water demand within the EMID service area was approximately 1,453 million gallons (MG) in 2015. Table 3-1 and the associated charts show trends in potable water demand and per capita water use between 2005 and 2015. Water demand decreases observed between 2007



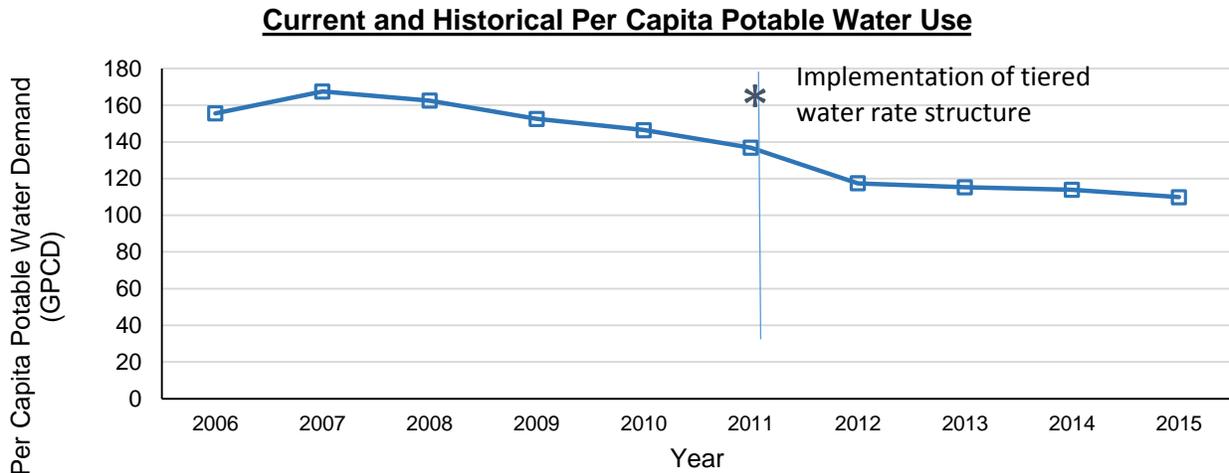
Table 3-1
Current and Historical Potable Water Demand and Population
 Estero Municipal Improvement District, California

Year	Potable Water Demand (MG) (a)	Service Area Population (b)	Per Capita Potable Water Use (GPCD) (c)
2006	1,894	33,362	156
2007	2,055	33,632	167
2008	2,013	33,939	162
2009	1,877	33,714	153
2010	1,790	33,489	146
2011	1,700	34,037	137
2012	1,483	34,586	117
2013	1,479	35,134	115
2014	1,484	35,683	114
2015	1,453	36,231	110





**Table 3-1
Current and Historical Potable Water Demand and Population**
Estero Municipal Improvement District, California



Abbreviations:

DWR = California Department of Water Resources
 EMID = Estero Municipal Improvement District
 GPCD = gallons per capita per day
 MG = million gallons
 SFPUC = San Francisco Public Utilities Commission

Notes:

- (a) Detailed historical and current water demand data from 2011 through 2015 are documented in Table 3-2. Demands are based on purchases from SFPUC, on a fiscal year basis.
- (b) Service area population data from 2005 through 2010 are from Table 4-1. Service area population was estimated using the DWR Population Tool, which is based on Census population data and the EMID service area boundary.
- (c) Per capita potable water use is calculated by dividing the total annual potable water demand by the service area population and the number of days in a year.

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2015 URBAN WATER MANAGEMENT PLAN**

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and 2010 likely reflect impacts of the 2007-2010 drought and the economic downturn, which resulted in lower residential and non-residential water use. The additional decrease in water use observed in 2011 and 2012 is likely the result of the implementation of a conservation-based, tiered water rate structure in July 2010. The subsequent slight increase through 2013 is thought to reflect improved economic conditions. However, despite the improved economy in the Bay Area, subsequent calls for water use cutbacks locally and the mandatory state-wide restrictions issued by the State Water Resources Control Board (SWRCB)⁴ in response to the recent historic drought led to a significant decline in water use (i.e., a 22% reduction between 2013 and 2015).

As shown in Table 3-1 and the associated charts, per capita potable water use in the EMID service area has shown a decreasing trend over the past 10 years, with a significant decline corresponding to the implementation of the tiered water rate structure in 2010. The highest per capita water use was observed in 2007 at 167 gallons per capita per day (GPCD), whereas the lowest per capita water use was observed in 2015 at 110 GPCD.

Water demand within the EMID service area is measured using water meters that are installed at each customer account. Records of current and historical water use at each account are maintained by the Foster City Public Works Department, in coordination with the Finance Department. Water demand within the EMID service area is tracked and reported on a bimonthly basis for the following sectors:

- Single Family Residential;
- Multi-Family Residential;
- Commercial;
- Industrial;
- Institutional/Governmental;
- Irrigation; and
- Other.

As shown in Table 3-2 and associated charts, the residential sector accounted for an average of approximately 61% of the potable water demand in the EMID service area between 2011 and 2015 (i.e., multi-family residential demands were approximately 35% of the total demand, while single-family residential demands accounted for the remaining 27%). The EMID has a moderate commercial, industrial, and institutional (CII) base, which together accounted for approximately 13% of potable water demand for the 2011-2015 period. The commercial sector accounted for 10% of the total EMID water demand, while the industrial and institutional/governmental sectors accounted for 1% and 2% the total water demand, respectively. On average, irrigation and fire services respectively accounted for 23% and 0.3% of the total water demand. Irrigation services include irrigation water use at accounts that have a

⁴ On 28 July 2014, the SWRCB adopted emergency regulations to mandate water agencies, including the EMID, to implement their Water Shortage Contingency Plan and minimum actions to reduce outdoor water use. On 5 May 2015, SWRCB adopted Resolution 2015-0032 to mandate further minimum actions by water suppliers and their customers to reduce potable water use into 2016 and assigns a mandatory water conservation savings goal to each water supplier based on their residential water use. On 2 February 2016, the SWRCB voted to extend the reduction targets through October 2016. The EMID has a SWRCB-mandated reduction target of 12%. To date, the EMID has achieved its SWRCB-mandated reduction target with a 14.1% reduction in water demand relative to water demand in 2013.

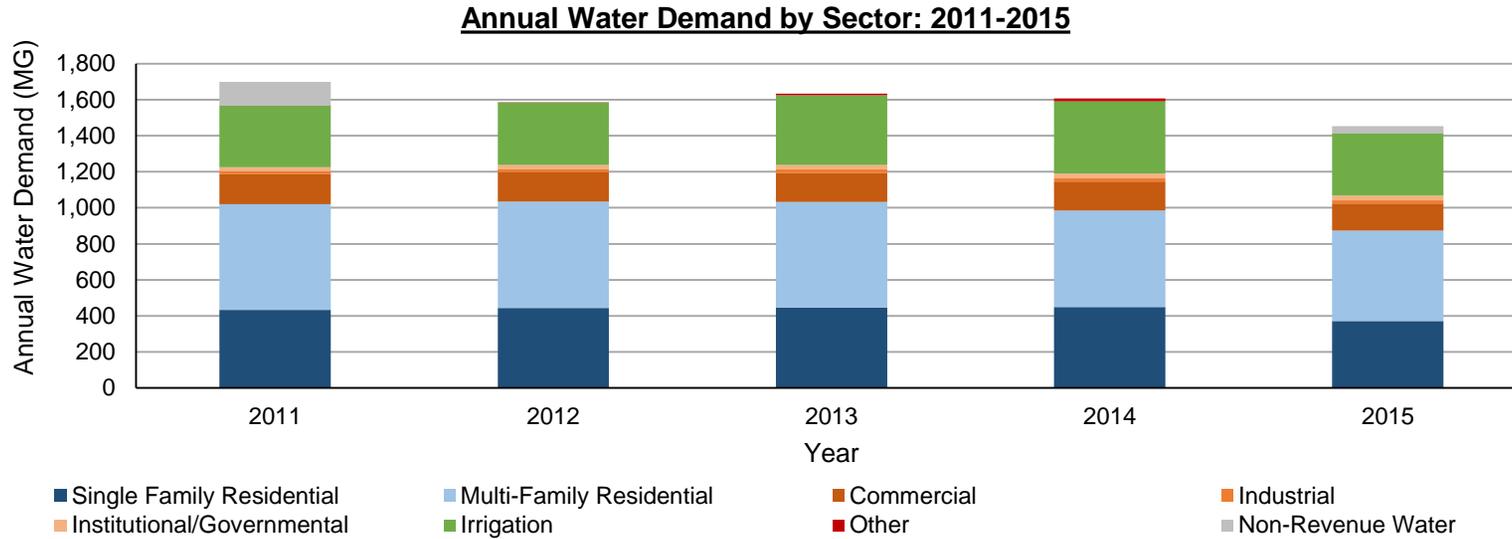


Table 3-2
Current and Historical Potable Water Demand by Sector (DWR Table 4-1)
 Estero Municipal Improvement District, California

Water Use Sector	Potable Water Demand (MG)						Average
	2011	2012	2013	2014	2015		
<i>Residential Water Use</i>							
Single Family Residential	433	444	445	448	372	429	27%
Multi-Family Residential	587	591	587	536	501	560	35%
<i>Subtotal Residential</i>	<i>1,020</i>	<i>1,035</i>	<i>1,032</i>	<i>984</i>	<i>873</i>	<i>989</i>	<i>62%</i>
<i>CII Water Use</i>							
Commercial	166	164	162	161	151	161	10%
Industrial	18	18	18	17	18	18	1%
Institutional/Governmental	21	21	25	27	26	24	2%
<i>Subtotal CII</i>	<i>205</i>	<i>203</i>	<i>205</i>	<i>206</i>	<i>194</i>	<i>203</i>	<i>13%</i>
<i>Other Water Use</i>							
Irrigation (a)	341	345	388	401	345	364	23%
Other (b)	0.2	0.1	8	15	0.3	5	0.3%
<i>Subtotal Other</i>	<i>341</i>	<i>345</i>	<i>396</i>	<i>417</i>	<i>345</i>	<i>369</i>	<i>23%</i>
Metered Water Use	1,566	1,584	1,633	1,606	1,412	1,560	98%
<i>Non-Revenue Water (c,d)</i>							
Non-Revenue Water	134	(d)	(d)	(d)	41	87	5.5%
Total Water Demand (c)	1,700	1,584	1,633	1,606	1,453	1,595	100%



Table 3-2
Current and Historical Potable Water Demand by Sector (DWR Table 4-1)
 Estero Municipal Improvement District, California



Percentage of Total Water Demand by Sector:
2011-2015

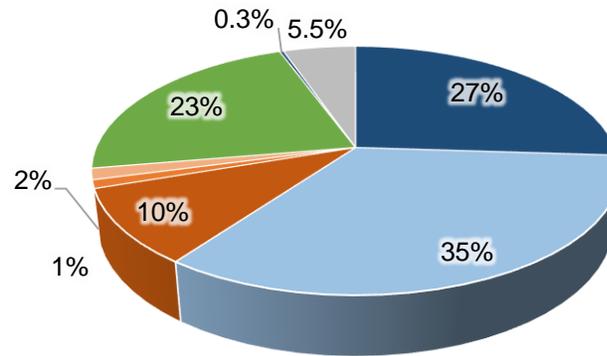


Table 3-2
Current and Historical Potable Water Demand by Sector (DWR Table 4-1)
Estero Municipal Improvement District, California

Abbreviations:

CII = commercial, industrial, and institutional
DWR = California Department of Water Resources
EMID = Estero Municipal Improvement District
MG = million gallons
SFPUC = San Francisco Public Utilities Commission

Notes:

- (a) Irrigation water use includes water use recorded at irrigation meters at accounts that are sub-metered and does not represent all of the outdoor irrigation water use within the EMID service area.
- (b) Other water use includes water used for fire services.
- (c) Non-revenue water is reported as the difference between EMID's metered water use and its total water demand. Totals may not sum due to rounding. Water losses were also estimated for 2015 using the DWR Water Audit Method and discussed in Section 3.1.3.
- (d) For 2012 through 2014, SFPUC's meters reported less water served to EMID than EMID distributed to its retail customers. This underregistration was reported to SFPUC and supply meters were subsequently replaced. The actual water loss for these years cannot be estimated as a difference between reported supply and demand and is therefore not shown. Average non-revenue water is based on 2011 and 2015 only.



separate irrigation meter and does not represent all of the outdoor irrigation water use within EMID.

3.1.2 Current and Historical Non-Potable Water Demand

There are no current or historical water demands that are met with non-potable water supplies within the EMID service area.

3.1.3 Distribution System Water Loss

10631. (e) (3) (A) For the 2015 urban water management plan update, the distribution system water loss shall be quantified for the most recent 12-month period available. For all subsequent updates, the distribution system water loss shall be quantified for each of the five years preceding the plan update.

10631. (e) (3) (B) The distribution system water loss quantification shall be reported in accordance with a worksheet approved or developed by the department through a public process. The water loss quantification worksheet shall be based on the water system balance methodology developed by the American Water Works Association.

Distribution system water losses are the physical water losses from the water distribution system and the supplier storage facilities, up to the point of customer consumption. Water losses for 2015 within the EMID service area were estimated using the Department of Water Resources (DWR) Water Audit Method.

Prior to assessing water losses using the DWR Water Audit Method, EMID had recorded the difference between total demand and metered consumption as non-revenue water (i.e., as shown in Table 3-2, non-revenue water in 2015 was 41 MG, or approximately 3% of total water demand). Non-revenue water includes unmetered consumption and distribution system water loss, including water loss through unauthorized consumption, metering errors, and leakages. Between 2011 and 2014, the amount of water served to metered customers exceeded the amount of water purchased from SFPUC. This disparity was due to SFPUC's meters under-registering the amount of water supplied to EMID, which was corrected by calendar year 2015. The amount of unmetered water demand during this period is not known. Non-revenue water demand in 2011 was 134 MG, or approximately 8% of total water demand.

For 2015, the EMID performed the DWR Water Audit considering that SFPUC's meters likely under-registered water purchases for a few months before the meters were corrected. Therefore, in the DWR Water Audit spreadsheet, a 5% supply error adjustment was applied to the total 2015 purchase volume of 1,453 MG (i.e., the audit conservatively assumes that the total amount of water supplied to EMID was actually as much as 1,530 MG in 2015). Of the 1,530 MG, 1,412 MG were attributable to metered consumption, 19 MG were estimated to be from unmetered consumption, and 98 MG were estimated to be from distribution system water loss (see Appendix A, DWR Table 4-4). The DWR Water Audit worksheet is included in Appendix F.

Metering of the EMID's distribution system is further discussed in Section 8.2.2.



3.2 PROJECTED TOTAL WATER DEMAND

Per CWC Section 10631(e)(1), potable and non-potable water demand projections are discussed in the following sections.

3.2.1 Projected Potable Water Demand

Future potable water demands within the EMID service area are estimated as the projected water demands associated with population and employment growth within the EMID service area. The demand estimation methodology and associated demand estimates are described below, and presented in Table 3-3 in five-year increments from 2020 through 2040.

In 2014, future water demands for the EMID service area were projected by Bay Area Water Supply and Conservation Agency (BAWSCA) on behalf of EMID in the *Regional Water Demand and Conservation Projections Report* (BAWSCA, 2014). Future water demands were projected using the Demand Management Decision Support System Model (DSS Model) and were based on population and employment projections within EMID's service area, which were in turn developed using Association of Bay Area Governments (ABAG) 2013 population and employment projection data.

A detailed description of the DSS Model and the associated water demand and conservation projection methodology is provided in the *Regional Water Demand and Conservation Projections Report* (BAWSCA, 2014). A brief description of BAWSCA's 2014 demand projections is provided below.

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 customer's would yield an additional 16 MGD in savings beyond what has already been achieved for the BAWSCA service area. Based on the revised water demand projections, the identified water conservation savings, and other actions, the collective purchases of the BAWSCA member agencies from the SFPUC are projected to stay below 184 MGD through 2018.

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

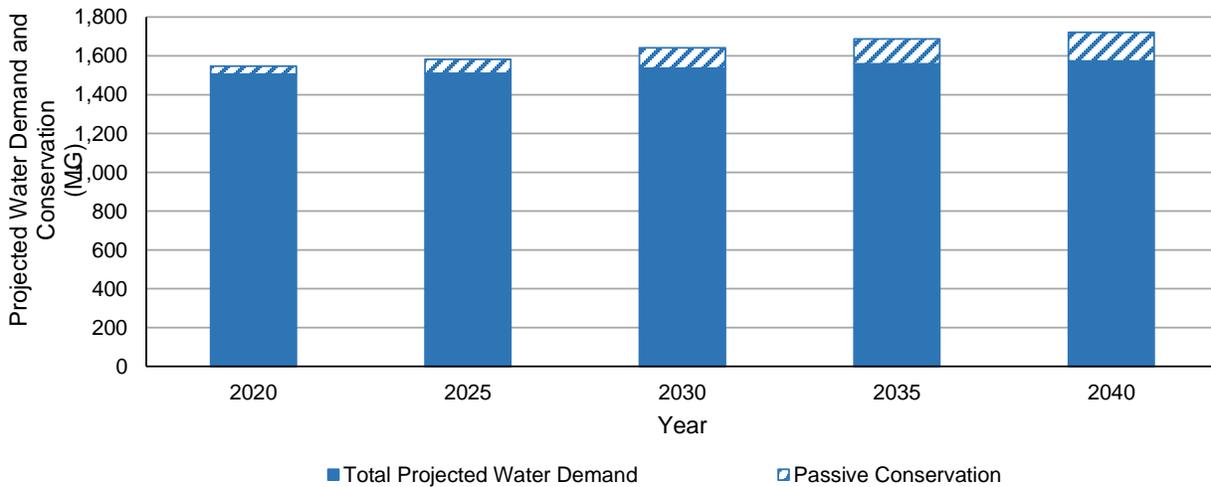
In 2016, as part of the 2015 UWMP update, EMID's DSS Model was revised to account for several changes since the demand projections were estimated by BAWSCA. The 2016 DSS



Table 3-3
Projected Potable Water Demand
 Estero Municipal Improvement District, California

	Projected Potable Water Demand (MG) (a)				
	2020	2025	2030	2035	2040
Projected Water Demand	1,546	1,582	1,641	1,687	1,720
Projected Water Conservation					
Passive Conservation	(41)	(72)	(104)	(128)	(146)
Active Conservation	(55)	(62)	(65)	(65)	(66)
Projected Water Demand after Passive Conservation Savings	1,505	1,510	1,537	1,559	1,574
Projected Water Demand after Passive and Active Conservation Savings	1,450	1,448	1,471	1,493	1,508
Total Projected Water Demand (b)	1,505	1,510	1,537	1,559	1,574

Projected Water Demand and Conservation



Abbreviations:

DSS Model = Demand Management Decision Support System Model
 EMID = Estero Municipal Improvement District
 MG = million gallons

Notes:

- (a) Projected water demands and conservation were estimated using the DSS Model.
- (b) Total water demand is the sum of metered water consumption and losses. The projected water demands



Model update included the revised population and employment projections developed by the Foster City Community Development Department (CDD) and revised employment growth estimates for the Mariner’s Island area, per the City of San Mateo’s updated General Plan Land Use Element (City of San Mateo, 2015). The 2016 DSS Model update also included revised

conservation program participation rates, which were refined to better align with the EMID’s current plans and to account for completed projects (e.g., completed installation of AMI).

The total projected potable water demand in the EMID service area is estimated to be 1,574 in 2040, as shown in Table 3-3 and the associated chart. Projected water savings associated with passive and active conservation (146 MG and 66 MG, respectively in 2040) are also identified in Table 3-3.

The EMID service area has experienced a significant reduction in water use, even before the current drought period, with per capita demands dropping 31% from 2007 to 2013 (Table 3-1). It is possible that a portion of the EMID service area may be “demand-hardened,” meaning that additional water savings due to passive or active conservation may not be possible; although, the degree of this demand hardening is not known. If significant demand hardening is experienced in the EMID service area, then active conservation measures in the future may not result in as much water savings as anticipated. Therefore, as a conservative approach, active conservation programs are not included in the projected water demands used for planning purposes and in comparisons to available supply (Section 6).

As above, it is estimated that the potable water demand will be approximately 1,574 MG in 2040 within EMID’s service area, which is an 8% increase relative to the actual 2015 water demand of 1,453 MG. Over the same period, population is estimated to increase by 9% and jobs are expected to increase by approximately 53% in the EMID service area. This 8% increase in water demands is a relatively small increase given the projected growth in employment and is primarily due to the increased water efficiency in the residential and non-residential sectors as a result of plumbing code changes (see Section 3.2.4). Total projected potable water demand for each water use sector within the EMID service area is shown in five-year increments through 2040 in Table 3-4 and the associated chart.

3.2.2 Projected Non-Potable Water Demand

The EMID does not currently supply non-potable water, but is currently investigating recycled water options, as discussed further in Section 5. No non-potable water demand projections are available at this point in time (see Appendix A, DWR Table 4-3).

3.2.3 Water Use for Lower Income Households

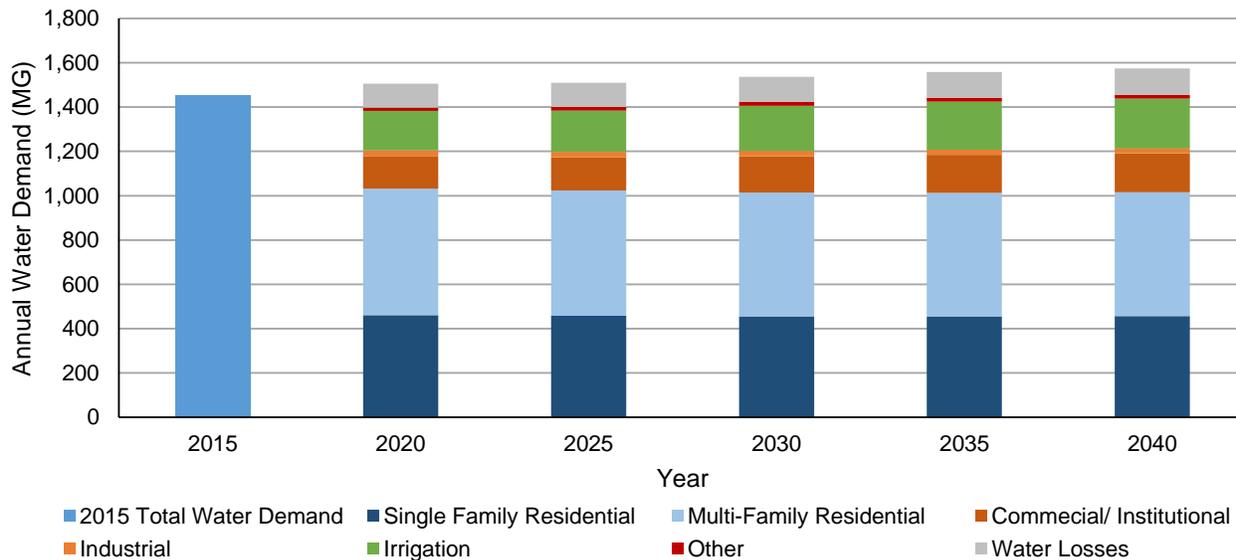
10631.1 (a) The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county,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



Table 3-4
Projected Potable Water Demand by Sector (DWR Table 4-2)
 Estero Municipal Improvement District, California

Water Use Sector	Projected Potable Water Demand (MG)				
	2020	2025	2030	2035	2040
<i>Projected Residential Water Use</i>					
Single Family Residential	461	458	455	455	457
Multi-Family Residential	571	565	560	558	559
<i>Subtotal Residential</i>	<i>1,032</i>	<i>1,023</i>	<i>1,015</i>	<i>1,013</i>	<i>1,016</i>
<i>Projected CII Water Use</i>					
Commercial/ Institutional	147	151	163	171	176
Industrial	25	24	24	23	21
<i>Subtotal CII</i>	<i>172</i>	<i>175</i>	<i>187</i>	<i>194</i>	<i>197</i>
<i>Projected Other Water Use</i>					
Irrigation (a)	178	186	205	217	224
Other (b)	16	16	17	17	17
<i>Subtotal Other</i>	<i>194</i>	<i>202</i>	<i>221</i>	<i>234</i>	<i>242</i>
Total Projected Water Use	1,398	1,400	1,423	1,442	1,455
Water Losses	107	110	114	117	119
Total Projected Water Demand (c)	1,505	1,510	1,537	1,559	1,574

Actual and Projected Water Demand by Sector



Abbreviations:

CII = commercial, industrial, and institutional
 DWR = California Department of Water Resources
 EMID = Estero Municipal Improvement District
 MG = million gallons

Notes:

- (a) Irrigation water use includes water use recorded at irrigation meters at accounts that are sub-metered and does not represent all of the outdoor irrigation water use within EMID.
- (b) Other water use includes water used for fire services.
- (c) Total water demand is the sum of metered water consumption and non-revenue water. The projected water demands include anticipated savings from plumbing codes.



The potable water demands presented in Section 3.2.1 include projected future water use by lower income households. Per Health and Safety Code 50079.5, a lower income household is defined as a household with lower than 80% of the area’s median income.

The 2015-2023 Housing Element for Foster City (City of Foster City, 2015) indicates that 26% of housing units within the city serve residents with less than 80% of the median income adjusted for family size. The 2015-2023 Housing Element for the City of San Mateo (City of San Mateo, 2015) indicates that city-wide, 29% of housing units serve lower income residents. The City of San Mateo (Mariner’s Island) makes up a relatively small proportion of the EMID service area (approximately 12% by land). It is therefore assumed that approximately 26% of the of the residential water demand within the EMID service area will be associated with lower income households. Table 3-5 contains the estimated future water use for lower income households. These demands were included in the total potable water demand projections described above and shown in Table 3-4 (see also Appendix A, DWR Table 4-5).

3.2.4 Water Savings from Codes, Standards, Ordinances, or Transportation and Land Use Plans

10631. (4) (A) If available and applicable to an urban water supplier, water use projections may display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area.

“Passive conservation” refers to water savings resulting from actions and activities that do not depend on direct financial assistance or educational programs implemented by water suppliers. These savings result primarily from: (1) the natural replacement of existing plumbing fixtures with water-efficient models required under current plumbing code standards,⁵ and (2) the installation of water-efficient fixtures and equipment in new buildings and retrofits as required under CALGreen Building Code Standards.⁶

The EMID also requires that new and rehabilitated landscapes on projects subject to city review and approval (Foster City or San Mateo) comply with the EMID’s Water Efficient Landscaping Ordinance (WELO; Chapter 8.80 of the EMID Code), which was updated on 19 January 2016 to reflect recent changes to the State’s Model Water Efficient Landscape Ordinance. Water savings associated with inclusion of low-water use landscaping and high-efficiency irrigation systems to minimize outdoor water use in accordance with the Landscaping Ordinance are included in the water demand estimates for new connections and projects.

“Active conservation” refers to water savings resulting from EMID’s implementation of water conservation programs, education programs, and the offering of financial incentives (e.g.,

⁵ Including the California Energy Commission Title 20 appliance standards for toilets, urinals, faucets, and showerheads. The appliance standards determine what can be sold in California and therefore will impact both new construction and replacement fixtures in existing homes.

⁶ Foster City and San Mateo require that all new residential and non-residential construction comply with the mandatory CALGreen Requirements (Foster City Ordinance No. 585, adopted 16 December 2013; City of San Mateo Ordinance 2009-14, adopted 16 November 2009).



**Table 3-5
Projected Potable Water Demand of Lower-Income Households
Estero Municipal Improvement District, California**

Lower-Income Water Demand Sector	Projected Potable Water Demand (MG) (a)				
	2020	2025	2030	2035	2040
Single Family Residential	120	119	118	118	119
Multi-Family Residential	148	147	145	145	145

Notes:

(a) Projected potable water demand for lower income households was estimated as a percentage of the residential demand listed in Table 3-4. The percentage is based on the number of lower income household, compared to total households within Foster City per Reference 1. Per Reference 2, the proportion of lower income households is expected to be consistent for the Mariner's Island portion of the EMID service area.

References:

- (1) City of Foster City, 2015. *2015-2023 Housing Element*, adopted 2 February 2015.
- (2) City of San Mateo, 2015. *Housing Element of the General Plan, 5th Cycle Planning Period (2015-2023)*, amended 6 April 2015.



rebates). The EMID's current and planned active conservation programs are discussed in Section 7.

The potable water demand projections discussed in Section 3.2.1 take into account passive conservation savings, as shown in Table 3-3 and the associated chart (see also Appendix A, DWR Table 4-5). Additional water savings are expected due to EMID's active conservation efforts; however, for conservative planning purposes these conservation savings are not included in the total potable water demand projections. As can be seen in Table 3-3, by 2040, it is estimated that passive conservation savings will reduce total projected water demand by 146 MG within the EMID service area (i.e., the total 2040 demand will be reduced from 1,720 MG to 1,574 MG). An additional 66 MG of water savings may be achieved through active conservation.

3.3 WATER USE SECTORS NOT INCLUDED IN THE DEMAND PROJECTIONS

Historical and projected water demands for the water use sectors described in CWC Section 10631(e)(1)(G) through (I) and listed below were not included in the water demand calculations because they are not applicable to the EMID:

- Sales to other agencies;
- Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof; and
- Agricultural.

3.3.1 Sales to Other Agencies

The EMID does not sell water to other agencies and does not expect to in the future.

3.3.2 Saline Water Intrusion Barriers, Groundwater Recharge, and Conjunctive Use

The EMID does not use water for saline water intrusion barriers and does not currently participate in active groundwater recharge activities or a conjunctive use program.

3.3.3 Agricultural

The EMID does not sell water to agricultural customers and does not expect to in the future.

3.4 COORDINATING WATER USE PROJECTIONS

10631. (j) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available.

The EMID provides the SFPUC with water use projections annually as part of reporting to the BAWSCA Annual Surveys and other BAWSCA-led water demand and supply coordination efforts as dictated by the 2009 Water Supply Agreement. As part of the coordination effort for

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the 2015 UWMP, and in compliance with CWC Section 10631(j), EMID supplied BAWSCA with its water demand projections through 2040 for transmittal to the SFPUC.⁷

⁷ Email from EMID to BAWSCA, dated 3 February 2016.



4. BASELINE WATER USE AND WATER CONSERVATION TARGETS

The Water Conservation Act of 2009 (Water Conservation Act) directed the Department of Water Resources (DWR) to develop technical methodologies and criteria to ensure the consistent implementation of the Water Conservation Act and to provide guidance to urban retail water suppliers in developing baseline and compliance water use. The Water Conservation Act was incorporated into Division 6 of the California Water Code (CWC) commencing with Section 10608 of Part 2.55. The methodologies for developing baseline and compliance water use are established in *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water, California Department of Water Resources Division of Statewide Integrated Water Management Water Use and Efficiency Branch, March 2016 update* (Methodologies; DWR, 2016b)

The Water Conservation Act specifically calls for developing seven methodologies and a set of criteria for adjusting daily per capita water use at the time compliance is required (the 2015 and 2020 compliance years) under CWC Section 10608.20(h):

1. *The department, through a public process and in consultation with the California Urban Water Conservation Council, shall develop technical methodologies and criteria for the consistent implementation of this part, including, but not limited to, both of the following:*
 - A. *Methodologies for calculating base daily per capita water use, baseline commercial industrial, and institutional water use, compliance daily per capital water use, gross water use, service area population, indoor residential water use, and landscaped area water use.*
 - B. *Criteria for adjustments pursuant to subdivisions (d) and (e) of Section 10608.24.*

The CWC Sections 10608.20 and 10608.28 allow water suppliers the choice of complying individually or regionally by mutual agreement with other water suppliers or regional agencies. The DWR has also developed a methodology for regional compliance. The following calculation methodologies have been developed and are described in Methodologies (DWR, 2016b):

- Methodology 1: Gross Water Use
- Methodology 2: Service Area Population
- Methodology 3: Base Daily Per Capita Water Use
- Methodology 4: Compliance Daily Per Capita Water Use
- Methodology 5: Indoor Residential Use
- Methodology 6: Landscaped Area Water Use
- Methodology 7: Baseline Commercial, Industrial, and Institutional Water Use
- Methodology 8: Criteria for Adjustments to Compliance Daily Per Capita Water Use
- Methodology 9: Regional Compliance

Baselines and water use targets for the Estero Municipal Improvement District (EMID) service area were presented in the 2010 Urban Water Management Plan (UWMP) in response to the Water Conservation Act. Per requirements of the DWR described in Section 4.1, the 2015 UWMP includes an update to the baseline and water use target calculations using 2010 United States Census (Census) data and analyzes EMID's compliance with its 2015 interim water use target. Water use targets and 2015 compliance data are summarized in Tables 4-1 through 4-3. Detailed calculations are included in Appendix G.



4.1 SERVICE AREA POPULATION

10608.20 (e) An urban retail water supplier shall include in its urban water management plan due in 2010 pursuant to Part 2.6 (commencing with Section 10610) the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

10608.20 (g) An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6 (commencing with Section 10610).

Methodology 2 Service Area Population. DWR will examine discrepancy between the actual population estimate and DOF's projections for 2010; if significant discrepancies are discovered, DWR may require some or all suppliers to update their baseline population estimates. (DWR, 2016b)

The EMID estimated its service area population for baseline periods spanning from 1996 through 2010 in the 2010 UWMP. Per the Methodologies, DWR examined the actual population estimates and the Department of Finance's (DOF's) projections for 2010, and is requiring that water suppliers recalculate their baseline population for the 2015 UWMPs using 2000 and 2010 Census data if a water supplier did not use 2010 Census data for its baseline population calculations in the 2010 UWMP. The EMID is subject to this requirement, as the full 2010 Census data set was not available until 2012, while EMID submitted its 2010 UWMP update in 2011. As a result, EMID must modify its baseline and target gallons per capita per day (GPCD) values in this UWMP.

In 2010, the population for the EMID service area was estimated using then-available Census data; the estimated population was 36,100. For the purposes of the 2015 UWMP, DWR's Population Tool was used to estimate historical population through 2015. The DWR Population Tool provides population estimates based on Census data, the number of service connections provided by EMID, and the geographic boundary of the EMID service area. The revised 2010 service area population is 33,749, as shown in Table 2-1. The EMID service area historical population values, as provided by the DWR Population Tool, for the baseline years are shown in Table 4-1 and are 3% to 12% lower than the historical population values used in the 2010 UWMP.

Using the DWR Population Tool, the 2015 population for the EMID service area is estimated to be 36,231. Outputs from the DWR Population Tool are included in Appendix G.



Table 4-1
SBx7-7 Service Area Population (DWR SBx7-7 Table 3)
 Estero Municipal Improvement District, California

Year		Population (a)
<i>10 to 15 Year Baseline Population</i>		
Year 1	1996	30,327
Year 2	1997	29,524
Year 3	1998	30,305
Year 4	1999	31,099
Year 5	2000	31,593
Year 6	2001	31,597
Year 7	2002	32,047
Year 8	2003	32,422
Year 9	2004	32,736
Year 10	2005	33,049
<i>5 Year Baseline Population</i>		
Year 1	2004	32,736
Year 2	2005	33,049
Year 3	2006	33,362
Year 4	2007	33,362
Year 5	2008	33,939
<i>2015 Compliance Year Population</i>		
	2015	36,231

Abbreviations:

DWR = California Department of Water Resources
 EMID = Estero Municipal Improvement District
 GIS = Geographic Information System
 SBx7-7 = Senate Bill x7-7

Notes:

(a) Service area population presented herein is estimated using the DWR Population Tool based on service area GIS data and number of connections data provided by EMID.



4.2 BASELINE WATER USE

To update the per capita water use calculations per DWR requirements, EMID used the revised population estimates described in Section 4.1 and the historical potable water demand information presented in the 2010 UWMP.⁸

Water suppliers must define a 10- or 15-year base (or baseline) period for water use that is then used to develop their future target per capita water use. Water suppliers must also calculate water use over a 5-year baseline period and use that value to determine a minimum required reduction in water use by 2020. Utilizing a 15-year baseline period is only allowed for water suppliers that meet at least 10% of their 2008 measured retail water demand through recycled water; the EMID does not meet this criterion and thus selected a 10-year baseline.

The 10-year baseline water use was calculated using gross per capita water usage data (calculated as total water entering the EMID water distribution system, including uses by commercial, industrial, and other users, as well as water losses, divided by total population) for the 10-year period between 1 July 1995 and 30 June 2005. The 5-year baseline water use was calculated using per capita water usage data for the 5-year period between 1 July 2003 and 30 June 2008. The updated 5- and 10-year baseline water uses are shown in Table 4-2 and in Appendix G.

⁸ Historical potable water demands were presented in Table 3 of the 2010 UWMP on a calendar year basis; however, baseline averages and water use targets in the 2010 UWMP were calculated using historical potable water demand values on a fiscal year basis. Values presented in Table 3-1 of this 2015 UWMP and used to calculate baseline averages and water use targets are presented on a fiscal year basis.



**Table 4-2
SBx7-7 Baselines and Targets (DWR Table 5-1) (a)**
Estero Municipal Improvement District, California

Baseline Period	Baseline Years		Average GPCD	SBx7-7 Targets	
	Start Year	End Year		2015	Confirmed
					Interim
10-15 Year	1996	2005	175	158	140
5-Year	2004	2008	162		

Abbreviations:

DWR = California Department of Water Resources

GPCD = gallons per capita per day

SBx7-7 = Senate Bill x7-7

Notes:

(a) This table is based on information provided in Appendix G, SBx7-7 Tables 1, 5, 7-A, 7-F, and 8.



4.3 WATER USE TARGETS

10608.20 (b) An urban retail water supplier shall adopt one of the following methods for determining its urban water use target pursuant to subdivision (a):

- (1) Eighty percent of the urban retail water supplier's baseline per capita daily water use.*
- (2) The per capita daily water use that is estimated using the sum of the following performance standards: (A) For indoor residential water use, 55 gallons per capita daily water use as a provisional standard. Upon completion of the department's 2016 report to the Legislature pursuant to Section 10608.42, this standard may be adjusted by the Legislature by statute. (B) For landscape irrigated through dedicated or residential meters or connections, water efficiency equivalent to the standards of the Model Water Efficient Landscape Ordinance set forth in Chapter 2.7 (commencing with Section 490) of Division 2 of Title 23 of the California Code of Regulations, as in effect the later of the year of the landscape's installation or 1992. An urban retail water supplier using the approach specified in this subparagraph shall use satellite imagery, site visits, or other best available technology to develop an accurate estimate of landscaped areas. (C) For commercial, industrial, and institutional uses, a 10-percent reduction in water use from the baseline commercial, industrial, and institutional water use by 2020.*
- (3) Ninety-five percent of the applicable state hydrologic region target, as set forth in the state's draft 20x2020 Water Conservation Plan (dated April 30, 2009). If the service area of an urban water supplier includes more than one hydrologic region, the supplier shall apportion its service area to each region based on population or area.*
- (4) A method that shall be identified and developed by the department, through a public process, and reported to the Legislature no later than December 31, 2010. The method developed by the department shall identify per capita targets that cumulatively result in a statewide 20-percent reduction in urban daily per capita water use by December 31, 2020. In developing urban daily per capita water use targets, the department shall do all of the following: (A) Consider climatic differences within the state. (B) Consider population density differences within the state. (C) Provide flexibility to communities and regions in meeting the targets. (D) Consider different levels of per capita water use according to plant water needs in different regions. (E) Consider different levels of commercial, industrial, and institutional water use in different regions of the state. (F) Avoid placing an undue hardship on communities that have implemented conservation measures or taken actions to keep per capita water use low.*

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

Water use targets were calculated in EMID's 2010 UWMP and are updated below based on the revised population estimates.

The Water Conservation Act requires that agencies calculate their 2020 water use targets (Targets) using one of the following four methods:

- Method 1: Eighty percent of the water supplier's baseline per capita water use;

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- Method 2: Per capita daily water use estimated using the sum of performance standards applied to indoor residential use, landscaped area water use, and commercial, industrial, and institutional uses;
- Method 3: Ninety-five percent of the applicable state hydrologic region target as stated in the State's 20x2020 Water Conservation Plan, dated February 2010; or
- Method 4: Total savings subtracted from baseline water use. Savings include metering savings, residential savings, commercial, industrial, and institutional savings, and landscape and water loss savings.

The 2020 Target may need to be adjusted further to achieve a minimum reduction in water use regardless of the target method (this is explained in Methodology 3). The CWC Section 10608.24 directs that water suppliers must compare their actual water use in 2020 with their calculated Target to assess compliance. In addition, water suppliers must comply with an "Interim Target" in 2015 which is established as the midpoint between the baseline water use and the 2020 Target. The years 2015 and 2020 are referred to in the Methodologies as compliance years.

The EMID's 2020 Target was calculated using Method 1 in 2010. Using the updated service area population listed in Table 4-1, the 2020 Target is recalculated using Method 1 as 140 GPCD, as shown in Table 4-2. The 2015 Interim Target is calculated as 158 GPCD, which is the mid-point between the 10-year baseline and the 2020 Target. Complete Target calculations are included in Appendix G.

The Water Conservation Act also contains a minimum allowable cutback in per capita water consumption. This minimum water use cutback is calculated as 95% of the EMID average water consumption between 2006 and 2010 (i.e., the 5-year baseline). The 5-year baseline water use is calculated as 162 GPCD; 95% of this is 154 GPCD (see Table 4-2 and Appendix G). Since the 2020 Target of 140 GPCD is less than 95% of the 5-year baseline, the selected 2020 Target meets the compliance criteria.



4.4 2015 TARGET COMPLIANCE

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

10608.24 (d) (1) When determining compliance daily per capita water use, an urban retail water supplier may consider the following factors:

- (A) Differences in evapotranspiration and rainfall in the baseline period compared to the compliance reporting period.*
- (B) Substantial changes to commercial or industrial water use resulting from increased business output and economic development that have occurred during the reporting period.*
- (C) Substantial changes to institutional water use resulting from fire suppression services or other extraordinary events, or from new or expanded operations, that have occurred during the reporting period.*

(2) If the urban retail water supplier elects to adjust its estimate of compliance daily per capita water use due to one or more of the factors described in paragraph (1), it shall provide the basis for, and data supporting, the adjustment in the report required by Section 10608.40.

10608.40. Urban water retail suppliers shall report to the department on their progress in meeting their urban water use targets as part of their urban water management plans submitted pursuant to Section 10631. The data shall be reported using a standardized form developed pursuant to Section 10608.52.

The CWC Section 10608.24 (a) directs that water suppliers must calculate their actual water use in 2015 to determine whether or not they have met their 2015 Interim Target and to assess their progress toward meeting their 2020 Target. Per the Methodologies (DWR, 2016b), there are several allowable adjustments that can be made to a supplier's 2015 per capita water use calculations as part of evaluating target compliance. However, no adjustments were made to EMID's 2015 per capita water use calculations.

As above, in 2015, actual water demand within the EMID service area was 1,453 million gallons (MG) and the service area population was 36,231. Therefore, the calculated per capita water use in 2015 was 110 GPCD, approximately 70% of EMID's 2015 Interim Target of 158 GPCD (Table 4-3). Therefore, EMID is in compliance with its 2015 Interim Target.

4.5 WATER USE REDUCTION PLAN

The actual water demand within the EMID service in Fiscal Year (FY) 2014-15 was well below the 2015 Interim Target. The actual water demand for calendar year (CY) 2015 was 104 GPCD (1,381 MG), which is even lower than the FY 2014-15 water demand and 2015 Interim Target. This is both due to water use cutbacks achieved during the recent drought and the conservation efforts that the EMID has supported during the past five years to reduce water use (see Section 8.3).

Between 2016 and 2020, a rebound in per capita water use is expected within the EMID service area if the severity of the current drought subsides and the anticipated growth in population and employment is realized. Per capita water use within the EMID service area is projected to be approximately 111 GPCD by 2020; this estimate is based on the population projections described in Section 2.1.1 and the future water demand projections described in Section 0. As such, based on the current planned growth within the EMID service area, and planned



Table 4-3
2015 SBx7-7 Compliance (DWR Table 5-2) (a)
 Estero Municipal Improvement District, California

Actual and Interim Target GPCD			
2015 Actual GPCD		2015 Interim Target	
110		158	
Optional Adjustments to 2015 GPCD			
Extraordinary Events	Economic Adjustment	Weather Normalization	Adjusted Actual 2015 GPCD
0	0	0	110
SBx7-7 Compliance			
Actual (or Adjusted Actual) 2015 GPCD as Percent of Target		In Compliance? (y/n)	
69.6%		YES	

Abbreviations:

DWR = California Department of Water Resources
 GPCD = gallons per capita per day
 SBx7-7 = Senate Bill x7-7

Notes:

(a) This table is based on information contained in Appendix G, SBx7-7 Tables 5, 8, and 9.

**ESTERO MUNICIPAL IMPROVEMENT DISTRICT
2015 URBAN WATER MANAGEMENT PLAN**

Public Review Draft – May 2016



implementation of water conservation programs, EMID is also expected to achieve compliance with its 2020 Target of 140 GPCD.

The EMID will continue to actively manage its per capita water use through implementation of demand management measures as discussed in Section 8.4. To the extent that EMID develops recycled water supplies or individual development projects implement on-site water recycling, as discussed in detail in Section 5, the projected future potable demands in 2040 are likely to be further reduced beyond the conservative estimates presented herein.



5. WATER SYSTEM SUPPLIES

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following: 10631. (b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a).

The Estero Municipal Improvement District (EMID) purchases all of its potable water from the San Francisco Public Utilities Commission (SFPUC or Commission) Regional Water System (RWS) in accordance with the 2009 Water Supply Agreement between the City and County of San Francisco and Wholesale Customers in Alameda, San Mateo and Santa Clara Counties, approved by the Commission on 28 April 2009.

To maintain consistency with the Urban Water Management Plans (UWMPs) prepared by the SFPUC and the other Bay Area Water Supply and Conservation Agency (BAWSCA) member agencies, much of the language describing the SFPUC wholesale water supply in the following sections is common language provided by BAWSCA, in coordination with the SFPUC.

5.1 SFPUC WHOLESAL WATER

This section describes the sources of wholesale water provided by SFPUC, and the process for allocating water between SFPUC, BAWSCA, and wholesale customers.

5.1.1 Description of Wholesale Water Supply

Approximately 85% of the water supply to the SFPUC RWS originates in the Hetch Hetchy watershed, located in Yosemite National Park, and flows down the Tuolumne River into the Hetch Hetchy Reservoir. Water from the Hetch Hetchy watershed is managed through the Hetch Hetchy Water and Power Project. The remaining 15% of the water supply to the SFPUC RWS originates locally in the Alameda and Peninsula watersheds and is stored in six different reservoirs in Alameda and San Mateo Counties. Details of the various components of the SFPUC RWS are provided below and are shown on Figure 5-1. Information regarding the Hetch Hetchy, Alameda, and Peninsula water systems is largely sourced from the SFPUC and BAWSCA websites and common language provided by BAWSCA.

The RWS, shown in Figure 5-1, consists of more than 280 miles of pipeline and 60 miles of tunnels, 11 reservoirs, five pump stations, and two water treatment plants. It is geographically delineated between the Hetch Hetchy Project and the Bay Area water system facilities. The Hetch Hetchy Project is generally composed of the reservoirs, hydroelectric generation and transmission facilities, and water transmission facilities from the Hetch Hetchy Valley west to the Alameda East Portal of the Coast Range Tunnel in Sunol Valley. Water system components of the Hetch Hetchy Project are also referred to as the Hetch Hetchy System. The local Bay Area water system is comprised of two parts—the Alameda System and the Peninsula System—generally consisting of the facilities west of Alameda East Portal, including the 63,000-acre Alameda and Peninsula watersheds, storage reservoirs, two water



Path: X:\B60003\Maps\2016\05\Fig5-1_EMID_SFPUC_RegionalWaterSystem.mxd

Abbreviations

SFPUC = San Francisco Public Utilities Commission
 SFO = San Francisco Airport

Sources

SFPUC draft 2015 Urban Water Management Plan, in development.

Notes

1. All locations are approximate.
2. Not to scale.
3. Three pump stations on Treasure Island are not depicted.
4. The water service area of the SFPUC Regional Water System is approximate and for illustrative purposes only.

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SFPUC Regional Water System

Esterro Municipal Improvement District
 2015 Urban Water Management Plan
 Foster City, CA
 May 2016

DRAFT

EKI B30006.00
 Figure 5-1



treatment plants, and the distribution system that delivers water to retail and wholesale customers.

5.1.1.1 Hetch Hetchy Watershed and System

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

5.1.1.2 Alameda Watershed and System

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

5.1.1.3 Peninsula Watershed and System

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

5.1.1.4 Water Treatment

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



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

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

5.1.1.5 Water Storage

The majority of the water delivered by the SFPUC is supplied by runoff from the upper Tuolumne River watershed on the western slope of the central Sierra Nevada. Three major reservoirs collect runoff: Hetch Hetchy Reservoir, Lake Lloyd, and Lake Eleanor (see table below). A "water bank" in Don Pedro Reservoir is integrated into system operations.⁹ Don Pedro Reservoir is jointly owned and operated by Modesto Irrigation District and Turlock Irrigation District (the Districts), and is located on the Tuolumne River downstream of the Hetch Hetchy System.

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

⁹ Turlock and Modesto Irrigation Districts have senior water rights to the SFPUC for the Tuolumne River water and are entitled to the first increment of flow in the basin. Water bank provides a credit and debit system which allows the SFPUC to divert water upstream while meeting its obligations to Modesto and Turlock Irrigation Districts. Through this mechanism the SFPUC may pre-deliver the Districts entitlements and credit the water bank so that at other times the SFPUC may retain water upstream while the Districts debit water bank.



