



2015 Urban Water Management Plan

for the City of East Palo Alto



June 2016

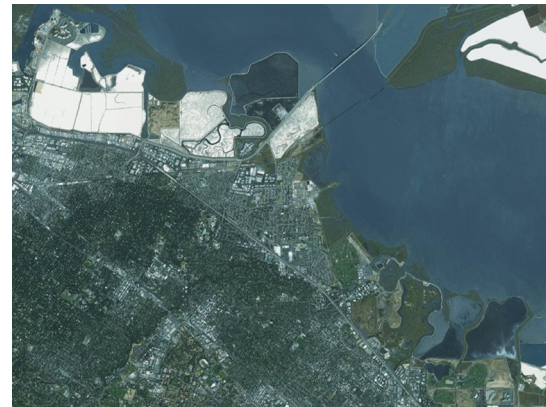




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1. INTRODUCTION AND PLAN PREPARATION

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 City of East Palo Alto (City), Erler & Kalinowski, Inc. (EKL) has prepared this 2015 update to the City's UWMP in accordance with the UWMP Act.

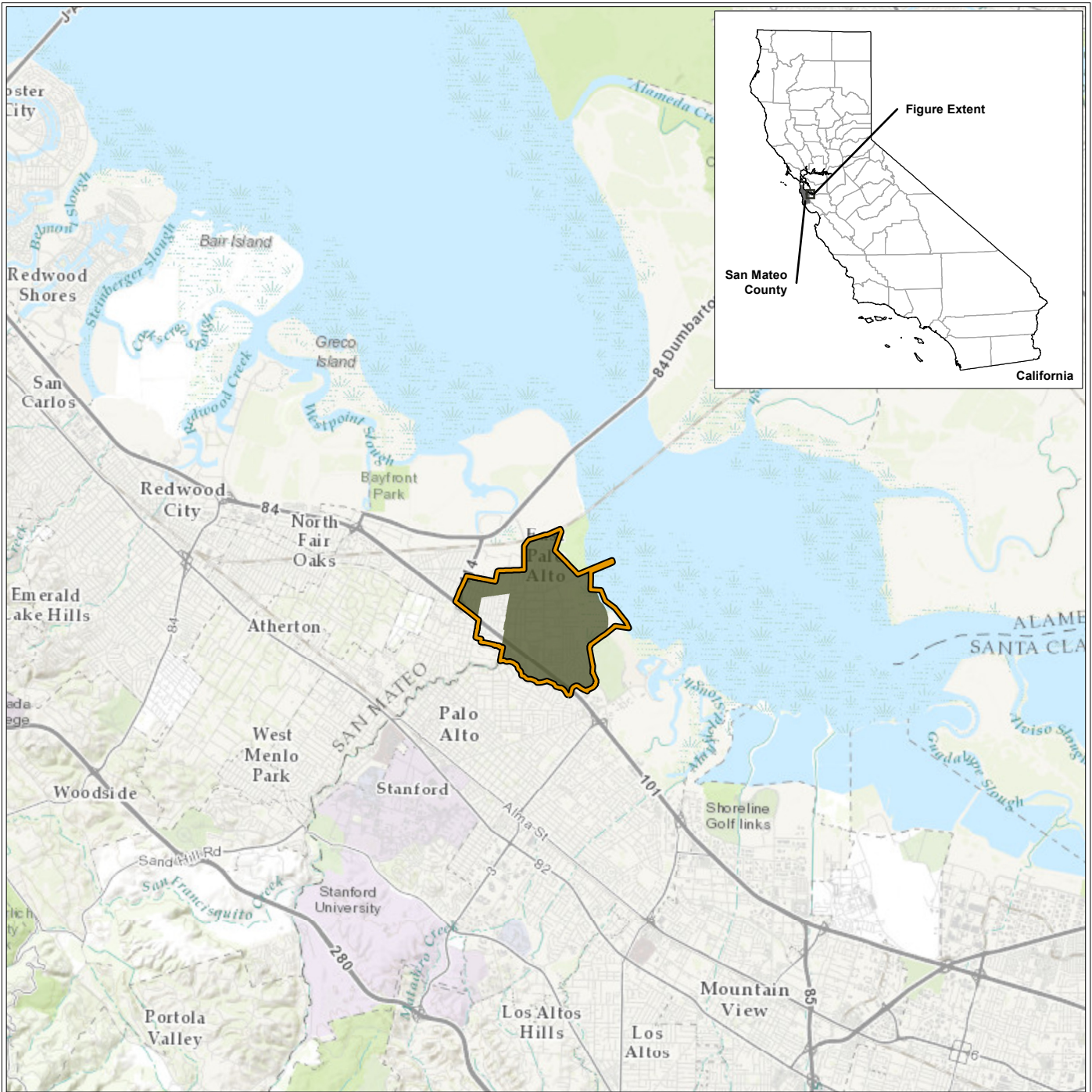
The City's water system is operated as a public-private partnership between the City and American Water Enterprise. The City serves the majority of the City of East Palo Alto, which is located along San Francisco Bay in San Mateo County, between the cities of Menlo Park and Palo Alto (Figure 1-1). Other purveyors within City limits include the Palo Alto Park Mutual Water Company and the O'Connor Tract Co-operative Water Company. Figure 1-2 shows the City's service area and the approximate service area extents of the other water purveyors within the City. This UWMP is only for the City's water service area.

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 City provided water to more than 5,100 connections, and is therefore subject to requirements of the UWMP Act (see Appendix A, DWR Table 2-1). The City's 2015 UWMP is an individual UWMP that describes how the current and future water resources and demands within the City's service area will be managed to provide an adequate and reliable water supply (see Appendix A, DWR Table 2-2). Additionally, and as applicable, the City'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.



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Legend

-  East Palo Alto City Limit
-  East Palo Alto Service Area

Notes

1. All locations are approximate.

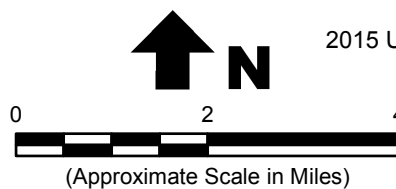
Sources