Regional Water System Storage Capacity

Reservoir	Storage	
	Acre-Foot (AF)	Billions of Gallons (BG)
Up-Country ^a		
Hetch Hetchy	360,360	117.4
Lake Lloyd ^b	273,300	89.1
Lake Eleanor	27,100	8.8
Subtotal Up-Country	660,760	215.3
Local		
Calaveras (East Bay) ^c	96,800	31.5
San Antonio (East Bay)	50,500	16.5
Crystal Springs (Peninsula) ^d	69,300	22.6
San Andreas (Peninsula)	19,000	6.2
Pilarcitos (Peninsula)	3,100	1.0
Subtotal Local	238,700	77.8
Total Regional Water System^e	899,460	293.1
<p>a Three other regulating reservoirs are also part of the RWS: Early Intake, Priest, and Moccasin Reservoirs.</p> <p>b Storage capacity shown includes flashboards, which are structures placed in a spillway to increase the capacity of a reservoir.</p> <p>c Calaveras Reservoir was constructed with a storage capacity of 96,800 AF. Since December 2001, in response to safety concerns about the seismic stability of the dam and a directive from the Division of Safety of Dams (DSOD), the SFPUC has held the maximum water level at approximately 37,800 AF (roughly 40% of its maximum capacity), pending construction of a new comparably sized replacement dam downstream, expected to be completed in 2018.</p> <p>d Crystal Springs Reservoir has a maximum storage capacity of 22.1 BG (at 291.8 feet). When the Lower Crystal Springs Dam Improvement is complete, the reservoir will be operated normally at 287.8 feet (4 feet below capacity) based on permit conditions.</p> <p>e This includes 63,700 AF in dead storage (i.e., the volume in a reservoir below the lowest controllable level). In addition, the SFPUC may draw against a credit of up to 570,000 AF in storage in a water bank account in Don Pedro Reservoir, for total storage for planning purposes of 1,469,460 AF.</p>		



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

Calaveras Reservoir is currently operating at one-third of its capacity due to restrictions imposed by the Division of Safety of Dams (DSOD). The Calaveras Dam Improvement Project is currently in construction to return the reservoir to its full capacity.

5.1.2 Individual Supply Guarantees

San Francisco has a perpetual commitment (Supply Assurance) to deliver 184 mgd to the 24 permanent wholesale customers collectively. San Jose and Santa Clara are not included in the Supply Assurance commitment and each has temporary and interruptible water supply contracts with San Francisco. The Supply Assurance is allocated among the 24 permanent wholesale customers through Individual Supply Guarantees (ISG), which represent each wholesale customer's allocation of the 184 mgd Supply Assurance.

The EMID's Individual Supply Guarantee (ISG) is 5.9 million gallons per day (MGD), or approximately 2,154 million gallons (MG) per year (see Table 5-1). Between 2011 and 2015, the EMID purchased between 67% and 79% of its ISG.

5.1.3 2018 Interim Supply Limitation

As part of its adoption of the Water System Improvement Program (WSIP) in October 2008, discussed separately herein, the SFPUC adopted a water supply limitation, the Interim Supply Limitation (ISL), which limits sales from San Francisco Regional Water System (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, as further discussed below, the WSA provides a framework for administering the ISL.

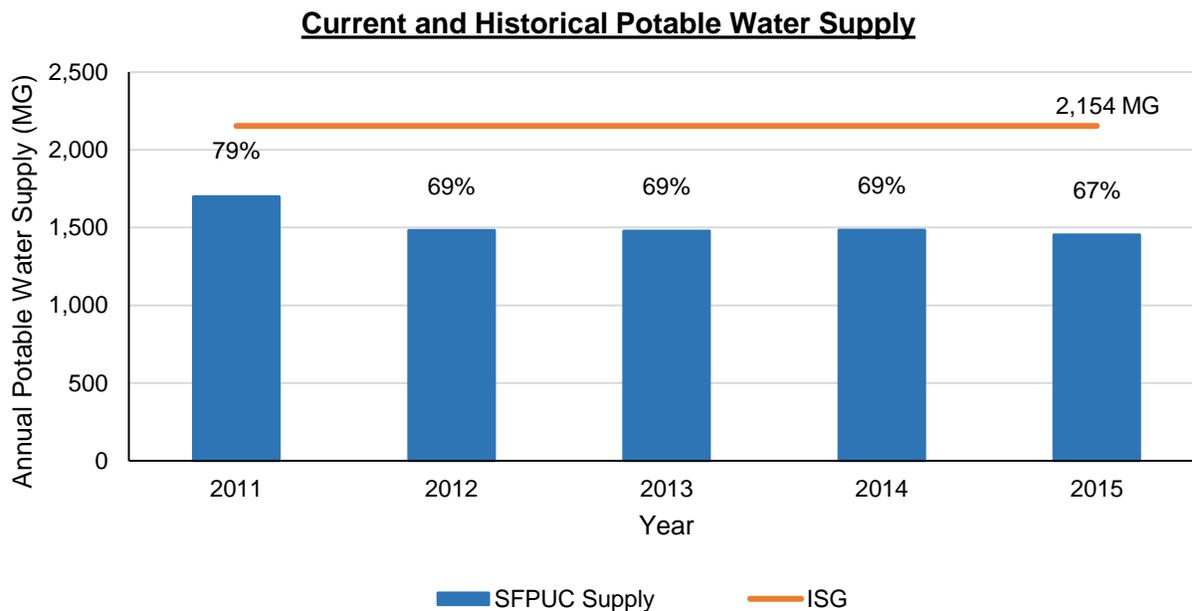
5.1.4 Interim Supply Allocations

The Interim Supply Allocations (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 Individual Supply Guarantees, both discussed separately herein. San Francisco's ISA is 81 mgd.



Table 5-1
Current and Historical Potable Water Supply (DWR Table 6-8)
 Estero Municipal Improvement District, California

Potable Water Source	Annual Production (MG)				
	2011	2012	2013	2014	2015
<i>Imported Water</i>					
SFPUC	1,700	1,483	1,479	1,484	1,453
% of ISG (a)	79%	69%	69%	69%	67%
Total	1,700	1,483	1,479	1,484	1,453



Abbreviations:

DWR = California Department of Water Resources
 EMID = Estero Municipal Improvement District
 ISG = Individual Supply Guarantee
 MG = million gallons
 MGD = million gallons per day
 SFPUC = San Francisco Public Utilities Commission

Notes:

- (a) The annual water supply values for 2011 through 2015 are based on monthly wholesale water meter readings, on a fiscal year basis
- (b) The EMID has an ISG of 5.9 MGD, or approximately 2,154 MG per year. The EMID's ISA through 2018 is 5.85 MGD, or approximately 2,135 MG per year, but this ISA is only triggered when the demand on the SFPUC Regional Water System as a whole exceeds 265 MGD, and then it only means that EMID would be charged an environmental surcharge for any incremental use over its ISA.



As stated in the WSA, the wholesale customers do not concede the legality of the Commission'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.

The EMID's ISA is 5.85 MGD, or approximately 2,135 MG per year.

5.1.5 Environmental Enhancement Surcharge

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

5.1.6 2018 SFPUC Decisions

In the WSA, there are three decisions the SFPUC committed to making before 2018 that will affect water supply development:

Whether or not to make the cities of San Jose and Santa Clara permanent customers,

Whether or not to supply the additional unmet supply needs of the wholesale customers beyond 2018, and

Whether or not to increase the wholesale customer Supply Assurance above 184 mgd.

Additionally, there have been recent changes to instream flow requirements and customer demand projections that will affect water supply planning beyond 2018. As a result, the SFPUC has developed a Water Management Action Plan (Water MAP) to provide necessary information to address the 2018 decisions and to begin developing a water supply program for the 2019 to 2035 planning horizon. The water supply program will enable the SFPUC to continue to meet its commitments and responsibilities to wholesale and retail customers, consistent with the priorities of the SFPUC.

The Water MAP was presented by the SFPUC staff to its Commission in May 2016. The discussion resulting from the questions described in the Water MAP will help guide the water supply planning objectives through 2035. While the Water MAP is not a water supply program, it presents pertinent information that will help develop the SFPUC's future water supply planning program. At this time, and for purposes of long-term planning, it is assumed that deliveries from the RWS to San Francisco's wholesale customers will not be in excess of 184 mgd.



5.2 GROUNDWATER

To date, EMID has not utilized groundwater as a potable water source (i.e., as described above, the sole source of EMID's potable water has been wholesale water supplied by the SFPUC RWS) and does not expect to utilize groundwater as a regular potable water source in the future.

5.2.1 Groundwater Basin Description

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

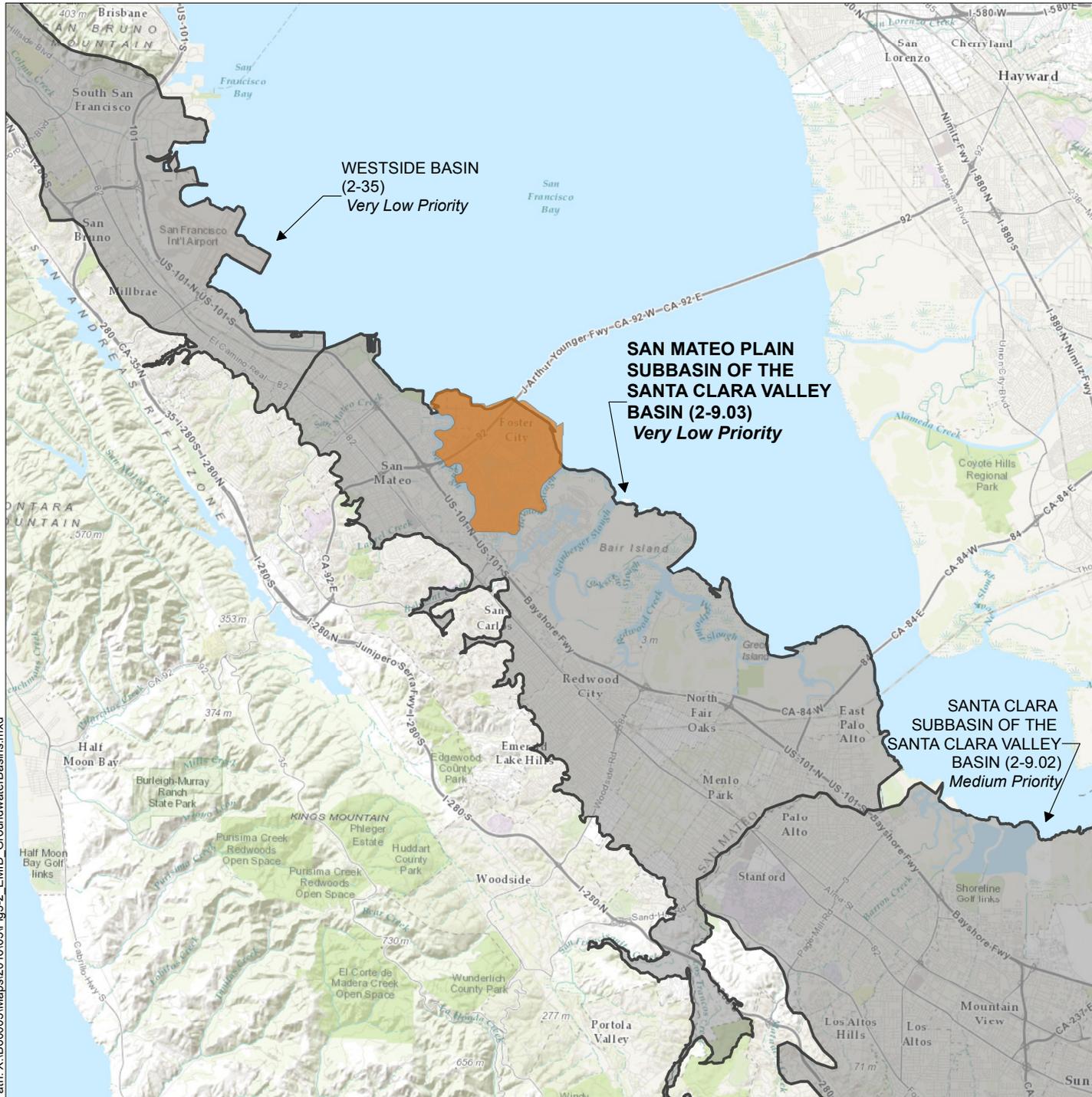
10631 (b) If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan: (2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

The EMID overlies the northern portion of the San Mateo Plain Groundwater Subbasin (groundwater basin number 2-9.03; DWR, 2004; or “subbasin”) of the Santa Clara Valley Groundwater Basin. The subbasin is not adjudicated, nor has it been found by the Department of Water Resources (DWR) to be in a condition of overdraft. As part of the implementation of the Sustainable Groundwater Management Act (SGMA), the subbasin was ranked as a “very low priority”¹⁰ basin under the California Statewide Groundwater Elevation Monitoring (CASGEM) basin prioritization process and is therefore not subject to the requirements of SGMA.

The subbasin spans 48,100 acres in area. It is bounded by the Santa Cruz Mountains on the west, San Francisco Bay and the Niles Cone subbasin on the east, the Westside Basin on the north near Burlingame Avenue and Coyote Point, and the San Francisquito Creek and the Santa Clara subbasin to the south. Figure 5-2 shows the subbasin boundary, the surrounding subbasins of the Santa Clara Valley Groundwater Basin, and the location of the EMID service area within the subbasin.

The subbasin is filled with alluvial fan deposits formed by tributaries to San Francisco Bay that drained across the basin and toward the center of the Bay (RWQCB, 2003). These alluvial fan deposits are interbedded with thick clay aquitards or confining layers and comprise the main water bearing formations within the subbasins. The major water bearing formation of the subbasin is the Quaternary alluvium, from which all larger yielding wells acquire their water. The

¹⁰ San Mateo subbasin CASGEM summary, http://www.water.ca.gov/groundwater/casgem/pdfs/basin_prioritization/NCRO%2060.pdf accessed on 23 February 2016.



(Approximate Scale in Miles)

Legend

- DWR Bulletin 118 Groundwater Basins
- EMID

Abbreviations

- CASGEM = California Statewide Groundwater Elevation Monitoring Program
- DWR = Department of Water Resources
- EMID = Estero Municipal Improvement District

Notes

1. All locations are approximate.
2. Priority rankings from CASGEM groundwater basin prioritization, June 2014.
3. Critically overdraft basins from DWR Final List of Critically Overdrafted Basins, January 2016.

Sources

World Topographic base map provided by ArcGIS Online (ESRI, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBease, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, OpenStreetMap contributors, and the GIS User Community), obtained 5 May 2016.

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Groundwater Basins in the Vicinity
of the EMID Service Area

Estero Municipal Improvement District
2015 Urban Water Management Plan
Foster City, CA
May 2016

DRAFT EK1 B60003.00
Figure 5-2

Path: X:\1660003\Maps\2016\05\Fig5-2_EMID_GroundwaterBasins.mxd



Santa Clara Formation underlies the Quaternary alluvium and is the other water bearing formation of the subbasin.

Generally, groundwater flow in the subbasin is from the western uplands area to the northeast toward the San Francisco Bay. Both the southern and eastern edges of the subbasin are political boundaries that are roughly coincident with County lines, rather than physical hydrogeologic barriers to groundwater flow (RWQCB, 2003; Fio and Leighton, 1995). Depending upon streamflow, recharge, and pumping conditions, groundwater flow likely occurs in interchangeable directions across each boundary.

Natural recharge occurs by infiltration of water from streams that enter the valley from the upland areas within the drainage basin, including the San Francisquito and San Mateo Creeks, by percolation of precipitation that falls directly on the valley floor, and by infiltration of applied irrigation water. Subbasin outflows include limited municipal and private well pumping and groundwater outflows across subbasin boundaries.

5.2.2 Groundwater Management

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

10631. (b) If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan: (1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.

Per SGMA, groundwater basins that are designated as high or medium priority must be managed to achieve sustainability within a set timeframe. As stated above, the subbasin is currently designated by DWR as a very low priority basin and is currently exempt from complying with SGMA. The DWR will complete a basin re-ranking process in 2017¹¹, at which time the subbasin prioritization may change to reflect the planned increased dependence on groundwater within the subbasin.

The City of East Palo Alto, because of its limited SFPUC RWS supplies and lack of emergency storage and fire flow, has been particularly active in its pursuit of groundwater development. In support of this effort, East Palo Alto recently adopted the first Groundwater Management Plan for its portion of the subbasin (Todd Engineers, 2015).¹² While this is a positive first step towards subbasin management, there has been widespread agreement among the overlying water suppliers and other interested parties that cooperative, sustainable groundwater management of the entire subbasin is needed. Several entities (e.g., Menlo Park, East Palo Alto, Atherton, Palo Alto, and the Santa Clara Valley Water District (SCVWD)) have passed

¹¹ Under SGMA, basin prioritization rankings will be updated every time Bulletin 118 basin boundaries are revised. Two Bulletin 118 updates are anticipated within the next five years: an interim update in late 2016/2017 and a comprehensive update in 2020.

¹² http://www.water.ca.gov/groundwater/docs/GWMP/SF-7_CityofEastPaloAlto_GWMP_2015.pdf accessed on 23 February 2016.



resolutions in support of cooperative, sustainable management of the subbasin. In addition, BAWSCA recently initiated work with San Mateo County and its member agencies to form the Groundwater Reliability Partnership (GRP) with the stated goals of: (1) increasing knowledge of the subbasin's geology and hydrology; (2) facilitating information sharing through a series of public forums; and (3) supporting the continued sustainable management of the subbasin's groundwater. Further, San Mateo County has initiated work on a comprehensive groundwater assessment of the subbasin to increase scientific understanding of the subbasin and to support future groundwater management.¹³

5.2.3 Historical Groundwater Use

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

10631. (b) If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan: (3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

As discussed above, the EMID has not historically used groundwater as a potable water source (see Appendix A, DWR Table 6-1).

5.2.4 Projected Future Groundwater Use

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

10631. (b) If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan: (4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

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

10631. (b) If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan: (3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

The EMID purchases all of its potable water from the SFPUC RWS and there are no plans to use groundwater as a supplemental potable water supply source in the future (see Table 5-3).

¹³ <http://green.smcgov.org/groundwater-sustainability>, accessed on 23 February 2016.



5.3 WASTEWATER AND RECYCLED WATER

Recycling water involves treating wastewater to an acceptable level such that it can be reused for irrigation, cooling, and other non-potable applications. A key benefit of water recycling is its potential to offset the use of potable supplies. The regulatory requirements for recycled water are defined in the California Code of Regulations, Title 22, Article 3 (Title 22) and differ for different uses (e.g. irrigation for food crops, landscape, and recreation). Because recycled water is treated wastewater, its availability is closely linked to the location and treatment capability of the wastewater treatment plant that receives and treats wastewater from a water supplier's service area. The EMID does not currently use recycled water. The following section describes wastewater collection and treatment for the EMID service area and potential future uses of recycled water.

5.3.1 Coordination

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

As described in Section 1.2.3, the EMID is coordinating with the City of San Mateo to assess potential options for recycled water. The sections below summarize the EMID's efforts with respect to recycled water planning and use.

5.3.2 Wastewater Collection, Treatment, and Disposal

*10633. (a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.
10633. (b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.*

Wastewater in the EMID service area is collected by EMID/City of Foster City Public Works Department. The EMID collection system conveys wastewater to the San Mateo Wastewater Treatment Plant (WWTP), which is located within the City of San Mateo, just west of the Mariner's Island portion of the EMID service area, near the inlet of Seal Slough to the San Francisco Bay. Wastewater is currently treated at the WWTP to secondary standards and then discharged to the San Francisco Bay (Figure 2-2). The volume of wastewater collected from the EMID service area in 2015 was approximately 746 MG (Table 5-2).

The San Mateo WWTP is jointly owned by the Cities of Foster City and San Mateo through a Joint Powers Agreement (JPA). The City of San Mateo operates the WWTP as the lead agency of the JPA. The treatment processes at the San Mateo WWTP involve the following: primary sedimentation, aeration basins/activated sludge, secondary clarifiers, filtration (non-title 22, polishing), disinfection (sodium hypochlorite), biosolids thickening, biosolids heat treatment, anaerobic digestion, and vacuum filters (dewatering) (RMC, 2014). Discharge of the advanced



Table 5-2
Wastewater Collected Within Service Area in 2015 (DWR Table 6-2)
 Estero Municipal Improvement District, California

Wastewater Collection	
Name of Wastewater Collection Agency	EMID
Wastewater Volume Metered or Estimated?	Metered
Volume of Wastewater Collected in 2015 (MG)	746
Recipient of Collected Wastewater	
Name of Wastewater Treatment Agency Receiving Collected Wastewater	City of San Mateo
Treatment Plant Name	San Mateo Wastewater Treatment Plant
Is WWTP Located Within UWMP Area?	No
Is WWTP Operation Contracted to a Third Party? (b)	No

Abbreviations:

DWR = California Department of Water Resources
 EMID = Estero Municipal Improvement District
 MG = million gallons
 WWTP = wastewater treatment plant

Notes:

- (a) The volume of wastewater collected within the service area is estimated using information provided by EMID, which includes wastewater flows through September 2015. Wastewater collected from January through September 2015 was 99% of the flow collected from January through September 2014. Therefore, the volume of wastewater collected in 2015 is assumed to be consistent with the volume collected in 2014.
- (b) The San Mateo WWTP is jointly owned by the Cities of San Mateo and Foster City through a joint powers agreement; under this agreement, the WWTP is operated by the City of San Mateo.



secondarily-treated effluent is permitted by the San Francisco Regional Water Quality Control Board (RWQCB). No wastewater is treated or disposed of within the EMID service area (see Appendix A, DWR Table 6-3).

The EMID and the City of San Mateo are currently working together to evaluate the feasibility of adding tertiary treatment to the San Mateo WWTP in order to be able to serve tertiary-treated, unrestricted use recycled water under Title 22 for reuse water in the future (RMC, 2014).

5.3.3 Current Recycled Water Use

10633. (c) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.

Currently there is no recycled water use within the EMID service area (see Appendix A, DWR Table 6-4).

5.3.4 Comparison of Previously Projected Use and Actual Use

10633. (e) A description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

Currently there is no recycled water use in the EMID service area and there were no recycled water use projections made for 2015 in previous EMID UWMPs (see Appendix A, DWR Table 6-5).

5.3.5 Potential and Projected Uses of Recycled Water

10633. (d) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

10633. (e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years.

The EMID is in the initial phases of recycled water planning and has not developed recycled water use projections for the EMID service area (see Appendix A, DWR Table 6-4). However, a narrative description of potential future uses of recycled water is provided below.

In 2013, Foster City conducted a market assessment and conceptual project development for potential recycled water use in the EMID service area (RMC, 2013). The objectives of this study were to (1) estimate the quantity and types of potential recycled water customers within Foster City, (2) develop a conceptual recycled water distribution system to connect as many potential users as possible in a cost effective manner, and (3) estimate the capital and operations and maintenance (O&M) costs of the conceptual project (RMC, 2013). The study identified a



potential demand for 741 MG per year (2.03 MGD) of recycled water within the EMID service area; potential recycled water uses identified included landscape irrigation at parks, a golf course, roadway medians, home owner association (HOA) landscaped areas, business parks, and filling of ponds (RMC, 2013). The study estimated that the potential capital costs associated with the construction of recycled water treatment, distribution, and storage costs could be approximately \$11,935,000 and that the ongoing operations and maintenance costs associated with the treatment and distribution systems would be approximately \$129,000 per year (RMC, 2013).

In 2014, EMID and City of San Mateo jointly submitted a Water Recycling Facilities Planning Grant Application to the SWRCB Division of Financial Assistance, Office of Water Recycling (RMC, 2014). The Recycled Water Feasibility Study Plan of Study associated with the grant application proposed to develop a facilities plan for a potential recycled water treatment and distribution system to serve recycled water users within both Foster City and San Mateo (RMC, 2014). The grant was awarded, and the first phase of the facilities plan, specifically a revised Market Assessment, was completed in 2015 (HydroScience, 2015). This updated market assessment identified sixteen major potential recycled water customers within Foster City, with a total potential recycled water demand of 138 MG per year (0.38 MGD) (HydroScience, 2015).

5.3.6 Promoting Recycled Water Use

10633. (f) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.

10633. (g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

The EMID and City of San Mateo are continuing to evaluate the feasibility of a recycled water facility and distribution system. Recycled water use projections have not been developed at this initial feasibility assessment stage. If the facilities plan moves ahead, it is anticipated that EMID and the City of San Mateo would consider adopting of recycled water requirements for new development projects that meet certain criteria and that such new buildings may be dual plumbed for the future use of recycled water, once it is available in the area (see Appendix A, DWR Table 6-6).

5.4 DESALINATED WATER

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

10631 (i) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

Opportunities to develop desalinated water supplies from ocean water, brackish surface, and brackish groundwater are being investigated by the BAWSCA as part of Phase II of its Long Term Reliable Water Supply Strategy (Strategy, see Section 6.1). According to BAWSCA, there



are high costs and intensive permitting requirements associated with desalination, however, it does potentially provide a substantial yield given the limited options for generating significant new water supplies for the region. Aside from its support to date for the development of BAWSCA's Strategy, the EMID is not pursuing desalination at this time.

5.5 WATER TRANSFERS

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

10631(d) Describe the opportunities for exchanges or transfers of water on a short-term or

There are potential transfer and exchange opportunities within and outside of the SFPUC RWS. The EMID does not presently anticipate the need for water right transfers during normal year conditions. However, should that condition change in the future, it is possible that EMID could purchase water from another agency or entity either within or outside of the SFPUC RWS.

Within the SFPUC RWS, it is possible to transfer water entitlements and / or banked water among agencies. The Water Shortage Allocation Plan (WSAP) adopted by all BAWSCA agencies and the SFPUC provides the basis for voluntary transfers of water among BAWSCA agencies during periods when mandatory rationing is in effect on the SFPUC RWS (see Section 6.3.1). Some BAWSCA agencies have the capacity to rely on groundwater or other sources during dry years and thus may be willing to transfer a portion of their wholesale water entitlement to other BAWSCA agencies in need of supply above their allocations.

Securing water from willing sellers outside the SFPUC RWS is a more complex process than transfers within the RWS, which requires both a contract with the seller agency and approval by the SFPUC. BAWSCA has the authority to plan for and acquire supplemental water supplies, and continues to evaluate the feasibility of water transfers as part of its implementation of the Strategy (see Section 6.1).

5.6 POTENTIAL WATER SUPPLY PROJECTS AND PROGRAMS

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

10631 (h) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single dry, and multiple dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

This section lists the water supply projects that may be undertaken by EMID. The effects of these projects on EMID's long-term water supply are not quantifiable at this point in time, therefore only narrative descriptions are provided below (see Appendix A, DWR Table 6-7).



5.6.1 Water Distribution System Master Plan Study

The EMID plans to solicit proposals to perform a Water Distribution System Master Plan Study in 2016. The EMID's water infrastructure system was constructed in the early 1960's and is maintained via an active Capital Improvement Program (CIP) to replace water valves, water meters, and water pumps. Among other things, EMID's goal in developing a comprehensive Water Distribution System Master Plan is to identify deficiencies and prioritize repairs to be included in the long-range (i.e., 20-year) CIP. The EMID is planning to develop a Water Distribution System Master Plan beginning in 2017.

5.6.2 Recycled Water

As described in Section 5.3.5, the feasibility of delivering recycled water to the EMID service area is being jointly evaluated by EMID and the City of San Mateo. The San Mateo WWTP may potentially be upgraded to serve tertiary treated water to customers in the EMID service area, as well as other parts of the City of San Mateo. A recent market assessment identified a potential recycled water demand by major customers within the City of Foster City of 138 MG per year (HydroScience, 2015).

5.7 SUMMARY OF EXISTING AND PLANNED SOURCES OF WATER

10631. (b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision 10631(a).

10631. (b) (4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

The EMID purchases potable water from the SFPUC RWS to meet all of the water demands within the EMID service area. The EMID purchased approximately 4.0 MGD in 2015 from the SFPUC RWS (1,453 MG per year, Table 5-1).

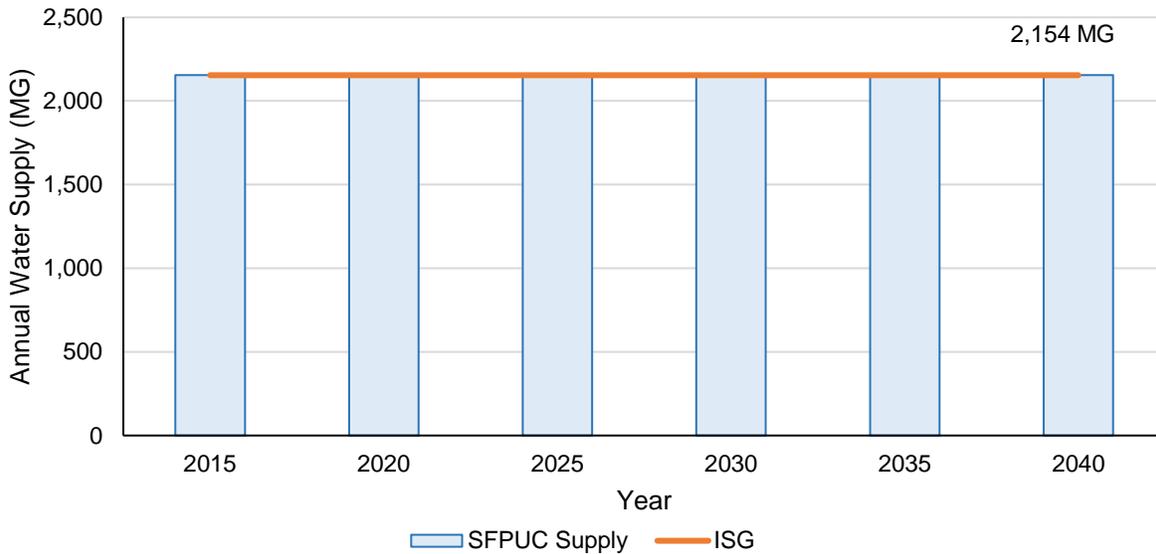
The EMID plans to continue to purchase wholesale water from the SFPUC RWS and does not anticipate developing additional long-term potable water supplies from other sources in the near future. Water supplies from the SFPUC RWS through 2040 are projected to be equivalent to EMID's ISG of 2,154 MG, which is EMID's contractual entitlement to SFPUC wholesale water, which survives in perpetuity. The EMID's total water supply projections are shown in Table 5-3 in five-year increments through 2040.



**Table 5-3
Current and Projected Potable Water Supply (DWR Table 6-9)**
Estero Municipal Improvement District, California

Potable Water Source	Current and Projected Potable Water Supply (MG)					
	2015	2020	2025	2030	2035	2040
<i>Imported Water</i>						
SFPUC	2,154	2,154	2,154	2,154	2,154	2,154
	2,154	2,154	2,154	2,154	2,154	2,154

Current and Projected Potable Water Supply Entitlements



Abbreviations:

DWR = California Department of Water Resources
 EMID = Estero Municipal Improvement District
 ISA = Interim Supply Allocation
 ISG = Individual Supply Guarantee
 MG = million gallons
 SFPUC = San Francisco Public Utilities Commission

Notes:

- (a) Water supply available to EMID during a normal year is assumed to be equal to EMID's ISG. The EMID has an ISG of 5.9 MGD, or approximately 2,154 MG per year. The EMID's ISA through 2018 is 5.85 MGD, or approximately 2,135 MG per year, but this ISA is only triggered when the demand on the SFPUC Regional Water System as a whole exceeds 265 MGD, and then it only means that EMID would be charged an environmental surcharge for any incremental use over its ISA.



6. WATER SUPPLY RELIABILITY

10631. (c)(2) For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.

10620 (f). An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

As described in Section 5, all of Estero Municipal Improvement District's (EMID's) potable water supply is purchased from the San Francisco Public Utilities Commission Regional Water System (SFPUC RWS). This section describes the constraints on that potable water supply (also referred to by SFPUC as "wholesale water"), as well as the management strategies that EMID and other affected agencies have employed or will employ to address these constraints. This section also provides an estimate of the supply volumes available to EMID and the corresponding supply and demand reliability assessments in normal years, single dry years, and multiple dry year periods. Information regarding the reliability of the SFPUC RWS was provided by Bay Area Water Supply and Conservation Agency (BAWSCA) in coordination with the SFPUC, and is presented verbatim below.

6.1 BAWSCA'S LONG TERM RELIABLE WATER SUPPLY STRATEGY

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

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

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

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

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



- The other potential regional projects provide tangible, though limited, benefit in reducing dry year shortfalls given the small average yields in drought years.

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 Strategy recommendations and results in conjunction with development of the work plan for the following year. In this way, actions can be modified to accommodate changing conditions and new developments.

6.2 RELIABILITY OF THE REGIONAL WATER SYSTEM

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

10631 (k) Urban water suppliers that rely upon a wholesale agency for a source of water, shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water -year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).

The SFPUC’s Water System Improvement Program (WSIP) provides goals and objectives to improve the delivery reliability of the Regional Water System (RWS) including water supply reliability. The goals and objectives of the WSIP related to water supply are:

Program Goal	System Performance Objective
Water Supply – <i>meet customer water needs in non-drought and drought periods</i>	<ul style="list-style-type: none"> • Meet average annual water demand of 265 million gallons per day (mgd) from the SFPUC watersheds for retail and wholesale customers during non-drought years for system demands through 2018. • Meet dry-year delivery needs through 2018 while limiting rationing to a maximum 20 percent system-wide reduction in water service during extended droughts. • Diversify water supply options during non-drought and drought periods. • Improve use of new water sources and drought management, including groundwater, recycled water, conservation, and transfers.



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

6.2.1 Water Supply – All Year Types

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

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

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

6.2.2 Water Supply – Dry-Year Types

The adopted WSIP includes the following water supply projects to meet dry-year demands with no greater than 20 percent system-wide rationing in any one year:

Calaveras Dam Replacement Project

Calaveras Dam is located near a seismically active fault zone and was determined to be seismically vulnerable. To address this vulnerability, the SFPUC is constructing a new dam of equal height downstream of the existing dam. The Environmental Impact Report was certified by the San Francisco City Planning Commission in 2011, and construction is now ongoing. Construction of the new dam is slated for completion in 2018; the entire project should be completed in 2019.

Alameda Creek Recapture Project

The Alameda Creek Recapture Project will recapture the water system yield lost due to instream flow releases at Calaveras Reservoir or bypassed around the Alameda Creek Diversion Dam and return this yield to the RWS through facilities in the Sunol Valley. Water that naturally infiltrates from Alameda Creek will be recaptured into an existing quarry pond known as SMP (Surface Mining Permit)-24 Pond F2. The project will be designed to allow the recaptured water to be pumped to the Sunol Valley Water Treatment Plant or to San Antonio Reservoir. The project's Draft Environmental Impact Report will be released in the spring of 2016, and construction will occur from spring 2017 to fall 2018.

Lower Crystal Springs Dam Improvements

The Lower Crystal Springs Dam Improvements were substantially completed in November 2011. While the project has been completed, permitting issues for reservoir operation have become significant. While the reservoir elevation was lowered due to Division of Safety of Dams restrictions, the habitat for the Fountain Thistle, an endangered plant, followed the lowered reservoir elevation. Raising the reservoir elevation now requires that new plant populations be



restored incrementally before the reservoir elevation is raised. The result is that it may be several years before the original reservoir elevation can be restored.

Regional Groundwater Storage and Recovery Project

The Groundwater Storage and Recovery Project is a strategic partnership between SFPUC and three San Mateo County agencies: the California Water Service Company (serving South San Francisco and Colma), the City of Daly City, and the City of San Bruno. The project seeks to balance the management of groundwater and surface water resources in a way that safeguards supplies during times of drought. During years of normal or heavy rainfall, the project would provide additional surface water to the partner agencies in San Mateo County, allowing them to reduce the amount of groundwater that they pump from the South Westside Groundwater Basin. Over time, the reduced pumping would allow the aquifer to recharge and result in increased groundwater storage of up to 20 billion gallons.

The project's Final Environmental Impact Report was certified in August 2014, and the project also received Commission approval that month. The well station construction contract Notice to Proceed was issued in April 2015, and construction is expected to be completed in spring 2018.

2 mgd Dry-year Water Transfer

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

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

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

6.2.3 Projected SFPUC Regional Water System Supply Reliability

The SFPUC has provided the attached table [Appendix H; Table 3] presenting the projected RWS supply reliability. This table assumes that the wholesale customers purchase 184 mgd from the RWS through 2040 and the implementation of the dry-year water supply projects included in the WSIP. The numbers represent the wholesale share of available supply during historical year types per the Tier One Water Shortage Allocation Plan. This table does not reflect any potential impact to RWS yield from the additional fishery flows required as part of Calaveras Dam Replacement Project and the Lower Crystal Springs Dam Improvements Project.



6.2.4 Impact of Recent SFPUC Actions on Dry Year Reliability

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

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

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

Water Deliveries in San Francisco Regional Water System Service Area¹⁴

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

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

¹⁴ Reference: SFPUC FY 9-10 and FY 2014-15 J-Tables Line 9 “Total System Usage” plus 0.7 mgd for Lawrence Livermore National Laboratory use and 0.4 mgd for Groveland. No groundwater use is included in this number. Non-revenue water is included.



reductions assigned by the State Water Resources Control Board. If current drought conditions worsen between 2015 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.

6.3 TIER 1 AND TIER 2 WATER SHORTAGE ALLOCATIONS

The following is a discussion regarding the Tier 1 Drought Allocation between SFPUC and BAWSCA and the Tier 2 Drought Allocation amongst the BAWSCA agencies. As above, this language was provide by BAWSCA in coordination with SFPUC and is presented verbatim below.

6.3.1 Tier 1 Drought Allocations

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

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

The Tier One Plan allocates water between San Francisco and the wholesale customers collectively based on the level of shortage:

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

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

The Tier One Plan applies only when the SFPUC determines that a system-wide water shortage exists and issues a declaration of a water shortage emergency under California Water Code Section 350. Separate from a declaration of a water shortage



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

6.3.2 Tier 2 Drought Allocations

The wholesale customers have negotiated and 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. This Tier Two allocation is based on a formula that takes into account multiple factors for each wholesale customer including:

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

The water 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 Individual Supply Guarantee, as stated in the WSA, and is fixed. The second component, the Base/Seasonal Component, is variable and is calculated using the monthly water use for three consecutive years prior to the onset of the drought for each of the wholesale customers for all available water supplies. The second component is accorded twice the weight of the first, fixed component in calculating the Allocation Basis. Minor adjustments to the Allocation Basis are then made to ensure a minimum cutback level, a maximum cutback level, and a sufficient supply for certain wholesale customers.

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

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

The current Tier Two Plan will expire in 2018 unless extended by the wholesale customers.



6.4 EMID SUPPLY RELIABILITY BY TYPE OF YEAR

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

10631. (c) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:

- (1) An average water year.*
- (2) A single dry water year.*
- (3) Multiple dry water years.*

The EMID's available water supply volume by type of year is shown in Table 6-1.

A normal year represents an averaged range of years that most closely represents the median water supply available to EMID. As discussed above, in accordance with the SFPUC's perpetual obligation to EMID's Supply Assurance, EMID has an Individual Supply Guarantee (ISG) of 5.9 million gallons per day (MGD), or 2,154 million gallons (MG) per year. The SFPUC is obligated to provide EMID with up to 100% of EMID's ISG during normal years.

Dry-year supply estimates are based on the delivery estimates provided by BAWSCA and SFPUC as part of the 2015 Urban Water Management Plan (UWMP) update process (SFPUC, 2016; BAWSCA, 2016; Appendix H) and per hypothetical application of the Tier 1 and Tier 2 allocation processes described above. While these are the best available data for use at this time, these supply reliability estimates do not take into account: (1) hydrologic data reflective of the recent historic drought of 2012-2015; (2) climate change impacts on the SFPUC RWS (see Section 6.7); and (3) potential delays in full completion of the Water System Improvement Program (WSIP) 2019 (see Section 6.2.1). These estimates further do not take into account the fact that the Tier 2 Plan will expire from its current form in 2018 unless the Wholesale Customers unanimously vote to extend it, and that, given the interdependencies built into the Tier 2 Plan, future drought allocations will be highly dependent on an agency's actual water use prior to the next drought and that of the other BAWSCA agencies.

As shown in Table 6-1, during single dry years between 2020 and 2040, the annual supply available to EMID is estimated to be reduced to 1,593 MG. During multiple dry years between 2020 and 2040, the annual supply available to EMID is estimated to be reduced to 1,593 MG during the first year of a multi-year drought and to 1,432 MG during the second and third years of a multi-year drought.

6.5 SUPPLY AND DEMAND ASSESSMENT

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



**Table 6-1
Basis of Water Year Data (DWR Table 7-1)
Estero Municipal Improvement District, California**

Year Type	Base Year (a)	Available Water Supplies if Year Repeats, 2020 to 2040			
		Volume Available to SFPUC Wholesale Customers (MGD)	EMID's Allocation Factor (b)	Volume Available to EMID (MGD) (b)	Annual Volume Available to EMID (MG)
Normal Year	FY 1987-88	184.0	--	5.90	2,154
Single Dry Year	FY 1989-90	152.6	2.9%	4.36	1,593
<i>Multiple Dry Years</i>					
Dry Year 1	FY 1989-90	152.6	3.0%	4.36	1,593
Dry Year 2	FY 1990-91	132.5	3.0%	3.92	1,432
Dry Year 3	FY 1991-92	132.5	3.0%	3.92	1,432

Abbreviations:

BAWSCA = Bay Area Water Supply and Conservation Agency
DWR = California Department of Water Resources
EMID = Estero Municipal Improvement District
MG = million gallons
MGD = million gallons per day
SFPUC = San Francisco Public Utilities Commission

Notes:

- (a) Base years and total deliveries to the SFPUC wholesale customers were obtained from Table 3 of Reference 1. A copy of Reference 1 is included in Appendix H.
- (b) Water supply available to EMID during a normal year is assumed to be equal to EMID's ISG. The EMID's allocation factor and the supply available to EMID during dry year types were provided by BAWSCA in Reference 2 (see Appendix H). The values were obtained per application of the Tier 1 and Tier 2 allocation processes described in the City's Water Supply Agreement and the BAWSCA Drought Implementation Plan.

References:

- (1) SFPUC, 2016. Regional Water System Long-Term Supply Reliability 2015-2040, letter to BAWSCA, 5 January 2016.
- (2) BAWSCA, 2016. UWMP Tier 2 Drought Implementation Plan Scenarios, email message to BAWSCA member agencies, dated 6 January 2016.



The EMID’s projected potable water demands are compared to potable water supply projections in normal years, single dry years, and multiple dry year periods, as presented in Tables 6-2 through 6-4. As described in Section 3.2.4, EMID’s future water demand was estimated accounting for future water savings as result of implementation of Plumbing Code impacts (i.e., “passive” conservation).

As shown in Table 6-2, demand within the EMID service area is not expected to exceed EMID’s ISG in any normal year between 2020 and 2040. As such, EMID is expected to have adequate water supplies during normal years to meet its projected demands through 2040.

During single-dry years, EMID’s demands are not expected to exceed the projected available water supply. As shown in Table 6-3, the projected demands in 2040 are approximately equal to the single-dry year supply (i.e., the projected demands are 99% of supply).

Beginning in 2020, it is projected that during multiple dry years, water supplies will be insufficient to meet total projected demands. During the second and third years of a multiple dry year period, EMID’s total annual water demand is estimated to exceed total annual supply by approximately 74 MG in 2020, which results in a projected total water supply shortfall of 5% (Table 6-4). This shortfall is projected to increase to approximately 142 MG by 2040, which results in a total water supply shortfall of 9% (Table 6-4).

During multiple dry years, EMID expects to meet these shortfalls through implementation of its Water Shortage Contingency Plan (see Section 7). However, as discussed in Section 3.2.1, the demand projections included herein are relatively conservative (i.e., they assume no savings from active water conservation programs to account for possible “demand hardening” effects). To the extent that the total future demands are lower than those projected herein, the resultant supply shortage will likely be smaller.

6.6 WATER QUALITY IMPACTS ON RELIABILITY

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

As discussed in Section 5, the majority of the water supply to the SFPUC RWS is from the Hetch Hetchy Reservoir in the Sierra Nevada Mountains. The Hetch Hetchy Reservoir is considered a very high quality water source due to low total dissolved solid (TDS) concentrations and other factors. Additional water supplies from the Alameda and Peninsula sources come from areas with restricted access to protect the source water quality.

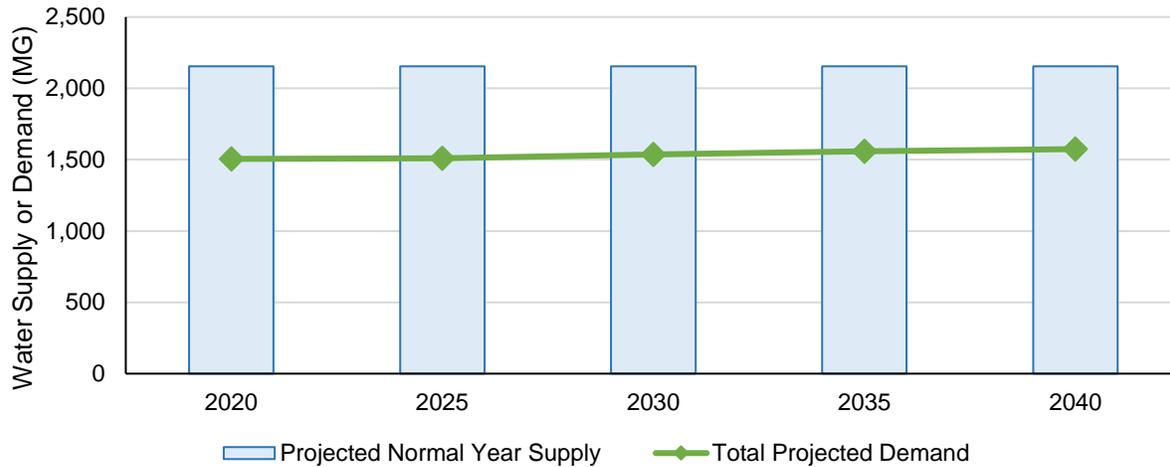
The SFPUC’s Water Quality Division (WQD) regularly collects and tests water samples from reservoirs and designated sampling points throughout the RWS to ensure that the SFPUC’s water meets or exceeds federal and state drinking water standards. In 2015, the WQD conducted more than 47,500 drinking water tests in the transmission and distribution systems. This is in addition to the extensive treatment process control monitoring performed by the SFPUC’s certified operators and online instruments. The SFPUC also has online instruments providing continuous water quality monitoring at numerous locations.



Table 6-2
Projected Supply Versus Demand for Normal Year Scenario (DWR Table 7-2)
Estero Municipal Improvement District, California

	Estimated Supply and Demand (MG) (a) (b)				
	2020	2025	2030	2035	2040
Total Projected Supply	2,154	2,154	2,154	2,154	2,154
Total Projected Demand	1,505	1,510	1,537	1,559	1,574
<i>Surplus or Deficit</i>	649	644	617	595	580
<i>Percent Shortfall</i>	--	--	--	--	--

Normal Year Supply vs. Demand



Abbreviations:

DWR = California Department of Water Resources
 EMID = Estero Municipal Improvement District
 ISG = Individual Supply Guarantee
 MG = million gallons

Notes:

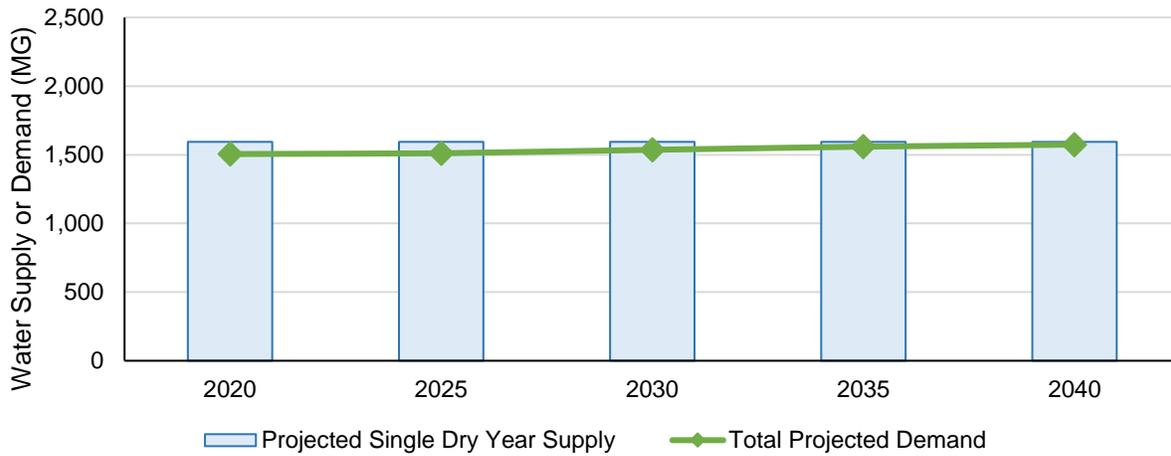
- (a) Projected available water supplies during normal years are assumed to be equal to EMID's ISG as listed in Table 6-1.
- (b) Values for projected water demand are summarized in Table 3-3.



Table 6-3
Projected Supply Versus Demand for Single Dry Year Scenario (DWR Table 7-3)
 Estero Municipal Improvement District, California

	Estimated Supply and Demand (MG) (a) (b)				
	2020	2025	2030	2035	2040
Total Projected Supply	1,593	1,593	1,593	1,593	1,593
Total Projected Demand	1,505	1,510	1,537	1,559	1,574
<i>Surplus or Deficit</i>	88	83	56	34	19
<i>Percent Shortfall</i>	--	--	--	--	--

Single Dry Year Supply vs. Demand



Abbreviations:

DWR = California Department of Water Resources
 MG = million gallons

Notes:

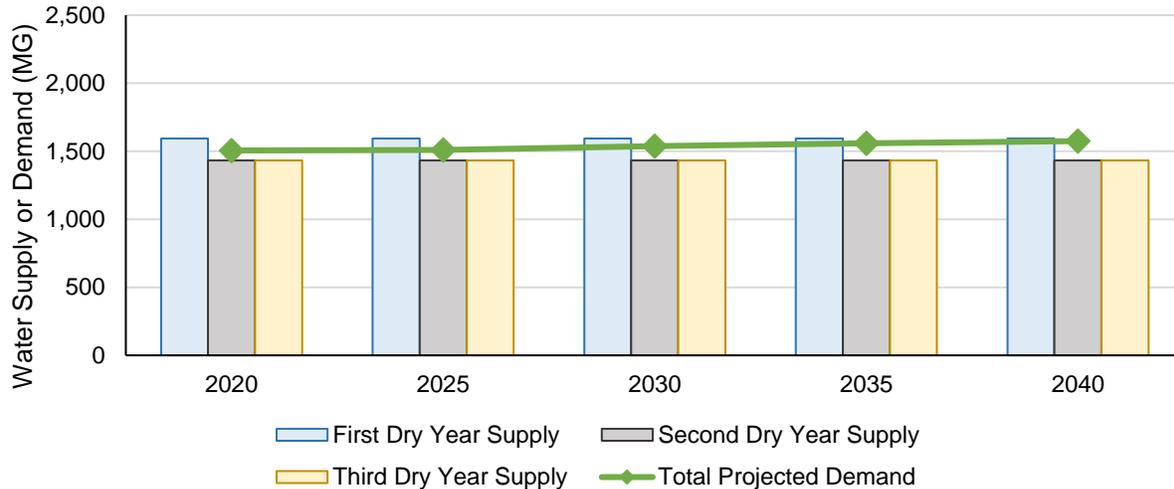
- (a) Projected available water supplies during single dry years are from Table 6-1.
- (b) Values for projected water demand are summarized in Table 3-3.



Table 6-4
Projected Supply Versus Demand for Multiple Dry Years Scenario (DWR Table 7-4)
 Estero Municipal Improvement District, California

	Estimated Supply and Demand (MG) (a) (b)				
	2020	2025	2030	2035	2040
<i>First Dry Year</i>					
Total Projected Supply	1,593	1,593	1,593	1,593	1,593
Total Projected Demand	1,505	1,510	1,537	1,559	1,574
Surplus or Deficit	88	83	56	34	19
Percent Shortfall	--	--	--	--	--
<i>Second Dry Year</i>					
Total Projected Supply	1,432	1,432	1,432	1,432	1,432
Total Projected Demand	1,505	1,510	1,537	1,559	1,574
Surplus or Deficit	-74	-78	-105	-127	-142
Percent Shortfall	5%	5.2%	7%	8%	9%
<i>Third Dry Year</i>					
Total Projected Supply	1,432	1,432	1,432	1,432	1,432
Total Projected Demand	1,505	1,510	1,537	1,559	1,574
Surplus or Deficit	-74	-78	-105	-127	-142
Percent Shortfall	5%	5%	7%	8%	9%

Multiple Dry Year Supply vs. Demand



Abbreviations:

DWR = California Department of Water Resources
 MG = million gallons

Notes:

- (a) Projected available water supplies during multiple dry years are from Table 6-1.
- (b) Values for projected water demand are summarized in Table 3-3.



Additionally, EMID collects water quality samples and monitors water quality within its own distribution system. A copy of the City of Foster City/EMID 2015 Water Quality Report, which contains water quality sampling data from 2015, and the SFPUC 2015 water quality report are included as Appendix I. As can be seen in Appendix I, all of the analyzed constituents were detected at concentrations below the Maximum Contaminant Level (MCL).

The results of EMID's and SFPUC's water quality assessments show that SFPUC RWS watersheds have very low levels of contaminants, and that those contaminants that are found at low levels are associated with wildlife and, to a limited extent, human recreation. For the purposes of this UWMP, it is anticipated that this high-quality potable water source will continue to be available to the EMID through the planning horizon ending in the year 2040. Water quality is expected to be similar for 2015, 2020, 2025, 2030, 2035, and 2040.

6.7 CLIMATE CHANGE IMPACTS TO SUPPLY

Information regarding the impacts of climate change to the SFPUC RWS supply was provided by BAWSCA in coordination with SFPUC and is provided verbatim below:

The issue of climate change has become an important factor in water resources planning in the State, and is frequently considered in urban water management planning purposes, though the extent and precise effects of climate change remain uncertain. 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 show 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, and numerous studies have been conducted to determine the potential impacts to water resources. Based on these studies, climate change could result in the following types of water resource impacts, including impacts on the watersheds in the Bay Area:

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

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



6.7.1 Bay Area Integrated Regional Water Management Plan

Climate change adaptation was established as an overarching theme for the 2013 BAIRWMP update. As stated in the BAIRWMP, identification of watershed characteristics that could potentially be vulnerable to future climate change is the first step in assessing vulnerabilities of water resources in the Bay Area Region (Region). Vulnerability is defined as the degree to which a system is exposed to, susceptible to, and able to cope with or adjust to, the adverse effects of climate change. A vulnerability assessment was conducted in accordance with the Department of Water Resources’ (DWR’s) Climate Change Handbook for Regional Water Planning and using the most current science available for the Region. The vulnerability assessment, 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	<p>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.</p>
Water Supply	<p>Imported Water – Imported water derived from the Sierra Nevada sources and Delta diversions provide 66 percent of the water resources available to the Region. Potential impacts on the availability of these sources resulting from climate change directly affect the amount of imported water supply delivered to the Region.</p> <p>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.</p> <p>Regional Groundwater – Changes in local hydrology could affect natural recharge to the local groundwater aquifers and the quantity of groundwater that could be pumped sustainably over the long-term in some areas. Decreased inflow from more flashy or more intense runoff, increased evaporative losses and warmer and shorter winter seasons can alter natural recharge of groundwater. Salinity intrusion into coastal groundwater aquifers due to sea-level rise could interfere with local groundwater uses. Furthermore, additional reductions in imported water supplies would lead to less imported water available for managed recharge of local groundwater basins and potentially more groundwater pumping in lieu of imported water availability.</p>



Vulnerability Areas	General Overview of Vulnerabilities
Water Quality	<p>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</p> <p>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.</p> <p>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.</p>
Sea-Level Rise	<p>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.</p> <p>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.</p> <p>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.</p>
Flooding	<p>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.</p> <p>Changes to precipitation regimes may increase flooding.</p> <p>Elevated Bay elevations due to sea-level rise will increase backwater effects exacerbating the effect of fluvial floods and storm drain backwater flooding.</p>



Vulnerability Areas	General Overview of Vulnerabilities
Ecosystem and Habitat	<p>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.</p> <p>Reduced rain and changes in the seasonal distribution of rainfall may alter timing of low flows in streams and rivers, which in turn would have consequences for aquatic ecosystems. Changes in rainfall patterns and air temperature may affect water temperatures, potentially affecting coldwater aquatic species.</p> <p>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.</p> <p>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.</p>
Hydropower	<p>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.</p> <p>Some hydropower is also produced within the region and could also be affected by changes in the timing and amount of runoff.</p>

Source: 2013 Bay Area Integrated Regional Water Management Plan (BAIRWMP), Table 16-3.

6.7.2 SFPUC Climate Change Studies

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

- With differing increases in temperature alone, the median annual runoff at Hetch Hetchy would decrease by 0.7-2.1 percent from present-day conditions



by 2040 and by 2.6-10.2 percent from present-day by 2100. Adding differing decreases in precipitation on top of temperature increases, the median annual runoff at Hetch Hetchy would decrease by 7.6-8.6 percent from present-day conditions by 2040 and by 24.7-29.4 percent from present-day conditions by 2100.

- In critically dry years, these reductions in annual runoff at Hetch Hetchy would be significantly greater, with runoff decreasing up to 46.5 percent from present day conditions by 2100 utilizing the same climate change scenarios.
- In addition to the total change in runoff, there will be a shift in the annual distribution of runoff. Winter and early spring runoff would increase and late spring and summer runoff would decrease.
- Under all scenarios, snow accumulation would be reduced and snow would melt earlier in the spring, with significant reductions in maximum peak snow water equivalent under most scenarios.

Currently, the SFPUC is planning to conduct a comprehensive assessment of the potential effects of climate change on water supply. The assessment will incorporate an investigation of new research on the current drought and is anticipated to be completed in late 2016 or early 2017.

6.8 WATER MANAGEMENT TOOLS

Per California Water Code Section 10631 (c)(2), water suppliers are required to describe the management strategies that have been, or will be, employed to address the constraints on water sources. The supply versus demand assessment presented in Section 6.5 indicates that, based on the delivery estimates of the SFPUC wholesale water and EMID's future water demand estimates, by 2040, EMID could be facing up to a 9% supply shortfall during the second and third years of a multiple dry year period.

It should be noted that EMID's future water demands have been prepared based on conservative assumptions, as described in Sections 3.2.1 and 3.2.4. In addition, to the extent that the EMID develops recycled water (Section 5.6) or that the projected population and/or employment growth are not realized, the total future potable demands within the EMID service area would be expected to be less and therefore the resultant supply shortage will likely be smaller. Additionally, EMID has been implementing, and plans to continue to implement, the demand management measures described in Section 8.

At a regional level, the EMID maintains active involvement in work that BAWSCA and the SFPUC are doing with respect to BAWSCA's Long Term Reliable Water Supply Strategy (see Section 6.1) and SFPUC's Water Management Action Plan, including supporting the investigation and pursuit of additional water supplies.

Further, in response to anticipated future dry-year shortfalls, EMID has developed a robust Water Shortage Contingency Plan that systematically identifies ways in which EMID can reduce water demands and augment supplies during dry years. The Water Shortage Contingency Plan is included in the following Section 7.



7. WATER SHORTAGE CONTINGENCY PLANNING

This section presents Estero Municipal Improvement District's (EMID's) Water Shortage Contingency Plan (WSCP), which has been developed to serve as a flexible framework of planned response measures to mitigate future water supply shortages. This WSCP builds upon and supersedes the 1993 WSCP that was presented in the 2010 Urban Water Management Plan (UWMP). The updated WSCP presented herein reflects lessons learned during the recent historic drought and is intended to improve EMID's ability to respond effectively and efficiently in the event of a future water supply shortage or emergency.

The EMID has authority within Chapter 8.60 of the EMID Code to require water rationing and conservation and to enforce penalties. EMID Code Chapter 8.60 is included as Appendix J of this UWMP.

7.1 GUIDING PRINCIPLE

The EMID developed this WSCP based on the following guiding principle:

This WSCP concentrates on the reduction of non-essential water uses such as landscape irrigation and other discretionary outdoor water use and gives the highest priority to preserving water uses that are essential to the health, safety, welfare, and economic vitality of EMID's customers.

Practically, this principle guides EMID to ask for a shared contribution from all of its customers towards meeting water reduction goals during periods of water shortage. It further directs EMID to focus its water conservation efforts on reducing discretionary water uses such as outdoor irrigation, while attempting to minimize economic and other impacts to its residential and commercial customers.

The 2015-2023 Housing Element for Foster City (City of Foster City, 2015) includes the following Water Service Priority Policy, consistent with Government Code Section 65589.7:

*H-A-3-c **Water and Sewer Agency Coordination.** Annually review water and sewer procedures and priority for water and sewer service allowances for developments with units affordable to lower-income households. Target: Upon Housing Element adoption; review annually. Responsible Agency: Community Development Department and Public Works Department.*

The Water Service Priority Policy directs EMID to prioritize water and sewer service to proposed developments that include units for lower income households.

7.2 METHODOLOGY

To assist in development of the WSCP, EMID used the Drought Response Tool (DRT)¹⁵, an Excel spreadsheet model. The DRT provides a quantitative framework that allowed EMID to:

¹⁵ © 2015 Erlor & Kalinowski, Inc.



- Evaluate a pre-drought baseline water use by each water use sector and major end use (i.e., indoor versus outdoor water use);
- Identify water use sectors and end uses to target for water savings;
- Evaluate a menu of drought response actions to implement in each stage of action; and
- Estimate the water savings potential of the responses selected for each stage of action based on assumed implementation and water savings rates.

Data inputs to the DRT are largely consistent with data that has been reported herein and to the State Water Resources Control Board (SWRCB) in response to Resolution 2015-0032 via the DRINC Portal (www.drinc.ca.gov), including total production, residential water use and population. The Drought Response Actions section of the DRT is designed to be highly modifiable, in order to allow users to explore the potential water savings associated with implementing different sets of actions, based on varying levels of implementation, and their understanding of their own community and the water savings potential. A detailed Drought Response Tool User's Guide is provided in Appendix K, which walks the user through the model structure, and the key input parameters, assumptions and calculations that form the basis for the DRT.

7.3 BASELINE WATER USE PROFILE

Using the DRT, EMID developed a pre-drought baseline water use profile that reflected usage patterns within the EMID service area by major water use sector between 2012 and 2014 (selected as a representative “pre-drought” period) and that was used to guide development of the WSCP. Key findings from this analysis are presented below.

Residential Per Capita Demand

The EMID's baseline residential gallons per capita per day (R-GPCD) demand between 2012 and 2014 was approximately 77 R-GPCD. As shown in Table 7-1 and associated chart, this R-GPCD is very consistent the average Bay Area Water Supply and Conservation Agency- (BAWSCA-) wide average of 78 R-GPCD, but is significantly less that the 2013 statewide average of 109 R-GPCD.¹⁶

Proportion of Outdoor Water Use

As shown on Table 7-2 and the associated charts, outdoor water use, which can generally be considered as a “discretionary water use”, was estimated to be approximately 44% of the EMID's total consumption during this pre-drought time period. Notably, dedicated irrigation meters accounted for approximately 53% of the total irrigation demand, indicating that roughly half of outdoor water use is not metered with a separate meter, and is therefore more difficult to track and directly target.

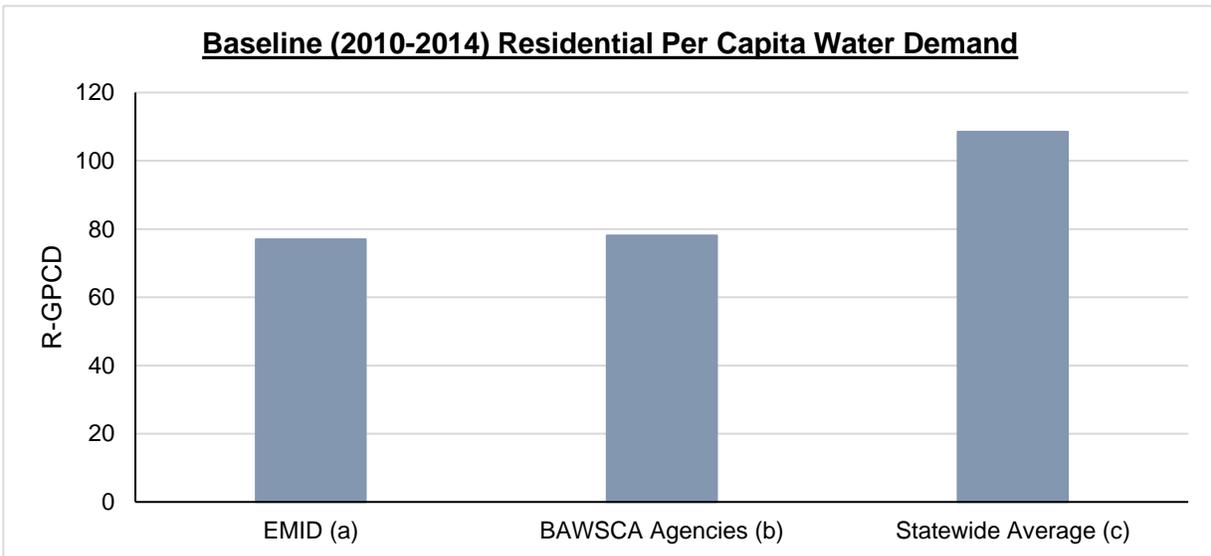
The high proportion of outdoor water use within both residential and commercial sectors (24% and 46%, respectively) indicates that there is the potential to achieve significant water savings

¹⁶ Average state-wide R-GPCD for 2013 calculated using state-wide residential water use and population provided by California State Water Resources Control Board Water Conservation Portal - Conservation Reporting, http://www.waterboards.ca.gov/water_issues/programs/conservation_portal/conservation_reporting.shtml, accessed 3 March 2016.



Table 7-1
Baseline (2012-2014) Residential Per Capita Water Demand
Estero Municipal Improvement District, California

	Baseline Residential Per Capita Water Demand (R-GPCD)
EMID (a)	77
BAWSCA Agencies (b)	78
Statewide Average (c)	109



Abbreviations:

BAWSCA = Bay Area Water Supply and Conservation Agency
 EMID = Estero Municipal Improvement District
 R-GPCD = residential gallons per capita per day

Notes:

- (a) Average EMID R-GPCD from 2012 through 2014 calculated using metering data.
- (b) Average BAWSCA R-GPCD from 2012 through 2014 calculated from data provided in Reference 1.
- (c) Average state-wide R-GPCD for 2013 calculated using state-wide residential water use and population provided in Reference 2.

Reference:

- (1) BAWSCA, 2015. *Bay Area Water Supply and Conservation Agency FY 2013-2014 Annual Survey*, May 2015.
- (2) California State Water Resources Control Board Water Conservation Portal - Conservation Reporting http://www.waterboards.ca.gov/water_issues/programs/conservation_portal/conservation_reporting.shtml accessed 3 March 2016.



Table 7-2
Baseline (2012-2014) Water Use Profile
 Estero Municipal Improvement District, California

Sector	End-Use	MPMWD Baseline (2010-2014) Average Water Use (MG) (a)													Annual % of Total by Sector
		January	February	March	April	May	June	July	August	September	October	November	December	Annual	
Residential	Indoor (b)	66	60	66	64	66	64	66	66	64	66	64	66	778	76%
	Outdoor (b)	4	10	0	8	5	20	27	40	40	37	29	19	239	24%
	<i>Subtotal Residential</i>	<i>71</i>	<i>69</i>	<i>66</i>	<i>72</i>	<i>71</i>	<i>84</i>	<i>93</i>	<i>106</i>	<i>104</i>	<i>103</i>	<i>93</i>	<i>85</i>	<i>1017</i>	-
CII	Indoor (b)	9	8	9	9	9	9	9	9	9	9	9	9	110	54%
	Outdoor (b)	0	11	0	11	1	15	3	16	3	17	3	14	95	46%
	<i>Subtotal CII</i>	<i>9</i>	<i>20</i>	<i>9</i>	<i>20</i>	<i>11</i>	<i>24</i>	<i>12</i>	<i>26</i>	<i>12</i>	<i>26</i>	<i>12</i>	<i>23</i>	<i>205</i>	-
Dedicated Irrigation	Outdoor	9	10	9	14	24	49	55	61	57	47	30	12	378	100%
Non-Revenue	Non-Revenue	7	8	7	9	8	13	13	15	14	14	11	10	128	100%
Total	Indoor	75	68	75	73	75	73	75	75	73	75	73	75	888	51%
	Outdoor	13	31	9	34	31	84	85	118	100	101	62	44	712	41%
	Non-Revenue	7	8	7	9	8	13	13	15	14	14	11	10	128	7.4%
	Total	96	107	91	116	114	169	174	209	187	191	146	129	1,728	-

Table 7-2 (Continued)
Baseline (2012-2014) Water Use Profile
 Estero Municipal Improvement District, California

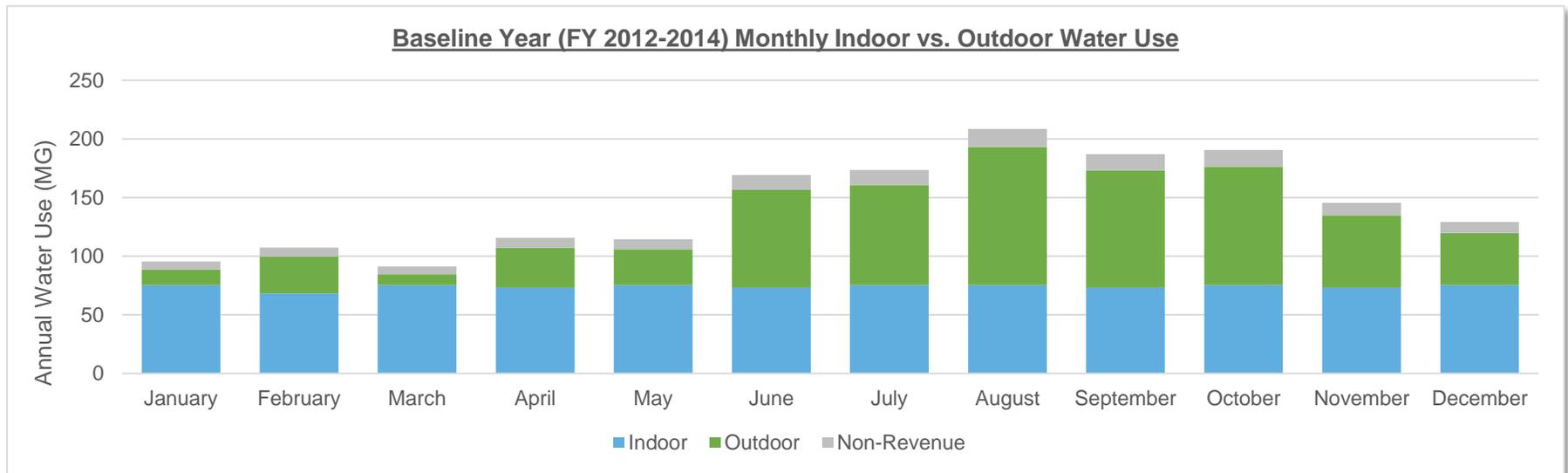
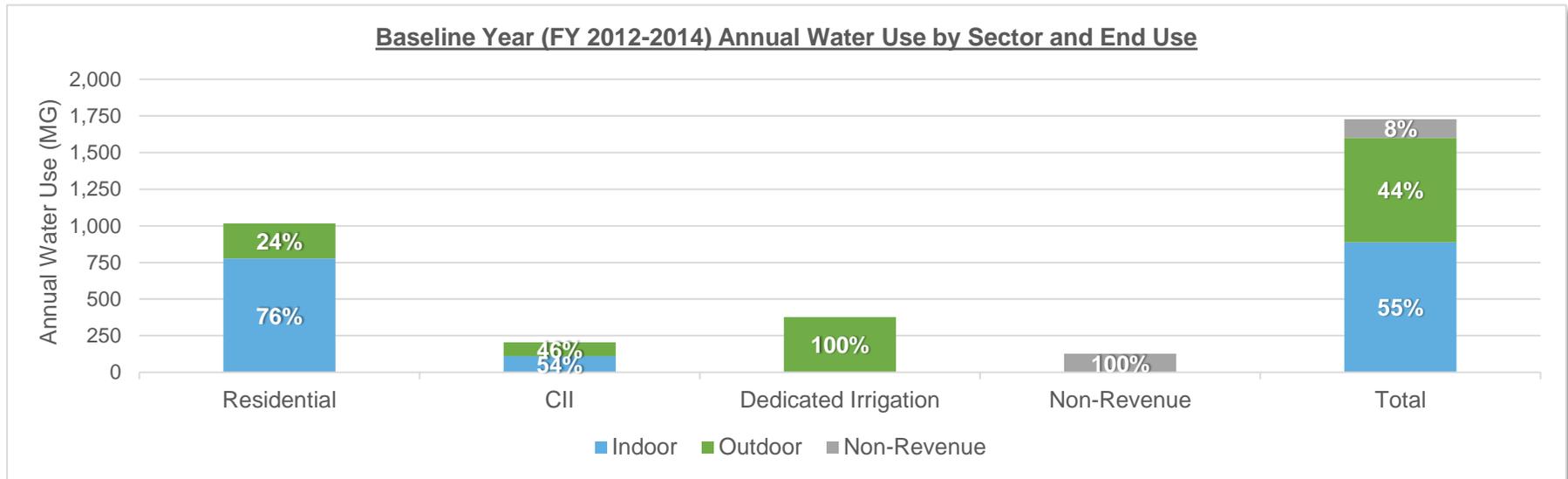




Table 7-2 (Continued)
Baseline (2012-2014) Water Use Profile
Estero Municipal Improvement District, California

Abbreviations:

CII = commercial, industrial, and institutional
EMID = Estero Municipal Improvement District
MG = million gallons

Notes:

- (a) Baseline water use is calculated using the average of EMID's monthly metering data from 2012 through 2014 for each sector.
- (b) Indoor water use was estimated to be the lowest monthly water use for each sector, accounting for the number of days in each month. Outdoor water use for each sector was estimated to be the difference between the total water use and the estimated indoor water use.

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across these sectors, simply by focusing on outdoor uses. As further shown in Table 7-2 and the associated charts, the seasonal variation in baseline water use reflects increased irrigation demands during the summer and fall months. Therefore, the greatest potential for reductions in non-essential water use is expected during these months.

Historical Drought Response

As described below, water savings achieved by EMID during 2015 in response to the recent, historic drought support the findings of the baseline water use profile (i.e., that discretionary uses can be targeted to achieve significant water savings).

On 1 April 2015, Governor Brown issued the fourth in a series of Executive Orders regarding actions necessary to address California's severe drought conditions. Executive Order B-29-15 directed the SWRCB to impose the first ever mandatory restrictions on urban water suppliers to achieve a statewide 25% reduction in potable urban water usage through February 2016.¹⁷ The Executive Order also required commercial, industrial, and institutional (CII) users to implement water efficiency measures, prohibited irrigation with potable water of ornamental turf in public street medians, and prohibited irrigation with potable water outside newly constructed homes and buildings that is not delivered by drip or microspray systems, along with numerous other directives.

On 5 May 2015, the SWRCB adopted Resolution 2015-0032 that mandated minimum actions by water suppliers and their customers to conserve water supplies into 2016 and assigned a mandatory water conservation savings goal to each water supplier based on their R-GPCD. The Office of Administrative Law approved the regulations and modified the California Water Code (CWC) on 18 May 2015. On 2 February 2016, the SWRCB voted to extend the emergency regulations until October 2016 with some modifications.¹⁸ On 9 May 2016, the Governor issued Executive Order B-37-16, which, among other things, directed the SWRCB to make certain water use restrictions permanent. On 18 May 2016, the SWRCB is expected to adopt regulations in response to the Executive Order that will further adjust the water conservation savings goal, and extend the regulations until January 2017.

The mandatory conservation standards included in CWC Section 865(c) range from 8% for suppliers with an R-GPCD below 65 R-GPCD, up to 36% for suppliers with an R-GPCD of greater than 215 GPCD. As with previous the emergency drought regulations adopted by the SWRCB in 2014, the new water conservation regulation was primarily intended to reduce outdoor urban water use. Based on their R-GPCD, EMID was required to reduce water use by 12% relative to its 2013 water use. During the June 2015 through December 2015 compliance period, EMID surpassed its water use reduction target, with a cumulative savings of 14.1% relative to its 2013 use.

¹⁷ Executive Order B-29-15 located online at https://www.gov.ca.gov/docs/11.13.15_EO_B-36-15.pdf, accessed 2 March 2016.

¹⁸ Adopted text of the extend Emergency Regulations located online at http://www.waterboards.ca.gov/water_issues/programs/conservation_portal/docs/emergency_reg/final_reg_enacted.pdf accessed on 2 March 2016



As shown in Table 7-3, EMID surpassed its SWRCB-mandated water use reduction target in 2015 largely due to the high savings (up to a 21% reduction in total demand) achieved during the summer and fall months, likely corresponding to large cut-backs in irrigation water use.

7.4 STAGES OF ACTION

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 which are applicable to each stage.

Based on lessons learned during the recent, historic drought, and based on projections of future dry-year shortfalls (see Section 6.5), EMID updated the stages of action to be taken in response to water supply shortages. This WSCP establishes five stages of increasingly restrictive actions to be implemented to respond to water supply reductions, including a 50% supply reduction as required by CWC Section 10632(a). Table 7-4 summarizes the water supply reductions and supply conditions associated with each stage of action.

As shown in Table 7-4, Stage 1 includes mandatory prohibitions that are in force at all times with the intent to eliminate water waste. This stage is a continuing effort to conserve water regardless of water supply, and includes the enforcement of current plumbing code regulations requiring the installation of high efficiency fixtures in new construction, and EMID's ongoing implementation of demand management measures (DMMs) (Section 8). Each subsequent stage of the WSCP is implemented with a formal declaration by the EMID Board of Directors¹⁹ upon the determination that the San Francisco Public Utilities Commission (SFPUC) or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use due to a water supply shortage or emergency.

Table 7-5 describes the customer restrictions and prohibitions and consumption reduction methods (i.e., the actions to be taken by EMID) associated with each stage of action. Specific prohibitions and consumption reduction methods are discussed in more detail below. The monthly and cumulative annual water savings impacts associated with each restriction, prohibition and consumption reduction method were quantitatively estimated using the DRT for each stage of action, see Appendix L.

7.5 PROHIBITIONS ON END USES

10632. (a) (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.

The EMID has the authority to restrict or prohibit specific water use practices during water shortages (Chapter 8.60 of the EMID Code). Restrictions and prohibitions associated with

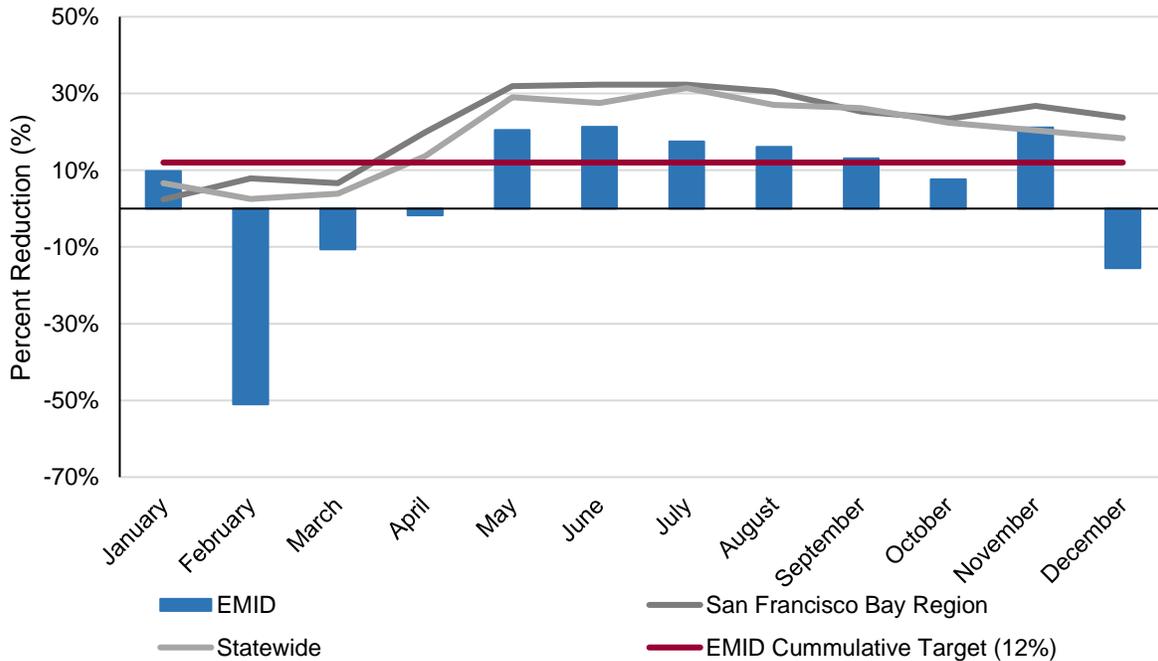
¹⁹ The Foster City City Council serves as the EMID Board of Directors.



Table 7-3
2015 Water Use Reductions
 Estero Municipal Improvement District, California

	2015 Monthly Water Savings From 2013 Baseline		
		San Francisco Bay	
	EMID	Region	Statewide
January	9.8%	2.4%	6.6%
February	-51.0%	7.9%	2.5%
March	-10.6%	6.6%	3.9%
April	-1.8%	19.9%	13.7%
May	20.5%	31.9%	29.0%
June	21.3%	32.3%	27.5%
July	17.5%	32.3%	31.4%
August	16.1%	30.5%	27.0%
September	13.1%	25.3%	26.2%
October	7.6%	23.4%	22.4%
November	21.2%	26.8%	20.4%
December	-15.5%	23.7%	18.3%

Monthly Water Use Reduction for 2015 Compared to 2013 Baseline



Abbreviations:

EMID = Estero Municipal Improvement District

References:

DRINC Portal (<http://drinc.ca.gov/>) Urban Water Supplier Monitoring Reports, February 2016.
 Fact Sheet, December 2015 Statewide Conservation Data, State Water Resources Control Board.
 SWRCB Water Conservation Portal, (http://www.waterboards.ca.gov/water_issues/programs/conservation_portal/conservation_reporting.shtml), accessed 11 March 2016.



**Table 7-4
Stages of Water Shortage Contingency Plan (DWR Table 8-1)
Estero Municipal Improvement District, California**

Stage	Percent Supply Reduction	Rationale	Water Supply Condition
1	N/A	Mandatory prohibitions to prevent water waste	In force at all times.
2	Up to 10%	SFPUC called for voluntary 10% rationing in 2007-2009 and 2014-2015; multiple dry year shortfalls projected up to 9%	Declaration by the EMID Board of Directors in accordance with Chapter 8.60 of the EMID code, upon the determination that the SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use of up to 10% due to water supply shortages or an emergency.
3	Up to 20%	EMID's 2015 SWRCB mandatory water reduction target is 12%; SFPUC system supplies can be reduced by 20%	Declaration by the EMID Board of Directors in accordance with Chapter 8.60 of the EMID code, upon the determination that the SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use from 11% to 20% due to water supply shortages or emergency.
4	Up to 30%	Intermediate stage	Declaration by the EMID Board of Directors in accordance with Chapter 8.60 of the EMID code, upon the determination that the SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use from 21% to 30% due to water supply shortages or emergency.
5	Up to 50%	Required by UWMP Act	Declaration by the EMID Board of Directors in accordance with Chapter 8.60 of the EMID code, upon the determination that the SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use from 31% to 50% due to water supply shortages or emergency.

Abbreviations:

EMID = Estero Municipal Improvement District
 SFPUC = San Francisco Public Utilities Commission
 SWRCB = State Water Resources Control Board



**Table 7-5
Stages of Action and Water Shortage Responses (DWR Tables 8-2 and 8-3)**
Estero Municipal Improvement District, California

Stage	Consumption Reduction Methods by Water Supplier	Restrictions and Prohibitions on End Uses (Customers)
<p align="center">Stage 1 Mandatory Prohibitions</p> <p align="center">Goal: N/A</p>	<ul style="list-style-type: none"> • Not applicable 	<ul style="list-style-type: none"> • Hoses must be equipped with a shut-off valve for washing vehicles, sidewalks, walkways, or buildings. • Potable water shall not be used to water outdoor landscapes in a manner that causes runoff onto non-irrigated areas, walkways, roadways, parking lots, or other hard surfaces. • Broken or defective plumbing and irrigation systems (i.e., leaks) must be repaired or replaced within two weeks. • Ornamental fountains shall use only re-circulated or recycled water. • Single-pass cooling systems on new construction shall not be allowed. • Potable water shall not be applied in any manner to any driveway, sidewalk, or other hard surface except when necessary to address immediate health or safety concerns. • Potable water shall not be used for street, sidewalk, or surface cleaning. • Potable water cannot be applied to outdoor landscapes during and up to 48 hours after measurable rainfall. • Potable water shall not be used to irrigate ornamental turf on public street medians. • Other measures as may be approved by Resolution of the EMID Board of Directors.



Table 7-5 (Continued)
Stages of Action and Water Shortage Responses (DWR Tables 8-2 and 8-3)
Estero Municipal Improvement District, California

Stage	Consumption Reduction Methods by Water Supplier	Restrictions and Prohibitions on End Uses (Customers)
<p align="center">Stage 2</p> <p align="center">Goal: up to 10% Reduction</p>	<ul style="list-style-type: none"> • Inform customers that there is a water shortage emergency and the list of actions they can take to reduce water use (e.g., via direct mail, bill inserts, etc.). • Increase public outreach, including information regarding fines or penalties for non-compliance. • Expand outreach for existing water conservation programs. • Perform a water loss audit to reduce system loss. • Reduce frequency of water main flushing, if possible. • Conduct coordination with BAWSCA and SFPUC. • Conduct in-house training so EMID/Foster City staff is prepared to respond to customer calls, reports and complaints, and to support enforcement actions. • Offer free water use surveys to the top 10% water users in each customer category. 	<ul style="list-style-type: none"> • Continue with actions and measures from Stage 1 except where superseded by more stringent requirements. • Broken or defective plumbing and irrigation systems (i.e., leaks) must be repaired or replaced within 24 hours. • Irrigation with potable water outside of newly constructed homes and buildings not delivered by drip or microspray is prohibited. • Recreational water features shall be covered when not in use. • Hotels and motels shall provide guests an option whether to launder towels and linens daily. Hotels and motels shall prominently display notice of this option in each bathroom using clear and easily understood language. • Restaurants and other food service operations shall serve water to customers only upon request. • Irrigating outdoor ornamental landscapes or turf with potable water is limited to no more than three (3) days per week on a schedule established by the Director and posted on the Foster City website. • Other measures as may be approved by Resolution of the EMID Board of Directors.
<p align="center">Stage 3</p> <p align="center">Goal: up to 20% Reduction</p>	<ul style="list-style-type: none"> • Continue with actions and measures from Stage 2. • Increase public outreach, including a dedicated customer service hotline. • Schedule staff for enforcement and customer service. May include hiring additional, temporary staff. • Inform local fire department of water supply status and request cooperation in reducing of fire training exercises that use water. • Increase public outreach to the top 10% water users in each customer category. • Implement drought surcharge on water rates. 	<ul style="list-style-type: none"> • Continue with actions and measures from Stages 1 and 2 except where superseded by more stringent requirements. • No new pools shall be constructed. • Irrigating outdoor ornamental landscapes or turf with potable water is limited to no more than two (2) days per week on a schedule established by the Director and posted on the Foster City website. • Other measures as may be approved by Resolution of the EMID Board of Directors.



Table 7-5 (Continued)
Stages of Action and Water Shortage Responses (DWR Tables 8-2 and 8-3)
Estero Municipal Improvement District, California

Stage	Consumption Reduction Methods by Water Supplier	Restrictions and Prohibitions on End Uses (Customers)
<p align="center">Stage 4</p> <p align="center">Goal: up to 30% Reduction</p>	<ul style="list-style-type: none"> • Continue with actions and measures from Stages 2 and 3. • Increase public outreach, including hosting public events and workshops. • Move to monthly metering and billing. • Increase enforcement and water waste patrols. • Suspend routine flushing of water mains except when necessary to address immediate health or safety concerns. 	<ul style="list-style-type: none"> • Continue with actions and measures from Stages 1, 2 and 3 except where superseded by more stringent requirements. • Prohibit vehicle washing except at facilities using recycled or recirculating water. • Irrigating outdoor ornamental landscapes or turf with potable water is limited to no more than one (1) day per week on a schedule established by the Director and posted on the City’s website. Water customers may be granted an exception upon review and approval of a Drought Response Plan by the Public Works Director pursuant to such policies and procedures as may be established by the Public Works Director provided that such plan results in an equivalent or greater reduction in water use. • Other measures as may be approved by Resolution of the EMID Board of Directors.
<p align="center">Stage 5</p> <p align="center">Goal: up to 50% Reduction</p>	<ul style="list-style-type: none"> • Continue with actions and measures from Stages 2, 3 and 4. • Increase public outreach. • Develop water budgets for all accounts and notice those accounts appropriately. 	<ul style="list-style-type: none"> • Continue with actions and measures from Stages 1 through 4 except where superseded by more stringent requirements. • Turf irrigation is prohibited at all times. • Existing irrigation systems shall not be expanded. • Water use shall not exceed water budgets established by EMID for each customer. • Other measures as may be approved by Resolution of the EMID Board of Directors.

Abbreviations:

BAWSCA = Bay Area Water Supply and Conservation Agency

EMID = Estero Municipal Improvement District

SFPUC = San Francisco Public Utilities commission



each stage of action are presented in Table 7-5. As discussed above, these responses focus on the reduction of non-essential water uses such as ornamental landscape irrigation, and preserve water uses that are estimated to the health, safety, welfare, and economic vitality of EMID’s customers. In addition, several mandatory prohibitions are enforced at all times as part of Stage 1 to eliminate water waste. Together, the prohibitions listed in Stages 1 and 2 include each of the prohibitions on end uses mandated by the SWRCB in its 2015 emergency regulations. Prohibitions in subsequent stages go beyond the SWRCB requirements and become increasingly restrictive.

7.5.1 Defining Water Features

10632. (b) Commencing with the urban water management plan update due July 1, 2016, for purposes of developing the water shortage contingency analysis pursuant to subdivision (a), the urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.

As required by CWC Section 10632, EMID distinguishes between “decorative water features” such as ponds, lakes, and fountains that are artificially supplied with water and “recreational water features” such as swimming pools and spas. Prohibitions on water use for decorative water features are listed separately from those for recreational water features (see Table 7-5).

7.6 PENALTIES, CHARGES AND OTHER ENFORCEMENT

10632. (a) (6) Penalties or charges for excessive use, where applicable.

Enforcement of EMID’s water use restrictions and prohibitions is focused on soliciting cooperation from water customers who are unaware of the restrictions or have failed to comply with the provisions of EMID’s Water Shortage Ordinance (EMID code Chapter 8.60) and this WSCP. If discussions with the customer are unsuccessful in obtaining compliance, EMID is authorized to issue penalties listed in EMID code Chapter 8.60 to customers that violate the restrictions and prohibitions.

7.7 CONSUMPTION REDUCTION METHODS

10632. (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.

As discussed above, the WSCP lists the consumption reduction methods that EMID will implement during each stage of action to reduce EMID’s own water consumption and encourage reduction in water use by its customers. Consumption reduction methods associated with each stage of action are presented in Table 7-5. The monthly and cumulative annual water



savings impacts associated with each restriction, prohibition and consumption reduction method were quantitatively estimated using the DRT for each stage of action, see Appendix L.

A main focus of EMID's planned consumption reduction measures is to increase public outreach and keep customers informed of the water shortage emergency and actions they can take to reduce consumption. The public outreach efforts that EMID will implement to respond to a water shortage are described in Section 7.13.2.

Consumption reduction methods also include measures to reduce system losses through a reduction in line flushing and fire training exercises, increase enforcement and patrols, develop water budgets, and in certain conditions, implement a moratorium on new services.

7.8 DETERMINING WATER SHORTAGE REDUCTIONS

10632. (a) (9) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

The EMID monitors water use through analysis of wholesale water purchases and customer meter readings. The EMID reads meters installed on each of its supply turnouts to monitor wholesale water purchases. In addition, each customer account is metered. Some non-residential and multi-family customers also have separate irrigation meters to monitor water use for landscape irrigation separately from indoor uses. The EMID's updated Water Efficient Landscaping Ordinance (Chapter 8.80 of the EMID Code, effective January 2016) requires non-residential projects to install a separate irrigation meter if landscaped areas meet specific size thresholds, as discussed in Section 3.

The EMID can read all customer meters remotely and automatically using the Advanced Metering Infrastructure (AMI) system. During a supply shortage, EMID may use this system to monitor water use on a more frequent basis than on the bi-monthly billing schedule, in order to determine the effectiveness of the customer response to the implementation of this WSCP. More frequent water meter readings also allow EMID to document atypically high water use and notify individual customers to resolve the cause of the high water use. In addition, customers can use EMID's online water management tool to assess water usage and detect water leaks.

7.9 REVENUE AND EXPENDITURE IMPACTS

10632 (a) (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.

Bartle Wells Associates (BWA) prepared a Water Rate Study for EMID in April 2016 (BWA, 2016). The study includes an analysis of the financial impacts of three different scenarios: (1) a reduction in water use including up to a 50% reduction in water supply, (2) adjustments in penalties or charges for excessive use, and (3) a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster. A summary of the analysis by BWA is provided below.



The EMID water rates are designed to recover “fixed costs”, or expenses that do not vary substantially over the course of the year, from fixed meter charges. These expenses include: employee services, internal services, services and supplies, reallocations, capital outlay, capital improvement fund transfers, and operating net revenues (BWA, 2016).

The EMID’s water rates are also designed to recover “volumetric costs”, or expenses that vary based on the level of water use, from volumetric rates. These expenses include: wholesale water purchases from the SFPUC, BAWSCA bond repayments (recovered through a surcharge on water sales), and water sustainability fund transfers. The EMID volumetric charges are designed to be greater than the wholesale water costs plus the BAWSCA bond surcharge (BWA, 2016).

According to BWA (2016), under scenarios resulting in as much as a 50% reduction in EMID water purchases and the resulting decrease in water sales, EMID is projected to recover all of its fixed costs through its fixed meter rate. Further, since wholesale water purchase costs would decrease proportionally with water sales, the volumetric rates are projected to fully fund expenses under potential water use cutback scenarios, with two potential exceptions: the water sustainability fund transfers and BAWSCA bond payments (BWA, 2016).

According to BWA (2016), under certain water cutback scenarios, EMID may need to adjust the tier 2 and blended commercial rates to account for less water use and to recover the EMID’s sustainability program transfers (estimated at \$400,000 per year). The Tier 2 rates and a portion of the commercial uniform tier water rate constitute EMID’s charges for excessive use under the current rate methodology (BWA, 2016).

The volumetric rates may also need to be adjusted to pass through an updated allocation of BAWSCA repayment costs (currently estimated at \$900,000 per year), depending on EMID’s water purchase cutback in relation to other BAWSCA agencies (BWA, 2016).

Under scenarios which include a catastrophic interruption of water supplies such as a regional power outage, an earthquake, or other disaster, the water enterprise has established prudent reserve targets of 90 days of operating expenses and at least \$2 million in capital reserves (BWA, 2016). As of June 30, 2015, the water enterprise meets the \$2 million capital reserve requirement and holds about 15 days of operating expenses, with a plan to meet the 90 day target within five years (BWA, 2016).

7.10 WATER SHORTAGE CONTINGENCY ORDINANCE AND RESOLUTION

10632 (a) (8) A draft water shortage contingency resolution or ordinance.

As discussed above, EMID has authority within Chapter 8.60 of the EMID Code to require water rationing and conservation and to enforce penalties. EMID Code Chapter 8.60 and an adopted water shortage contingency resolution are included as Appendix M of this UWMP.



7.11 CATASTROPHIC SUPPLY INTERRUPTION PLAN

10632 (a) (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.

Catastrophic supply interruptions may be caused by a regional power outage, an earthquake, or other disaster. The EMID benefits from two levels of emergency planning: planning by SFPUC and its own emergency planning work. In the event of a catastrophic supply interruption, the response procedures that the EMID would follow are described in:

- SFPUC Emergency Operations Plan (EOP);
- San Mateo County's Operational Area EOP Potable Water Procurement and Distribution Annex; and
- EMID Water System Emergency Response Plan.

Actions described in the SFPUC EOP focus on maintaining flow within, and from, the Regional Water System (RWS) pipelines. The EMID Emergency Response Plan focuses on response actions to prevent, minimize, and mitigate injury and damage on the EMID water system. During a catastrophic supply interruption, the EMID will take actions including, but not limited to:

- Notify its customers of the supply catastrophe;
- Activate Emergency Operations Center;
- Follow procedures in the EMID Water System Emergency Response Plan.

Together, these EOPs and Emergency Response Plan provide the framework for responding to major emergencies or disasters associated with natural disasters, technological incidents, and national security/terrorism emergencies. Sections of these EOPs outline specific strategies to prepare for, mitigate, respond to, and recover from an emergency or disaster that affects the water utilities that serve the population within San Mateo County and EMID, in particular.

7.12 ESTIMATE OF MINIMUM SUPPLY FOR NEXT THREE YEARS

10632 (a) (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.

The minimum water supply available during the next three years during multiple dry years is presented in Table 7-6. The dry-year supply estimates are based on the delivery estimates provided by BAWSCA and SFPUC as part of the 2015 UWMP update process (SFPUC, 2016; BAWSCA, 2016; Appendix H) and per hypothetical application of the Tier 1 and Tier 2 allocation processes described in Section 6. The available water supplies estimated for 2017 and 2018 are less than the multiple dry year supplies scenarios discussed in Section 6, which apply to years 2020 and later. Prior to 2020, the anticipated completion date of the Water System Improvement Program, the SFPUC has projected lower drought year allocations (Appendix H).



**Table 7-6
Estimated Minimum Three-Year Supply (DWR Table 8-4)
Estero Municipal Improvement District, California**

	Average Normal Year Supply (MG)	Multiple-Dry Year Water Supply (MG)		
		2016	2017	2018
Available Water Supply	2,154	1,593	1,349	1,349

Abbreviations:

DWR = Department of Water Resources

MG = million gallons

SFPUC = San Francisco Public Utilities Commission

WSIP = Water Supply Improvement Program

Notes:

- (a) The available water supplies during 2017 through 2018 are less than the multiple dry year supply scenarios discussed in Section 6, which apply to years 2020 and later. Prior to completion of the WSIP, which is currently assumed to be complete by 2020, the SFPUC is projecting lower supply allocations during multiple dry years. See Appendix G.



7.13 WATER SHORTAGE CONTINGENCY PLAN IMPLEMENTATION

This section describes how the WSCP will be implemented.

7.13.1 Water Shortage Declaration and Termination Procedures

The provisions of each water shortage stage of action are triggered upon the EMID Board of Directors' determination that a Governing Authority has required EMID to achieve a voluntary or mandatory reduction in water use because of water shortage conditions.

The stage of action will become effective after the Board of Directors declares a particular stage of action and EMID has published notice of this determination. Once effective, the provisions of a water shortage stage of action will stay in effect until: (1) a different stage of action is declared; or (2) the Board of Directors determines that the water shortfall condition no longer exists and EMID has published notice of this determination.

After the termination of the water shortage conditions, EMID will oversee any remaining termination and WSCP review activities. These activities could include:

- Publicize gratitude for the community's cooperation.
- Restore water utility operations, organization, and services to pre-event levels.
- Document the event and response and compile applicable records for future reference.
- Collect cost accounting information, assess revenue losses and financial impact, and review deferred projects or programs.
- Debrief staff to review effectiveness of actions, to identify the lessons learned, and to enhance response and recovery efforts in the future.
- Update the WSCP, as needed.

7.13.2 Public Outreach

Even before formal declaration of a water shortage, a public information program will be activated to provide customers with as much advance notice as possible. Following declaration of a shortage, EMID customers would need to be provided notice of water shortage rules and regulations via a variety of media and communications methods.

Coordination between EMID and with other public agencies can begin prior to formal declaration of a water shortage and can be accomplished through regular meetings, e-mail group updates, and presentations. In a regional water shortage scenario, EMID would use the public outreach resources and materials provided by BAWSCA and/or the SFPUC. In addition to these materials, EMID may develop its own materials to communicate with customers, such as a dedicated customer service hotline, and expand its normal public outreach to support its water conservation efforts (see Section 8).

7.13.3 Staff Resources

As discussed in Section 8.2.6, the EMID/Foster City currently has several staff members that jointly share the responsibilities for water conservation. Staff time dedicated to water

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conservation and enforcement action will increase with the severity of a supply shortage. Additional duties may be assigned to current EMID/Foster City employees or hiring of temporary staff may be considered to meet staffing needs during extreme water shortages.



8. DEMAND MANAGEMENT MEASURES

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

10631 (f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

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

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

- (i) Water waste prevention ordinances.*
- (ii) Metering.*
- (iii) Conservation pricing.*
- (iv) Public education and outreach.*
- (v) Programs to assess and manage distribution system real loss.*
- (vi) Water conservation program coordination and staffing support.*
- (vii) Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented.*

This section provides an overview of Estero Municipal Improvement District's (EMID's) current and planned demand management measures (DMMs), which include specific types and groupings of water conservation measures typically implemented by water suppliers; the DMMs are closely aligned with the California Urban Water Conservation Council (CUWCC) Best Management Practices. The EMID administers several of its DMMs through participation in Bay Area Water Supply and Conservation Agency's (BAWSCA's) Regional Water Conservation Program. The following sections describe BAWSCA's Regional Water Conservation Program and the nature and extent of the specific DMMs implemented by EMID.

8.1 REGIONAL WATER CONSERVATION

The EMID participates in BAWSCA's Regional Water Conservation Program, as a part of its overall water conservation program. The BAWSCA Regional Water Conservation Program is a two-tier program, consisting of "Core Programs" and "Subscription Programs," and is open to all member agencies. The BAWSCA Regional Water Conservation Program is implemented consistent with the intent of its Water Conservation Implementation Plan (WCIP), which was developed with input from the member agencies and serves as a coordinated, regional plan for implementing water conservation throughout the BAWSCA service area. Although the program was designed and available at a regional level, most of the implementation of the individual programs within the EMID service area is done by EMID/Foster City Public Works Department staff.

The Core Programs provided as a part of the Regional Water Conservation Program include conservation measures that benefit from regional implementation and provide overall regional



benefit, and are funded through the annual BAWSCA budget. Measures provided across the BAWSCA service area as part of the Core Program include regional messaging, public outreach, landscape water efficiency education classes and tools, native garden tours and symposiums, support for adoption of local indoor and outdoor water efficiency ordinances, and access to BAWSCA's water conservation database.

The Subscription Programs are conservation measures that individual agencies must elect to participate in, and whose benefits are primarily realized within individual water agency service areas. As such, the Subscription Programs are funded by individual member agencies, based on their participation level. The EMID actively participates in all available Subscription Programs, which include:

- High-Efficiency Toilet (HET) Rebates
- High-Efficiency Residential Washing Machine Rebates
- Water-Wise School Education Kits and Curriculum
- EarthCapades Assemblies School Education Program
- Large Landscape Audits
- Lawn Be Gone! Turf Replacement Rebates

The EMID's implementation of, and participation in, the Core and Subscription Programs are described in detail below, as they relate to EMID's implementation of the DMMs.

8.2 AGENCY WATER CONSERVATION

The EMID implements all of the DMMs, as described below.

8.2.1 DMM 1 – Water Waste Prevention Ordinances

The EMID code prohibits water waste by customers. Specifically, Chapter 8.12 of the EMID code states that “No customer shall knowingly permit leaks or waste of water. Where water is wastefully or negligently used on a customer's premises, seriously affecting the general service, the district may discontinue the service if such conditions are not corrected within the time specified in the written notice. (Ord. 126 § 1 (part), 2009).”

As discussed in Section 7, EMID has the authority within Chapter 8.60 of the EMID Code to require water rationing and conservation and to enforce penalties. In addition, on 9 May 2016, Governor Brown issued Executive Order B-37-16 that directed the SWRCB to make permanent the mandatory restrictions that were imposed previously as part of the 2014 and 2015 emergency drought regulations. Prohibitions to prevent water waste are included as Stage 1 of EMID's Water Shortage Contingency Plan (WSCP), and remain in place at all times, irrespective of water supply conditions. Stage 1 of EMID's WSCP includes the following water waste prohibitions:

- Hoses must be equipped with a shut-off valve for washing vehicles, sidewalks, walkways, or buildings.
- Potable water shall not be used to water outdoor landscapes in a manner that causes runoff onto non-irrigated areas, walkways, roadways, parking lots, or other hard



surfaces.

- Broken or defective plumbing and irrigation systems must be repaired or replaced within a reasonable period.
- Ornamental fountains shall use only re-circulated or recycled water.
- Single-pass cooling systems on new construction shall not be allowed.
- Potable water shall not be applied in any manner to any driveway, sidewalk, or other hard surface except when necessary to address immediate health or safety concerns.
- Potable water shall not be used for street, sidewalk, or surface cleaning.
- Potable water cannot be applied to outdoor landscapes during and up to 48 hours after measurable rainfall.
- Potable water shall not be used to irrigate ornamental turf on public street medians.

In subsequent stages of the WSCP, the water waste prohibitions become increasingly restrictive to respond to water shortages.

8.2.2 DMM 2 – Metering

526. (a) Notwithstanding any other provisions of law, an urban water supplier that, on or after January 1, 2004, receives water from the federal Central Valley Project under a water service contract or subcontract... shall do both of the following: (1) On or before January 1, 2013, install water meters on all service connections to residential and nonagricultural commercial buildings... located within its service area.

527. (a) An urban water supplier that is not subject to Section 526 shall do both the following: (1) Install water meters on all municipal and industrial service connections located within its service area on or before January 1, 2025.

The EMID has installed water meters on each water service connection, with the exception of fire services. Over a period from 2008 through 2015, all of the meters within the EMID service area were upgraded to Advanced Metering Infrastructure (AMI) meters. The implementation of AMI meters allows EMID to automate meter reading and provide real-time water use data to EMID staff and customers that can be used to aggressively target leaks and atypically high water use during normal years and periods of water shortage. Customers can also access this real-time water data through the EMID's online water management tool. For billing purposes, customer meters are read on a bimonthly basis.

Some non-residential and multi-family customers also have separate irrigation meters to monitor water use for landscape irrigation separately from indoor uses. The EMID's updated Water Efficient Landscaping Ordinance (Chapter 8.80 of the EMID Code, adopted 19 January 2016) requires non-residential projects to install a separate irrigation meter if landscaped areas meet specific size thresholds.

8.2.3 DMM 3 – Conservation Pricing

Since 2010, EMID has implemented conservation-based water rates and its water consumers have responded by reducing annual water usage by 20% overall (EMID, 2015). The EMID's



current water rate structure for all customers includes a bimonthly fixed meter charge and a tiered water consumption charge based on water usage.²⁰ The water consumption charge is tiered such that customers are billed at a lower rate for efficient water use and a higher rate for high water use. Effective 1 July 2015, the rate structure for the water consumption charge includes two tiers of bi-monthly water use for single-family residential customers: (1) 0 to 20 hundred cubic feet (ccf), and (2) greater than 20 ccf. Multi-family residential customers are also charged for bi-monthly water use on a two-tiered basis: (1) 0 to 10 ccf and (2) over 10 ccf. Customers with dedicated irrigation accounts are charged relative to their annual water budget, and commercial customers are charged a single rate per ccf used. Prior to 1 July 2015, the rate structure for residential accounts included three separate water consumption charge tiers. This conservation pricing structure is always in place and is not dependent on water shortage.

8.2.4 DMM 4 – Public Education and Outreach

The EMID implements a number of public education and outreach initiatives with support from the BAWSCA Regional Water Conservation Program. Examples of EMID's public outreach materials are included in Appendix N. Specific initiatives include:

- School education program – EarthCapades Assemblies: The EMID facilitates school assemblies performed by EarthCapades at schools within its service area. The EarthCapades performances combine age-appropriate state science standards with circus skills, juggling, music, storytelling, comedy, and audience participation to teach environmental awareness, water science, and conservation. The EarthCapades assemblies are designed to include local water source and watershed education and specific information pertaining to the EMID service area. The EMID and BAWSCA provide specific information to EarthCapades regarding the San Francisco Public Utilities Commission Regional Water System (SFPUC RWS) and other topics (e.g., recycled water). EarthCapades integrates this information into the specific scripts used for assemblies conducted within the EMID service area. The EMID facilitated and paid for 32 EarthCapades assemblies between 2010 and 2015.
- Water-Wise School Education Kits and Curriculum: The Water-Wise school education program is provided by Resource Action Programs (a contractor to BAWSCA) to fifth grade students within the EMID service area. Resource Action Programs works directly with teachers and schools to provide them with turn-key, in-classroom water conservation curriculum and indoor and outdoor water conservation kits (i.e., the Water-Wise Kits). The Water-Wise curriculum has been designed to be easily implemented by teachers, and easily understood and taken back into the home by the students. The Water-Wise Kits include water saving devices that can be installed at the student's homes (e.g., low-flow showerheads and faucet aerators) and a water audit that the students can perform with their parents.

²⁰ Current EMID water rate structure located online at <http://www.fostercity.org/departmentsanddivisions/finance/upload/Prop-218-Notices-for-2015-2016-2.pdf>, accessed 7 April 2016.



The students are provided with the motivation, information, and tools they need to perform an in-home water audit. The information and material provided to the teachers and students also includes methods that can be used to quantify the water savings as a result of installing the equipment contained in the kit and performing the recommended, water-conserving actions. After the student performs the audit and installs the water and energy saving devices, affidavits signed by the parents are returned to the school, collected by the teacher, and forwarded to Resource Action Programs for documentation of measure implementation and the estimated water savings. Resource Action Programs then prepares a final report for distribution to EMID. The EMID has participated in the Water-Wise School Education Program every year between 2010 and 2015 and distributed a total of 1,284 kits.

- Tuolumne River Trust Classroom Program: The Tuolumne River Trust (TRT) school outreach program is called “That’s the Tuolumne in My Tap” and includes a slideshow presentation to fourth and fifth graders about the Tuolumne River resource and water conservation. The TRT’s outreach is designed to educate local students about where their water comes from and to promote an ethic of environmental stewardship. The presentation focuses on the history and special qualities of the Tuolumne River, the animals that depend on the River, and what can be done to help protect the river by conserving water. BAWSCA supplies the TRT with information and materials that described the local water conservation options that the TRT distributes to students. Such materials include information about the high-efficiency toilet and washing machine rebates, schedules for the Water-Efficient Landscape Education Classes, information about the online *Water-Wise Gardening in the Bay Area* tool, and prizes (e.g., bracelets that encourage water conservation) for students that answered questions during the TRT presentation. The EMID facilitated and paid for 50 Tuolumne River Trust classroom programs between 2010 and 2015.
- Water-Wise Gardening in the Bay Area landscape educational tool: The EMID promotes the popular landscape educational tool - *Water-Wise Gardening in the Bay Area*. Initially created as a CD-ROM in fiscal year (FY) 2006-07, the educational tool is currently available on-line via BAWSCA’s website so that it can be readily accessed by the public. The *Water-Wise Gardening in the Bay Area* tool contains information on how to create and maintain a beautiful, low-water-use garden and includes photographs of water-efficient gardens and provides links to the plants that compose the featured gardens. The featured gardens are primarily composed of sites in the Bay Area, specifically within the BAWSCA service area. The EMID promotes and provides a link to the tool on its water conservation program website.
- Online water management tool: The EMID offers an online water management and billing tool to its customers. By visiting the online tool website, EMID customers can pay their bills electronically, view water use reports, and detect water leaks. With future implementation of AMI, the online tool would allow EMID customers to view water use information on up to an hourly basis.



- Hosting information booths at fairs and public events: The EMID staff set up information booths at large public events in the EMID service area, such as Earth Day, cityFEST, and July 4th celebration, to distribute information regarding the EMID's water conservation programs including rebate programs, landscape analysis programs, and fixture give-aways.
- Informative website, online tools, or social media: The EMID maintains pages on the City of Foster City's website (www.fostercity.org) that are dedicated to its water conservation programs. The website provides information regarding its rebate programs, water use regulations, and water conservation tips and links to interactive tools such as *Water-Wise Gardening in the Bay Area*. The EMID also uses the City's social media accounts to publicize its water conservation programs.
- Media campaigns and other outreach: The EMID encourages water conservation and markets its rebate programs through methods including newsletters, bill inserts, ads at the EMID facilities, and press releases. Newsletters and bill inserts include a link to EMID's website where information on rebate programs can be found.

8.2.5 DMM 5 – Programs to Assess and Manage Distribution System Real Loss

As discussed in Section 3.1.3, distribution system water loss was estimated to be approximately 6% of total water demand between 2010 and 2015, based on available data for 2010 and 2015.

Water supply to EMID is recorded by two (2) master meters. The meters are read daily using wireless technology (EMID, 2011). Water distributed to customers is also metered, with the exception of water used from fire hydrants. Water from the hydrants is used for flushing, firefighting and training, and construction. These activities account for a portion of the "unaccounted for water".

The EMID has trained staff and equipment to detect leaks in the distribution system (EMID, 2011). Staff routinely performs regular visual inspections and responds to public complaints and repairs are performed immediately when leaks are detected (EMID, 2011). The EMID started a meter-replacement program in 2008 to replace all touch-read meters (over 8,200) with AMI meters; this project was completed in 2015. The new meters are more accurate and capable of reporting unusual consumption patterns instantaneously (EMID, 2011). It is expected that unaccounted for water is will decrease as a result of the implementation of these new meters (EMID, 2011).

8.2.6 DMM 6 – Water Conservation Program Coordination and Staffing Support

The EMID does not have a dedicated Water Conservation Coordinator. Responsibilities related to water conservation efforts are administered by staff members from various departments, and amount to an approximately 0.2 full-time equivalent (FTE) staff person. Regional planning and coordination efforts are handled by BAWSCA with input from agency representative.

Contact information for EMID's conservation program is listed below:



Phone: 650-286-8140

Email: PublicWorks@fostercity.org

The EMID estimated that its total water conservation program budget for FY 2014-15 was \$173,735, including the cost for participation in the Subscription Programs through BAWSCA's Regional Water Conservation Program.

8.2.7 DMM 7 – Other DMMs

Other DMMs provided by the EMID, in addition to those discussed above, include the following:

- HET Rebates: The EMID locally administers an HET Rebate Program for its residential and commercial customers. The EMID has been providing HET rebates since 1992, and the program is one of the Subscription Programs available to BAWSCA member agencies. As part of this program, EMID offers customers the following rebates for customers replacing a high-volume toilet (i.e., 3.5 gallons per flush (gpf), or more):
 - Up to a \$175 Rebate for replacing an existing toilet with a qualifying MaP® Premium model toilet (1.06 gallons or less per flush); or
 - Up to a \$100 Rebate per standard HET (i.e., between 1.06 gallons and 1.28 gallons per flush).

Up to three rebates are allowed per address. Between 2010 and 2015, EMID provided a total of 1,423 rebates to 763 customer accounts.

- High-Efficiency Residential Washing Machine Rebates: The EMID locally administers a High-Efficiency Residential Washing Machine Rebate program for its residential customers which, through joint participation with Pacific Gas & Electric (PG&E), includes a rebate of up to \$150 to customers that purchase a qualifying washing machine.²¹ The High-Efficiency Residential Washing Machine Rebate program is one of the Subscription Programs available to BAWSCA member agencies. Between 2010 and 2015, EMID provided 1,363 washing machine rebates to its customers.
- Large Landscape Audits: The EMID locally administers the BAWSCA Large Landscape Audits program to commercial and multi-family residential accounts, as described below. Waterfluence, BAWSCA's contractor, implements the program:
 - Landscape Analysis Program: The EMID currently offers a Large Landscape Analysis (a \$1,400 value) for free to multi-family and commercial accounts. An irrigation expert evaluates landscapes and provides customers with a personalized report on how they can improve water efficiency and save on water costs. The EMID offered landscape analyses to approximately 30 customers per year from 2010 to 2015.
 - Large Landscape Water Budgets: The EMID distributes water budgets to all dedicated irrigation accounts. Water rates charged to these irrigation accounts are increased if an account exceeds its annual water budget.

²¹ PG&E currently contributes \$50 of the total \$150 rebate. Total rebate value has varied from year to year.



- Lawn Be Gone! Turf Replacement Rebates: The EMID locally administers the BAWSCA Lawn Be Gone! turf replacement rebate program for its residential and commercial customers. The EMID offers its customers \$4 per square foot of turf removed up to a maximum \$5,000 rebate. In order to qualify for participation in the Lawn Be Gone! Program, the new landscape must include at least 80% live plant coverage, with the difference completed in permeable hardscape, and all plants must be low water use plants from the BAWSCA-approved plant list. This program offers EMID's customers a financial incentive to reduce their outdoor water use and create permanent and lasting water savings. Also, because eligible landscapes must include front yards and areas visible to the public, this program has an educational and public-outreach element (i.e., demonstrating to the wider public that low water use landscaping can be an attractive alternative to lawns and encouraging conversations about responsible water use among neighbors). The EMID began participating in the program in 2011, and budgets \$50,000 per year for Lawn Be Gone! rebates. Through 2015, approximately 6,626 square feet of turf has been replaced under this program within the EMID service area.
- Smart Irrigation Controller Rebates: The EMID administers a smart irrigation controller rebate program for its residential and irrigation customers. In order to qualify, the smart irrigation controller must have gone through the Irrigation Association's Smart Water Application Technology testing protocol and meets certain requirements. The EMID offers customers the following rebates for installing a qualifying smart irrigation controller:
 - 100% of the cost of the controller up to a \$250 maximum rebate for any residential customer with individual responsibility for water landscaping;
 - 100% of the cost of the controllers up to \$50 per station with a maximum rebate of \$7,500 for any irrigation customer.

Between 2010 and 2015, EMID provided a total of 16 smart irrigation controller rebates.

- Synthetic Turf Replacement Rebates: The EMID administers a turf rebate replacement program that financially incentivizes replacement of turf with synthetic turf. Since 1 May 2011, the EMID has offered its customers \$4 per square foot of turf removed up to a maximum \$3,000 rebate for residential customers and up to \$100,000 for large landscape customers. In order to qualify for participation in this program, customers must arrange for a pre-installation on-site visit by EMID staff. From 2010 through 2015, approximately 43,725 square feet of turf has been replaced under this program within the EMID service area.

8.3 IMPLEMENTATION OVER THE PAST FIVE YEARS

10631. (f) Provide a description of the supplier's water demand management measures. This description shall include all of the following: (1)(A) ... a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years.

Table 8-1 and the associated chart summarizes the DMMs implemented by EMID and the extent of implementation (e.g., number of rebates) for each of the programs listed under Section 8.2 between 2010 and 2015.



Water savings from the HET rebates, high-efficiency residential clothes washer rebates, the Lawn Be Gone! turf replacement program, and synthetic turf replacement program are conservatively estimated to be over 16 million gallons (MG) per year based on the rebates issued over the past five years.²² Through implementation of the DMMs, EMID has been able to significantly reduce water demands in its service area and help its customers to achieve water and cost savings.

8.4 PLANNED IMPLEMENTATION TO ACHIEVE WATER USE TARGETS

*10631.(f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:
(1)(A) ...The narrative shall describe the water demand management measures that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.*

To achieve the SBx7-7 water use targets described in Section 4, EMID intends to continue and expand implementation of the DMMs discussed above and will continue to participate in BAWSCA's Regional Water Conservation Program. In the future, specific program offerings may change as the market evolves. The EMID's 2016 Demand Management Decision Support System Model (DSS Model), as described in Section 0, estimates projected water demands and quantifies passive and active conservation water savings potential. As discussed in Section 4.5, the DSS Model projections demonstrate that EMID is expected to achieve its water use targets through, among other things, continued implementation of these DMMs.

²² Expected annual water savings per each HET change out would be approximately 4,862 gallons per year, using the following calculation (BAWSCA, 2013): $(3.5 \text{ gpf} - 1.28 \text{ gpf}) \times 5 \text{ flushes/toilet/day/person} \times 2.64 \text{ persons/house} / 2.2 \text{ toilets/house} \times 365 \text{ days} = 4,862 \text{ gal}$. This calculation assumes that a toilet rated at 3.5 gpf actually operates at 3.5 gpf.

Expected annual water savings per each high efficiency washer change out would be approximately 4,618.8 gallons per year, using the following calculation (BAWSCA, 2013): $(43 \text{ gallons/load} - 27 \text{ gallons/load}) \times 2.64 \text{ people/house} \times 0.37 \text{ loads/person/day} \times 365 \text{ days} = 4,619 \text{ gallons}$.

Expected annual water savings per lawn replacement, would be approximately 43,800 gallons per year, using the following calculation (BAWSCA, 2013): $(3.5 \text{ acre-feet/acre} - 1.0 \text{ acre-feet/acre}) / 43,560 \text{ square feet/acre} \times 1675 \text{ square feet} \times 325,851 \text{ gallons/acre-foot} = 43,800 \text{ gallons}$.

Expected annual water savings per synthetic turf placement is assumed to be similar to a lawn replacement.

**ESTERO MUNICIPAL IMPROVEMENT DISTRICT
2015 URBAN WATER MANAGEMENT PLAN**

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**Table 8-1
Summary of DMMs and Implementation over the Past Five Years (2010-2015)**
Estero Municipal Improvement District, California

DMM Category	Program or Activity	Target Sector	Nature of Implementation	Extent of Implementation
1	Water Waste Prevention Ordinances	SF, MF, CII And IRR	Chapter 8.12 of the EMID code states that “No customer shall knowingly permit leaks or waste of water. Where water is wastefully or negligently used on a customer’s premises, seriously affecting the general service, the district may discontinue the service if such conditions are not corrected within the time specified in the written notice. (Ord. 126 § 1 (part), 2009).”	The water waste prohibition is in place at all times.
2	Metering	SF, MF, CII And IRR	All water service connections are metered, with the exception of fire services. Many non-residential and multi-family customers have sub-meters to monitor water use for landscape irrigation separately from indoor uses. All EMID meters were upgraded to an Advanced Metering Infrastructure (AMI) system over the period of 2008 through 2015.	All accounts are metered and read on a bimonthly basis.
3	Conservation Pricing	SF, MF, CII And IRR	The current water rate structure includes a tiered water consumption charge based on water usage: http://www.fostercity.org/departmentsanddivisions/finance/upload/Prop-218-Notices-for-2015-2016-2.pdf , accessed 7 April 2016.	Tiered rate structure in place during 2010-2015.
4	School Education Program: EarthCapades Assemblies	SF, MF	School assemblies that teach water science and conservation to students, including local water source and watershed education and specific information pertaining to the EMID service area. The EMID participates through the BAWSCA Regional Water Conservation Program.	FY 2010-11: 4 schools, 8 shows FY 2011-12: 4 schools, 8 shows FY 2012-13: 4 schools, 8 shows FY 2013-14: 4 schools, 8 shows FY 2014-15: 4 schools, 8 shows
4	Water-Wise School Education Kits and Curriculum	SF, MF	Fifth grade teachers are provided with a water conservation curriculum. Kits are distributed to 5th grade students that enable them to install water saving devices and perform a water audit in their home. The EMID participates through the BAWSCA Regional Water Conservation Program.	FY 2010-11: 4 schools, 250 kits FY 2011-12: 4 schools, 250 kits FY 2012-13: 4 schools, 250 kits FY 2013-14: 4 schools, 254 kits FY 2014-15: 4 schools, 280 kits
4	Tuolumne River Trust Classroom Program	SF, MF	Fourth and fifth grade students are shown a slideshow presentation about the Tuolumne River resource and water conservation, which focuses on the history and special qualities of the Tuolumne River, the animals that depend on the River, and what can be done to help protect the river by conserving water.	FY 2010-11: 4 schools, 10 assemblies FY 2011-12: 4 schools, 10 assemblies FY 2012-13: 4 schools, 10 assemblies FY 2013-14: 4 schools, 10 assemblies FY 2014-15: 4 schools, 10 assemblies
4	Water-Wise Gardening in the Bay Area landscape educational tool	SF	The EMID promotes the online landscape educational tool - Water-Wise Gardening in the Bay Area. The Water-Wise Gardening in the Bay Area tool contains information on how to create and maintain a beautiful, low-water-use garden and includes photographs of water-efficient gardens and provides links to the plants that compose the featured gardens.	The online tool is promoted through the Foster City website.
4	Online Water Management Tool	SF, MF, CII And IRR	The EMID offers an online water management and billing tool to its customers. By visiting the online tool website, EMID customers can pay their bills electronically, view water use reports, and detect water leaks.	Ongoing implementation from 2010 through 2015.
4	Information Booths at Public Events	SF, MF, CII And IRR	At public events, EMID distributes information and materials to participants regarding its water conservation programs.	Ongoing implementation from 2010 through 2015.

**ESTERO MUNICIPAL IMPROVEMENT DISTRICT
2015 URBAN WATER MANAGEMENT PLAN**

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**Table 8-1 (Continued)
Summary of DMMs and Implementation over the Past Five Years (2010-2015)**
Estero Municipal Improvement District, California

DMM Category	Program or Activity	Target Sector	Nature of Implementation	Extent of Implementation
4	Other Public Outreach	SF, MF, CII And IRR	The EMID maintains pages on the City of Foster City's website (http://www.fostercity.org) that are dedicated to its water conservation programs. The website provides information regarding EMID's rebate programs, water regulations, and conservation tips and links to interactive tools such as Water-Wise Gardening in the Bay Area. The EMID encourages water conservation and markets its rebate programs through methods including newsletters, bill inserts, and ads at the EMID facilities.	Ongoing implementation from 2010 through 2015.
5	Programs to Assess and Manage Distribution System Real Loss	Non-revenue	The EMID has an active program to manage loss, which includes staff trained to perform regular visual inspections and responds to public complaints. Repairs are performed immediately when leaks are detected (EMID, 2011).	Ongoing implementation from 2010 through 2015.
6	Conservation Program Coordination and Staff	SF, MF, CII And IRR	The EMID employs coordination staff and funds the water conservation program.	The water conservation program is coordinated and administered by various EMID staff equating to FTE staff dedicating time to water conservation program activities.
7	High Efficiency Toilet Rebate	SF, MF, CII	Up to \$175 rebate for qualifying toilets less than 1.06 gpf; up to \$100 rebate per HET (between 1.06 and 1.28 gpf). Up to three rebates are allowed per address. The EMID participates through the BAWSCA Regional Water Conservation Program.	FY 2010-11: 271 rebates to 155 accounts FY 2011-12: 190 rebates to 113 accounts FY 2012-13: 193 rebates to 113 accounts FY 2013-14: 364 rebates to 221 accounts FY 2014-15: 407 rebates to 161 accounts
7	High-Efficiency Residential Washing Machine Rebate Program	SF, MF	Through a partnership with PG&E, up to a \$150 rebate is offered to residential customers, for qualifying high-efficiency washing machines. The EMID participates through the BAWSCA Regional Water Conservation Program.	FY 2010-11: 302 rebates FY 2011-12: 372 rebates FY 2012-13: 270 rebates FY 2013-14: 231 rebates FY 2014-15: 188 rebates
7	Landscape Analysis Program	MF, CII	Free landscape analyses (value of \$1,400) are offered to commercial and multi-family residential accounts, and provide customers with reports on how to improve landscape water efficiency. The EMID participates through the BAWSCA Regional Water Conservation Program.	FY 2010-11: 20 participants FY 2011-12: 19 participants FY 2012-13: 7 participants FY 2013-14: 5 participants FY 2014-15: 4 participants
7	Large Landscape Water Budgets	IRR	The EMID distributes water budgets to all dedicated irrigation accounts. Water rates charged to these irrigation accounts are increased if an account exceeds its annual water budget.	FY 2010-11: 216 participants FY 2011-12: 213 participants FY 2012-13: 211 participants FY 2013-14: 214 participants FY 2014-15: 215 participants
7	Lawn Be Gone! Turf Replacement Rebates	SF, MF, CII	Customers are offered \$4 per square foot of turf removed and replaced with water-efficient landscaping, up to a \$5,000 rebate. The new landscape must include at least 80% live plant coverage, permeable hardscape, and all plants must be low water use plants from the BAWSCA-approved plant list. The EMID participates through the BAWSCA Regional Water Conservation Program.	FY 2010-11: not implemented FY 2011-12: 1 rebate FY 2012-13: 3 rebates FY 2013-14: 2 rebates FY 2014-15: 4 rebates



**Table 8-1 (Continued)
Summary of DMMs and Implementation over the Past Five Years (2010-2015)**
Estero Municipal Improvement District, California

DMM Category	Program or Activity	Target Sector	Nature of Implementation	Extent of Implementation
7	Smart Irrigation Controller Rebates	SF, MF, IRR	The EMID administers a smart irrigation controller rebate program for its residential and irrigation customers. In order to qualify, the smart irrigation controller must have gone through the Irrigation Association's Smart Water Application Technology testing protocol and meets certain requirements.	FY 2010-11: not implemented FY 2011-12: 1 rebate FY 2012-13: 5 rebates FY 2013-14: 6 rebates FY 2014-15: 4 rebates
7	Synthetic Turf Replacement Rebates	SF, MF, CII	The EMID administers a turf rebate replacement program that financially incentivizes replacement of turf with synthetic turf. Since 1 May 2011, EMID has offered its customers \$4 per square foot of turf removed up to a maximum \$3,000 rebate for residential customers and up to \$100,000 for large landscape customers. In order to qualify for participation in this program, customers must arrange for a pre-installation on-site visit by EMID staff.	FY 2010-11: not implemented FY 2011-12: 14 rebates FY 2012-13: 12 rebates FY 2013-14: 16 rebates FY 2014-15: 38 rebates

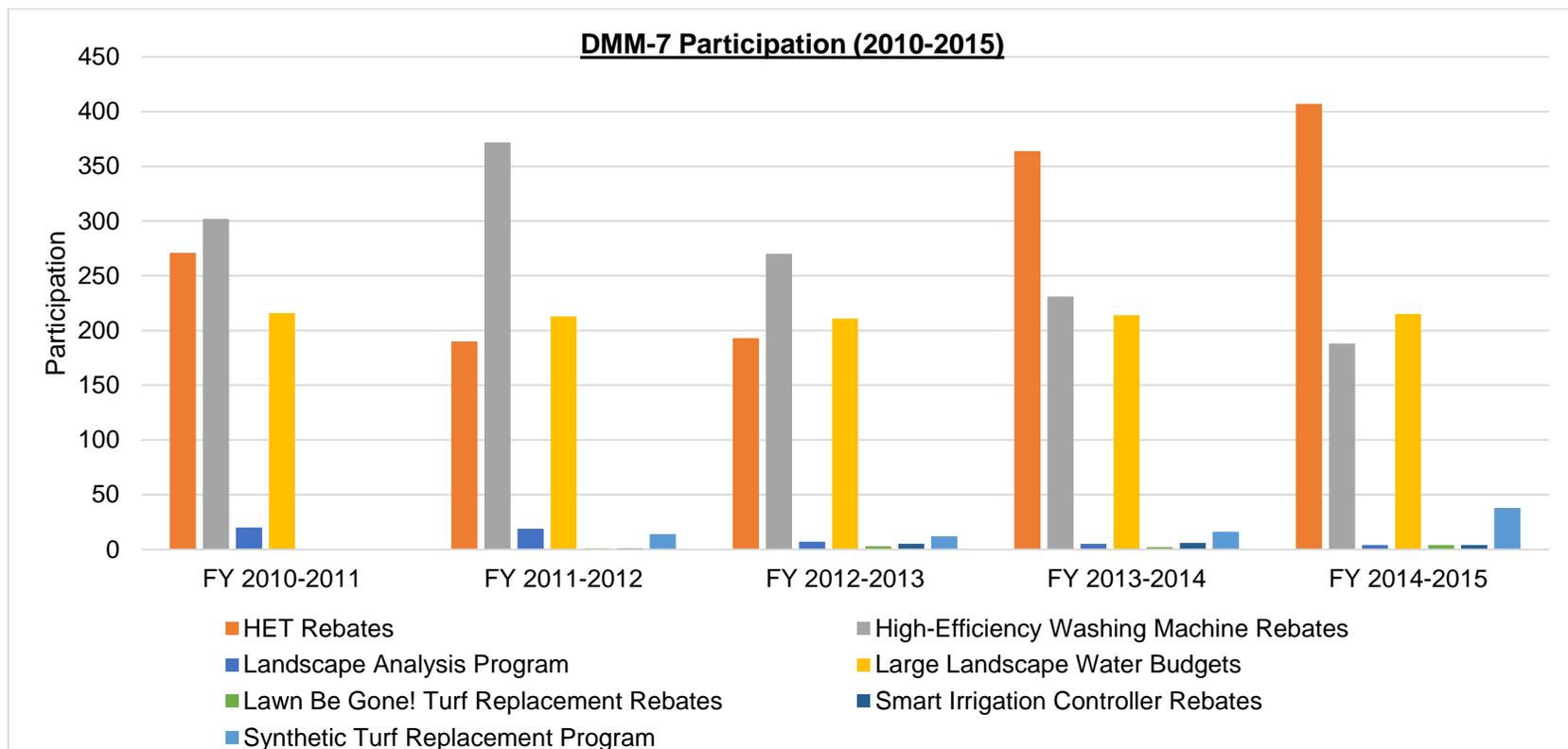




Table 8-1 (Continued)
Summary of DMMs and Implementation over the Past Five Years (2010-2015)
Estero Municipal Improvement District, California

Abbreviations:

AMI = Advanced Metering Infrastructure	gpf = gallons per flush
BAWSCA = Bay Area Water Supply and Conservation Agency	HET = high-efficiency toilet
CII = commercial, industrial, and institutional accounts	IRR = irrigation accounts
DMM = demand management measure	MF = multi-family residential accounts
EMID = Estero Municipal Improvement District	SF = single family residential accounts
FTE = full-time equivalent	
FY = fiscal year	

References:

1. BAWSCA, 2013. BAWSCA Annual Water Conservation Report, FY 2012-13. Bay Area Water Supply & Conservation Agency, 2013.
2. EMID, 2011. Estero Municipal Improvement District (EMID), Serving City Of Foster City/Part Of City Of San Mateo, 2010-2015 Urban Water Management Plan, adopted 16 May 2011.



9. PLAN ADOPTION AND SUBMITTAL

The Estero Municipal Improvement District's (EMID) preparation of the Urban Water Management Plan (UWMP) began in January 2016 for completion in July 2016, with notifications and interactions between stakeholders as discussed further below.

9.1 NOTIFICATION OF UWMP PREPARATION

110621. (b) Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days before the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.

On 22 January 2016, EMID sent a letter to 45 recipients from 29 organizations, including the San Francisco Public Utilities Commission (SFPUC), the Bay Area Water Supply and Conservation Agency (BAWSCA), each BAWSCA member agency, the City of San Mateo, San Mateo County, and other local agencies informing them that the EMID was in the process of updating its UWMP and soliciting their input in the update process. A list of the entities contacted is provided in Table 1-1. The letter was sent more than 60 days before the public hearing as required by code. A sample outreach letter is included in Appendix B.

9.2 NOTIFICATION OF PUBLIC HEARING

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

9.2.1 Notice to Cities and Counties

On 22 January 2016, EMID sent a letter to each of the above mentioned entities informing them the locations the document would be available for review and welcoming their input and comments on the document. The letter also informed the agencies that the UWMP would be made available for public review and that a public hearing would be held. A sample copy of the notification letter is included in Appendix B. The Draft 2015 UWMP was available for public review at the Foster City City Hall and the City Library, as well as on Foster City's website.



9.2.2 Notice to the Public

On 18 May and 25 May 2016, EMID published a notice in the *Foster City Islander* newspaper informing the public that the 2015 UWMP would be available for public review at Foster City City Hall and the City Library, as well as on the Foster City website, consistent with requirements of California Government Code 6066.²³ The notice also informed the public that the 2015 UWMP public hearing would be held at Foster City City Hall during the 6 June 2016 City Council Meeting. A copy of the newspaper announcement is included in Appendix C.

9.3 PUBLIC HEARING AND ADOPTION

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

- (1) Allow community input regarding the urban retail water supplier's implementation plan for complying with this part.*
- (2) Consider the economic impacts of the urban retail water supplier's implementation plan for complying with this part.*
- (3) Adopt a method, pursuant to subdivision (b) of Section 10608.20, for determining its urban water use target.*

As described above, the EMID informed the public and the appropriate agencies of (1) its intent to prepare a UWMP, (2) where the UWMP was available for public review, and (3) when the public hearing regarding the UWMP would be held. All notifications were completed in compliance with the stipulations of Section 6066 of the Government Code.

This UWMP was adopted by Resolution No. XX by the EMID Board of Directors during its 6 June 2016 meeting. A copy of the resolution is included in Appendix O. The Water Shortage Contingency Plan included as Section 7 of this Plan was adopted by Resolution No. XX by the EMID Board of Directors during the same meeting.

²³ Government Code section 6066. Publication of notice pursuant to this section shall be once a week for two successive weeks. Two publications in a newspaper published once a week or oftener, with at least five days intervening between the respective publication dates not counting such publication dates, are sufficient. The period of notice commences upon the first day of publication and terminates at the end of the fourteenth day, including therein the first day.



9.4 PLAN SUBMITTAL

10621. (d) An urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.

10635. (b) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.

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

10644. (a) (2) The plan, or amendments to the plan, submitted to the department pursuant to paragraph (1) shall be submitted electronically.

A copy of the adopted 2015 UWMP including any amendments will be provided to the Department of Water Resources (DWR), the California State Library, San Mateo County, and SFPUC within 30 days of the adoption. An electronic copy of the adopted 2015 UWMP will be submitted to the DWR using the DWR online submittal tool.

9.5 PUBLIC AVAILABILITY

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

A copy of the adopted 2015 UWMP will be available for public review in the Foster City City Hall and the City Library during normal business hours and on the Foster City website within 30 days after filing the plan with DWR.



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**ESTERO MUNICIPAL IMPROVEMENT DISTRICT
2015 URBAN WATER MANAGEMENT PLAN**

Public Review Draft – May 2016



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**APPENDIX A:
DWR STANDARD TABLES**

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
4110021	Estero Municipal Improvement District	8,420	1,453
TOTAL		8,420	1,453

NOTES:

Table 2-2: Plan Identification

Select Only One	Type of Plan		Name of RUWMP or Regional Alliance <i>if applicable</i> <i>drop down list</i>
<input checked="" type="checkbox"/>	Individual UWMP		
	<input type="checkbox"/>	Water Supplier is also a member of a RUWMP	
	<input type="checkbox"/>	Water Supplier is also a member of a Regional Alliance	
<input type="checkbox"/>	Regional Urban Water Management Plan (RUWMP)		
NOTES:			

Table 2-3: Agency Identification	
Type of Agency (select one or both)	
<input type="checkbox"/>	Agency is a wholesaler
<input checked="" type="checkbox"/>	Agency is a retailer
Fiscal or Calendar Year (select one)	
<input type="checkbox"/>	UWMP Tables Are in Calendar Years
<input checked="" type="checkbox"/>	UWMP Tables Are in Fiscal Years
If Using Fiscal Years Provide Month and Date that the Fiscal Year Begins (mm/dd)	
7/1	
Units of Measure Used in UWMP (select from Drop down)	
Unit	MG
NOTES:	

Table 2-4 Retail: Water Supplier Information Exchange
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The retail supplier has informed the following wholesale supplier(s) of projected water use in accordance with CWC 10631.

Wholesale Water Supplier Name <i>(Add additional rows as needed)</i>
--

San Francisco Public Utilities Commission

NOTES:

Table 3-1 Retail: Population - Current and Projected

Population Served	2015	2020	2025	2030	2035	2040(<i>opt</i>)
	36,231	37,200	37,800	38,400	39,000	39,600

NOTES:

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

Use Type <i>(Add additional rows as needed)</i>	2015 Actual		
<i>Drop down list</i> <i>May select each use multiple times</i> <i>These are the only Use Types that will be recognized by the WUEdata online submittal tool</i>	Additional Description <i>(as needed)</i>	Level of Treatment When Delivered <i>Drop down list</i>	Volume
Single Family		Drinking Water	372
Multi-Family		Drinking Water	501
Commercial		Drinking Water	151
Industrial		Drinking Water	18
Institutional/Governmental		Drinking Water	26
Landscape		Drinking Water	345
Other	Unmetered fire accounts	Drinking Water	0
Losses	Non-revenue water	Drinking Water	41
TOTAL			1,453
NOTES:			

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

Use Type <i>(Add additional rows as needed)</i>	Additional Description <i>(as needed)</i>	Projected Water Use <i>Report To the Extent that Records are Available</i>				
<u>Drop down list</u> <i>May select each use multiple times</i> <i>These are the only Use Types that will be recognized by the WUEdata online submittal tool</i>		2020	2025	2030	2035	2040-opt
Single Family		461	458	455	455	457
Multi-Family		571	565	560	558	559
Commercial	Includes Institutional / Governmental	147	151	163	171	176
Industrial		25	24	24	23	21
Landscape		178	186	205	217	224
Other		16	16	17	17	17
Losses	Unmetered water use and system losses	107	110	114	117	119
TOTAL		1,505	1,510	1,537	1,559	1,574
NOTES:						

Table 4-3 Retail: Total Water Demands

	2015	2020	2025	2030	2035	2040 <i>(opt)</i>
Potable and Raw Water <i>From</i> <i>Tables 4-1 and 4-2</i>	1,453	1,505	1,510	1,537	1,559	1,574
Recycled Water Demand* <i>From</i> <i>Table 6-4</i>	0	0	0	0	0	0
TOTAL WATER DEMAND	1,453	1,505	1,510	1,537	1,559	1,574

**Recycled water demand fields will be blank until Table 6-4 is complete.*

NOTES:

Table 4-4 Retail: 12 Month Water Loss Audit Reporting

Reporting Period Start Date (mm/yyyy)	Volume of Water Loss*
07/2014	98.3

** Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.*

NOTES: The volume of water loss includes a 5% master meter or system error adjustment.

Table 4-5 Retail Only: Inclusion in Water Use Projections

<p>Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook) <i>Drop down list (y/n)</i></p>	<p>Yes</p>
<p>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.</p>	<p>Section 3.2.4</p>
<p>Are Lower Income Residential Demands Included In Projections? <i>Drop down list (y/n)</i></p>	<p>Yes</p>
<p>NOTES:</p>	

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	1996	2005	175	158	140
5 Year	2004	2008	162		

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

NOTES:

Table 5-2: 2015 Compliance

Retail Agency or Regional Alliance Only

Actual 2015 GPCD*	2015 Interim Target GPCD*	Optional Adjustments to 2015 GPCD					2015 GPCD* <i>(Adjusted if applicable)</i>	Did Supplier Achieve Targeted Reduction for 2015? Y/N
		Enter "0" if no adjustment is made <i>Methodology 8</i>						
		Extraordinary Events*	Economic Adjustment*	Weather Normalization*	TOTAL Adjustments*	Adjusted 2015 GPCD*		
110	158	0	0	0	0	110	110	Yes

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

NOTES:

Table 6-1 Retail: Groundwater Volume Pumped						
<input checked="" type="checkbox"/>	Supplier does not pump groundwater. The supplier will not complete the table below.					
Groundwater Type <i>Drop Down List</i> <i>May use each category multiple times</i>	Location or Basin Name	2011	2012	2013	2014	2015
<i>Add additional rows as needed</i>						
TOTAL		0	0	0	0	0
NOTES:						

Table 6-2 Retail: Wastewater Collected Within Service Area in 2015						
<input type="checkbox"/>	There is no wastewater collection system. The supplier will not complete the table below.					
	Percentage of 2015 service area covered by wastewater collection system <i>(optional)</i>					
	Percentage of 2015 service area population covered by wastewater collection system <i>(optional)</i>					
Wastewater Collection			Recipient of Collected Wastewater			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? <i>Drop Down List</i>	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? <i>Drop Down List</i>	Is WWTP Operation Contracted to a Third Party? <i>(optional)</i> <i>Drop Down List</i>
<i>Add additional rows as needed</i>						
Estero Municipal Improvement District	Metered	746	City of San Mateo	San Mateo Wastewater Treatment Plant	No	No
Total Wastewater Collected from Service Area in 2015:		746				
NOTES:						

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

<input checked="" type="checkbox"/> 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 <i>(optional)</i>	Method of Disposal <i>Drop down list</i>	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level <i>Drop down list</i>	2015 volumes			
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area
<i>Add additional rows as needed</i>										
Total							0	0	0	0
NOTES:										

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

<input checked="" type="checkbox"/>		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 <i>Drop down list</i>	2015	2020	2025	2030	2035	2040 (opt)
Agricultural irrigation								
Landscape irrigation (excludes golf courses)								
Golf course irrigation								
Commercial use								
Industrial use								
Geothermal and other energy production								
Seawater intrusion barrier								
Recreational impoundment								
Wetlands or wildlife habitat								
Groundwater recharge (IPR)*								
Surface water augmentation (IPR)*								
Direct potable reuse								
Other (Provide General Description)								
Total:			0	0	0	0	0	0

*IPR - Indirect Potable Reuse

NOTES:

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

<input checked="" type="checkbox"/>	Recycled water was not used in 2010 nor projected for use in 2015. The supplier will not complete the table below.	
Use Type	2010 Projection for 2015	2015 Actual Use
Agricultural irrigation		
Landscape irrigation (excludes golf courses)		
Golf course irrigation		
Commercial use		
Industrial use		
Geothermal and other energy production		
Seawater intrusion barrier		
Recreational impoundment		
Wetlands or wildlife habitat		
Groundwater recharge (IPR)		
Surface water augmentation (IPR)		
Direct potable reuse		
Other	<i>Type of Use</i>	
Total	0	0

NOTES:

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

<input checked="" type="checkbox"/>	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
Section 5.3.6	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use
<i>Add additional rows as needed</i>			
Total			0
NOTES:			

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

<input checked="" type="checkbox"/>	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.
<input type="checkbox"/>	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.

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 <i>Drop Down List</i>	Expected Increase in Water Supply to Agency <i>This may be a range</i>
	<i>Drop Down List (y/n)</i>	<i>If Yes, Agency Name</i>				
<i>Add additional rows as needed</i>						

NOTES:

Table 6-8 Retail: Water Supplies — Actual

Table 6-8 Retail: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2015		
<i>Drop down list</i> <i>May use each category multiple times.</i> <i>These are the only water supply categories that will be recognized by the WUEdata online submittal tool</i>		Actual Volume	Water Quality <i>Drop Down List</i>	Total Right or Safe Yield <i>(optional)</i>
<i>Add additional rows as needed</i>				
Purchased or Imported Water	SFPUC	1,453	Drinking Water	
Total		1,453		0
NOTES:				

Table 6-9 Retail: Water Supplies — Projected											
Water Supply	Additional Detail on Water Supply	Projected Water Supply <i>Report To the Extent Practicable</i>									
<i>Drop down list</i> <i>May use each category multiple times.</i> <i>These are the only water supply categories that will be recognized by the WUdata online submittal tool</i>		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)
<i>Add additional rows as needed</i>											
Purchased or Imported Water	SFPUC	2,154		2,154		2,154		2,154		2,154	
	Total	2,154	0	2,154	0	2,154	0	2,154	0	2,154	0
NOTES:											

Table 7-1 Retail: Basis of Water Year Data

Year Type	Base Year <i>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</i>	Available Supplies if Year Type Repeats	
		<input type="checkbox"/>	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____
		<input checked="" type="checkbox"/>	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available	% of Average Supply
Average Year	FY 1987-88	2154	100%
Single-Dry Year	FY 1989-90	1593	74%
Multiple-Dry Years 1st Year	FY 1989-90	1593	74%
Multiple-Dry Years 2nd Year	FY 1990-91	1432	66%
Multiple-Dry Years 3rd Year	FY 1991-92	1432	66%
Multiple-Dry Years 4th Year <i>Optional</i>			
Multiple-Dry Years 5th Year <i>Optional</i>			
Multiple-Dry Years 6th Year <i>Optional</i>			
<p>Agency may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If an agency uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.</p>			
<p>NOTES:</p>			

Table 7-2 Retail: Normal Year Supply and Demand Comparison

	2020	2025	2030	2035	2040 <i>(Opt)</i>
Supply totals <i>(autofill from Table 6-9)</i>	2,154	2,154	2,154	2,154	2,154
Demand totals <i>(autofill from Table 4-3)</i>	1,505	1,510	1,537	1,559	1,574
Difference	649	644	617	595	580
NOTES:					

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

	2020	2025	2030	2035	2040 (Opt)
Supply totals	1,593	1,593	1,593	1,593	1,593
Demand totals	1,505	1509.916	1,537	1,559	1,574
Difference	88	83	56	34	19

NOTES:

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

		2020	2025	2030	2035	2040 (Opt)
First year	Supply totals	1,593	1,593	1,593	1,593	1,593
	Demand totals	1,505	1,510	1,537	1,559	1,574
	Difference	88	83	56	34	19
Second year	Supply totals	1,432	1,432	1,432	1,432	1,432
	Demand totals	1,505	1,510	1,537	1,559	1,574
	Difference	(73)	(78)	(105)	(127)	(142)
Third year	Supply totals	1,432	1,432	1,432	1,432	1,432
	Demand totals	1,505	1,510	1,537	1,559	1,574
	Difference	(73)	(78)	(105)	(127)	(142)
Fourth year <i>(optional)</i>	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Fifth year <i>(optional)</i>	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Sixth year <i>(optional)</i>	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0

NOTES:

**Table 8-1 Retail
Stages of Water Shortage Contingency Plan**

Stage	Complete Both	
	Percent Supply Reduction ¹ <i>Numerical value as a percent</i>	Water Supply Condition <i>(Narrative description)</i>
<i>Add additional rows as needed</i>		
1	N/A	In force at all times.
2	10%	Declaration by the EMID Board of Directors in accordance with Chapter 8.60 of the EMID code, upon the determination that the SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use of up to 10% due to water supply shortages or an emergency.
3	20%	Declaration by the EMID Board of Directors in accordance with Chapter 8.60 of the EMID code, upon the determination that the SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use from 11% to 20% due to water supply shortages or emergency.
4	30%	Declaration by the EMID Board of Directors in accordance with Chapter 8.60 of the EMID code, upon the determination that the SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use from 21% to 30% due to water supply shortages or emergency.
5	50%	Declaration by the EMID Board of Directors in accordance with Chapter 8.60 of the EMID code, upon the determination that the SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use from 31% to 50% due to water supply shortages or emergency.

¹ One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.

NOTES:

Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses

Stage	Restrictions and Prohibitions on End Users <i>Drop down list</i> <i>These are the only categories that will be accepted by the WUEdata online submittal tool</i>	Additional Explanation or Reference <i>(optional)</i>	Penalty, Charge, or Other Enforcement? <i>Drop Down List</i>
<i>Add additional rows as needed</i>			
1	Other - Require automatic shut of hoses	Hoses must be equipped with a shut-off valve for washing vehicles, sidewalks, walkways, or buildings.	Yes
1	Landscape - Restrict or prohibit runoff from landscape irrigation	Potable water shall not be used to water outdoor landscapes in a manner that causes runoff onto non-irrigated areas, walkways, roadways, parking lots, or other hard surfaces.	Yes
1	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Broken or defective plumbing and irrigation systems (i.e., leaks) must be repaired or replaced within two weeks.	Yes
1	Other water feature or swimming pool restriction	Ornamental fountains shall use only re-circulated or recycled water.	Yes
1	CII - Other CII restriction or prohibition	Single-pass cooling systems on new construction shall not be allowed.	Yes
2	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Broken or defective plumbing and irrigation systems (i.e., leaks) must be repaired or replaced within 24 hours.	Yes
2	Other - Prohibit use of potable water for washing hard surfaces	Potable water shall not be applied in any manner to any driveway, sidewalk, or other hard surface except when necessary to address immediate health or safety concerns.	Yes
2	Other - Prohibit use of potable water for washing hard surfaces	Potable water shall not be used for street, sidewalk, or surface cleaning.	Yes
2	Landscape - Other landscape restriction or prohibition	Potable water cannot be applied to outdoor landscapes during and up to 48 hours after measurable rainfall.	Yes

Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses

Stage	Restrictions and Prohibitions on End Users <i>Drop down list</i> <i>These are the only categories that will be accepted by the WUEdata online submittal tool</i>	Additional Explanation or Reference <i>(optional)</i>	Penalty, Charge, or Other Enforcement? <i>Drop Down List</i>
<i>Add additional rows as needed</i>			
2	Landscape - Prohibit certain types of landscape irrigation	Irrigation with potable water outside of newly constructed homes and buildings not delivered by drip or microspray is prohibited.	Yes
2	Landscape - Prohibit certain types of landscape irrigation	Potable water shall not be used to irrigate ornamental turf on public street medians.	Yes
2	Water Features - Restrict water use for decorative water features, such as fountains	Recreational water features shall be covered when not in use.	Yes
2	CII - Lodging establishment must offer opt out of linen service	Hotels and motels shall provide guests an option whether to launder towels and linens daily. Hotels and motels shall prominently display notice of this option in each bathroom using clear and easily understood language.	Yes
2	CII - Restaurants may only serve water upon request	Restaurants and other food service operations shall serve water to customers only upon request.	Yes
2	Landscape - Limit landscape irrigation to specific days	Irrigating outdoor ornamental landscapes or turf with potable water is limited to no more than three (3) days per week on a schedule established by the Director and posted on the Foster City website.	Yes
3	Other water feature or swimming pool restriction	No new pools shall be constructed.	Yes
3	Landscape - Limit landscape irrigation to specific days	Irrigating outdoor ornamental landscapes or turf with potable water is limited to no more than two (2) days per week on a schedule established by the Director and posted on the Foster City website.	Yes
4	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	Prohibit vehicle washing except at facilities using recycled or recirculating water.	Yes

Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses

Stage	Restrictions and Prohibitions on End Users <i>Drop down list</i> <i>These are the only categories that will be accepted by the WUEdata online submittal tool</i>	Additional Explanation or Reference <i>(optional)</i>	Penalty, Charge, or Other Enforcement? <i>Drop Down List</i>
<i>Add additional rows as needed</i>			
4	Landscape - Limit landscape irrigation to specific days	Irrigating outdoor ornamental landscapes or turf with potable water is limited to no more than one (1) day per week on a schedule established by the Director and posted on the City’s website. Water customers may be granted an exception upon review and approval of a Drought Response Plan by the Public Works Director pursuant to such policies and procedures as may be established by the Public Works Director provided that such plan results in an equivalent or greater reduction in water use.	Yes
5	Landscape - Prohibit certain types of landscape irrigation	Turf irrigation is prohibited at all times.	Yes
5	Landscape - Other landscape restriction or prohibition	Existing irrigation systems shall not be expanded.	Yes
5	Other	Water use shall not exceed water budgets established by EMID for each customer.	Yes
NOTES: Actions and measures are continued in each higher stage except where superseded by more stringent requirements.			

**Table 8-3 Retail Only:
Stages of Water Shortage Contingency Plan - Consumption Reduction Methods**

Stage	Consumption Reduction Methods by Water Supplier <i>Drop down list</i> <i>These are the only categories that will be accepted by the WUEdata online submittal tool</i>	Additional Explanation or Reference <i>(optional)</i>
<i>Add additional rows as needed</i>		
2	Expand Public Information Campaign	Inform customers that there is a water shortage emergency and the list of actions they can take to reduce water use (e.g., via direct mail, bill inserts, etc.).
2	Expand Public Information Campaign	Increase public outreach, including information regarding fines or penalties for non-compliance.
2	Expand Public Information Campaign	Expand outreach for existing water conservation programs.
2	Reduce System Water Loss	Perform a water loss audit to reduce system loss.
2	Decrease Line Flushing	Reduce frequency of water main flushing, if possible.
2	Other	Conduct coordination with BAWSCA and SFPUC.
2	Other	Conduct in-house training so EMID/Foster City staff is prepared to respond to customer calls, reports and complaints, and to support enforcement actions.
2	Offer Water Use Surveys	Offer free water use surveys to the top 10% water users in each customer category.
3	Expand Public Information Campaign	Increase public outreach, including a dedicated customer service hotline.
3	Other	Schedule staff for enforcement and customer service. May include hiring additional, temporary staff.
3	Other	Inform local fire department of water supply status and request cooperation in reducing of fire training exercises that use water.
3	Expand Public Information Campaign	Increase public outreach to the top 10% water users in each customer category.
3	Implement or Modify Drought Rate Structure or Surcharge	Implement drought surcharge on water rates.
4	Expand Public Information Campaign	Increase public outreach, including hosting public events and workshops.
4	Increase Frequency of Meter Reading	Move to monthly metering and billing.
4	Increase Water Waste Patrols	Increase enforcement and water waste patrols.

**Table 8-3 Retail Only:
Stages of Water Shortage Contingency Plan - Consumption Reduction Methods**

Stage	Consumption Reduction Methods by Water Supplier <i>Drop down list</i> <i>These are the only categories that will be accepted by the WUEdata online submittal tool</i>	Additional Explanation or Reference <i>(optional)</i>
<i>Add additional rows as needed</i>		
4	Decrease Line Flushing	Suspend routine flushing of water mains except when necessary to address immediate health or safety concerns.
5	Expand Public Information Campaign	Increase public outreach.
5	Other	Develop water budgets for all accounts and notice those accounts appropriately.
NOTES: Actions and measures are continued in each higher stage except where superseded by more stringent requirements.		

Table 8-4 Retail: Minimum Supply Next Three Years

	2016	2017	2018
Available Water Supply	1,593	1,349	1,349

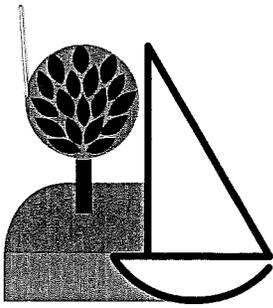
NOTES:

Table 10-1 Retail: Notification to Cities and Counties

City Name	60 Day Notice	Notice of Public Hearing
<i>Add additional rows as needed</i>		
City of Foster City/Estero Municipal Improvement District	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
City of San Mateo	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
County Name <i>Drop Down List</i>	60 Day Notice	Notice of Public Hearing
<i>Add additional rows as needed</i>		
San Mateo County	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>



**APPENDIX B:
UWMP AGENCY NOTIFICATION LETTERS**



City of Foster City

ESTERO MUNICIPAL IMPROVEMENT DISTRICT

610 FOSTER CITY BOULEVARD
FOSTER CITY, CA 94404-2222

VM/ Subject
CC: Chron

January 22, 2016

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

Subject: NOTICE OF PREPARATION OF URBAN WATER MANAGEMENT PLAN – 2015 PLAN

The Urban Water Management Planning Act (California Water Code §10608–10656) requires the Estero Municipal Improvement District (“District”) to update its Urban Water Management Plan (“UWMP”) every five years. The District is currently reviewing its existing UWMP, which was updated in 2011, and considering revisions to the document. 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 District’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:

City of Foster City/Estero Municipal Improvement District
Department of Public Works
610 Foster City Boulevard
Foster City, CA 94404
Phone: (650) 286-3277
Fax: (650) 345-4626
vma@fostercity.org

Sincerely,

Vivian Ma, P.E.
Associate Civil Engineer

cc: Jeff Moneda, Public Works Director/District Engineer
Norm Dorais, Public Works Maintenance Manager
Allan Shu, Senior Civil Engineer
Subject
Chron



**APPENDIX C:
UWMP PUBLIC NOTIFICATION LETTERS**



**APPENDIX D:
COMPLETED UWMP CHECKLIST**

CWC Section	UWMP requirement	Subject	Guidebook Location	UWMP Section
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 1.1
10620(d)(2)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan Preparation	Section 2.5.2	Section 1.2 and Table 1-1
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	Appendices B and C
10631(a)	Describe the water supplier service area.	System Description	Section 3.1	Section 2
10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.3	Section 2.2 and Table 2-3
10631(a)	Provide population projections for 2020, 2025, 2030, and 2035.	System Description	Section 3.4	Section 2.1 and Table 2-1
10631(a)	Describe other demographic factors affecting the supplier's water management planning.	System Description	Section 3.4	Section 2.1 and Table 2-2
10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Sections 3.4 and 5.4	Sections 2.1 and 4.1
10631(e)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Section 4.2	Section 3 and Tables 3-1 through 3-4
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 3.1.3 and Table 3-2
10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Section 4.5	Section 3.2.3 and Table 3-5

CWC Section	UWMP requirement	Subject	Guidebook Location	UWMP Section
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 4.3, Table 4-2, and Appendix G
10608.20(e)	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	Baselines and Targets	Chapter 5 and App E	Section 4 and Appendix G
10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	Section 5.7.2	Section 4.3 and Appendix G
10608.24(a)	Retail suppliers shall meet their interim target by December 31, 2015.	Baselines and Targets	Section 5.8 and App E	Section 4.4 and Table 4-3
1608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	Section 5.8.2	N/A
10608.36	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	Section 5.1	N/A
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 4.5, Table 4-3, and Appendix G
10631(b)	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, 2030, and 2035.	System Supplies	Chapter 6	Section 5, Tables 5-1 and 5-3
10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2	Section 5.2

CWC Section	UWMP requirement	Subject	Guidebook Location	UWMP Section
10631(b)(1)	Indicate whether a groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	Section 6.2.2	Section 5.2.2
10631(b)(2)	Describe the groundwater basin.	System Supplies	Section 6.2.1	Section 5.2.1
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 5.2.1
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 5.2.1
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 5.2.3
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 5.2.4
10631(d)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System Supplies	Section 6.7	Section 5.5
10631(g)	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years.	System Supplies	Section 6.8	Section 5.6
10631(i)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6	Section 5.4
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	Appendix P

CWC Section	UWMP requirement	Subject	Guidebook Location	UWMP Section
10631(j)	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	Section 2.5.1	N/A
10633	For wastewater and recycled water, coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.1	Section 5.3.1
10633(a)	Describe the wastewater collection and treatment systems in the supplier's service area. Include quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	System Supplies (Recycled Water)	Section 6.5.2	Section 5.3.2 and Table 5-2
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 5.3.2
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 5.3.3
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 5.3.5
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	Sections 5.3.4 and 5.3.5
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 5.3.6

CWC Section	UWMP requirement	Subject	Guidebook Location	UWMP Section
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 5.3.6
10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Section 7.4	Section 6.8
10631(c)(1)	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage.	Water Supply Reliability Assessment	Section 7.1	Section 6
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 6.4 and Table 6-1
10631(c)(2)	For any water source that may not be available at a consistent level of use, describe plans to supplement or replace that source.	Water Supply Reliability Assessment	Section 7.1	Section 6.8
10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	Section 7.1	Section 6.6
10635(a)	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.3	Section 6.5 and Tables 6-2 through 6-4
10632(a) and 10632(a)(1)	Provide an urban water shortage contingency analysis that specifies stages of action and an outline of specific water supply conditions at each stage.	Water Shortage Contingency Planning	Section 8.1	Section 7
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 7.12 and Table 7-6
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 7.11

CWC Section	UWMP requirement	Subject	Guidebook Location	UWMP Section
10632(a)(4)	Identify mandatory prohibitions against specific water use practices during water shortages.	Water Shortage Contingency Planning	Section 8.2	Section 7.5 and Table 7-5
10632(a)(5)	Specify consumption reduction methods in the most restrictive stages.	Water Shortage Contingency Planning	Section 8.4	Section 7.7 and Table 7-5
10632(a)(6)	Indicate penalties or charges for excessive use, where applicable.	Water Shortage Contingency Planning	Section 8.3	Section 7.6 and Table 7-7
10632(a)(7)	Provide an analysis of the impacts of each of the actions and conditions in the water shortage contingency analysis on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts.	Water Shortage Contingency Planning	Section 8.6	Section 7.9
10632(a)(8)	Provide a draft water shortage contingency resolution or ordinance.	Water Shortage Contingency Planning	Section 8.7	Section 7.10 and Appendix M
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 7.8
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	Sections 8
10631(f)(2)	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	Sections 9.1 and 9.3	N/A

CWC Section	UWMP requirement	Subject	Guidebook Location	UWMP Section
10631(j)	CUWCC members may submit their 2013- 2014 CUWCC BMP annual reports in lieu of, or in addition to, describing the DMM implementation in their UWMPs. This option is only allowable if the supplier has been found to be in full compliance with the CUWCC MOU.	Demand Management Measures	Section 9.5	N/A
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 9.3 and Appendix O
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 9.1, Table 1-1, and Appendix B
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	Appendix P
10635(b)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 60 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	Appendix P
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	Appendix P
10642	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Sections 10.2.1	Section 9.2 and Appendix B
10642	Provide supporting documentation that the plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.3.1	Appendix O
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	Appendix P

CWC Section	UWMP requirement	Subject	Guidebook Location	UWMP Section
10644(a)(1)	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	Appendix P
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	Appendix P
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	Appendix P



**APPENDIX E:
POPULATION AND EMPLOYMENT PROJECTIONS BY FOSTER CITY CDD**

PROJECTIONS SUMMARY

Foster City										
POPULATION										
	1990	2000	2005	2010	2015	2020	2025	2030	2035	2040
1974 General Plan	34,000									
Projections 2009		28,803	29,900	30,100	31,000	31,700	32,300	33,000	33,600	
Projections 2013				30,567		31,600		32,700		33,900
CDD Projections					32,390	33,800	34,400	35,000	35,600	36,200
UWMP for EMID				36,100	37,088	37,924	38,442	38,869	39,223	
Census data:	28176	28,803		30,567						
94404 EMID area				33,749						
Foster City				30,567						
non-FC in EMID				3,182						
HOUSEHOLDS										
1974 General Plan (Housing Units)	11,551									
Projections 2009		11,613	12,090	12,210	12,610	12,930	13,250	13,570	13,880	
Projections 2013				12,016		12,380		12,590		12,950
Draft Projections 2016				12,016						12,770-15,220
CDD Projections (Housing Units)					12,832	13,628	13,728	13,828	13,928	14,028
JOBS										
Business license					14,845					
Projections 2009		18,840	14,230	14,510	15,310	16,220	17,230	18,130	19,140	
Projections 2013				13,780		15,920		16,470		17,350
Draft Projections 2016				13,780						18,210-21,140
CDD Projections					15,250	19,700	20,450	22,950	24,500	25,100
PERSONS PER HOUSEHOLD										
US Census	2.50	2.47		2.53						
Projections 2009		2.48	2.47	2.47	2.46	2.45	2.44	2.43	2.42	
Projections 2013				2.54		2.55		2.58		2.62



**APPENDIX F:
DWR WATER LOSS AUDIT**



AWWA Free Water Audit Software: Water Balance

WAS v5.0

American Water Works Association.

Water Audit Report for:	Estero Municipal Improvement District	
Reporting Year:	2014-2015	7/2014 - 6/2015
Data Validity Score:	78	

		Water Exported <i>0.000</i>	Billed Water Exported				Revenue Water 0.000
Own Sources (Adjusted for known errors) <i>0.000</i>	System Input 1,529.721	Water Supplied 1,529.721	Authorized Consumption 1,431.391	Billed Authorized Consumption 1,412.269	Billed Metered Consumption (water exported is removed) 1,412.269		Revenue Water
					Billed Unmetered Consumption <i>0.000</i>		1,412.269
Water Imported 1,529.721	System Input 1,529.721	Water Supplied 1,529.721	Water Losses 98.331	Unbilled Authorized Consumption 19.122	Unbilled Metered Consumption <i>0.000</i>		Non-Revenue Water (NRW)
					Unbilled Unmetered Consumption 19.122		
				Apparent Losses 7.355	Unauthorized Consumption 3.824		117.452
					Customer Metering Inaccuracies <i>0.000</i>		
	Systematic Data Handling Errors 3.531						
			Real Losses 90.976	Leakage on Transmission and/or Distribution Mains Not broken down			
				Leakage and Overflows at Utility's Storage Tanks Not broken down			
				Leakage on Service Connections Not broken down			



**APPENDIX G:
DWR POPULATION TOOL OUTPUTS AND SBX7-7 COMPLIANCE TABLES**

Please print this page to a PDF and include as part of your UWMP submittal.

Confirmation Information			
Generated By	Water Supplier Name	Confirmation #	Generated On
Daniel Gold	Estero Municipal Improvement District	1587461173	3/17/2016 3:03:20 PM

Boundary Information		
Census Year	Boundary Filename	Internal Boundary ID
1990	EMID_rev.kml	841
2000	EMID_rev.kml	841
2010	EMID_rev.kml	841

Baseline Period Ranges

10 to 15-year baseline period

Number of years in baseline period:

Year beginning baseline period range:

Year ending baseline period range¹: 2005

5-year baseline period

Year beginning baseline period range:

Year ending baseline period range²: 2008

¹ The ending year must be between December 31, 2004 and December 31, 2010.

² The ending year must be between December 31, 2007 and December 31, 2010.

Persons-Per-SF Connection and Persons-Per-MF/GQ Connection

Year	Census Block Group Level		Census Block Level			# SF Connections	# MF/GQ Connections	Persons per SF Connection	Persons per MF/GQ Connection
	% Population in SF Housing	Service Area Population	Population in SF Housing (calculated)	Population in MF/GQ Housing (calculated)					
1990	70.67%	29,922	21,146	8,776	<input type="text"/>	<input type="text"/>	4.81	2.19	
1991	-	-	-	-	-	-	4.81	2.31	
1992	-	-	-	-	-	-	4.81	2.43	
1993	-	-	-	-	-	-	4.81	2.54	
1994	-	-	-	-	-	-	4.81	2.66	
1995	-	-	-	-	-	-	4.80	2.78	
1996	-	-	-	-	-	-	4.80	2.90	
1997	-	-	-	-	-	-	4.80	3.02	
1998	-	-	-	-	-	-	4.80	3.13	
1999	-	-	-	-	-	-	4.80	3.25	
2000	71.28%	31,593	22,521	9,072	<input type="text" value="4698"/>	<input type="text" value="2692"/>	4.79	3.37	
2001	-	-	-	-	-	-	4.79	3.49	
2002	-	-	-	-	-	-	4.79	3.61	
2003	-	-	-	-	-	-	4.78	3.72	
2004	-	-	-	-	-	-	4.78	3.84	
2005	-	-	-	-	-	-	4.78	3.96	
2006	-	-	-	-	-	-	4.78	4.08	
2007	-	-	-	-	-	-	4.78	4.20	
2008	-	-	-	-	-	-	4.77	4.31	
2009	-	-	-	-	-	-	4.77	4.43	
2010	64.73%	33,489	21,678	11,811	<input type="text" value="4540"/>	<input type="text" value="2596"/>	4.77	4.55	
2015	-	-	-	-	-	-	4.77 *	5.14 *	

Population Using Persons-Per-SF Connection and Persons-Per-MF/GQ Connection

Year		# SF Connections	# MF/GQ Connections	Persons per SF Connection	Persons per MF/GQ Connection	SF Population	MF/GQ Population	Total Population
10 to 15 Year Baseline Population Calculations								
Year 1	1996	4688	2698	4.80	2.90	22,508	7,819	30,327
Year 2	1997	4536	2571	4.80	3.02	21,770	7,754	29,524
Year 3	1998	4598	2631	4.80	3.13	22,059	8,246	30,305
Year 4	1999	4660	2691	4.80	3.25	22,348	8,751	31,099
Year 5	2000	4698	2692	4.79	3.37	22,521	9,072	31,593
Year 6	2001	4657	2666	4.79	3.49	22,298	9,299	31,597
Year 7	2002	4670	2689	4.79	3.61	22,351	9,697	32,047
Year 8	2003	4649	2734	4.78	3.72	22,241	10,181	32,422
Year 9	2004	4649	2734	4.78	3.84	22,232	10,504	32,736
Year 10	2005	4649	2734	4.78	3.96	22,222	10,827	33,049
5 Year Baseline Population Calculations								
Year 1	2004	4649	2734	4.78	3.84	22,232	10,504	32,736
Year 2	2005	4649	2734	4.78	3.96	22,222	10,827	33,049
Year 3	2006	4649	2734	4.78	4.08	22,213	11,149	33,362
Year 4	2007	4690	2677	4.78	4.20	22,399	11,233	33,632
Year 5	2008	4690	2677	4.77	4.31	22,390	11,549	33,939
2015 Compliance Year Population Calculations								
2015		4636	2747	4.77 *	5.14 *	22,113	14,118	36,231

QUESTIONS / ISSUES? CONTACT THE WUEdata HELP DESK

SB X7-7 Table 0: Units of Measure Used in UWMP*

(select one from the drop down list)

Million Gallons

**The unit of measure must be consistent with Table 2-3*

NOTES:

SB X7-7 Table-1: Baseline Period Ranges

Baseline	Parameter	Value	Units
10- to 15-year baseline period	2008 total water deliveries	1,843	Million Gallons
	2008 total volume of delivered recycled water	-	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	1996	
	Year ending baseline period range ³	2005	
5-year baseline period	Number of years in baseline period	5	Years
	Year beginning baseline period range	2004	
	Year ending baseline period range ⁴	2008	

¹ If the 2008 recycled water percent is less than 10 percent, then the first baseline period is a continuous 10-year period. If the amount of recycled water delivered in 2008 is 10 percent or greater, the first baseline period is a continuous 10- to 15-year period. ² The Water Code requires that the baseline period is between 10 and 15 years. However, DWR recognizes that some water suppliers may not have the minimum 10 years of baseline data.

³ The ending year must be between December 31, 2004 and December 31, 2010.

⁴ The ending year must be between December 31, 2007 and December 31, 2010.

NOTES: Values in this form are reported on a fiscal year basis, in accordance with the UWMP. Values are reported for the fiscal year ending in the display year, i.e., fiscal year 2007-08 is displayed as 2008.

SB X7-7 Table 2: Method for Population Estimates**Method Used to Determine Population**
(may check more than one)**1. Department of Finance (DOF)**
DOF Table E-8 (1990 - 2000) and (2000-2010) and
DOF Table E-5 (2011 - 2015) when available**2. Persons-per-Connection Method****3. DWR Population Tool****4. Other**
DWR recommends pre-review

NOTES:

SB X7-7 Table 3: Service Area Population

Year	Population	
10 to 15 Year Baseline Population		
Year 1	1996	30,327
Year 2	1997	29,524
Year 3	1998	30,305
Year 4	1999	31,099
Year 5	2000	31,593
Year 6	2001	31,597
Year 7	2002	32,047
Year 8	2003	32,422
Year 9	2004	32,736
Year 10	2005	33,049
<i>Year 11</i>		
<i>Year 12</i>		
<i>Year 13</i>		
<i>Year 14</i>		
<i>Year 15</i>		
5 Year Baseline Population		
Year 1	2004	32,736
Year 2	2005	33,049
Year 3	2006	33,362
Year 4	2007	33,362
Year 5	2008	33,939
2015 Compliance Year Population		
2015		36,231
NOTES:		

SB X7-7 Table 4: Annual Gross Water Use *

Baseline Year <i>Fm SB X7-7 Table 3</i>	Volume Into Distribution System <i>This column will remain blank until SB X7-7 Table 4-A is completed.</i>	Deductions					Annual Gross Water Use
		Exported Water	Change in Dist. System Storage (+/-)	Indirect Recycled Water <i>This column will remain blank until SB X7-7 Table 4-B is completed.</i>	Water Delivered for Agricultural Use	Process Water <i>This column will remain blank until SB X7-7 Table 4-D is completed.</i>	
10 to 15 Year Baseline - Gross Water Use							
Year 1	1996	1,904	-	-	-	-	1,904
Year 2	1997	2,038	-	-	-	-	2,038
Year 3	1998	1,879	-	-	-	-	1,879
Year 4	1999	2,032	-	-	-	-	2,032
Year 5	2000	2,169	-	-	-	-	2,169
Year 6	2001	2,150	-	-	-	-	2,150
Year 7	2002	2,051	-	-	-	-	2,051
Year 8	2003	1,928	-	-	-	-	1,928
Year 9	2004	2,042	-	-	-	-	2,042
Year 10	2005	1,902	-	-	-	-	1,902
Year 11	0	-	-	-	-	-	-
Year 12	0	-	-	-	-	-	-
Year 13	0	-	-	-	-	-	-
Year 14	0	-	-	-	-	-	-
Year 15	0	-	-	-	-	-	-
10 - 15 year baseline average gross water use							2,009
5 Year Baseline - Gross Water Use							
Year 1	2004	2,023	-	-	-	-	2,023
Year 2	2005	1,909	-	-	-	-	1,909
Year 3	2006	1,926	-	-	-	-	1,926
Year 4	2007	2,023	-	-	-	-	2,023
Year 5	2008	1,981	-	-	-	-	1,981
5 year baseline average gross water use							1,972
2015 Compliance Year - Gross Water Use							
2015		1,453	-	-	-	-	1,453

* NOTE that the units of measure must remain consistent throughout the UWMP, as reported in Table 2-3

NOTES:

SB X7-7 Table 4-A: Volume Entering the Distribution System(s)

Complete one table for each source.

Name of Source SFPUC Wholesale Water

This water source is:

- The supplier's own water source
 A purchased or imported source

Baseline Year <i>Fm SB X7-7 Table 3</i>	Volume Entering Distribution System	Meter Error Adjustment* <i>Optional (+/-)</i>	Corrected Volume Entering Distribution System
---	--	---	--

10 to 15 Year Baseline - Water into Distribution System

Year 1	1996	1,904		1,904
Year 2	1997	2,038		2,038
Year 3	1998	1,879		1,879
Year 4	1999	2,032		2,032
Year 5	2000	2,169		2,169
Year 6	2001	2,150		2,150
Year 7	2002	2,051		2,051
Year 8	2003	1,928		1,928
Year 9	2004	2,042		2,042
Year 10	2005	1,902		1,902
Year 11	0			-
Year 12	0			-
Year 13	0			-
Year 14	0			-
Year 15	0			-

5 Year Baseline - Water into Distribution System

Year 1	2004	2,023		2,023
Year 2	2005	1,909		1,909
Year 3	2006	1,926		1,926
Year 4	2007	2,023		2,023
Year 5	2008	1,981		1,981

2015 Compliance Year - Water into Distribution System

2015	1,453		1,453
-------------	-------	--	-------

** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 5: Gallons Per Capita Per Day (GPCD)

Baseline Year <i>Fm SB X7-7 Table 3</i>		Service Area Population <i>Fm SB X7-7 Table 3</i>	Annual Gross Water Use <i>Fm SB X7-7 Table 4</i>	Daily Per Capita Water Use (GPCD)
10 to 15 Year Baseline GPCD				
Year 1	1996	30,327	1,904	172
Year 2	1997	29,524	2,038	189
Year 3	1998	30,305	1,879	170
Year 4	1999	31,099	2,032	179
Year 5	2000	31,593	2,169	188
Year 6	2001	31,597	2,150	186
Year 7	2002	32,047	2,051	175
Year 8	2003	32,422	1,928	163
Year 9	2004	32,736	2,042	171
Year 10	2005	33,049	1,902	158
<i>Year 11</i>	0	-	-	
<i>Year 12</i>	0	-	-	
<i>Year 13</i>	0	-	-	
<i>Year 14</i>	0	-	-	
<i>Year 15</i>	0	-	-	
10-15 Year Average Baseline GPCD				175
5 Year Baseline GPCD				
Baseline Year <i>Fm SB X7-7 Table 3</i>		Service Area Population <i>Fm SB X7-7 Table 3</i>	Gross Water Use <i>Fm SB X7-7 Table 4</i>	Daily Per Capita Water Use
Year 1	2004	32,736	2,023	169
Year 2	2005	33,049	1,909	158
Year 3	2006	33,362	1,926	158
Year 4	2007	33,362	2,023	166
Year 5	2008	33,939	1,981	160
5 Year Average Baseline GPCD				162
2015 Compliance Year GPCD				
2015		36,231	1,453	110
NOTES:				

SB X7-7 Table 6: Gallons per Capita per Day
Summary From Table SB X7-7 Table 5

10-15 Year Baseline GPCD	175
5 Year Baseline GPCD	162
2015 Compliance Year GPCD	110
NOTES:	

SB X7-7 Table 7: 2020 Target Method*Select Only One*

Target Method		Supporting Documentation
<input checked="" type="checkbox"/>	Method 1	SB X7-7 Table 7A
<input type="checkbox"/>	Method 2	SB X7-7 Tables 7B, 7C, and 7D <i>Contact DWR for these tables</i>
<input type="checkbox"/>	Method 3	SB X7-7 Table 7-E
<input type="checkbox"/>	Method 4	Method 4 Calculator

NOTES:

SB X7-7 Table 7-A: Target Method 1

20% Reduction

10-15 Year Baseline GPCD	2020 Target GPCD
175	140

NOTES:

SB X7-7 Table 7-F: Confirm Minimum Reduction for 2020 Target

5 Year Baseline GPCD From SB X7-7 Table 5	Maximum 2020 Target ¹	Calculated 2020 Target ²	Confirmed 2020 Target
162	154	140	140

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:

SB X7-7 Table 8: 2015 Interim Target GPCD

Confirmed 2020 Target <i>Fm SB X7-7 Table 7-F</i>	10-15 year Baseline GPCD <i>Fm SB X7-7 Table 5</i>	2015 Interim Target GPCD
140	175	158

NOTES:

SB X7-7 Table 9: 2015 Compliance

Actual 2015 GPCD	2015 Interim Target GPCD	Optional Adjustments <i>(in GPCD)</i>					2015 GPCD <i>(Adjusted if applicable)</i>	Did Supplier Achieve Targeted Reduction for 2015?
		Enter "0" if Adjustment Not Used			TOTAL Adjustments	Adjusted 2015 GPCD		
		Extraordinary Events	Weather Normalization	Economic Adjustment				
110	158	-	-	-	-	110	110	YES

NOTES:



**APPENDIX H:
SFPUC REGIONAL WATER SYSTEM SUPPLY RELIABILITY AND BAWSCA TIER 2
DROUGHT IMPLEMENTATION SCENARIOS**



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 2015¹,
- 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 (HLLSM). 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).

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Mayor

Ann Moller Caen
President

Francesca Vietor
Vice President

Vince Courtney
Commissioner

Anson Moran
Commissioner

Ike Kwon
Commissioner

Harlan L. Kelly, Jr.
General Manager



per the July 2009 Water Supply Agreement between the City and County of San Francisco and Wholesale Customers in Alameda County, San Mateo County, and Santa Clara County. The wholesale customers have adopted the Tier Two Plan, the second component of the WSAP, which allocates the collective wholesale customer share among each of the 26 wholesale customers.

Finally, the SFPUC estimated the frequency and severity of anticipated shortages for the period 2015 (base year) through 2040. For this analysis, we assumed that the historical hydrologic period is indicative of future events and evaluated the supply reliability assuming a repeat of the actual historic hydrologic period 1921 through 2011. The results of this analysis are summarized in Table 3.

Compared to the reliability projections that were provided previously for the 2010 UWMP update, Table 1 indicates slightly higher shortages and lower Wholesale allocations for dry years 2 and 3. Also, Table 3 shows slightly higher estimates of required rationing in multi-year droughts as compared to those provided previously. These differences are due to the inclusion of a temporary constraint on Crystal Springs Reservoir storage and an in-stream flow requirement below Crystal Springs Reservoir, which are shown in Table 2, but were not included in the previous reliability analysis.

It is our understanding that you will pass this information on to the Wholesale Customers. If you have any questions or need additional information, please do not hesitate to contact me at (415) 554-0792.

Sincerely,

A handwritten signature in cursive script that reads "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

Fiscal Year	Wholesale Demand (MGD)					
	184.0	184.0	184.0	184.0	184.0	184.0
	Projected Wholesale Allocation (MGD)					
	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

Fiscal Year	Wholesale Demand (MGD)					
	184.0	184.0	184.0	184.0	184.0	184.0
	Projected Wholesale Allocation (MGD)					
	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

Fiscal Year	Wholesale Demand (MGD)					
	184.0	184.0	184.0	184.0	184.0	184.0
	Projected Wholesale Allocation (MGD)					
	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						

2015 UWMP Tier 2 Allocation Scenarios

Agency	Base Year (FY 12-13) SFPUC Purchases	Scenarios for Total Available Supply to Wholesale Customers	
		129.2 MGD	132.5.MGD
ACWD	8.96	8.06	8.51
Brisbane/GVMID	0.59	0.53	0.56
Burlingame	4.00	3.78	3.70
Coastside	1.82	1.65	1.62
CWS Total	31.18	27.81	27.11
Daly City	4.01	3.29	3.39
East Palo Alto	2.07	1.95	1.97
Estero	4.10	3.69	3.92
Hayward	15.48	13.93	14.71
Hillsborough	3.30	3.02	2.91
Menlo Park	3.25	2.92	3.04
Mid Pen WD	2.98	2.81	2.75
Millbrae	2.28	2.05	2.15
Milpitas	6.38	5.75	6.06
Mountain View	9.00	8.10	8.55
North Coast	2.44	2.20	2.32
Palo Alto	11.33	10.20	10.76
Purissima Hills	1.99	1.37	1.51
Redwood City	9.73	8.63	8.45
San Bruno	1.94	1.75	1.84
San José	4.45	3.05	3.38
Santa Clara	2.29	1.57	1.74
Stanford	2.15	1.93	2.00
Sunnyvale	9.28	8.35	8.67
Westborough	0.90	0.81	0.86
Wholesale Total	145.90	129.20	132.50

6-Jan-16



**APPENDIX I:
WATER QUALITY REPORTS**

2015 WATER QUALITY REPORT

City of Foster City/Estero Municipal Improvement District



Dear EMID Customer,

The City of Foster City/Estero Municipal Improvement District (EMID) is pleased to provide you with the Annual Water Quality Report for 2015. On the following pages, you will find important information about the origin of your water, the quality of your water, and the steps taken to protect the water supply.

Of special note: *Based on Governor Brown's continuing Water Emergency Declaration, EMID will likely continue to be required to reduce water usage by 12% from the 2013 baseline usage. EMID met this goal in 2015 and looks forward to working with its customers to meet this goal again in 2016.*

As the purveyor of your drinking water, we are proud to be able to state that the water we provide is of the highest quality, meeting or exceeding all primary drinking water standards set by the U.S. Environmental Agency (USEPA) and the California Department of Public Health (CDPH).

EMID purchases all of its water from the San Francisco Public Utilities Commission (SFPUC). The following pages contain the source water information prepared by the SFPUC Water Quality Bureau. In addition to the monitoring and testing performed by SFPUC, EMID does its own monitoring and testing to ensure that the water quality in the distribution system meets or exceeds all drinking water standards. If there are any questions about the water, please call the SFPUC Water Quality Bureau at (877)737-8297 or visit the website at www.sfwater.org. Any other questions about the water system should be directed to EMID Public Works Manager, Norman Dorais at (650) 286-8140.

WATER QUALITY



O'Shaughnessy Dam

WATER QUALITY

The SFPUC's Water Quality Division (WQD) regularly collects and tests water samples from reservoirs and designated sampling points throughout the system to ensure the water delivered to you meets or exceeds federal and state drinking water standards. In 2015, WQD staff conducted more than 47,500 drinking water tests in the transmission and distribution systems. This is in addition to the extensive treatment process control monitoring performed by the SFPUC's certified operators and online instruments.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. In order to ensure that tap water is safe to drink, the USEPA and SWRCB prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. SWRCB regulations also establish limits for contaminants in bottled water that provide the same protection for public health.



Water Quality Sampling

CONTAMINANTS AND REGULATIONS

The sources of drinking water (both tap water and bottled water) include rivers, lakes, oceans, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Such substances are called contaminants, and may be present in source water as:

Microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic contaminants, such as salts and metals, that can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and herbicides that may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application, and septic systems.

Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production, and mining activities.

More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline at (800)426-4791.



SPECIAL HEALTH NEEDS

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons, such as those with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly people, and infants, can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA/Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the USEPA's Safe Drinking Water Hotline at (800)426-4791 or at www.epa.gov/safewater.

KEY WATER QUALITY TERMS

2015 WATER QUALITY DATA

The table on the following page lists all 2015 detected drinking water contaminants and the information about their typical sources. Contaminants below detection limits for reporting are not shown, in accordance with regulatory guidance. The SFPUC holds a SWRCB monitoring waiver for some contaminants and therefore their monitoring frequencies are less than annual.

The following are definitions of key terms referring to water quality standards on the adjacent data table:

Public Health Goal (PHG): The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.

Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the USEPA.

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs or MCLGs as is economically and technologically feasible. Secondary MCLs (SMCLs) are set to protect the odor, taste, and appearance of drinking water.

Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Primary Drinking Water Standard (PDWS): MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

Regulatory Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.

Turbidity: A water clarity indicator that measures cloudiness of the water, and is also used to indicate the effectiveness of the filtration system. High turbidity can hinder the effectiveness of disinfectants.

Cryptosporidium: A parasitic microbe found in most surface water. The SFPUC regularly tests for this waterborne pathogen, and found it at very low levels in source water and treated water in 2015. However, current test methods approved by the USEPA do not distinguish between dead organisms and those capable of causing disease. Ingestion of *Cryptosporidium* may produce symptoms of nausea, abdominal cramps, diarrhea, and associated headaches. *Cryptosporidium* must be ingested to cause disease, and it may be spread through means other than drinking water.



Water Storage Reservoirs

FLUORIDATION AND DENTAL FLUOROSIS

Mandated by State law, water fluoridation is a widely accepted practice proven to be safe and effective for preventing and controlling tooth decay. The SFPUC's fluoride target level in the water is 0.7 milligram per liter, consistent with the May 2015 State regulatory guidance on the new optimal fluoride level. Infants fed formula mixed with water containing fluoride at this level may still have a chance of developing tiny white lines or streaks in their teeth. These marks are referred to as mild to very mild fluorosis, and are often only visible under a microscope. Even in cases where the marks are visible, they do not pose any health risk. CDC considers it safe to use optimally fluoridated water for preparing infant formula. To lessen this chance of dental fluorosis, you may choose to use low-fluoride bottled water to prepare infant formula. Nevertheless, children may still develop dental fluorosis due to fluoride intake from other sources such as food, toothpaste and dental products.

Contact your health provider or SWRCB if you have concerns about dental fluorosis. For additional information about fluoridation or oral health, visit the SWRCB website www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Fluoridation.shtml, and search for fluoride, or the CDC website www.cdc.gov/fluoridation.

City of Foster City/ Estero Municipal Improvement District - Water Quality Data for Year 2015 ⁽¹⁾

DETECTED CONTAMINANTS	Unit	MCL	PHG or (MCLG)	Range or Level Found	Average or [Max]	Major Sources in Drinking Water
TURBIDITY						
Unfiltered Hetch Hetchy Water	NTU	5	N/A	0.2 - 0.5 ⁽²⁾	[3.1]	Soil runoff
Filtered Water from Sunol Valley Water Treatment Plant (SVWTP)	NTU	1 ⁽³⁾	N/A	-	[1]	Soil runoff
	-	Min 95% of samples ≤ 0.3 NTU ⁽³⁾	N/A	97% - 100%	-	Soil runoff
Filtered Water from Harry Tracy Water Treatment Plant (HTWTP)	NTU	1 ⁽³⁾	N/A	-	[0.14]	Soil runoff
	-	Min 95% of samples ≤ 0.3 NTU ⁽³⁾	N/A	100%	-	Soil runoff
DISINFECTION BYPRODUCTS AND PRECURSOR						
Total Trihalomethanes	ppb	80	N/A	30.0-47.9	37.6 ⁽⁴⁾	Byproduct of drinking water disinfection
Haloacetic Acids	ppb	60	N/A	27.0-38.1	30.8 ⁽⁴⁾	Byproduct of drinking water disinfection
Total Organic Carbon ⁽⁵⁾	ppm	TT	N/A	1.4 - 5.2	2.1	Various natural and man-made sources
MICROBIOLOGICAL						
Total Coliform	-	NoP ≤ 5.0% of TT	(0)	-	[0%]	Naturally present in the environment
Giardia lamblia	cyst/L	TT	(0)	0 - 0.08	0.01	Naturally present in the environment
INORGANICS						
Fluoride (source water) ⁽⁶⁾	ppm	2.0	1	ND - 0.8	0.3 ⁽⁷⁾	Erosion of natural deposits; water additive to promote strong teeth
Chloramine (as chlorine)	ppm	MRDL = 4.0	MRDLG = 4	1.76-2.53	2.25 ⁽⁸⁾	Drinking water disinfectant added for treatment
CONSTITUENTS WITH SECONDARY STANDARDS						
	Unit	SMCL	PHG	Range	Average	Major Sources of Contaminant
Chloride	ppm	500	N/A	<3 - 16	8.4	Runoff / leaching from natural deposits
Color	unit	15	N/A	<5 - 5	<5	Naturally-occurring organic materials
Specific Conductance	µS/cm	1600	N/A	34 - 213	144	Substances that form ions when in water
Sulfate	ppm	500	N/A	1.2 - 30	15	Runoff / leaching from natural deposits
Total Dissolved Solids	ppm	1000	N/A	<20 - 93	54	Runoff / leaching from natural deposits
Turbidity	NTU	5	N/A	0.1 - 0.3	0.1	Soil runoff
LEAD AND COPPER						
	Unit	AL	PHG	Range	90th Percentile	Major Sources in Drinking Water
Copper	ppb	1300	300	7.4-50.2 ⁽⁹⁾	43.5	Internal corrosion of household water plumbing systems
Lead	ppb	15	0.2	<1.0-13.5 ⁽¹⁰⁾	7.03	Internal corrosion of household water plumbing systems
OTHER WATER QUALITY PARAMETERS						
	Unit	ORL	Range	Average	KEY:	
Alkalinity (as CaCO ₃)	ppm	N/A	7 - 128	30	< / ≤ = less than / less than or equal to	
Boron	ppb	1000 (NL)	103	103	AL = Action Level	
Bromide ⁽¹¹⁾	ppb	N/A	15 - 24	20	Max = Maximum	
Calcium (as Ca)	ppm	N/A	3 - 18	11	Min = Minimum	
Chlorate ⁽¹²⁾	ppb	800 (NL)	39 - 280	157	N/A = Not Available	
Hardness (as CaCO ₃)	ppm	N/A	13 - 65	42	ND = Non-detect	
Magnesium	ppm	N/A	0.2 - 5.6	3.7	NL = Notification Level	
pH	-	N/A	7.1 - 9.9	9.0	NoP = Number of Coliform-Positive Sample	
Potassium	ppm	N/A	0.2 - 0.9	0.6	NTU = Nephelometric Turbidity Unit	
Silica	ppm	N/A	3.7 - 5.4	4.7	ORL = Other Regulatory Level	
Sodium	ppm	N/A	2.9 - 19	13	ppb = part per billion	
					ppm = part per million	
					µS/cm = microSiemens/centimeter	

Footnotes:

(1) All results met State and Federal drinking water health standards.

(2) These are monthly average turbidity values measured every 4 hours daily.

(3) There is no turbidity MCL for filtered water. The limits are based on the TT requirements for filtration systems.

(4) This is the highest locational running annual average value.

(5) Total organic carbon is a precursor for disinfection byproduct formation. The TT requirement applies to the filtered water from the SVWTP only.

(6) In May 2015, the SWRCB recommended a fluoride level in the treated water be maintained at 0.7 ppm. In 2015, the range and average of the fluoride levels were 0.6 ppm - 1.0 ppm and 0.8 ppm, respectively.

(7) The natural fluoride levels in the upcountry sources were ND. Elevated fluoride levels in the SVWTP and HTWTP raw water are attributed to the transfer of fluoridated Hetch Hetchy water into the local reservoirs.

(8) This is the highest running annual average value.

(9) The most recent Lead and Copper Rule monitoring was in 2013. 0 of 34 site samples collected at consumer taps had copper concentrations above the AL.

(10) The most recent Lead and Copper Rule monitoring was in 2013. 0 of 34 site samples collected at consumer taps had lead concentrations above the AL.

(11) Bromide was detected in HTWTP effluent only. If you do not receive HTWTP water in 2015, you may exclude this contaminant from this table.

(12) The detected chlorate in the treated water is a degradation product of sodium hypochlorite used by the SFPUC for water disinfection.

Note: Additional water quality data may be obtained by calling the City of Foster City/Estero Municipal Improvement District at (650) 286-8140.

SFPUC DRINKING WATER SOURCES

CONSERVATION ALERT: EMID will likely continue to be required to reduce water use by 12% from the 2013 baseline usage. Also, in accord with new State of California emergency water restrictions, reductions in outdoor irrigation of ornamental landscape and turf are still in place.

Supplied by the San Francisco Regional Water System (SFRWS), which is owned and operated by the San Francisco Public Utilities Commission (SFPUC), our major water source originates from spring snowmelt flowing down the Tuolumne River to storage in Hetch Hetchy Reservoir. The pristine, well protected Sierra water source is exempt from filtration requirements by the United States Environmental Protection Agency (USEPA) and State Water Resources Control Board's Division of Drinking Water (SWRCB). Water treatment provided by the SFRWS, including disinfection by ultraviolet light and chlorine, corrosion control by adjustment of the water pH value, fluoridation for dental health protection, and chloramination for maintaining disinfectant residual and minimizing disinfection byproduct formation, is in place to meet the drinking water regulatory requirements.

The Hetch Hetchy water is supplemented with surface water from two local watersheds. Rainfall and runoff from the 35,000-acre Alameda Watershed in Alameda and Santa Clara counties are collected in the Calaveras and San Antonio reservoirs, and delivered to the Sunol Valley Water Treatment Plant (SVWTP). Rainfall and runoff from the 23,000-acre Peninsula Watershed in San Mateo County are stored in the Crystal Springs, San Andreas, and Pilarcitos reservoirs, and delivered to the Harry

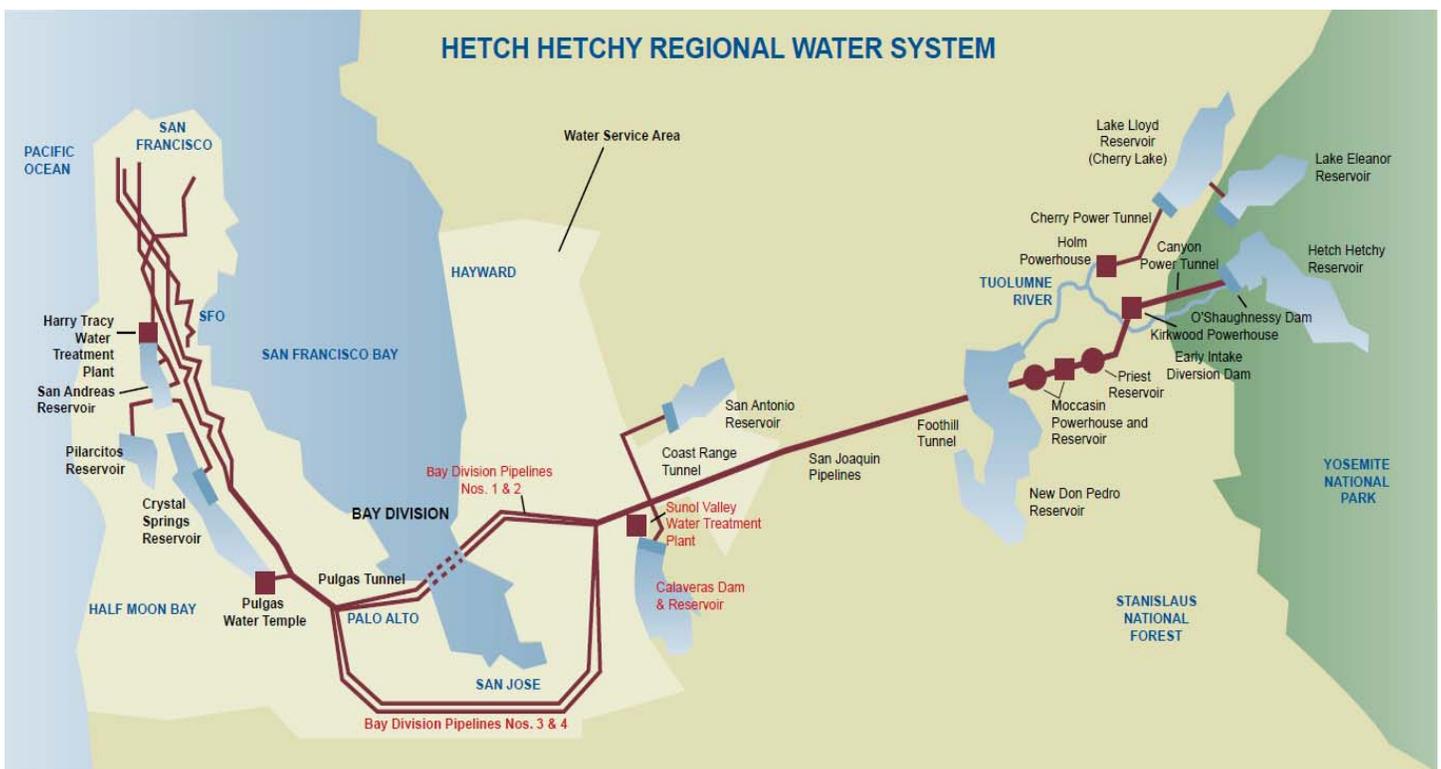
Tracy Water Treatment Plant. Beginning in 2015, the SWRCB approved the SFRWS to use surface water collected in Lake Eleanor, Lake Cherry, Early Intake Reservoir and conveyed via the Lower Cherry Aqueduct, and the associated creeks (collectively known as Upcountry Non-Hetch Hetchy Sources, or UNHHS) as an additional drinking water source. The UNHHS water will be treated at the SVWTP prior to service to customers. Water at the two treatment plants is subject to filtration, disinfection, fluoridation, and pH adjustment for corrosion control optimization. As in the past, the Hetch Hetchy Watershed provided the majority of our total water supply, with the remainder contributed by the two local watersheds in 2015.

WATERSHED PROTECTION

The SFPUC conducts watershed sanitary survey for Hetch Hetchy source annually and local water sources every five years. The latest 5-year local sanitary survey was done in 2010. In 2015, a special watershed sanitary survey for the upcountry water sources including Cherry Creek, Eleanor Creek, and Lower Cherry Aqueduct was completed as part of the SFPUC's drought response plan efforts. These surveys evaluate the sanitary condition, water quality, potential contamination sources, and the results of watershed management activities, and were completed with support from partner agencies including the National Park Service and US Forest Service. These surveys have identified wildlife, stock, and human activities as potential contamination sources.

The reports are available for review at the San Francisco District office of SWRCB (contact phone number: 510-620-3474).

SFPUC WATER SYSTEM



MORE WATER SYSTEM INFORMATION



Hetch Hetchy Reservoir

REDUCING LEAD FROM PLUMBING FIXTURES

Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. There are no known lead service lines in the SFRWS. We are responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. It is possible that lead levels at your home may be higher than at others because of plumbing materials used in your property.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Infants and young children are typically more vulnerable to lead in drinking water than the general population. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead levels in your water, you may wish to have your water tested. Additional information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the USEPA's Safe Drinking Water Hotline at (800)426-4791, or at www.epa.gov/safewater/lead.

BAY TUNNEL AND NEW IRVINGTON TUNNEL PROJECTS

These new SFPUC's facilities were brought into service in 2015 and have strengthened the seismic reliability of the SFRWS by providing crucial system redundancies. They are part of the SFPUC's Water System Improvement Program, a 4.8 billion dollar investment in capital projects that strengthen our ability to provide reliable, high-quality water to 2.6 million customers, even after a natural disaster.

PUBLIC PARTICIPATION

The EMID President and Board of Directors are the governing authority of the EMID water system. They meet of the first and third Mondays of the month at 6:30 p.m. at the Foster City Council/Board Chambers located at 610 Foster City Blvd. Foster City, California. An agenda for each EMID meeting is posted on the City of Foster City web site at www.fostercity.org/cityhall.

The SFPUC meets on the second and fourth Tuesdays of the month at 1:30 p.m. at the San Francisco City Hall, Room 400. The public is invited to participate in these meetings.

This report contains important information about your drinking water. Translate it, or speak with someone who understands it.

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hablecon alguien que lo entienda bien.

此份水質報告，內有重要資訊。請找他人為你翻譯和解說清楚。



**City of Foster City/Estero Municipal Improvement District
100 Lincoln Centre Drive
Foster City, CA 94404**



**APPENDIX J:
CHAPTER 8.60 OF THE EMID CODE**

Chapter 8.60 WATER CONSERVATION AND RATIONING

Sections:

- 8.60.010 Definitions.
- 8.60.020 Declaration of water emergency.
- 8.60.030 Mandatory water conservation and rationing policy.
- 8.60.040 Prohibition of nonessential uses during state of water shortage emergency.
- 8.60.050 Nonessential uses—Water conservation.
- 8.60.060 Nonessential uses—Water rationing.
- 8.60.070 Authority to enforce—Penalties.
- 8.60.080 Disconnection.
- 8.60.090 Appeals board, appeals and exceptions.
- 8.60.100 Reconnection.
- 8.60.110 New connections.
- 8.60.120 Excess water use charge.
- 8.60.130 Waiver of excess water use charge.

8.60.010 Definitions.

As used in this chapter:

- A. "District board" means the board of directors of the Estero municipal improvement district.
- B. "District" means the Estero municipal improvement district.
- C. "District president" means the president of the board of directors of the Estero municipal improvement district.
- D. "District manager" means the district manager of the Estero municipal improvement district.
- E. "District engineer" means the district engineer of the Estero municipal improvement district.
- F. "District counsel" means the district counsel of the Estero municipal improvement district.
- G. "District secretary" means the district secretary of the Estero Municipal improvement district.
- H. "Finance director" means the finance director of the Estero municipal improvement district.
- I. "User" and "customer" mean any person, firm, partnership, association, corporation, company, organization or governmental entity taking water from or using water supplied by the Estero municipal improvement district.
- J. "Unit of water" is one hundred cubic feet of water.
- K. "Water" means water supplied by the Estero municipal improvement district.
- L. "Irrigation" means the watering of grass, lawn, groundcover, shrubbery, annual flowers/plantings, open ground, gardens, trees or other vegetation.

M. "Water emergency" means any condition related to the district's available water supply which limits its ability to supply a normal amount of water to district customers. (Ord. 126 § 1 (part), 2009)

8.60.020 Declaration of water emergency.

In accordance with the provisions of Chapter 3 of the California Water Code, the district board may declare a water shortage emergency condition to prevail and therefore a need to implement mandatory water conservation and/or water rationing which shall remain in effect until the district board determines that the state of water emergency no longer exists. (Ord. 126 § 1 (part), 2009)

8.60.030 Mandatory water conservation and rationing policy.

During a state of water emergency, it is the policy of the district to prohibit or restrict certain uses of water which is obtained from the district water supply and to prescribe penalties for violations. (Ord. 126 § 1 (part), 2009)

8.60.040 Prohibition of nonessential uses during state of water shortage emergency.

The provisions of this chapter shall apply to all users of water obtained from the district. Notwithstanding other provisions of the Foster City Municipal and Estero Municipal Improvement District Codes inconsistent with this chapter, the provisions of this chapter shall remain in effect until such time as the district board declares the water shortage emergency over. (Ord. 126 § 1 (part), 2009)

8.60.050 Nonessential uses—Water conservation.

Upon the district board declaring a water shortage emergency condition to prevail and declaring that water conservation measures are required, it shall be unlawful to use water obtained from the district water supply in the following ways, with the following results or during the following times or conditions:

- A. Washing cars, boats, trailers or other vehicles with a hose that does not have an automatic shut-off device;
- B. Watering grass, lawn, groundcover, shrubbery, annual flowers/plantings, open ground, gardens, trees or other vegetation in a manner that results in runoff into sidewalks, gutters and streets or during periods of precipitation, or to an extent which allows excess water to run to waste;
- C. Watering grass, lawn, groundcover, shrubbery, annual flowers/plantings, open ground, gardens, trees or other vegetation during the hours of ten a.m. through six p.m. on any day of the week; and for more than two days during any seven-day period;
- D. Allowing or failing to attend to the escape of water through leaks, breaks or malfunction within the water user's plumbing or distribution system for any period of time within which such leak, break or malfunction should reasonably have been discovered and corrected. It shall be presumed that a period of twenty-four hours after the water user discovers or is notified of such break, leak or malfunction is a reasonable time within which to correct such condition or to make arrangement for correction;
- E. Cleaning buildings, structures, walkways, sidewalks, driveways, patios, tennis courts, parking lots or other hard-surfaced areas without prior approval of the water appeals board;
- F. Operating, cleaning or flushing any ornamental fountain or body of water unless there are extenuating circumstances as determined by the appeals board;

- G. Operating a car wash unless water for such use is recycled;
- H. Taking or using water from any fire hydrant unless specifically authorized by permit from the appeals board, except by legally constituted fire protection agencies for fire suppression purposes;
- I. Filling any swimming pool or spa unless there are extenuating circumstances as determined by the appeals board;
- J. Serving water in restaurants except upon request by the customer;
- K. Flushing fire hydrants and water mains unless there is an emergency as determined by the district engineer;
- L. Running water or washing with water that results in flooding or runoff in or on sidewalks, gutters and streets;
- M. Excess watering of new planting or replanting of any water-dependent landscaping including, but not limited to, any replacement, additional or new grass, lawn, groundcover, shrubbery, annual flowers/plantings, trees, gardens or other vegetation until such time as the district board has determined that the water shortage emergency is over. The planting and replanting should be done in a manner which minimizes the amount of water required;
- N. Using water for consolidation of backfill or dust control;
- O. Any other use of water which is determined to be wasteful as determined by the district engineer. (Ord. 132 § 1 (part), 2015; Ord. 126 § 1 (part), 2009)

8.60.060 Nonessential uses—Water rationing.

Upon the district board declaring a water shortage emergency condition to prevail and declaring that water rationing measures are required, it shall be unlawful to use water obtained from the district water supply in the following ways, with the following results or during the following times or conditions:

- A. Using water in excess of the following allocations:
 - 1. Residential customers: as specified by resolution of the district board;
 - 2. Industrial customers: as specified by resolution of the district board;
 - 3. Commercial, institutional and governmental customers: as specified by resolution of the district board;
 - 4. Irrigation and outside water usage customers: as specified by resolution of the district board;
- B. Washing cars, boats, trailers or other vehicles with a hose unless the hose has a positive water shut-off device;
- C. Watering grass, lawn, groundcover, shrubbery, annual flowers/plantings, open ground, gardens, trees or other vegetation in a manner that results in runoff into sidewalks, gutters and streets or during periods of precipitation, or to an extent which allows excess water to run to waste;
- D. Watering grass, lawn, groundcover, shrubbery, annual flowers/plantings, open ground, gardens,

trees or other vegetation during the hours of ten a.m. through six p.m. on any day of the week; and for more than two days during any seven-day period;

E. Allowing or failing to attend to the escape of water through leaks, breaks or malfunction within the water user's plumbing or distribution system for any period of time within which such break, leak or malfunction should reasonably have been discovered and corrected. It shall be presumed that a period of twenty-four hours after the water user discovers or is notified of such break, leak or malfunction is a reasonable time within which to correct such condition or to make arrangement for correction;

F. Cleaning buildings, structures, walkways, sidewalks, driveways, patios, tennis courts, parking lots or other hard-surfaced areas without prior approval of the water appeals board;

G. Operating, cleaning, flushing, filling or refilling of any ornamental fountain or body of water, unless there are extenuating circumstances as determined by the appeals board;

H. Operating a car wash unless water for such use is recycled;

I. Taking or using water from any fire hydrant unless specifically authorized by permit from the appeals board, except by legally constituted fire protection agencies for fire suppression purposes;

J. Draining and then filling or refilling of any swimming pool or spa unless there are extenuating circumstances as determined by the appeals board;

K. Serving water in restaurants except upon request by the customer;

L. Flushing fire hydrants and water mains unless there is an emergency as determined by the district engineer;

M. Running water or washing with water that results in flooding or runoff in or on sidewalks, gutters and streets;

N. Excess watering of new planting or replanting of plant material of any type, including but not limited to any replacement, additional or new grass, lawn, groundcover, shrubbery, annual flowers/plantings, trees, gardens or other vegetation until such time as the district board has determined that the water shortage emergency is over. Planting and replanting should be done in a manner which minimizes the amount of water required;

O. Using water for consolidation of backfill or dust control;

P. Any other use of water which is determined to be wasteful as determined by the district engineer. (Ord. 132 § 1 (part), 2015; Ord. 126 § 1 (part), 2009)

8.60.070 Authority to enforce—Penalties.

.....
 All peace officers of the city of Foster City and public officers and employees duly authorized by the district manager shall enforce this chapter pursuant to Chapter 5C, Title 3, Part 2 of the Penal Code (Section 853.5 et seq). This authority is based on Section 836.5 of the Penal Code. In the performance of their duties the above referred to peace officers and officers and employees have the authority to issue citations to appear in court for violations of this chapter.

A. Violation of any provisions of this chapter, including the use of water in excess of the allotments set

forth in Section 8.60.060(A) is subject to penalties as provided for in Section 356 of the California Water Code. Additionally, the district may require installation of a flow-restricting device on the water service line.

B. Charges for installation of flow-restricting devices and restoration of service shall be specified by resolution of the district board.

C. Continued water consumption in excess of the allocation may result in discontinuance of water service by the district.

D. In addition to applicable penalties, a charge as established by resolution of the board of directors shall be paid prior to reactivating water service.

E. Except as specifically stated elsewhere, any violation of the provisions of this chapter shall be punishable as an infraction, the penalty for which shall be as follows:

1. In addition to applicable penalties, a first violation charge as established by resolution of the board of directors will be made and collected.
2. In addition to applicable penalties, a second violation charge as established by resolution of the board of directors will be made and collected.
3. In addition to applicable penalties, an each additional violation charge as established by resolution of the board of directors will be made and collected. (Ord. 126 § 1 (part), 2009)

8.60.080 Disconnection.

Any user in violation of the provisions of Section 8.60.050 or 8.60.060 who fails to take corrective action after the first notification of the violation shall be subject to disconnection of water service. Upon disconnection of water service, a written notice shall be served upon the violator, or conspicuously posted at the entrance to the location where the violation has occurred and which shall state the time, place and general description of the violation and the method by which reconnection may be accomplished. (Ord. 126 § 1 (part), 2009)

8.60.090 Appeals board, appeals and exceptions.

A. An appeals board shall be established that is comprised of the district manager, finance director and the district president or their designees.

B. A written appeal for an exception to use water contrary to the provisions of Sections 8.60.050 and/or 8.60.060 or for an adjustment in an allocation of water may be made to the appeals board. Such appeal shall clearly state the basis for the appeal, the cause or reason why special consideration should be given by the appeals board, any corrective measures that must and will be taken and when they will be completed, the specific relief sought and any other pertinent information. The appeals board may:

1. Allow the planting of materials selected from an approved list of drought-tolerant plant materials obtained from the district and which are planted in low water use landscape designs and which employ low water use irrigation systems. The written appeal shall include a complete description of the planting request including the exact number and type of materials to be planted, how low water use landscape designs and irrigation systems will be used, and any other descriptive

information likely to be of assistance to the appeals board in rendering a decision; or

2. Allow the use of water otherwise restricted or prohibited; or
3. Adjust an allocation of water if it finds that:
 - a. Failure to do so would cause an emergency condition adversely affecting the health, sanitation, fire protection or safety of the user or the public; and/or
 - b. The user has adopted all practicable water-conservation measures; and/or
 - c. Failure to do so would cause unnecessary and undue hardship to the customer or the public.

C. Any user who believes that an activity or condition which resulted in the disconnection of water service pursuant to this chapter did not constitute a violation of this chapter may appeal the disconnection in writing to the appeals board. If the appeals board finds that the activity or conduct did not constitute a violation of this chapter or was reasonable or unavoidable or for another reason should not be penalized, the user shall be reconnected to the water supply system and the reconnection charge shall be refunded. (Ord. 126 § 1 (part), 2009)

8.60.100 Reconnection.

A. Where water service is disconnected as authorized in Section 8.60.080, it shall be immediately reconnected upon correction of the condition or activity and payment of a reconnection charge as established by resolution of the board of directors.

B. Those water users that are serviced by a master meter for both domestic supply and irrigation and who are disconnected for violating any of the provisions contained within this chapter shall, upon receiving written notice from the district engineer, do and be subject to the following:

1. Post a cash bond in an amount determined by the district engineer to install a separate water service line and meter for the property owner's irrigation system within sixty days of the water disconnection.
2. If the owner fails to install the new water service line and meter within the sixty days, the district shall utilize the cash bond to pay for installation costs associated with installing the water service line and meter. Any funds remaining after the installation of the water service line and meter shall be returned to the customer. Additional funds may be collected from the user by the district if the original amount was insufficient to complete installation of the service line and meter. (Ord. 126 § 1 (part), 2009)

8.60.110 New connections.

Water service connections to accommodate new developments, new construction or new users shall be granted only if water saving fixtures or devices are incorporated into the user's plumbing and landscape irrigation system. For new developments in which water dependent landscaping is required as a use permit condition, the district shall require a cash bond or other form of security subject to approval of the district counsel from the developer in an amount equal to the estimated cost of landscaping plus ten percent. Cash deposits will be placed in an account in which the interest shall accrue to the developer.

(Ord. 126 § 1 (part), 2009)

8.60.120 Excess water use charge.

A. An excess use charge as determined by resolution of the district board may be levied for water used in excess of the allocations specified by resolution of the district board.

B. Additional charges to all users may be imposed to compensate for a loss of revenue to the district or to pay for any additional cost to the district associated with the purchase of more water. (Ord. 126 § 1 (part), 2009)

8.60.130 Waiver of excess water use charge.

Written application for a waiver of an excess water use charge may be made to the appeals board. Such application shall contain all of the information required in Section 8.60.090.

A. The appeals board may waive a specific excess water use charge if it finds, based upon information and/or facts presented, that sufficient justification is present to allow such a waiver.

B. A waiver may be granted for one or more of the following reasons:

1. Water used in excess of the allocation was for the protection of health and/or sanitation or for the protection of property in the case of fire.
2. Water used in excess of allocation was the result of a condition unknown to the user which has subsequently been corrected to the satisfaction of the appeals board.

C. A waiver shall not be granted unless the user has adopted and has demonstrated all practicable water conservation or rationing measures, nor shall a waiver be granted on the basis of economic hardship. (Ord. 126 § 1 (part), 2009)

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**APPENDIX K:
DROUGHT RESPONSE TOOL USER GUIDE**



Drought Response Tool User's Guide

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1. INTRODUCTION

The Drought Response Tool (DRT) is an Excel spreadsheet model that has been developed to assist water suppliers with:

- Evaluating baseline water use by sector and by indoor/outdoor use;
- Identifying customer sectors (e.g., Residential; Commercial, Industrial and Institutional [CII]; and Dedicated Irrigation) and uses to target for water savings;
- Evaluating a menu of drought response actions and estimate their water savings potential; and
- Tracking progress against the water use reduction goal associated with a stage of action in the supplier's Water Shortage Contingency Plan.

The following sections guide the user through the model structure and the key input parameters, assumptions, and calculations that form the basis of the DRT.

It should be noted that the DRT is only a predictive tool that generates a water savings potential based on an assumed set of water use and savings inputs by the user, including Drought Response Actions, savings estimates, and implementation rates. The DRT in no way guarantees water savings or other performance metrics.

2. DROUGHT RESPONSE TOOL STRUCTURE AND OVERVIEW

- **Structure:** The DRT consists of six, linked Excel worksheets:

- (1) Home
- (2) Water Use Inputs
- (3) Water Use Profile
- (4) Drought Response Actions
- (5) Estimated Water Savings
- (6) Drought Response Tracking

A detailed guide to each worksheet is provided in Section 3.

- **Navigation:** Users can navigate between worksheets using buttons at the top of each sheet or the tabs at the bottom of the Excel window.
- **Color Coding:** On each worksheet, the cells highlighted in white indicate locations where supplier inputs are required or the user can adjust default values. The model will automatically populate all charts and cells highlighted in light blue based on the input data and associated model calculations. Certain cells will be highlighted in gray to indicate that the value is overridden and will not factor into calculations (cells highlighted in gray are discussed in more detail in Section 3.4).
- **Default Values:** In some cases, the white cells are populated with default values. If a user modifies the default values, the revisions will be displayed as **bold font** so the user can clearly track where they have made modifications within the DRT.
- **Instructions and Tips:** Instructions and tips are provided in cells marked with the symbol ⓘ and also appear in “pop ups” when certain cells are selected.
- **Data Validation.** Throughout the DRT there are a series of data validation checks to provide support to the user.
- **Functionality:** The DRT is designed to run on systems with Microsoft Office 2007 or later versions. For full functionality of the model, the user must enable the use of macros.¹

¹ To enable the use of macros, click the Microsoft Office Button at the top left hand corner and then click Excel Options. Choose Trust Center from the menu at the left and then Trust Center Settings at the right. Under Macro Settings, select “Enable all macros.” Alternatively you can follow instructions from Microsoft Help.

3. DROUGHT RESPONSE TOOL WORKSHEETS

This section provides a brief summary of the key DRT inputs, outputs and assumptions.

3.1 Worksheet 1 – Home

Input the following agency-specific information, as shown in Figure 1:

- **Agency Name:** Type in the water supplier’s name.
- **Total Population Served:** Population is assumed to be constant for the purpose of the DRT modeling.
- **Required Conservation Standard:** Enter the percentage water use reduction goal.
- **Number of Accounts by Sector:** The number of accounts for each sector (Residential, CII, and Dedicated Irrigation) is assumed to be constant for the purpose of the DRT modeling. If single-family and multi-family accounts are tracked separately, enter the combined number of accounts under Residential accounts. If CII accounts are tracked separately, enter the combined number of all CII accounts.
- **Baseline Year(s):** The Baseline Year defines the year that corresponds with potable water production and use data that will be

Enter Agency Information	
Agency Name	Sample Water District
Total Population Served	30,282
SWRCB-Mandated Conservation Standard (%)	16%
Number of Residential Accounts	7,558
Number of Commercial, Industrial, and Institutional (CII) Accounts	935
Number of Dedicated Irrigation Accounts	195
Baseline Year	2013
Comments	

Navigation	
INSTRUCTIONS FOR USE	Download and read the instructions before using this Tool
1 - HOME	Enter agency information
2 - INPUT BASELINE YEAR WATER USE	Enter Baseline Year production and use
3 - BASELINE YEAR WATER USE PROFILE	Review and confirm entered information
4 - DROUGHT RESPONSE ACTIONS	Select Drought Response Actions and input estimated water savings and implementation rates.
5 - ESTIMATED WATER SAVINGS	Review estimated June 2015 - May 2016 water production and compare estimated savings to SWRCB-mandated conservation standard.
6 - DROUGHT RESPONSE TRACKING	Track actual production and water savings against the SWRCB-mandated conservation standard.

Figure 1: Worksheet 1 – Home of the DRT © 2015 Eler & Kalinowski, Inc.

entered in *Worksheet 2 – Water Use Inputs*. The user may enter in a single Baseline Year or an average of several historical years, if desired.

Worksheet 1 – Home also provides users an overview for navigating the DRT and provides a live link to the *Central Basin Drought Response Tool User’s Guide*, which is hosted on the Erler & Kalinowski, Inc. website.

3.2 Worksheet 2 – Water Use Inputs

As shown in Figure 2, enter monthly potable water production and water use data for the Baseline Year (e.g., 2013), or the average over multiple historical years (e.g. 2011-2015). A drop down menu is provided in the table header to select the units for the input data (e.g., in million gallons, acre-feet, etc.). Baseline water use inputs include:

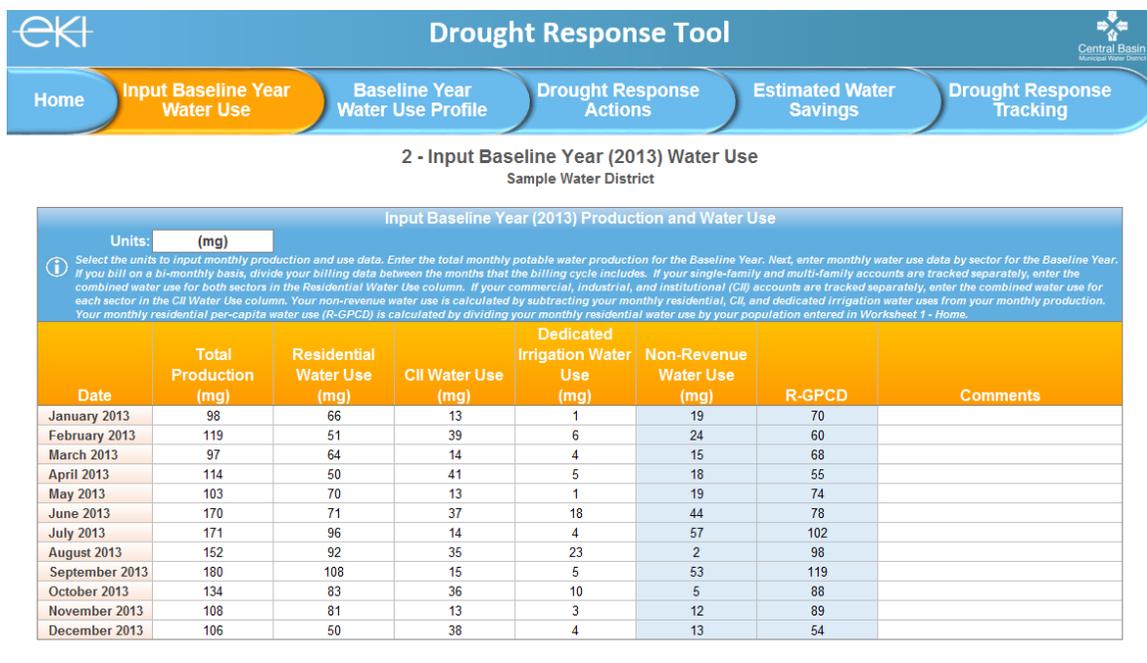


Figure 2: *Worksheet 2 – Water Use Data* of the DRT © 2015 Erler & Kalinowski, Inc.

- **Monthly Production Data:** Enter the monthly potable water production for the Baseline Year, in the units selected in the table header.
- **Monthly Water Use Data by Sector:** Enter monthly water use by sector (Residential, CII, and Dedicated Irrigation) for the Baseline Year(s), in the units selected in the table header. Water use data will come from an agency’s billing data for the Baseline Year(s). If water use data are collected on a bi-monthly basis, the water use data should be divided between the months that the billing cycle includes. If an agency’s single-family and multi-family accounts are tracked separately, enter the combined water use in the Residential column. The same applies for the consolidation of water uses at CII and Dedicated Irrigation accounts, if applicable. If the total water use by

sector exceeds the amount entered for total production for a given month, the row will be highlighted in red.

- **Monthly Non-Revenue Water Use:** The DRT calculates non-revenue water use by subtracting the monthly Residential, CII, and Dedicated Irrigation water use volumes from the total monthly production.
- **R-GPCD:** The DRT calculates the monthly residential gallons per capita per day (R-GPCD) for the Baseline Year(s) by dividing the residential water use by the total population specified in Worksheet 1.

Inputs from Worksheets 1 and 2 are used in the remaining worksheets to estimate water savings potential.

3.3 Worksheet 3 – Water Use Profile

This worksheet provides high-level, graphical summaries of an agency’s Baseline Year(s) water use by sector and by major end use (indoor versus outdoor). Users may select the units the data is displayed in from a drop down menu in the table header. By generally estimating how much of an agency’s water use can be attributed to indoor use versus outdoor use and by sector, an agency can begin to identify areas and opportunities for water savings, see Figures 3 and 4. These data can also assist an agency is assessing where they can achieve water savings potential with minimal revenue impacts.

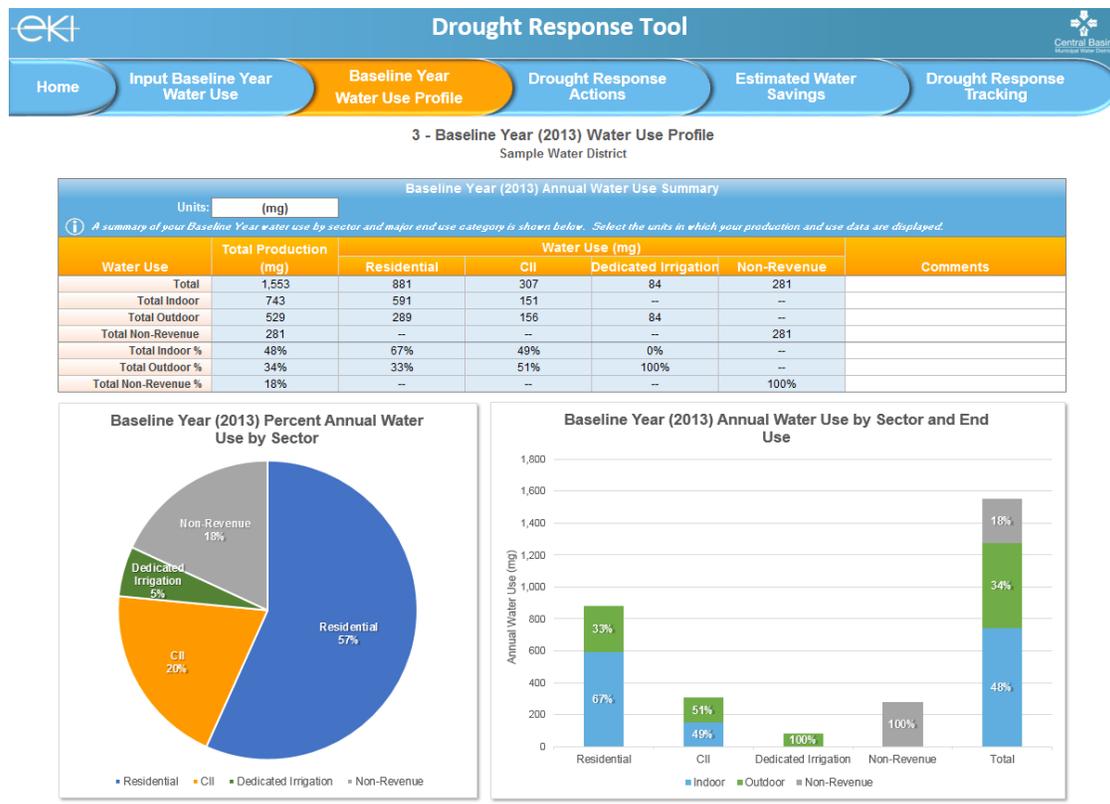


Figure 3: Worksheet 3 – Water Use Profile of the DRT © 2015 Erler & Kalinowski, Inc.

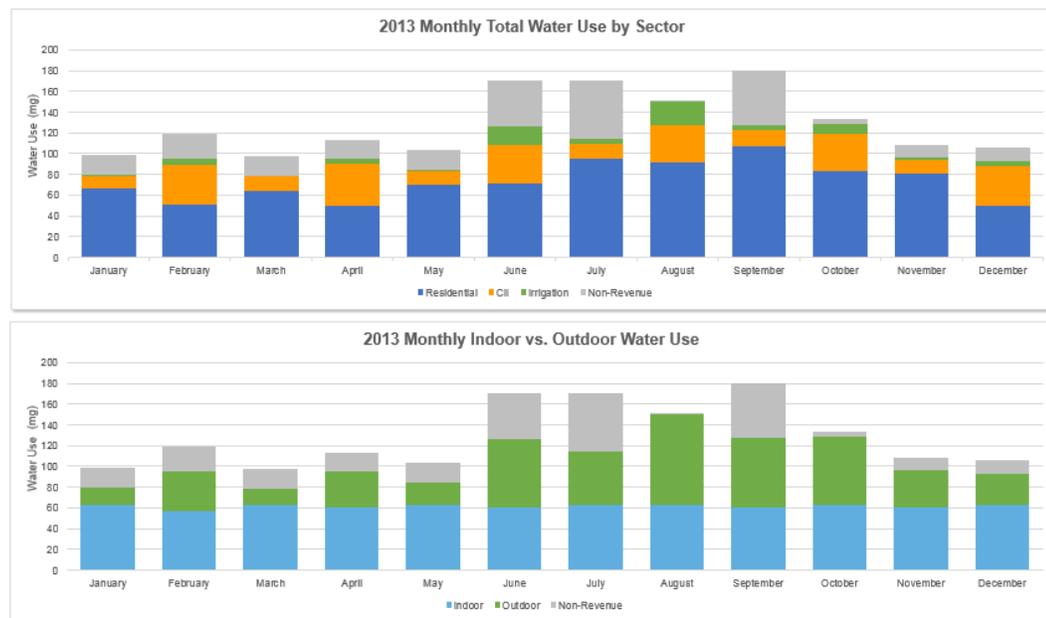


Figure 4: *Worksheet 3 – Water Use Profile of the DRT* © 2015 Eler & Kalinowski, Inc.

The following key assumptions were made in the DRT to support evaluation of supplier water use profiles:

- (1) Monthly indoor use for each sector is assumed to be the amount of water used during the lowest water use month, normalized by the number of days in the month, based on the data entered by the user in *Worksheet 2 – Water Use Data*.
- (2) Monthly outdoor use for each sector is calculated by subtracting the assumed monthly indoor water use [from (1)] from the total water use data entered by the user in *Worksheet 2 – Water Use Data*.

3.4 Worksheet 4 – Drought Response Actions

This worksheet provides a framework for estimating water savings associated with the implementation and enforcement of various Drought Response Actions. Key inputs include:

- **Maximum Savings Potential:** The DRT allows the agency to establish sector-specific “caps” on the water savings potential that the DRT will estimate. Specifically, these caps limit the potential savings estimated by the DRT based on certain agency-defined criteria. For example, to protect the economic vitality of a City, an agency may want to limit CII indoor reductions to 10%. Therefore, the water savings for indoor water use for the CII sector shown in *Worksheet 5 – Estimated Water Savings* will not exceed 10%, even if the water savings based on the selected indoor CII Drought Response Measures may exceed 10%.

The savings caps in the DRT include:

- Minimum allowable indoor residential use (R-GPCD);
- The maximum percent (%) reductions in residential outdoor use;
- The maximum % reduction in CII indoor use;
- The maximum % reduction in CII outdoor uses; and
- The maximum % reduction in dedicated irrigation use.

Based on the specified sector-specific caps, the DRT calculates the resulting % total maximum annual savings potential.

- **End Use Savings Potential:** Three pie chart graphs are shown towards the top of the worksheet that represent the assumed proportions of major end uses by sector based on published data (see Section 4 and Figure 5). These end use proportions are used in the DRT water savings calculations in two ways:
 - The end use proportions are used in combination with the End-Use Savings Estimates and Implementation Rates to estimate the Drought Response Action-specific water savings; and
 - The end use proportions serve as a “cap” on the potential water savings estimates because the DRT does not allow a Drought Response Action or suite of Actions to “save” more water than the targeted end use uses. For example, no matter how many Actions are implemented that target toilets, the DRT will not attribute a water savings greater than total amount of water assumed to be used by toilets.

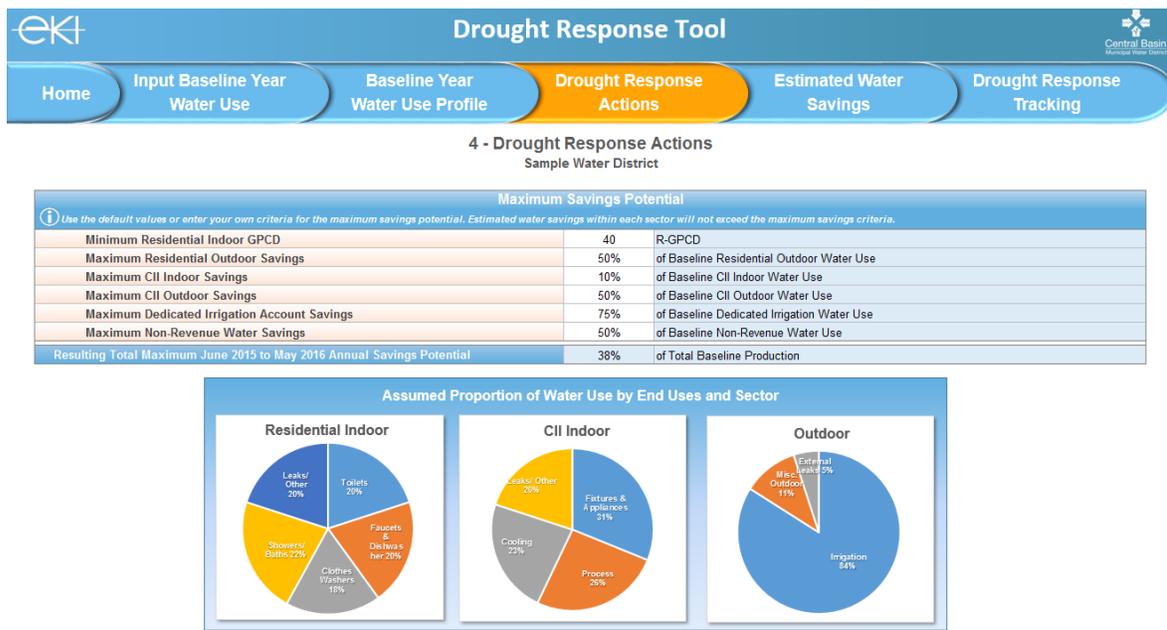


Figure 5: “Maximum Savings Potential” and “End Use Savings Potential” from *Worksheet 4 – Drought Response Actions* of the DRT © 2015 Eler & Kalinowski, Inc.

- Potential Drought Response Actions:** A customized menu of potential Drought Response Actions or “Actions” is provided for agency consideration (see Figure 6). For each Action the Worksheet lists:
 - The associated end use(s) targeted by that Action;
 - The default estimated savings as a percentage of those end uses compared to baseline uses;
 - The default implementation rate (percentage of accounts that will take advantage of or comply with that Action); and
 - The basis of the default savings and implementation rates.

Users can select the Drought Response Actions they wish to implement and include in the estimated savings calculations. The Drought Response Actions with cells highlighted in gray indicate that the action is overridden by another selected Action and will not factor into water savings calculations, even if selected.

Drought Response Actions						
<small>Select the Drought Response Actions you would like to include in your estimated savings calculations. For each selected action, use the default end use savings estimates and implementation rates or input your own values. The "End Use Savings" estimates the percent water use reduction that could occur at a particular end use as a result of a specific action. The "Implementation Rate" refers to the estimated percentage of accounts that will implement a specific action. The water savings potential at each end use is capped based on the assumed distribution of end use water demands shown in the pie charts above. A dash (--) indicates that professional judgement was used to establish the default value, or that savings are expected to be accounted for as part of a Public Information Program; additional basis for the default values are included in the User Manual.</small>						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
Possible Mandatory Prohibitions						
Prohibit Irrigation with Potable Water Outside of Newly Constructed Homes and Buildings that is not Delivered by Drip or Microspray Systems	All Outdoor	<input checked="" type="checkbox"/>	14%	50%	--	--
Require Shut-Off Nozzles on Hoses for Vehicle Washing	Irrigation	<input type="checkbox"/>			--	--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	<input type="checkbox"/>	17%	50%	See Appendix D of the DRP	--
Prohibit the Use of Potable Water for Street Washing	Misc. Outdoor	<input type="checkbox"/>	17%	50%	--	--
Prohibit Irrigation with Potable Water in a Manner that causes Runoff	Misc. Outdoor	<input type="checkbox"/>	17%	50%	--	--
Prohibit Irrigation with Potable Water within 48 Hours following Measurable Rainfall	Irrigation	<input type="checkbox"/>	3%	50%	DeOreo et al., 2011	--
Prohibit Irrigation of Ornamental Turf with Potable Water on Street Medians	Irrigation	<input type="checkbox"/>			--	--
Prohibit Potable Water Use for Decorative Water Features that do not Recirculate Water	Irrigation	<input type="checkbox"/>	50%	50%	EBMUD, 2008	--
Provide Linen Service Opt Out Options	Misc. Outdoor	<input type="checkbox"/>	0.5%	50%	EBMUD, 2011	--
Prohibit Serving Drinking Water other than upon Request in Eating or Drinking Establishments	Fixtures & Appliances	<input type="checkbox"/>	0.5%	50%	EBMUD, 2011	--
Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
Agency Drought Actions / Restrictions						
Agency Actions						
Media Campaign, Newspaper Articles, Website	All	<input checked="" type="checkbox"/>	0.5%	50%	EBMUD, 2011	--
Promote Water Conservation / Rebate Programs	All	<input checked="" type="checkbox"/>		50%	--	--
Water Efficiency Workshops, Public Events	All	<input checked="" type="checkbox"/>	0.5%	25%	EBMUD, 2011	--
Water Bill Inserts	All	<input checked="" type="checkbox"/>	0.5%	100%	EBMUD, 2011	--
Promote / Expand Use of Recycled Water	Irrigation	<input type="checkbox"/>	100%		--	--
Home or Mobile Water Use Reports	All	<input type="checkbox"/>	5%	10%	WaterSmart Software, 2015	--
Decrease Frequency and Length of Line Flushing	Non Revenue Water	<input type="checkbox"/>	25%	50%	See Appendix D of the DRP	Reduced flushing by 50%
Audit and Reduce System Water Loss	Non Revenue Water	<input type="checkbox"/>	45%	50%	DWR, 2015	Target 50% of leakage.
Implement Drought Rate Structure / Water Budgets	All	<input checked="" type="checkbox"/>	5%	100%	CUWCC, 2015	--
Establish Retrofit on Resale Ordinance	All Residential Indoor	<input type="checkbox"/>	21%	6%	SFPUC, 2004	First Tuesday, 2015
Require Net Zero Demand Increase on New Connections	All	<input type="checkbox"/>			--	--
Moratorium on New Connections	All	<input type="checkbox"/>			--	--
Move to Monthly Metering / Billing	All	<input type="checkbox"/>	5%	10%	See Appendix D of the DRP	--
Increase Water Waste Patrols / Enforcement	All	<input checked="" type="checkbox"/>			--	--
Establish Drought Hotline	All	<input checked="" type="checkbox"/>			--	--
Reduce Distribution System Pressures	Non Revenue Water	<input type="checkbox"/>	4.5%	100%	CUWCC, 2010; DWR, 2015	--

Figure 6: “Passive Residential Savings,” “SWRCB Mandatory Prohibitions,” and “Accelerate Implementation of Existing Water Conservation Program” actions from Worksheet 4 – Drought Response Actions of the DRT © 2015 Eler & Kalinowski, Inc.

Default values for end use savings and implementation rates are provided based on a variety of local and regional water use studies and generalizations. However, all of these values may be adjusted by users based on their understanding of the

communities they serve and their intended implementation and enforcement actions, wherever possible.

The suites of Actions and associated default water savings and implementation rates are presented in the following groupings and are based on the sources indicated in the Worksheet.

- **SWRCB Mandatory Prohibitions:** The May 2015 SWRCB regulation prohibits certain water uses by water customers (see Figure 6)².
- **Agency Drought Actions / Restrictions:** Potential Drought Response Actions and prohibitions that an agency may choose to implement are provided here and shown in Figure 6. These actions and prohibitions are grouped by (1) actions that can be taken by the agency, (2) actions/prohibitions specific to dedicated irrigation accounts, (3) actions/prohibitions that target residential water use, and (4) actions/prohibitions that target CII water use.
- **Customer Actions to Encourage:** These are Actions that the agency may encourage its customers to perform as part of a general education campaign targeting behavioral modifications. These actions are provided for informational purposes; the default savings values assume that the water savings associated with them are captured by an agency's overall public information campaign. Users can, however, adjust the assumed water savings and implementation rates to estimate the amount of additional savings anticipated by aggressively promoting these actions.

3.5 Worksheet 5 – Estimated Water Savings

Worksheet 5 displays the estimated potential monthly water production and savings for the drought year, compared to the Baseline Year(s) production data, and based on the selected suite of Drought Response Actions (and assumed end use savings estimates and implementation rates). As shown on Figure 7, tables and charts display how the estimated savings compare to the specified water use reduction goal by month and cumulatively during the drought year. Users may select the units that the data are displayed in from a drop down menu in the table header. If it appears that an agency will not meet its goal, cells in the Potential Cumulative Savings column will be highlighted in **red**.

² On 5 May 2015, SWRCB adopted Resolution 2015-0032 to mandate minimum actions by water suppliers and their customers to reduce potable water use into 2016 and assigned a mandatory water conservation savings goal to each water supplier based on their residential water use. On 2 February 2016, the SWRCB voted to extend the emergency regulation through October 2016.

5 - Estimated Water Savings
Sample Water District

Estimated Monthly Water Use and Savings Summary						
Units: <input type="text" value="(mg)"/>						
<small>i This provides a summary of the estimated production relative to Baseline Year production and potential water savings, assuming implementation of selected actions at the water savings and implementation rates indicated in the Drought Response Actions worksheet. Select the units that your production data are displayed in.</small>						
Month	Baseline Year (2013) Production (mg)	Estimated Drought Year Production (mg)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
January	98	83	15%	15%	15%	
February	119	97	18%	17%	15%	
March	97	80	17%	17%	15%	
April	114	93	18%	17%	15%	
May	103	87	15%	17%	15%	
June	170	135	21%	18%	15%	
July	171	146	15%	17%	15%	
August	152	108	29%	19%	15%	
September	180	150	16%	19%	15%	
October	134	102	24%	19%	15%	
November	108	87	19%	19%	15%	
December	106	87	18%	19%	15%	

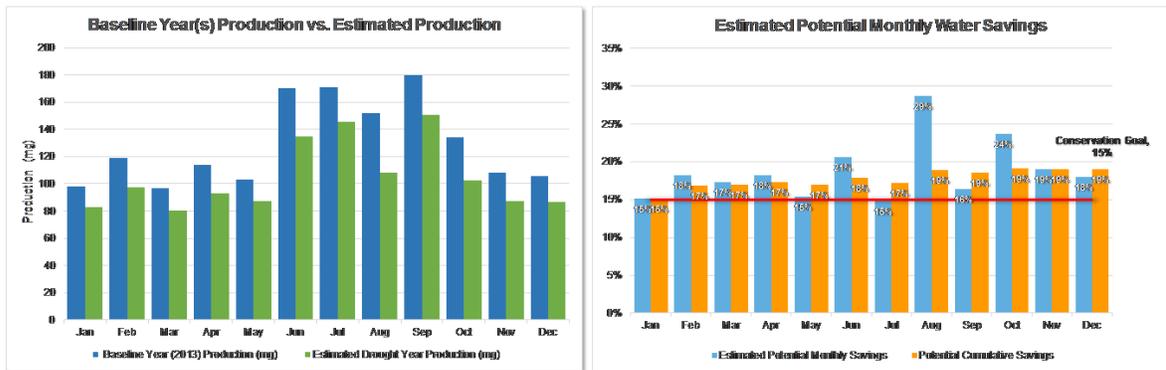


Figure 7: Worksheet 5 – Estimated Water Savings of DRT © 2015 Erler & Kalinowski, Inc.

It should be noted that the DRT is only a predictive tool that generates a water savings potential based on an assumed set of water use and savings inputs by the user, including Drought Response Actions, savings estimates, and implementation rates. The DRT in no way guarantees water savings or other performance metrics.

3.6 Worksheet 6 – Drought Response Tracking

Worksheet 6 can be used to track an agency’s water production/savings and progress towards meeting its water use reduction goal. Users can input their production data for the drought year. The monthly and cumulative savings compared to the Baseline Year(s) data are then calculated. As shown on Figure 8, tables and charts display these savings compared to the water use reduction goal entered in Worksheet 1. Users may select the units the data are displayed in from a drop down menu in the table header. If an agency did not meet its goal, cells in the Cumulative Savings column will be highlighted in red.

6 - Drought Response Tracking
Sample Water District

Monthly Production and Water Savings						
Units: (mg)						
Enter actual 2015/16 monthly potable water production data and track your actual water savings relative to Baseline Year production. Select the units that your production data are entered and displayed in.						
Month	Baseline Year (2013) Production (mg)	Drought Year Production (mg)	Drought Year Monthly Savings	Drought Year Cumulative Savings	Conservation Goal	Comments
January	98	103	-5%	-5%	15%	
February	119	83	30%	14%	15%	
March	97	79	19%	16%	15%	
April	114	84	26%	18%	15%	
May	103	93	10%	17%	15%	
June	170	120	29%	20%	15%	
July	171				15%	
August	152				15%	
September	180				15%	
October	134				15%	
November	108				15%	
December	106				15%	

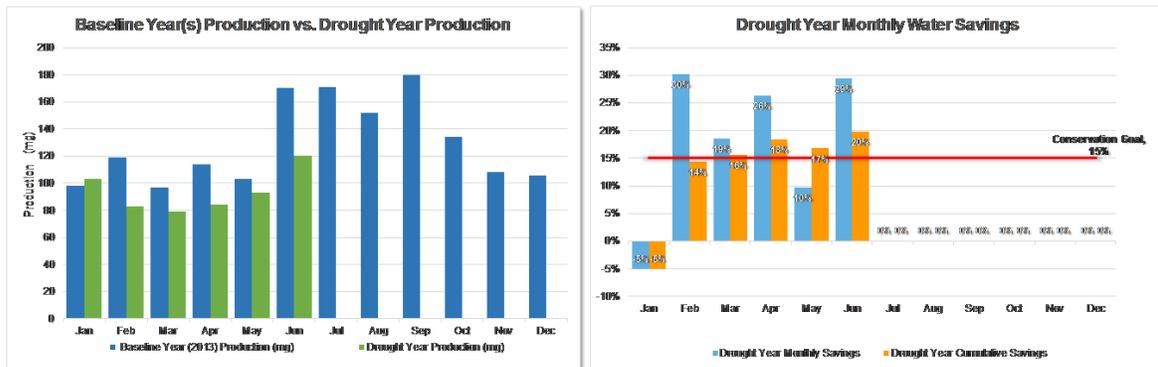


Figure 8: Worksheet 6 – Drought Response Tracking of DRT © 2015 Erler & Kalinowski, Inc.

For additional information and guidance, please contact Anona Dutton at adutton@ekiconsult.com or (650) 292-9100.

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**APPENDIX L:
DROUGHT RESPONSE TOOL QUANTITATIVE ASSESSMENT**

1 - Home

Estero Municipal Improvement District

Enter Agency Information	
Agency Name	Estero Municipal Improvement District
Total Population Served	36,492
Conservation Goal (%)	10%
Number of Residential Accounts	7,123
Number of Commercial, Industrial, and Institutional (CII) Accounts	272
Number of Dedicated Irrigation Accounts	522
Baseline Year(s)	FY 2012-2014
Comments	

Navigation	
USER'S GUIDE	Download and read the guide before using this Tool
1 - HOME	Enter agency information
2 - INPUT BASELINE YEAR WATER USE	Enter Baseline Year production and use
3 - BASELINE YEAR WATER USE	Review and confirm entered information
4 - DROUGHT RESPONSE ACTIONS	Select Drought Response Actions and input estimated water savings and implementation rates.
5 - ESTIMATED WATER SAVINGS	Review estimated water production and compare estimated savings to conservation target.
6 - DROUGHT RESPONSE TRACKING	Track production and water savings against the conservation target.



1 - Home

Estero Municipal Improvement District

For questions about this tool or for additional information, contact:

Anona Dutton, P.G., C.Hg.
adutton@ekiconsult.com
(650) 292-9100



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Drought Response Tool

Home
Input Baseline Year Water Use
Baseline Year Water Use Profile
Drought Response Actions
Estimated Water Savings
Drought Response Tracking

2 - Input Baseline Year (FY 2012-2014) Water Use
 Estero Municipal Improvement District

Input Baseline Year (FY 2012-2014) Production and Water Use							
	Units:						
	(ccf)	Select the units to input monthly production and use data. Enter the total monthly potable water production for the Baseline Year. Next, enter monthly water use data by sector for the Baseline Year. If you bill on a bi-monthly basis, divide your billing data between the months that the billing cycle includes. If your single-family and multi-family accounts are tracked separately, enter the combined water use for both sectors in the Residential Water Use column. If your commercial, industrial, and institutional (CII) accounts are tracked separately, enter the combined water use for each sector in the CII Water Use column. Your non-revenue water use is calculated by subtracting your monthly residential, CII, and dedicated irrigation water uses from your monthly production. Your monthly residential gallons per capita per day (R-GPCD) is calculated by dividing your monthly residential water use by your population entered in Worksheet 1 - Home.					
Date	Total Production (ccf)	Residential Water Use (ccf)	CII Water Use (ccf)	Dedicated Irrigation Water Use (ccf)	Non-Revenue Water Use (ccf)	R-GPCD	Comments
January	112,407	94,308.0	12,518.7	11,531.7	9,469	62	
February	118,612	92,676.0	26,512.7	13,743.0	10,635	68	
March	113,680	88,332.0	12,649.7	11,999.0	9,038	58	
April	124,061	96,624.0	27,250.0	19,286.3	11,453	66	
May	152,540	95,249.7	14,202.3	32,176.0	11,330	63	
June	203,016	112,062.7	31,626.3	65,752.7	16,755	77	
July	239,895	124,787.0	16,695.3	73,382.3	17,189	83	
August	212,661	141,733.7	34,495.7	82,044.3	20,662	94	
September	224,370	138,842.0	16,691.7	76,026.3	18,525	95	
October	198,508	138,305.7	34,772.3	62,780.3	18,869	91	
November	164,692	123,834.3	15,754.0	40,664.7	14,420	85	
December	116,456	113,090.0	30,599.7	16,264.3	12,796	75	



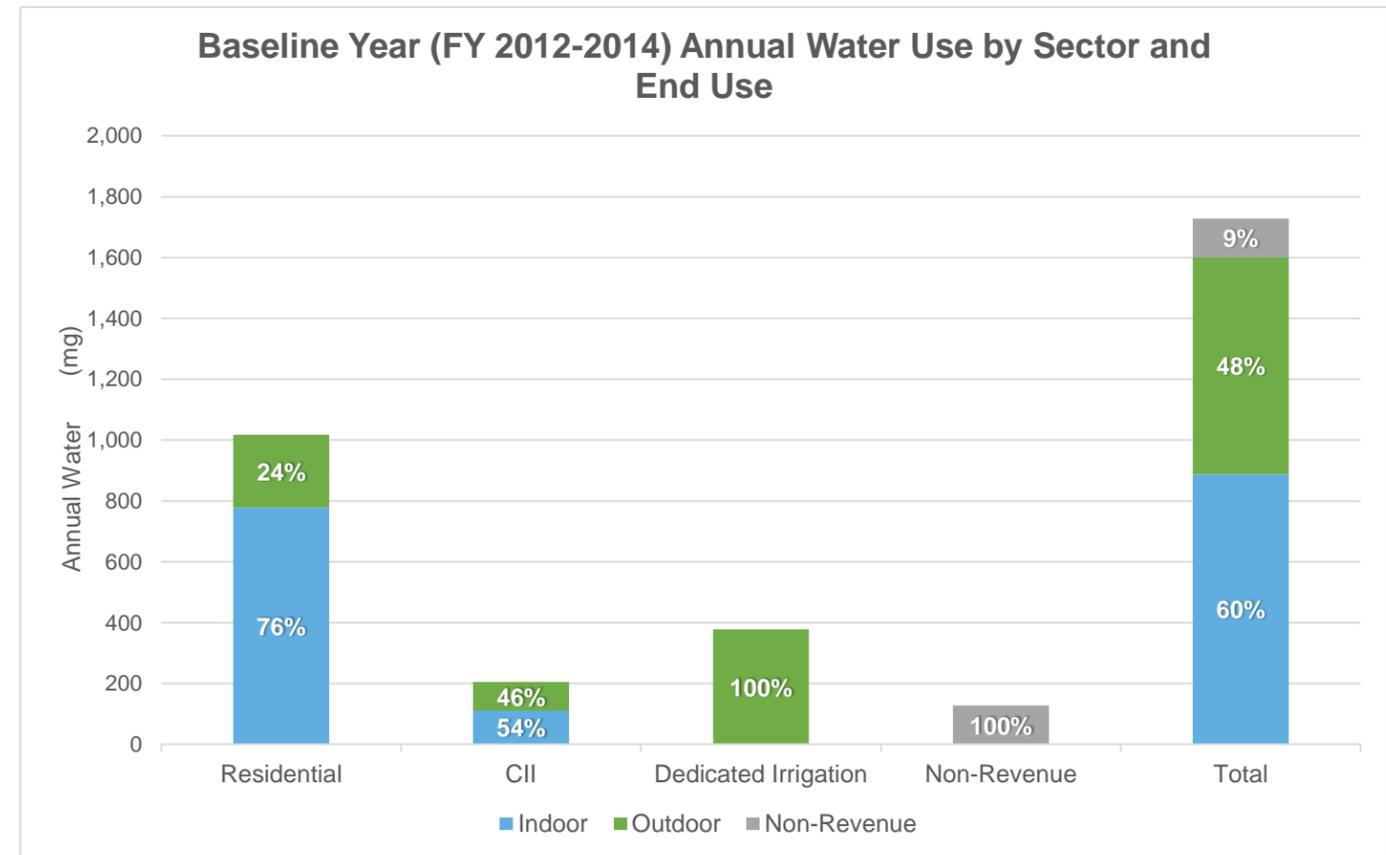
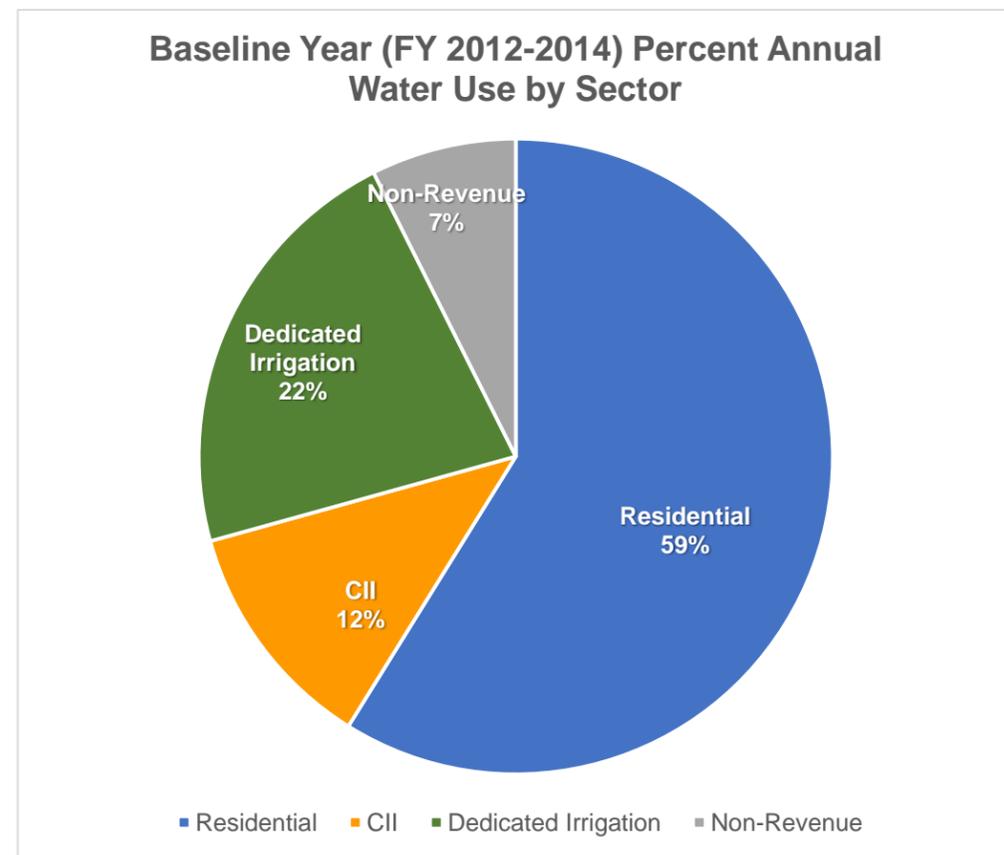
Drought Response Tool

Home
Input Baseline Year Water Use
Baseline Year Water Use Profile
Drought Response Actions
Estimated Water Savings
Drought Response Tracking

3 - Baseline Year (FY 2012-2014) Water Use Profile

Estero Municipal Improvement District

Baseline Year (FY 2012-2014) Annual Water Use Summary						
Units: <input type="text" value="(mg)"/>						
A summary of your Baseline Year water use by sector and major end use category is shown below. Select the units in which your production and use data are displayed.						
Water Use	Total Production (mg)	Water Use (mg)				Comments
		Residential	CII	Dedicated Irrigation	Non-Revenue	
Total	1,482	1,017	205	378	128	
Total Indoor	888	778	110	--	--	
Total Outdoor	712	239	95	378	--	
Total Non-Revenue	128	--	--	--	128	
Total Indoor %	60%	76%	54%	0%	--	
Total Outdoor %	48%	24%	46%	100%	--	
Total Non-Revenue %	9%	--	--	--	100%	



EKI
Drought Response Tool

Home

Input Baseline Year Water Use

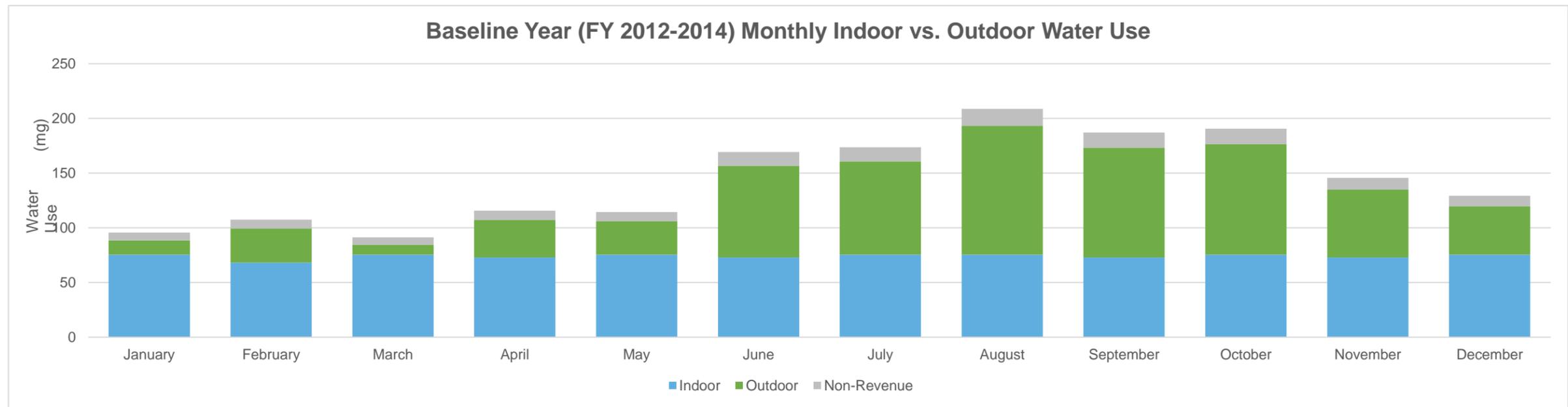
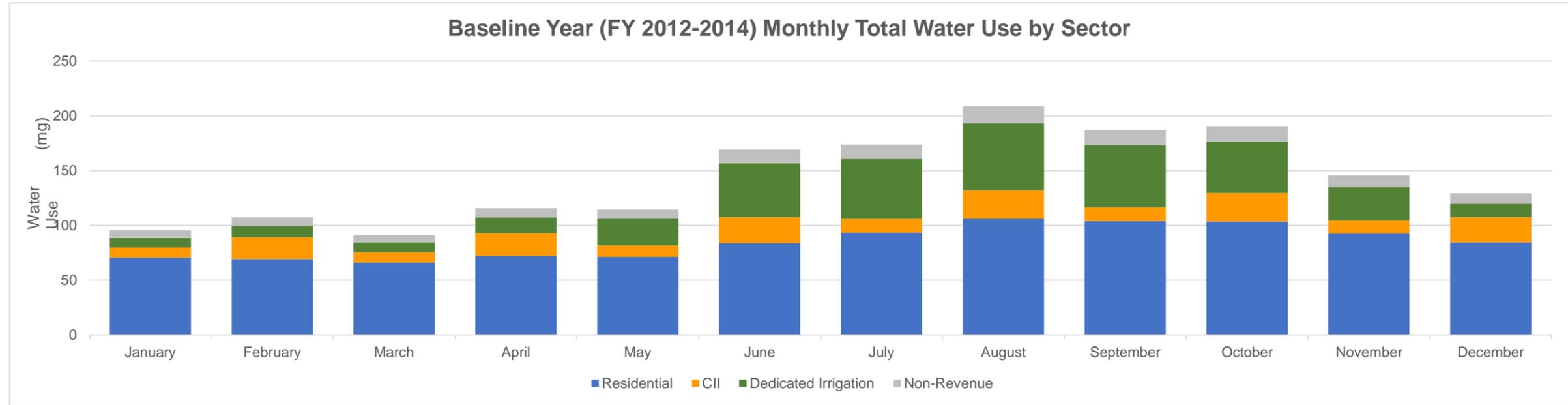
Baseline Year Water Use Profile

Drought Response Actions

Estimated Water Savings

Drought Response Tracking

3 - Baseline Year (FY 2012-2014) Water Use Profile
Estero Municipal Improvement District



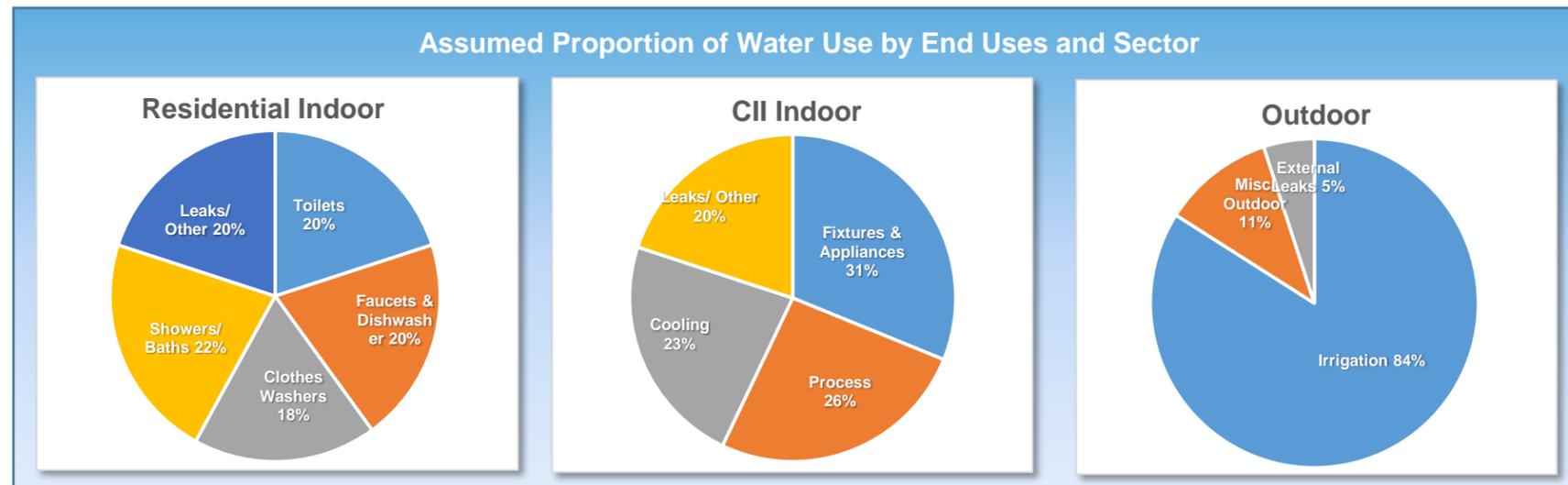


Drought Response Tool

Home Input Baseline Year Water Use Baseline Year Water Use Profile **Drought Response Actions** Estimated Water Savings Drought Response Tracking

4 - Drought Response Actions Estero Municipal Improvement District

Maximum Savings Potential		
<i>Use the default values or enter your own criteria for the maximum savings potential. Estimated water savings within each sector will not exceed the maximum savings criteria.</i>		
Minimum Residential Indoor GPCD	40	R-GPCD
Maximum Residential Outdoor Savings	75%	of Baseline Residential Outdoor Water Use
Maximum CII Indoor Savings	10%	of Baseline CII Indoor Water Use
Maximum CII Outdoor Savings	75%	of Baseline CII Outdoor Water Use
Maximum Dedicated Irrigation Account Savings	75%	of Baseline Dedicated Irrigation Water Use
Maximum Non-Revenue Water Savings	50%	of Baseline Non-Revenue Water Use
Resulting Total Maximum June 2015 to May 2016 Annual Savings Potential	49%	of Total Baseline Production





Drought Response Tool

Home	Input Baseline Year Water Use	Baseline Year Water Use Profile	Drought Response Actions	Estimated Water Savings	Drought Response Tracking
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4 - Drought Response Actions Estero Municipal Improvement District

Drought Response Actions						
<i>Select the Drought Response Actions you would like to include in your estimated savings calculations. For each selected action, use the default end use savings estimates and implementation rates or input your own values. The "End Use Savings" estimates the percent water use reduction that could occur at a particular end use as a result of a specific action. The "Implementation Rate" refers to the estimated percentage of accounts that will implement a specific action. The water savings potential at each end use is capped based on the assumed distribution of end use water demands shown in the pie charts above. A dash (--) indicates that professional judgement was used to establish the default value, or that savings are expected to be accounted for as part of a Public Information Program; additional basis for the default values are included in the User Manual.</i>						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► Possible Mandatory Prohibitions	All Outdoor	<input checked="" type="checkbox"/>	14%	50%	--	--
Prohibit Irrigation with Potable Water Outside of Newly Constructed Homes and Buildings that is not Delivered by Drip or Microspray Systems	Irrigation	<input type="checkbox"/>			--	--
Require Shut-Off Nozzles on Hoses for Vehicle Washing	Misc. Outdoor	<input checked="" type="checkbox"/>	17%	50%	See Appendix D of the DRP	--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	<input checked="" type="checkbox"/>	17%	50%		--
Prohibit the Use of Potable Water for Street Washing	Misc. Outdoor	<input checked="" type="checkbox"/>	17%	50%		--
Prohibit Irrigation with Potable Water in a Manner that causes Runoff	Irrigation	<input checked="" type="checkbox"/>	3%	50%	DeOreo et al., 2011	--
Prohibit Irrigation with Potable Water within 48 Hours following Measurable Rainfall	Irrigation	<input type="checkbox"/>			--	--
Prohibit Irrigation of Ornamental Turf with Potable Water on Street Medians	Irrigation	<input type="checkbox"/>			--	--
Prohibit Potable Water Use for Decorative Water Features that do not Recirculate Water	Misc. Outdoor	<input checked="" type="checkbox"/>	50%	50%	EBMUD, 2008	--
Provide Linen Service Opt Out Options	Fixtures & Appliances	<input checked="" type="checkbox"/>	0.5%	50%	EBMUD, 2011	--
Prohibit Serving Drinking Water other than upon Request in Eating or Drinking Establishments	Fixtures & Appliances	<input checked="" type="checkbox"/>	0.5%	50%	EBMUD, 2011	--



Drought Response Tool

Home	Input Baseline Year Water Use	Baseline Year Water Use Profile	Drought Response Actions	Estimated Water Savings	Drought Response Tracking
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4 - Drought Response Actions Estero Municipal Improvement District

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► Agency Drought Actions / Restrictions						
► Agency Actions						
Media Campaign, Newspaper Articles, Website	All	<input checked="" type="checkbox"/>	0.5%	50%	EBMUD, 2011	--
Promote Water Conservation / Rebate Programs	All	<input checked="" type="checkbox"/>	0.5%	50%	--	--
Water Efficiency Workshops, Public Events	All	<input checked="" type="checkbox"/>	0.5%	25%	EBMUD, 2011	--
Water Bill Inserts	All	<input checked="" type="checkbox"/>	0.5%	100%	EBMUD, 2011	--
Promote / Expand Use of Recycled Water	Irrigation	<input type="checkbox"/>	100%		--	--
Home or Mobile Water Use Reports	All	<input type="checkbox"/>	5%	10%	WaterSmart Software, 2015	--
Decrease Frequency and Length of Line Flushing	Non Revenue Water	<input checked="" type="checkbox"/>	25%	50%	See Appendix D of the DRP	Reduced flushing by 50%.
Audit and Reduce System Water Loss	Non Revenue Water	<input type="checkbox"/>	45%	50%	DWR, 2015	Target 50% of leakage.
Implement Drought Rate Structure / Water Budgets	All	<input type="checkbox"/>	5%	100%	CUWCC, 2015	--
Establish Retrofit on Resale Ordinance	All Residential Indoor	<input type="checkbox"/>	21%	6%	SFPUC, 2004	First Tuesday, 2015
Require Net Zero Demand Increase on New Connections	All	<input type="checkbox"/>			--	--
Moratorium on New Connections	All	<input type="checkbox"/>			--	--
Move to Monthly Metering / Billing	All	<input type="checkbox"/>	5%	10%	See Appendix D of the DRP	--
Increase Water Waste Patrols / Enforcement	All	<input type="checkbox"/>			--	--
Establish Drought Hotline	All	<input type="checkbox"/>			--	--
Reduce Distribution System Pressures	Non Revenue Water	<input type="checkbox"/>	4.5%	100%	CUWCC, 2010; DWR, 2015	--
► Dedicated Irrigation						
Conduct Irrigation Account Surveys	Irrigation	<input type="checkbox"/>	30%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 3 Days/Week	Irrigation	<input checked="" type="checkbox"/>	17%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	<input type="checkbox"/>	79%	50%		
Prohibit use of Potable Water for Irrigation	Irrigation	<input type="checkbox"/>	100%	50%		
Require Repair of all Leaks within 24 hours	External Leaks	<input checked="" type="checkbox"/>	100%	5%	--	--
- OR -						
Establish Water Budget - 25% Reduction	Irrigation	<input type="checkbox"/>	25%	50%	--	--
Establish Water Budget - 50% Reduction	Irrigation	<input type="checkbox"/>	50%	50%	--	--
Establish Water Budget - 75% Reduction	Irrigation	<input type="checkbox"/>	75%	50%	--	--



Drought Response Tool

Home	Input Baseline Year Water Use	Baseline Year Water Use Profile	Drought Response Actions	Estimated Water Savings	Drought Response Tracking
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4 - Drought Response Actions Estero Municipal Improvement District

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► Agency Drought Actions / Restrictions						
► Residential						
Conduct Water Use Surveys Targeting High Water Users	All Residential Uses	<input checked="" type="checkbox"/>	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 3 Days/Week	Irrigation	<input checked="" type="checkbox"/>	17%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	<input type="checkbox"/>	79%	50%		
Prohibit use of Potable Water for Irrigation	Irrigation	<input type="checkbox"/>	100%	50%		
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	<input type="checkbox"/>	50%	50%	EBMUD, 2008	--
Require Repair of all Leaks within 24 hours	Leaks	<input type="checkbox"/>	100%	5%	--	--
Require Pool Covers	Misc. Outdoor	<input checked="" type="checkbox"/>	28%	25%	Maddaus & Mayer, 2001	--
Prohibit Filling of Pools	Misc. Outdoor	<input type="checkbox"/>	55%	25%	DeOreo et al., 2011	--
- OR -						
Establish Water Budget - 10% Reduction	All Residential Uses	<input type="checkbox"/>	10%	50%	--	--
Establish Water Budget - 20% Reduction	All Residential Uses	<input type="checkbox"/>	20%	50%	--	--
► CII						
Conduct CII Surveys Targeting High Water Users	All CII uses	<input checked="" type="checkbox"/>	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 3 Days/Week	Irrigation	<input checked="" type="checkbox"/>	17%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	<input type="checkbox"/>	79%	50%		
Prohibit Use of Potable Water for Construction and Dust Control	Misc. Outdoor	<input type="checkbox"/>		100%		
Prohibit Single-Pass Cooling Systems	Cooling	<input checked="" type="checkbox"/>	80%	1%	Vickers, 2001	--
Require Repair of all Leaks within 24 hours	Leaks	<input checked="" type="checkbox"/>	100%	5%	--	--
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	<input type="checkbox"/>	50%	50%	EBMUD, 2008	--
Require Water-Efficient Pre-Rinse Spray Valves	Fixtures & Appliances	<input type="checkbox"/>	0.8%	50%	EPA, 2015; Pacific Institute, 2003	--
- OR -						
Establish Water Budget - 10% Reduction	All CII uses	<input type="checkbox"/>	10%	50%	--	--
Establish Water Budget - 20% Reduction	All CII uses	<input type="checkbox"/>	20%	50%	--	--
Establish Water Budget - 30% Reduction	All CII uses	<input type="checkbox"/>	30%	50%	--	--



Drought Response Tool

Home	Input Baseline Year Water Use	Baseline Year Water Use Profile	Drought Response Actions	Estimated Water Savings	Drought Response Tracking
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4 - Drought Response Actions Estero Municipal Improvement District

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ Residential Customer Actions to Encourage						
Install Bathroom Faucet Aerators	Faucets and Dishwashers	<input type="checkbox"/>			--	--
Install a Water-Efficient Showerhead	Showers/Baths	<input type="checkbox"/>			--	--
Turn Off Water when Brushing Teeth, Shaving, Washing Dishes, or Cooking	Faucets and Dishwashers	<input type="checkbox"/>			--	--
Fill the Bathtub Halfway	Showers/Baths	<input type="checkbox"/>			--	--
Wash Only Full Loads of Clothes	Clothes Washers	<input type="checkbox"/>			--	--
Install a High-Efficiency Toilet	Toilets	<input type="checkbox"/>			--	--
Take Shorter Showers	Showers/Baths	<input type="checkbox"/>			--	--
Run Dishwasher Only When Full	Faucets and Dishwashers	<input type="checkbox"/>			--	--
Reduce Outdoor Irrigation	Irrigation	<input type="checkbox"/>			--	--
Install Drip-Irrigation	Irrigation	<input type="checkbox"/>			--	--
Use Mulch	Irrigation	<input type="checkbox"/>			--	--
Plant Drought Resistant Trees and Plants	Irrigation	<input type="checkbox"/>			--	--
Use a Broom to Clean Outdoor Areas	Misc. Outdoor	<input type="checkbox"/>			--	--
Flush Less Frequently	Toilets	<input type="checkbox"/>			--	--
Re-Use Shower or Bath Water for Irrigation	Irrigation	<input type="checkbox"/>			--	--
Wash Car at Facility that Recycles the Water	Misc. Outdoor	<input type="checkbox"/>			--	--

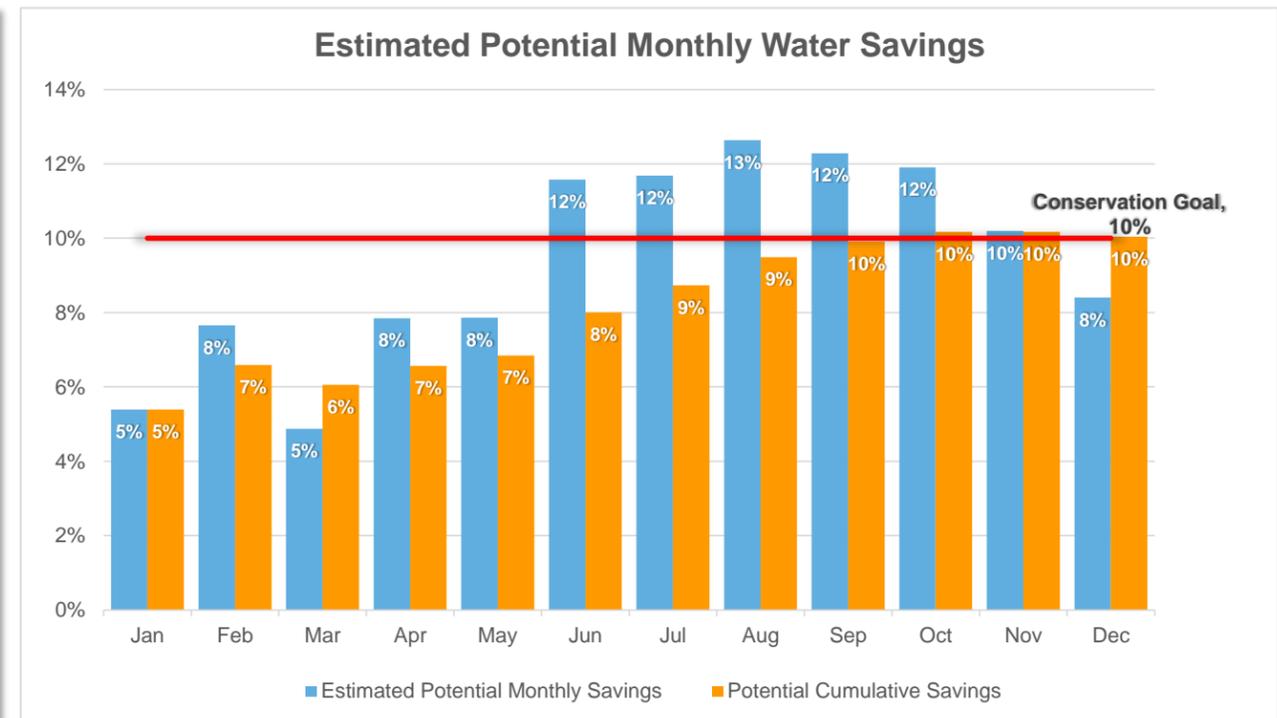
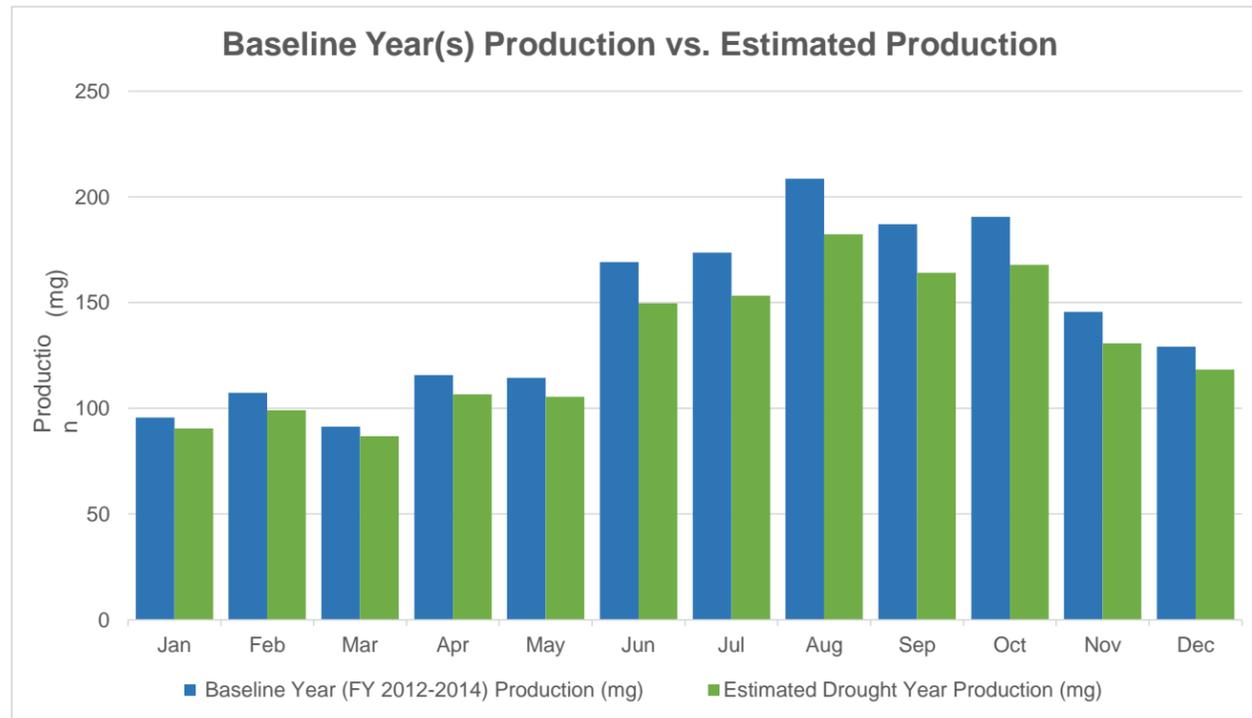
5 - Estimated Water Savings
Estero Municipal Improvement District

Estimated Monthly Water Use and Savings Summary

Units:

This provides a summary of the estimated production relative to Baseline Year production and potential water savings, assuming implementation of selected actions at the water savings and implementation rates indicated in the Drought Response Actions worksheet. Select the units that your production data are displayed in.

Month	Baseline Year (FY 2012-2014) Production (mg)	Estimated Drought Year Production (mg)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
January	96	90	5%	5%	10%	
February	107	99	8%	7%	10%	
March	91	87	5%	6%	10%	
April	116	107	8%	7%	10%	
May	114	105	8%	7%	10%	
June	169	150	12%	8%	10%	
July	174	153	12%	9%	10%	
August	209	182	13%	9%	10%	
September	187	164	12%	10%	10%	
October	191	168	12%	10%	10%	
November	146	131	10%	10%	10%	
December	129	118	8%	10%	10%	



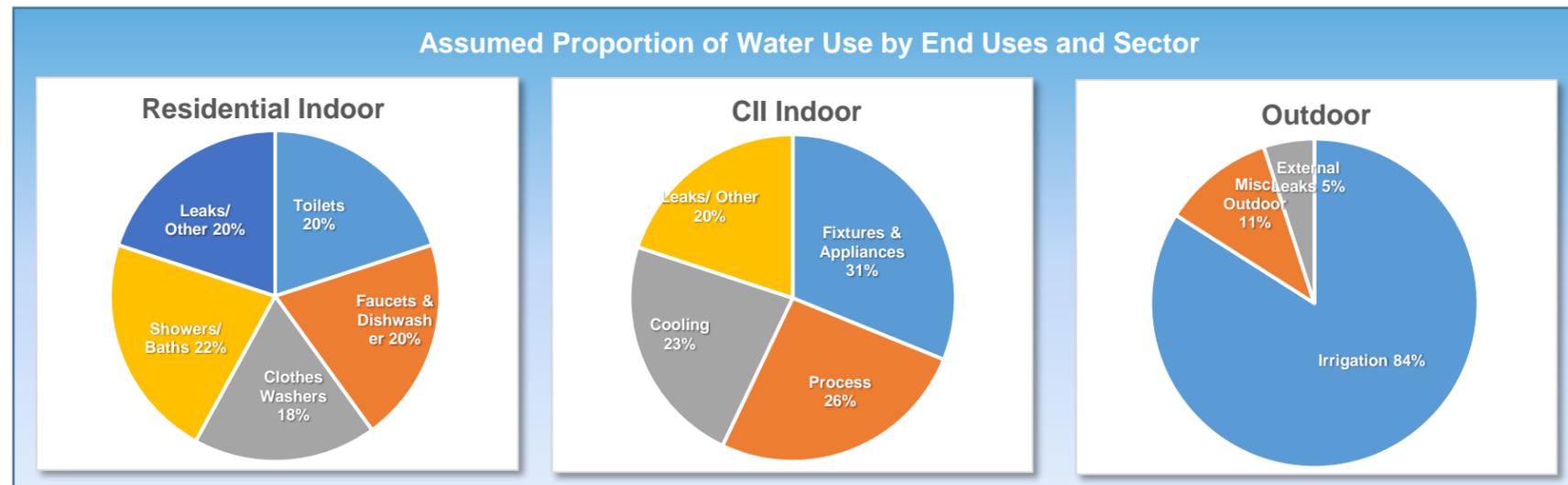


Drought Response Tool

Home Input Baseline Year Water Use Baseline Year Water Use Profile **Drought Response Actions** Estimated Water Savings Drought Response Tracking

4 - Drought Response Actions Estero Municipal Improvement District

Maximum Savings Potential		
<i>Use the default values or enter your own criteria for the maximum savings potential. Estimated water savings within each sector will not exceed the maximum savings criteria.</i>		
Minimum Residential Indoor GPCD	40	R-GPCD
Maximum Residential Outdoor Savings	75%	of Baseline Residential Outdoor Water Use
Maximum CII Indoor Savings	10%	of Baseline CII Indoor Water Use
Maximum CII Outdoor Savings	75%	of Baseline CII Outdoor Water Use
Maximum Dedicated Irrigation Account Savings	75%	of Baseline Dedicated Irrigation Water Use
Maximum Non-Revenue Water Savings	50%	of Baseline Non-Revenue Water Use
Resulting Total Maximum June 2015 to May 2016 Annual Savings Potential	49%	of Total Baseline Production





Drought Response Tool

Home	Input Baseline Year Water Use	Baseline Year Water Use Profile	Drought Response Actions	Estimated Water Savings	Drought Response Tracking
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4 - Drought Response Actions Estero Municipal Improvement District

Drought Response Actions						
<i>Select the Drought Response Actions you would like to include in your estimated savings calculations. For each selected action, use the default end use savings estimates and implementation rates or input your own values. The "End Use Savings" estimates the percent water use reduction that could occur at a particular end use as a result of a specific action. The "Implementation Rate" refers to the estimated percentage of accounts that will implement a specific action. The water savings potential at each end use is capped based on the assumed distribution of end use water demands shown in the pie charts above. A dash (--) indicates that professional judgement was used to establish the default value, or that savings are expected to be accounted for as part of a Public Information Program; additional basis for the default values are included in the User Manual.</i>						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► Possible Mandatory Prohibitions	All Outdoor	<input checked="" type="checkbox"/>	14%	50%	--	--
Prohibit Irrigation with Potable Water Outside of Newly Constructed Homes and Buildings that is not Delivered by Drip or Microspray Systems	Irrigation	<input type="checkbox"/>			--	--
Require Shut-Off Nozzles on Hoses for Vehicle Washing	Misc. Outdoor	<input checked="" type="checkbox"/>	17%	50%	See Appendix D of the DRP	--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	<input checked="" type="checkbox"/>	17%	50%		--
Prohibit the Use of Potable Water for Street Washing	Misc. Outdoor	<input checked="" type="checkbox"/>	17%	50%		--
Prohibit Irrigation with Potable Water in a Manner that causes Runoff	Irrigation	<input checked="" type="checkbox"/>	3%	50%	DeOreo et al., 2011	--
Prohibit Irrigation with Potable Water within 48 Hours following Measurable Rainfall	Irrigation	<input type="checkbox"/>			--	--
Prohibit Irrigation of Ornamental Turf with Potable Water on Street Medians	Irrigation	<input type="checkbox"/>			--	--
Prohibit Potable Water Use for Decorative Water Features that do not Recirculate Water	Misc. Outdoor	<input checked="" type="checkbox"/>	50%	50%	EBMUD, 2008	--
Provide Linen Service Opt Out Options	Fixtures & Appliances	<input checked="" type="checkbox"/>	0.5%	50%	EBMUD, 2011	--
Prohibit Serving Drinking Water other than upon Request in Eating or Drinking Establishments	Fixtures & Appliances	<input checked="" type="checkbox"/>	0.5%	50%	EBMUD, 2011	--



Drought Response Tool

Home	Input Baseline Year Water Use	Baseline Year Water Use Profile	Drought Response Actions	Estimated Water Savings	Drought Response Tracking
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4 - Drought Response Actions Estero Municipal Improvement District

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► Agency Drought Actions / Restrictions						
► Agency Actions						
Media Campaign, Newspaper Articles, Website	All	<input checked="" type="checkbox"/>	0.5%	75%	EBMUD, 2011	--
Promote Water Conservation / Rebate Programs	All	<input checked="" type="checkbox"/>	0.5%	50%	--	--
Water Efficiency Workshops, Public Events	All	<input checked="" type="checkbox"/>	0.5%	25%	EBMUD, 2011	--
Water Bill Inserts	All	<input checked="" type="checkbox"/>	0.5%	100%	EBMUD, 2011	--
Promote / Expand Use of Recycled Water	Irrigation	<input type="checkbox"/>	100%		--	--
Home or Mobile Water Use Reports	All	<input type="checkbox"/>	5%	10%	WaterSmart Software, 2015	--
Decrease Frequency and Length of Line Flushing	Non Revenue Water	<input checked="" type="checkbox"/>	25%	50%	See Appendix D of the DRP	Reduced flushing by 50%.
Audit and Reduce System Water Loss	Non Revenue Water	<input checked="" type="checkbox"/>	20%	50%	DWR, 2015	Target 50% of leakage.
Implement Drought Rate Structure / Water Budgets	All	<input checked="" type="checkbox"/>	5%	100%	CUWCC, 2015	--
Establish Retrofit on Resale Ordinance	All Residential Indoor	<input type="checkbox"/>	21%	6%	SFPUC, 2004	First Tuesday, 2015
Require Net Zero Demand Increase on New Connections	All	<input type="checkbox"/>			--	--
Moratorium on New Connections	All	<input type="checkbox"/>			--	--
Move to Monthly Metering / Billing	All	<input type="checkbox"/>	5%	10%	See Appendix D of the DRP	--
Increase Water Waste Patrols / Enforcement	All	<input type="checkbox"/>			--	--
Establish Drought Hotline	All	<input type="checkbox"/>			--	--
Reduce Distribution System Pressures	Non Revenue Water	<input type="checkbox"/>	4.5%	100%	CUWCC, 2010; DWR, 2015	--
► Dedicated Irrigation						
Conduct Irrigation Account Surveys	Irrigation	<input type="checkbox"/>	30%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	<input checked="" type="checkbox"/>	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	<input type="checkbox"/>	79%	50%		
Prohibit use of Potable Water for Irrigation	Irrigation	<input type="checkbox"/>	100%	50%		
Require Repair of all Leaks within 24 hours	External Leaks	<input checked="" type="checkbox"/>	100%	5%	--	--
- OR -						
Establish Water Budget - 25% Reduction	Irrigation	<input type="checkbox"/>	25%	50%	--	--
Establish Water Budget - 50% Reduction	Irrigation	<input type="checkbox"/>	50%	50%	--	--
Establish Water Budget - 75% Reduction	Irrigation	<input type="checkbox"/>	75%	50%	--	--



Drought Response Tool

Home	Input Baseline Year Water Use	Baseline Year Water Use Profile	Drought Response Actions	Estimated Water Savings	Drought Response Tracking
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4 - Drought Response Actions Estero Municipal Improvement District

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► Agency Drought Actions / Restrictions						
► Residential						
Conduct Water Use Surveys Targeting High Water Users	All Residential Uses	<input checked="" type="checkbox"/>	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	<input checked="" type="checkbox"/>	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	<input type="checkbox"/>	79%	50%		
Prohibit use of Potable Water for Irrigation	Irrigation	<input type="checkbox"/>	100%	50%		
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	<input type="checkbox"/>	50%	50%	EBMUD, 2008	--
Require Repair of all Leaks within 24 hours	Leaks	<input type="checkbox"/>	100%	5%	--	--
Require Pool Covers	Misc. Outdoor	<input checked="" type="checkbox"/>	28%	25%	Maddaus & Mayer, 2001	--
Prohibit Filling of Pools	Misc. Outdoor	<input checked="" type="checkbox"/>	55%	25%	DeOreo et al., 2011	--
- OR -						
Establish Water Budget - 10% Reduction	All Residential Uses	<input type="checkbox"/>	10%	50%	--	--
Establish Water Budget - 20% Reduction	All Residential Uses	<input type="checkbox"/>	20%	50%	--	--
► CII						
Conduct CII Surveys Targeting High Water Users	All CII uses	<input checked="" type="checkbox"/>	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	<input checked="" type="checkbox"/>	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	<input type="checkbox"/>	79%	50%		
Prohibit Use of Potable Water for Construction and Dust Control	Misc. Outdoor	<input type="checkbox"/>		100%		
Prohibit Single-Pass Cooling Systems	Cooling	<input checked="" type="checkbox"/>	80%	1%	Vickers, 2001	--
Require Repair of all Leaks within 24 hours	Leaks	<input checked="" type="checkbox"/>	100%	5%	--	--
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	<input type="checkbox"/>	50%	50%	EBMUD, 2008	--
Require Water-Efficient Pre-Rinse Spray Valves	Fixtures & Appliances	<input type="checkbox"/>	0.8%	50%	EPA, 2015; Pacific Institute, 2003	--
- OR -						
Establish Water Budget - 10% Reduction	All CII uses	<input type="checkbox"/>	10%	50%	--	--
Establish Water Budget - 20% Reduction	All CII uses	<input type="checkbox"/>	20%	50%	--	--
Establish Water Budget - 30% Reduction	All CII uses	<input type="checkbox"/>	30%	50%	--	--



Drought Response Tool

Home	Input Baseline Year Water Use	Baseline Year Water Use Profile	Drought Response Actions	Estimated Water Savings	Drought Response Tracking
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4 - Drought Response Actions Estero Municipal Improvement District

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ Residential Customer Actions to Encourage						
Install Bathroom Faucet Aerators	Faucets and Dishwashers	<input type="checkbox"/>			--	--
Install a Water-Efficient Showerhead	Showers/Baths	<input type="checkbox"/>			--	--
Turn Off Water when Brushing Teeth, Shaving, Washing Dishes, or Cooking	Faucets and Dishwashers	<input type="checkbox"/>			--	--
Fill the Bathtub Halfway	Showers/Baths	<input type="checkbox"/>			--	--
Wash Only Full Loads of Clothes	Clothes Washers	<input type="checkbox"/>			--	--
Install a High-Efficiency Toilet	Toilets	<input type="checkbox"/>			--	--
Take Shorter Showers	Showers/Baths	<input type="checkbox"/>			--	--
Run Dishwasher Only When Full	Faucets and Dishwashers	<input type="checkbox"/>			--	--
Reduce Outdoor Irrigation	Irrigation	<input type="checkbox"/>			--	--
Install Drip-Irrigation	Irrigation	<input type="checkbox"/>			--	--
Use Mulch	Irrigation	<input type="checkbox"/>			--	--
Plant Drought Resistant Trees and Plants	Irrigation	<input type="checkbox"/>			--	--
Use a Broom to Clean Outdoor Areas	Misc. Outdoor	<input type="checkbox"/>			--	--
Flush Less Frequently	Toilets	<input type="checkbox"/>			--	--
Re-Use Shower or Bath Water for Irrigation	Irrigation	<input type="checkbox"/>			--	--
Wash Car at Facility that Recycles the Water	Misc. Outdoor	<input type="checkbox"/>			--	--

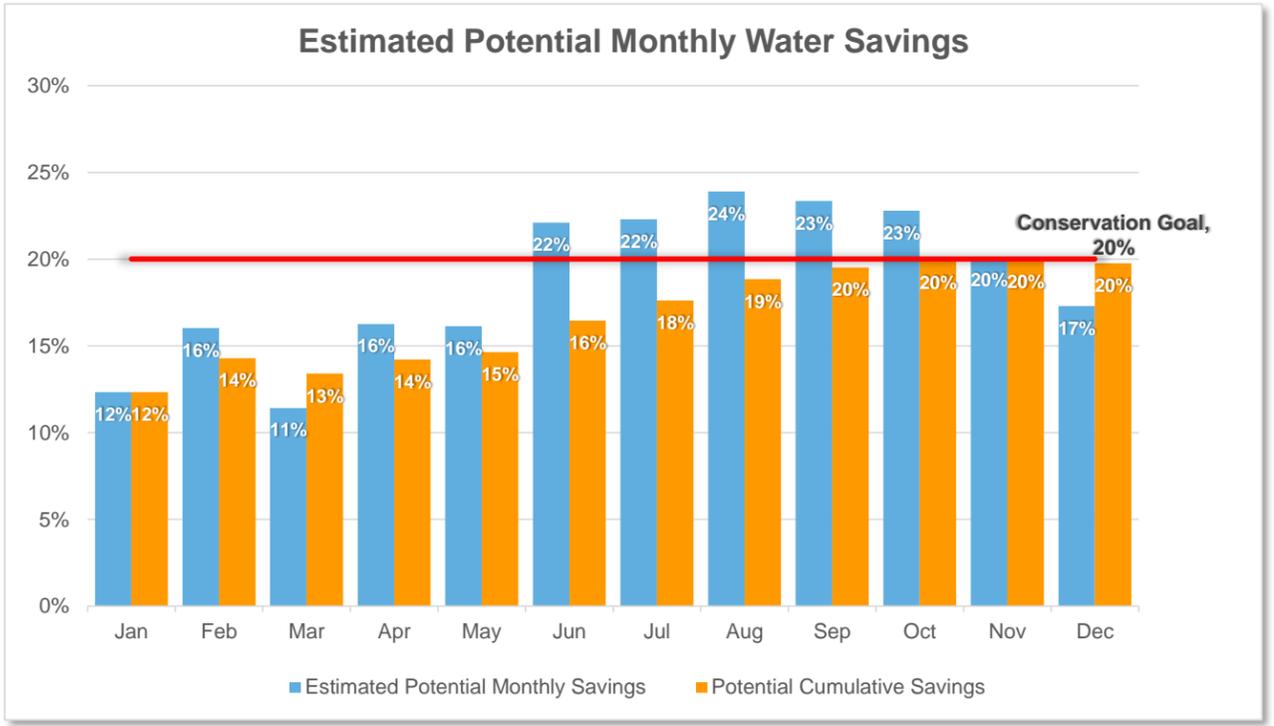
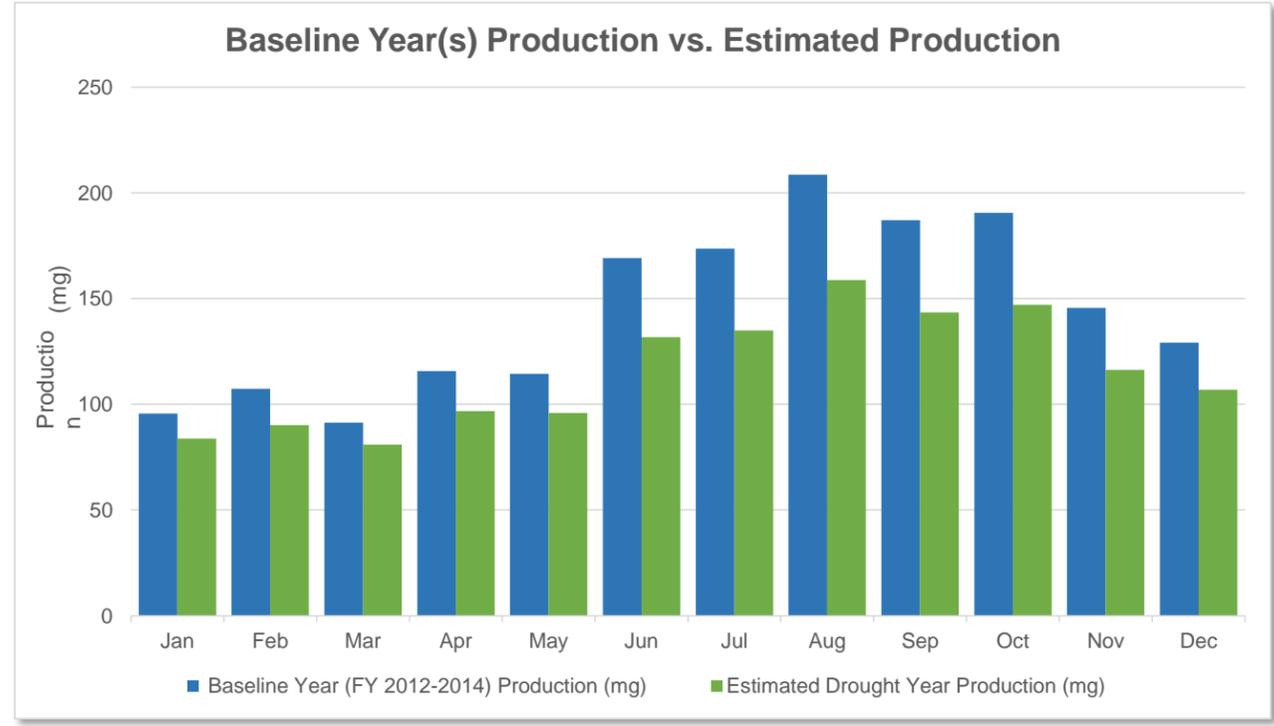
5 - Estimated Water Savings
Estero Municipal Improvement District

Estimated Monthly Water Use and Savings Summary

Units:

This provides a summary of the estimated production relative to Baseline Year production and potential water savings, assuming implementation of selected actions at the water savings and implementation rates indicated in the Drought Response Actions worksheet. Select the units that your production data are displayed in.

Month	Baseline Year (FY 2012-2014) Production (mg)	Estimated Drought Year Production (mg)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
January	96	84	12%	12%	20%	
February	107	90	16%	14%	20%	
March	91	81	11%	13%	20%	
April	116	97	16%	14%	20%	
May	114	96	16%	15%	20%	
June	169	132	22%	16%	20%	
July	174	135	22%	18%	20%	
August	209	159	24%	19%	20%	
September	187	143	23%	20%	20%	
October	191	147	23%	20%	20%	
November	146	116	20%	20%	20%	
December	129	107	17%	20%	20%	



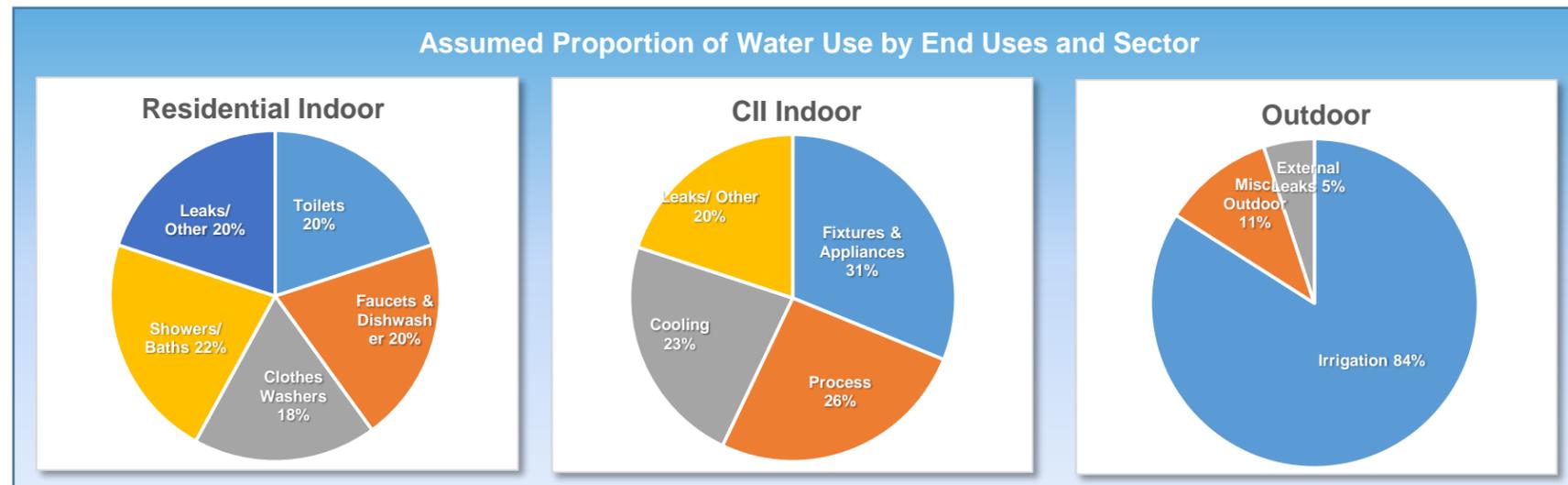


Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | **Drought Response Actions** | Estimated Water Savings | Drought Response Tracking

4 - Drought Response Actions Estero Municipal Improvement District

Maximum Savings Potential		
<i>Use the default values or enter your own criteria for the maximum savings potential. Estimated water savings within each sector will not exceed the maximum savings criteria.</i>		
Minimum Residential Indoor GPCD	40	R-GPCD
Maximum Residential Outdoor Savings	75%	of Baseline Residential Outdoor Water Use
Maximum CII Indoor Savings	10%	of Baseline CII Indoor Water Use
Maximum CII Outdoor Savings	75%	of Baseline CII Outdoor Water Use
Maximum Dedicated Irrigation Account Savings	75%	of Baseline Dedicated Irrigation Water Use
Maximum Non-Revenue Water Savings	50%	of Baseline Non-Revenue Water Use
Resulting Total Maximum June 2015 to May 2016 Annual Savings Potential	49%	of Total Baseline Production





Drought Response Tool

Home	Input Baseline Year Water Use	Baseline Year Water Use Profile	Drought Response Actions	Estimated Water Savings	Drought Response Tracking
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4 - Drought Response Actions Estero Municipal Improvement District

Drought Response Actions						
<p><i>Select the Drought Response Actions you would like to include in your estimated savings calculations. For each selected action, use the default end use savings estimates and implementation rates or input your own values. The "End Use Savings" estimates the percent water use reduction that could occur at a particular end use as a result of a specific action. The "Implementation Rate" refers to the estimated percentage of accounts that will implement a specific action. The water savings potential at each end use is capped based on the assumed distribution of end use water demands shown in the pie charts above. A dash (--) indicates that professional judgement was used to establish the default value, or that savings are expected to be accounted for as part of a Public Information Program; additional basis for the default values are included in the User Manual.</i></p>						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► Possible Mandatory Prohibitions	All Outdoor	<input checked="" type="checkbox"/>	14%	75%	--	--
Prohibit Irrigation with Potable Water Outside of Newly Constructed Homes and Buildings that is not Delivered by Drip or Microspray Systems	Irrigation	<input type="checkbox"/>			--	--
Require Shut-Off Nozzles on Hoses for Vehicle Washing	Misc. Outdoor	<input checked="" type="checkbox"/>	17%	50%	See Appendix D of the DRP	--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	<input checked="" type="checkbox"/>	17%	50%		--
Prohibit the Use of Potable Water for Street Washing	Misc. Outdoor	<input checked="" type="checkbox"/>	17%	50%		--
Prohibit Irrigation with Potable Water in a Manner that causes Runoff	Irrigation	<input checked="" type="checkbox"/>	3%	50%	DeOreo et al., 2011	--
Prohibit Irrigation with Potable Water within 48 Hours following Measurable Rainfall	Irrigation	<input type="checkbox"/>			--	--
Prohibit Irrigation of Ornamental Turf with Potable Water on Street Medians	Irrigation	<input type="checkbox"/>			--	--
Prohibit Potable Water Use for Decorative Water Features that do not Recirculate Water	Misc. Outdoor	<input checked="" type="checkbox"/>	50%	50%	EBMUD, 2008	--
Provide Linen Service Opt Out Options	Fixtures & Appliances	<input checked="" type="checkbox"/>	0.5%	50%	EBMUD, 2011	--
Prohibit Serving Drinking Water other than upon Request in Eating or Drinking Establishments	Fixtures & Appliances	<input checked="" type="checkbox"/>	0.5%	50%	EBMUD, 2011	--



Drought Response Tool

Home	Input Baseline Year Water Use	Baseline Year Water Use Profile	Drought Response Actions	Estimated Water Savings	Drought Response Tracking
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4 - Drought Response Actions Estero Municipal Improvement District

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► Agency Drought Actions / Restrictions						
► Agency Actions						
Media Campaign, Newspaper Articles, Website	All	<input checked="" type="checkbox"/>	0.5%	80%	EBMUD, 2011	--
Promote Water Conservation / Rebate Programs	All	<input checked="" type="checkbox"/>	0.5%	50%	--	--
Water Efficiency Workshops, Public Events	All	<input checked="" type="checkbox"/>	0.5%	25%	EBMUD, 2011	--
Water Bill Inserts	All	<input checked="" type="checkbox"/>	0.5%	100%	EBMUD, 2011	--
Promote / Expand Use of Recycled Water	Irrigation	<input type="checkbox"/>	100%		--	--
Home or Mobile Water Use Reports	All	<input type="checkbox"/>	5%	10%	WaterSmart Software, 2015	--
Decrease Frequency and Length of Line Flushing	Non Revenue Water	<input checked="" type="checkbox"/>	25%	100%	See Appendix D of the DRP	Reduced flushing by 50%.
Audit and Reduce System Water Loss	Non Revenue Water	<input checked="" type="checkbox"/>	20%	50%	DWR, 2015	Target 50% of leakage.
Implement Drought Rate Structure / Water Budgets	All	<input checked="" type="checkbox"/>	5%	100%	CUWCC, 2015	--
Establish Retrofit on Resale Ordinance	All Residential Indoor	<input type="checkbox"/>	21%	6%	SFPUC, 2004	First Tuesday, 2015
Require Net Zero Demand Increase on New Connections	All	<input type="checkbox"/>			--	--
Moratorium on New Connections	All	<input type="checkbox"/>			--	--
Move to Monthly Metering / Billing	All	<input checked="" type="checkbox"/>	5%	10%	See Appendix D of the DRP	--
Increase Water Waste Patrols / Enforcement	All	<input checked="" type="checkbox"/>			--	--
Establish Drought Hotline	All	<input type="checkbox"/>			--	--
Reduce Distribution System Pressures	Non Revenue Water	<input type="checkbox"/>	4.5%	100%	CUWCC, 2010; DWR, 2015	--
► Dedicated Irrigation						
Conduct Irrigation Account Surveys	Irrigation	<input type="checkbox"/>	30%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	<input type="checkbox"/>	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	<input checked="" type="checkbox"/>	79%	50%		
Prohibit use of Potable Water for Irrigation	Irrigation	<input type="checkbox"/>	100%	50%		
Require Repair of all Leaks within 24 hours	External Leaks	<input checked="" type="checkbox"/>	100%	5%	--	--
- OR -						
Establish Water Budget - 25% Reduction	Irrigation	<input type="checkbox"/>	25%	50%	--	--
Establish Water Budget - 50% Reduction	Irrigation	<input type="checkbox"/>	50%	50%	--	--
Establish Water Budget - 75% Reduction	Irrigation	<input type="checkbox"/>	75%	50%	--	--



Drought Response Tool

Home	Input Baseline Year Water Use	Baseline Year Water Use Profile	Drought Response Actions	Estimated Water Savings	Drought Response Tracking
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4 - Drought Response Actions Estero Municipal Improvement District

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► Agency Drought Actions / Restrictions						
► Residential						
Conduct Water Use Surveys Targeting High Water Users	All Residential Uses	<input checked="" type="checkbox"/>	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	<input type="checkbox"/>	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	<input checked="" type="checkbox"/>	79%	50%		
Prohibit use of Potable Water for Irrigation	Irrigation	<input type="checkbox"/>	100%	50%		
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	<input checked="" type="checkbox"/>	50%	50%	EBMUD, 2008	--
Require Repair of all Leaks within 24 hours	Leaks	<input type="checkbox"/>	100%	5%	--	--
Require Pool Covers	Misc. Outdoor	<input checked="" type="checkbox"/>	28%	25%	Maddaus & Mayer, 2001	--
Prohibit Filling of Pools	Misc. Outdoor	<input checked="" type="checkbox"/>	55%	25%	DeOreo et al., 2011	--
- OR -						
Establish Water Budget - 10% Reduction	All Residential Uses	<input type="checkbox"/>	10%	50%	--	--
Establish Water Budget - 20% Reduction	All Residential Uses	<input type="checkbox"/>	20%	50%	--	--
► CII						
Conduct CII Surveys Targeting High Water Users	All CII uses	<input checked="" type="checkbox"/>	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	<input type="checkbox"/>	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	<input checked="" type="checkbox"/>	79%	50%		
Prohibit Use of Potable Water for Construction and Dust Control	Misc. Outdoor	<input type="checkbox"/>		100%	--	--
Prohibit Single-Pass Cooling Systems	Cooling	<input checked="" type="checkbox"/>	80%	1%	Vickers, 2001	--
Require Repair of all Leaks within 24 hours	Leaks	<input checked="" type="checkbox"/>	100%	5%	--	--
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	<input checked="" type="checkbox"/>	50%	50%	EBMUD, 2008	--
Require Water-Efficient Pre-Rinse Spray Valves	Fixtures & Appliances	<input type="checkbox"/>	0.8%	50%	EPA, 2015; Pacific Institute, 2003	--
- OR -						
Establish Water Budget - 10% Reduction	All CII uses	<input type="checkbox"/>	10%	50%	--	--
Establish Water Budget - 20% Reduction	All CII uses	<input type="checkbox"/>	20%	50%	--	--
Establish Water Budget - 30% Reduction	All CII uses	<input type="checkbox"/>	30%	50%	--	--



Drought Response Tool

Home	Input Baseline Year Water Use	Baseline Year Water Use Profile	Drought Response Actions	Estimated Water Savings	Drought Response Tracking
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4 - Drought Response Actions Estero Municipal Improvement District

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► Residential Customer Actions to Encourage						
Install Bathroom Faucet Aerators	Faucets and Dishwashers	<input type="checkbox"/>			--	--
Install a Water-Efficient Showerhead	Showers/Baths	<input type="checkbox"/>			--	--
Turn Off Water when Brushing Teeth, Shaving, Washing Dishes, or Cooking	Faucets and Dishwashers	<input type="checkbox"/>			--	--
Fill the Bathtub Halfway	Showers/Baths	<input type="checkbox"/>			--	--
Wash Only Full Loads of Clothes	Clothes Washers	<input type="checkbox"/>			--	--
Install a High-Efficiency Toilet	Toilets	<input type="checkbox"/>			--	--
Take Shorter Showers	Showers/Baths	<input type="checkbox"/>			--	--
Run Dishwasher Only When Full	Faucets and Dishwashers	<input type="checkbox"/>			--	--
Reduce Outdoor Irrigation	Irrigation	<input type="checkbox"/>			--	--
Install Drip-Irrigation	Irrigation	<input type="checkbox"/>			--	--
Use Mulch	Irrigation	<input type="checkbox"/>			--	--
Plant Drought Resistant Trees and Plants	Irrigation	<input type="checkbox"/>			--	--
Use a Broom to Clean Outdoor Areas	Misc. Outdoor	<input type="checkbox"/>			--	--
Flush Less Frequently	Toilets	<input type="checkbox"/>			--	--
Re-Use Shower or Bath Water for Irrigation	Irrigation	<input type="checkbox"/>			--	--
Wash Car at Facility that Recycles the Water	Misc. Outdoor	<input type="checkbox"/>			--	--

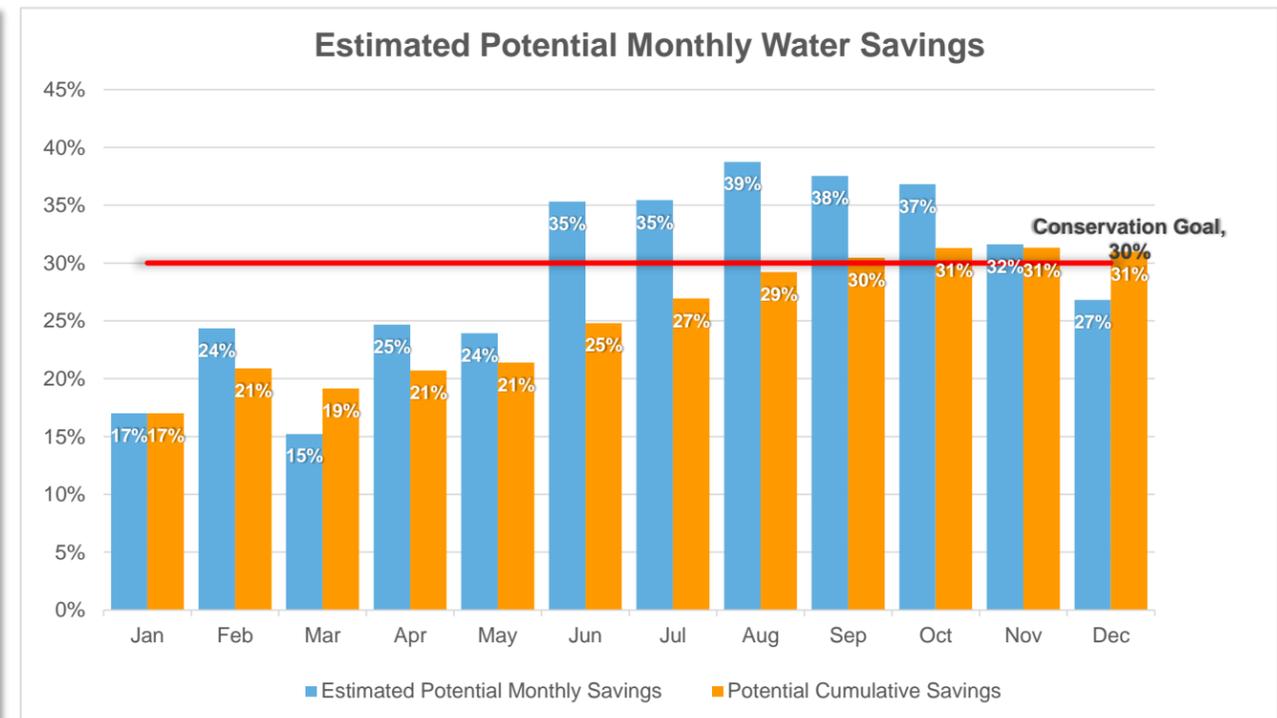
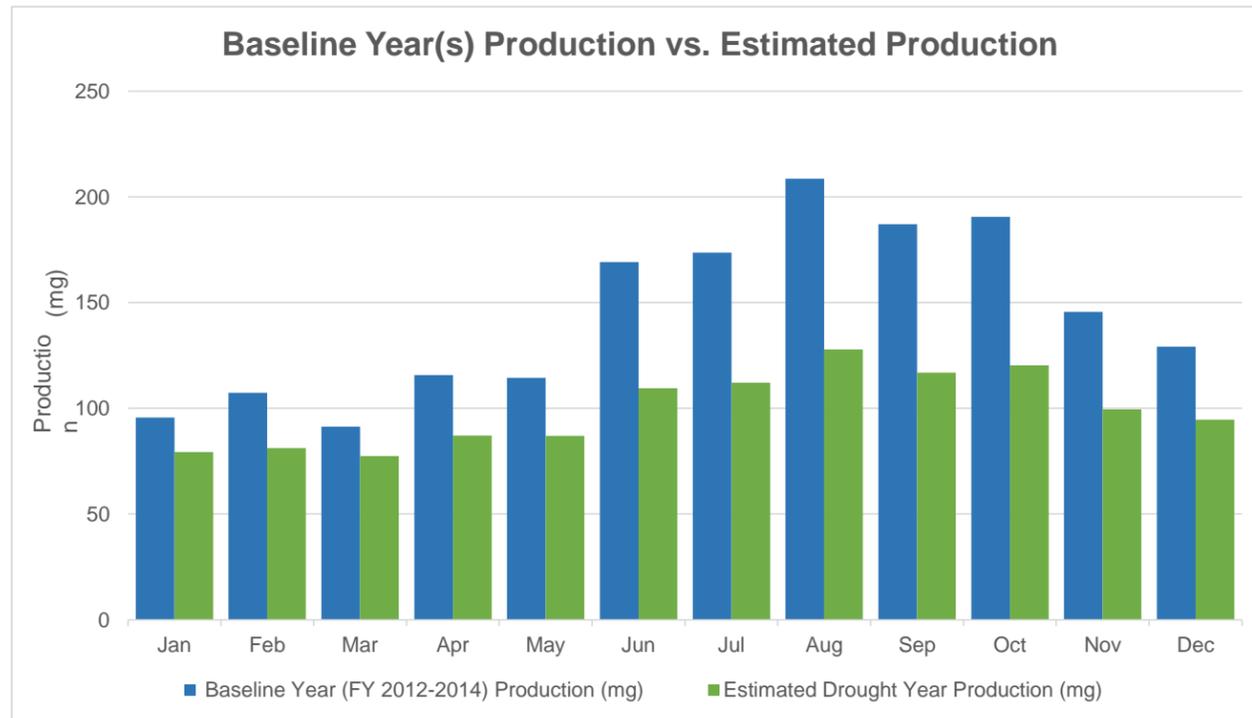
5 - Estimated Water Savings
Estero Municipal Improvement District

Estimated Monthly Water Use and Savings Summary

Units:

This provides a summary of the estimated production relative to Baseline Year production and potential water savings, assuming implementation of selected actions at the water savings and implementation rates indicated in the Drought Response Actions worksheet. Select the units that your production data are displayed in.

Month	Baseline Year (FY 2012-2014) Production (mg)	Estimated Drought Year Production (mg)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
January	96	79	17%	17%	30%	
February	107	81	24%	21%	30%	
March	91	77	15%	19%	30%	
April	116	87	25%	21%	30%	
May	114	87	24%	21%	30%	
June	169	109	35%	25%	30%	
July	174	112	35%	27%	30%	
August	209	128	39%	29%	30%	
September	187	117	38%	30%	30%	
October	191	120	37%	31%	30%	
November	146	100	32%	31%	30%	
December	129	95	27%	31%	30%	





**APPENDIX M:
RESOLUTION XX, WATER SHORTAGE CONTINGENCY PLAN, 20XX**



**APPENDIX N:
CONSERVATION PROGRAM OUTREACH MATERIALS**



Get all the Information
about the listed Water
Rebates!

Visit:
[www.fostercity.org/
publicworks/
waterdistribution/water-
conservation-
rebates.cfm](http://www.fostercity.org/publicworks/waterdistribution/water-conservation-rebates.cfm)

or



scan the barcode
below with your smart
phone!

Still Have Questions?

Visit: [http://www.fostercity.org/
publicworks/waterdistribution/
water-conservation-rebates.cfm](http://www.fostercity.org/publicworks/waterdistribution/water-conservation-rebates.cfm) or
call (650)-286-8140

EMID Customers:

Residential Water Rebates

Now Available!

- ◆ High Efficiency Toilet
up to \$150 per toilet
- ◆ High Efficiency Washing Machine
up to \$150 per machine
- ◆ Landscape Water Use Evaluation
Free!
- ◆ “Lawn Be Gone” Landscape Conversion
\$1.00 per square foot, unlimited
- ◆ Smart Irrigation Controllers
100% of cost up to \$250 maximum
- ◆ Synthetic Turf
\$4 per square foot up to \$3,000 maximum

Thank you for making Every Drop Count!



Get all the Information
about the listed Water
Rebates!

Visit:
[www.fostercity.org/
publicworks/
waterdistribution/water-
conservation-
rebates.cfm](http://www.fostercity.org/publicworks/waterdistribution/water-conservation-rebates.cfm)
or



scan the barcode
below with your smart
phone!

Still Have Questions?

Visit: [http://www.fostercity.org/
publicworks/waterdistribution/
water-conservation-rebates.cfm](http://www.fostercity.org/publicworks/waterdistribution/water-conservation-rebates.cfm) or
call (650)-286-8140

EMID Customers: Commercial Water Rebates Now Available!

- ◆ High Efficiency Toilet
up to \$150 per toilet
- ◆ Landscape Water Use Evaluation
Free!
- ◆ “Lawn Be Gone” Landscape Conversion
\$1.00 per square foot, unlimited
- ◆ Separation of Domestic and Irrigation
Meters
Free meters and free installation; low
interest loan for construction costs
- ◆ Smart Irrigation Controllers
100% of cost up to \$50 per station; \$7,500
maximum
- ◆ Synthetic Turf
\$4 per square foot up to \$100,000 maximum

Thank you for making Every Drop Count!



High Efficiency Toilet Rebate

What are High Efficiency Toilets?

High Efficiency Toilets (HETs) are modern, efficient toilets designed to use at least 20% less water than standard low flow toilets. Although they use less water, they still perform better than previous generations of low flow toilets.



Do I Qualify?

This program is open to all residential and commercial customers in good standing with the Estero Municipal Improvement District (EMID).

This program is only for the replacement of toilets that use 3.5 gallons per flush or more.

How Much is the Rebate?

This program offers up to a **\$150 rebate** for the purchase of a new HET.

For residential customers, there is a 3 toilet limit. Pre-approval by EMID is required for commercial customers requesting more than 3 rebates.

Questions?

Visit: <http://www.fostercity.org/publicworks/waterdistribution/water-conservation-rebates.cfm> or call (650)-286-8140

How do I Apply?

1. Before you purchase your HET toilet, contact the Public Works Maintenance Division at **(650) 286-8140** to inform them of the toilet replacement and get the rebate application.
2. Purchase a HET toilet which uses 1.28 gallons or less per flush. Look for the EPA WaterSense Label.
3. Install the new toilet(s). This can be done by yourself or any plumber that you choose.
4. Return original receipt to the address indicated on the HET rebate application. It must be an original receipt(s) from the plumber indicating the installation date, or if you installed the toilet(s) yourself, an original purchase receipt.
5. Allow 4-6 weeks for the rebate check to arrive after submitting your application.

Thank you for making Every Drop Count!



Smart Irrigation Controller Rebate

What are Smart Irrigation Controllers?

Smart controllers estimate or measure depletion of available plant soil moisture in order to activate the irrigation system, replenishing water as needed while minimizing excess water use. A properly programmed smart controller does all the work for you throughout the irrigation season by making irrigation schedule adjustments, including run times and number of cycles.

Do I Qualify for the Rebate?

- You must currently have a fully operational in-ground irrigation system operated by an automatic sprinkler timer
- You must have a current water account in good standing with the Estero Municipal Improvement District
- You must agree to an onsite pre- and post-installation verification at the discretion of the District
- Smart Controllers purchased must be listed as a qualifying Smart Controller as indicated below
- Smart Controller must be installed and operational at the installation site for at least two (2) years
- Climate-based Smart Controllers must have a minimum of 2 years pre-paid signaling fees (for controllers requiring a purchased climatology data plan)
- Sensor-based Smart Controllers must have the requisite rain / moisture sensor installed



Questions?

Visit: <http://www.fostercity.org/publicworks/waterdistribution/water-conservation-rebates.cfm> or call (650)-286-8140

How Much is the Rebate?

- Residential Customers (Single-Family or Multi-Family with individual responsibility for landscape water) – 100% of the cost of the controller(s) up to \$250 maximum rebate.
- Irrigation Customers (Multi-Family property owners or associations with responsibility for common area landscaping, Commercial customers) – 100% of the cost of the controllers up to \$50 per station with a maximum rebate of \$7,500 for any one customer.

What Products Qualify?

You must purchase a Smart Controller that has been approved by the Irrigation Association's Smart Water Application Technology (SWAT) testing protocol. A list of qualifying climate-based controllers can be found at www.irrigation.org/swat/control_climate/ and www.irrigation.org/swat/control_sensor/ for sensor-based controllers. Rebates for irrigation controllers utilizing on-site soil moisture sensors will be issued on a case-by-case basis.

Continued on Reverse



Smart Irrigation Controller Rebate

Continued from reverse

How do I Apply?

1. Confirm eligibility by setting up a pre-installation verification by calling 650-286-8140 or by e-mail at SmartControllerRebate@fostercity.org
2. Complete a rebate form that will be provided by the District upon initial verification of eligibility
3. Purchase and install a qualifying product.
4. Arrange an on-site post-installation inspection by calling 650-286-8140 or by e-mail at SmartControllerRebate@fostercity.org
5. Submit the completed application and a copy of the purchase invoice / receipt to the representative during your verification appointment.
6. Allow 4-6 weeks for the rebate check to arrive after your verification appointment.

Thank you for making Every Drop Count!



FREE Landscape Water Use Evaluation

What are Landscape Water Use Evaluations?

Making your landscape watering as efficient as possible will reduce your water bill and conserve water while also ensuring that your plants and trees are getting the correct amount of water.

The Estero Municipal Improvement District can provide an expert in residential irrigation who can meet you at your home, inspect your outdoor irrigation systems, and develop detailed recommendations on how you may be able to reduce the amount of water you use on your landscaping. And your cost? Absolutely nothing! It's free! However, there are a limited number of audits available each year, so act now!



Do I Qualify?

You are eligible to receive a free Landscape Water Use Evaluation if you meet one of the criteria below.

- You are a Residential Customer (Single-Family or Multi-Family with individual responsibility for watering landscaping) and have used more than 240 ccf of water over the past 12 months (units are listed on your monthly water bills)
- You are an Irrigation Customer and your Landscape Water Use Report indicates that you have exceeded your water budget by 25% or more over the past 12 months

Questions?

Visit: <http://www.fostercity.org/publicworks/waterdistribution/water-conservation-rebates.cfm> or call (650)-286-8140

How Do I Apply?

If you are interested in scheduling a Landscape Water Use Evaluation for your home or your irrigation area, send an e-mail to LandscapeAudit@fostercity.org, or call us at 650-286-8140, and we will arrange an appointment between you and our irrigation expert.

Thank you for making Every Drop Count!



Synthetic Turf Rebate

What is Synthetic Turf?

Synthetic turf (also known as artificial grass) is a man-made grass substitute for lawn. You may be familiar with applications of synthetic turf on athletic fields such as Sea Cloud Park and Catamaran Park here in Foster City, but it can also be used for residential landscapes. Installing synthetic turf can help reduce water use associated with irrigation, reduce the need for pesticides and fertilizers, and provide a wonderful treatment to landscaped areas that your family can use to run, play, sunbathe, or simply view. More questions about Synthetic Turf? Visit <http://www.fostercity.org/Services/water/Synthetic-Turf-Rebate.cfm>.



Do I Qualify?

All EMID customers with a water account in good standing are eligible for this rebate. Customers must remove existing grass lawns and irrigation systems and replace it with synthetic turf to be eligible for the rebate.

How Much is the Rebate?

- Residential Customers – \$4.00 per square foot up to a maximum rebate of \$3,000
- Irrigation Customers (including Multi-Family Residential and Commercial customers, where allowed) – \$4.00 per square foot up to a maximum rebate of \$100,000

Questions?

Visit: <http://www.fostercity.org/publicworks/waterdistribution/water-conservation-rebates.cfm> or call (650)-286-8140

How do I Apply?

1. Confirm with the Foster City Planning Department that your property is eligible to have synthetic turf installed on it by calling 650-286-3225 or by e-mail at Planning@fostercity.org.
2. Set up a pre-installation onsite visit with the Foster City Water Department by calling 650-286-8140 or by e-mail at SyntheticTurfRebate@fostercity.org.
3. Complete a rebate form that will be provided by the District upon initial verification of eligibility.
4. Purchase and install a qualifying product.
5. Arrange an on-site post-installation verification by calling 650-286-8140 or by e-mail at SyntheticTurfRebate@fostercity.org.
6. Submit the completed application and a copy of the purchase invoice / receipt to the representative during your verification appointment. Allow 4-6 weeks for the rebate check to arrive after your verification appointment.

Thank you for making Every Drop Count!

Synthetic Turf Rebate



"Lawn Be Gone" Rebate

What is the "Lawn Be Gone" Program?

The Estero Municipal Improvement District (EMID) and the Bay Area Water Supply and Conservation Agency (BAWSCA) are teaming up to offer rebates to customers who remove existing, irrigated lawn and replace it with water-wise plants. Lawns use a lot of water, and water-wise plants will reduce your water use.

Do I Qualify?

All EMID customers in good standing are eligible for this rebate. Customers must remove at least 200 square feet of existing irrigated grass lawns and replace it with plants on the BAWSCA approved plant list.



How Much is the Rebate?

- Residential Customers - \$1.00 per square foot, unlimited
- Commercial Customers - \$1.00 per square foot up to a maximum rebate of \$5,000

How do I Apply?

1. Visit <http://bawasca.org/water-conservation/residential-water-conservation-programs/lawn-be-gone/> to read terms and conditions and download application.
2. Fill out application and submit to BAWSCA.
3. A program representative will contact you to schedule a pre-conversion site visit. If your project is eligible, you will receive a notice to proceed.
4. Once you receive your notice to proceed, complete your project within 3 months.
5. When your project is complete, schedule your post-conversion site visit.
6. Allow 6-8 weeks for your rebate to arrive following your final site visit.

Questions?

Visit: <http://www.fostercity.org/publicworks/waterdistribution/water-conservation-rebates.cfm>
or call (650)-286-8140

Thank you for making Every Drop Count!



High Efficiency Washing Machine Rebate

What is a High Efficiency Washing Machine?

High-efficiency washers with the Energy Star label use nearly 40% less water and over 50% less energy than standard models, and often clean clothes better in less time than older models. With the rising costs of energy and water, you can realize immediate savings on your utility bills.

Do I Qualify?

All Residential EMID customers who are also PG&E customers are eligible for this rebate. You must replace an existing washing machine with a ENERGY STAR rated one.

How Much is the Rebate?

The total rebate is up to \$200 when you purchase an Energy Star most efficient 2014 model or \$50 for the purchase of a 3rd Tier Energy Star model. EMID will not rebate clothes washers that contain silver ion technology.

How do I Apply?

- 1) You may visit www.waterenergysavings.com to access the application online (you will still need to mail in the form along with the receipts) OR you may pick-up a rebate form at the retailer where you purchased the washer.
- 2) Please check with www.waterenergysavings.com or the rebate form for more information regarding qualified clothes washers. The rebate amount is \$125 for Tier 2 washing machines.
- 3) Purchase and install the machine.
- 4) Complete the application and mail along with the receipts to the address on the application.
- 5) Allow 6-8 weeks for your rebate check to arrive after submitting your completed application.

Thank you for making Every Drop Count!



Questions?

Visit: <http://www.fostercity.org/publicworks/waterdistribution/water-conservation-rebates.cfmor>
call (650)-286-8140



Rotating Nozzles and Pressure Reducing Sprinkler Heads

What are Rotating Nozzles and Pressure Reducing Sprinkler Heads?

Do I Qualify?

All EMID customers with a water account in good standing are eligible for this rebate. Customers must replace existing rotating nozzles and sprinkler heads with water conserving nozzles and heads to be eligible for the rebate.



How Much is the Rebate?

\$4 per set, up to 15 for residential customers, unlimited for commercial customers.

How do I Apply?

1. Set up a pre-installation onsite visit with the Foster City Water Department by calling 650-286-8140.
2. Complete a rebate form that will be provided by the District upon initial verification of eligibility.
3. Purchase and install a qualifying product.
4. Arrange an on-site post-installation verification by calling 650-286-8140.
5. Submit the completed application and a copy of the purchase invoice / receipt to the representative during your verification appointment. Allow 4-6 weeks for the rebate check to arrive after your verification appointment.

Questions?

Visit: <http://www.fostercity.org/publicworks/waterdistribution/water-conservation-rebates.cfm> or call (650)-286-8140

Thank you for making Every Drop Count!



**APPENDIX O:
RESOLUTION XX, URBAN WATER MANAGEMENT PLAN, 2015 UPDATE**



**APPENDIX P:
PLAN SUBMITTAL DOCUMENTATION**

Tina Wang

From: Norm Dorais <NDORAIS@fostercity.org>
Sent: Wednesday, February 03, 2016 3:07 PM
To: Andree Johnson (AJohnson@bawasca.org)
Cc: NSandkulla@BAWSCA.org; Michael Hurley (MHurley@bawasca.org); Anona Dutton; Vivian Ma; Jeff Moneda
Subject: RE: REMINDER: Provide Purchase Projections for SFPUC UWMP by 2/3
Attachments: Population Projections for UWMP Projections-summary for FY2016-17 budget.xls; 2015 UWMP SFPUC Purchase Projections_DRAFT_For_Review.xlsx

Andree,

As requested. I also updated the WCDB with the updated population and projected purchases estimates.

Norm

From: Jeff Moneda
Sent: Wednesday, February 03, 2016 10:17 AM
To: Norm Dorais
Subject: FW: REMINDER: Provide Purchase Projections for SFPUC UWMP by 2/3

Hi Norm,
Please handle if you haven't completed it already. It is due today.
Thank You,
Jeff

From: Andree Johnson [<mailto:AJohnson@bawasca.org>]
Sent: Wednesday, February 03, 2016 8:49 AM
To: (mbolzowski@calwater.com); Alex Ameri (alex.ameri@hayward-ca.gov); Anthony Carrasco - Cal Water (ACarrasco@calwater.com); Art Morimoto (amorimoto@burlingame.org); aschutte@hansonbridgett.com; bmccarthy@ci.sunnyvale.ca.us; bob.bleisner@mountainview.gov; Brian Manning (Bmanning@stanford.edu); Cari Lemke; Chris deGroot (cddegroot@santaclaraca.gov); cmoffice@cityofepa.org; Cyrus Kianpour (cyrus@csgengr.com); Dailey, Karla (Karla.Dailey@CityofPaloAlto.org); David Dickson (ddickson@coastsidewater.org); dbarrow@westboroughwater.com; Dennis Diemer (DDiemer@HILLSBOROUGH.NET); Doug Chun; Flegel, Elizabeth; Gregg Hosfeldt (gregg.hosfeldt@mountainview.gov); jane.ratchye@cityofpaloalto.org; Janice Zavalack (jzavalack@nccwd.com); Jeff Moneda; Jeff Provenzano (Jeffrey.provenzano@sanjoseca.gov); Jerry Flanagan; Jim Burch (jburch@sanbruno.ca.gov); Jimmy Tan (jtan@sanbruno.ca.gov); John Stufflebean - City of Sunnyvale (jstufflebean@sunnyvale.ca.gov); Julia Nussbaum (JuliaNN@stanford.edu); Julie Paping; Justin Chapel (jchapel@redwoodcity.org); klim@ci.millbrae.ca.us; Mansour Nasser - Sunnyvale (mnasser@sunnyvale.ca.gov); marilyn.mosher@hayward-ca.gov; Mary Rogren (mrogren@coastsidewater.org); Maziar Bozorginia (mbozorginia@cityofepa.org); nhawk@ci.milpitas.ca.gov; Pam Lowe (phlowe@menlopark.org); Patrick Sweetland (psweetland@dalycity.org); Patrick Walter (pwalter@purissimawater.org); Paul Willis; Peter Vorametsanti (peterv@ci.millbrae.ca.us); Randy Breault; Rene Ramirez (rramirez@midpeninsulawater.org); rnino@menlopark.org; Rob Guzzetta (capitano.idraulica@gmail.com); Smithson, Dawn (dsmithson@calwater.com); Steve Peterson; Steven Inn (Steven.Inn@acwd.com); Steven Machida (smachida@ci.milpitas.ca.gov); Tammy Rudock (tammyr@midpeninsulawater.org); Terrence Kyaw; Thomas.Niesar@acwd.com; Tim McAuliffe (tmcauliffe@burlingame.org); Tina Pham (tina.pham@sanjoseca.gov)
Subject: REMINDER: Provide Purchase Projections for SFPUC UWMP by 2/3

BAWSCA Water Management Representatives,

A reminder that projections for (1) RWS water purchases and (2) population, to be provided to SFPUC for its 2015 UWMP, are due today. If you have any modifications to the numbers, please provide BAWSCA with your updates by close of business. BAWSCA will forward the information received to the SFPUC on Thursday, February 4th.

Thanks to all who have already provided the requested information.

Andree

From: Andree Johnson

Sent: Wednesday, January 20, 2016 9:28 AM

To: (mbolzowski@calwater.com); Alex Ameri (alex.ameri@hayward-ca.gov); Anthony Carrasco - Cal Water (ACarrasco@calwater.com); Art Morimoto (amorimoto@burlingame.org); aschutte@hansonbridgett.com; bmccarthy@ci.sunnyvale.ca.us; bob.bleisner@mountainview.gov; Brian Manning (Bmanning@stanford.edu); Cari Lemke; Chris deGroot (cdegroot@santaclaraca.gov); cmoffice@cityofepa.org; Cyrus Kianpour (cyrus@csgeogr.com); Dailey, Karla (Karla.Dailey@CityofPaloAlto.org); David Dickson (ddickson@coastsidewater.org); dbarrow@westboroughwater.com; Dennis Diemer (DDiemer@HILLSBOROUGH.NET); Doug Chun; Flegel, Elizabeth; Gregg Hosfeldt (gregg.hosfeldt@mountainview.gov); jane.ratchye@cityofpaloalto.org; Janice Zavalaclark (jzavalaclark@nccwd.com); Jeff Moneda - City of Foster City (jmoneda@fostercity.org); Jeff Provenzano (Jeffrey.provenzano@sanjoseca.gov); Jerry Flanagan; Jim Burch (jburch@sanbruno.ca.gov); Jimmy Tan (jt@sanbruno.ca.gov); John Stufflebean (jstufflebean@ci.sunnyvale.ca.us); Julia Nussbaum (JuliaNN@stanford.edu); Julie Paping (jpaping@fostercity.org); Justin Chapel (jchapel@redwoodcity.org); klim@ci.millbrae.ca.us; Mansour Nasser (mnasser@ci.sunnyvale.ca.us); marilyn.mosher@hayward-ca.gov; Mary Rogren (mrogren@coastsidewater.org); 'Maziar Bozorginia (mbozorginia@cityofepa.org)'; nhawk@ci.milpitas.ca.gov; Pam Lowe (phlowe@menlopark.org); Patrick Sweetland (psweetland@dalycity.org); Patrick Walter (pwalter@purissimawater.org); Paul Willis; Peter Vorametsanti (peterv@ci.millbrae.ca.us); Randy Breault; Rene Ramirez (rramirez@midpeninsulawater.org); rnino@menlopark.org; Rob Guzzetta (capitano.idraulica@gmail.com); Smithson, Dawn (dsmithson@calwater.com); 'Steve Peterson'; Steven Inn (Steven.Inn@acwd.com); Steven Machida (smachida@ci.milpitas.ca.gov); Tammy Rudock (tammyr@midpeninsulawater.org); 'Terrence Kyaw'; Thomas.Niesar@acwd.com; Tim McAuliffe (tmcauliffe@burlingame.org); Tina Pham (tina.pham@sanjoseca.gov)

Cc: Nicole Sandkulla; Michael Hurley

Subject: Action Needed: Provide Purchase Projections for SFPUC UWMP by 2/3

BAWSCA Water Management Representatives,

As part of its efforts to prepare its Wholesale Urban Water Management Plan for the San Francisco Regional Water System (RWS), the San Francisco Public Utilities Commission (SFPUC) is requesting projections of (1) RWS water purchases and (2) population from each of its wholesale customers in five year increments from 2020 to 2040.

In the attached spreadsheet, BAWSCA has compiled the population and water purchase projections reported by each BAWSCA member agency as part of the FY 2014-15 Annual Survey process in the format consistent with the UWMP requirements. **If you have any modifications to these numbers, please provide BAWSCA with your updates by close of business on Wednesday, February 3, 2016. BAWSCA will forward the information received to the SFPUC on Thursday, February 4th.** In addition to the data requested, BAWSCA will also forward any qualifications that you wish to include to clarify the data you provide at this time (e.g. that the data is draft and subject to modification as part of finalizing your agency UWMP).

Thank you for your attention to this request. If you have any questions, please call me.

Andree Johnson
Water Resources Specialist
Bay Area Water Supply and Conservation Agency
155 Bovet Road, Suite 650
San Mateo, CA 94402

Ph: (650) 349-3000 Fax: (650) 349-8395

Email: ajohnson@bawasca.org

Website: www.bawasca.org

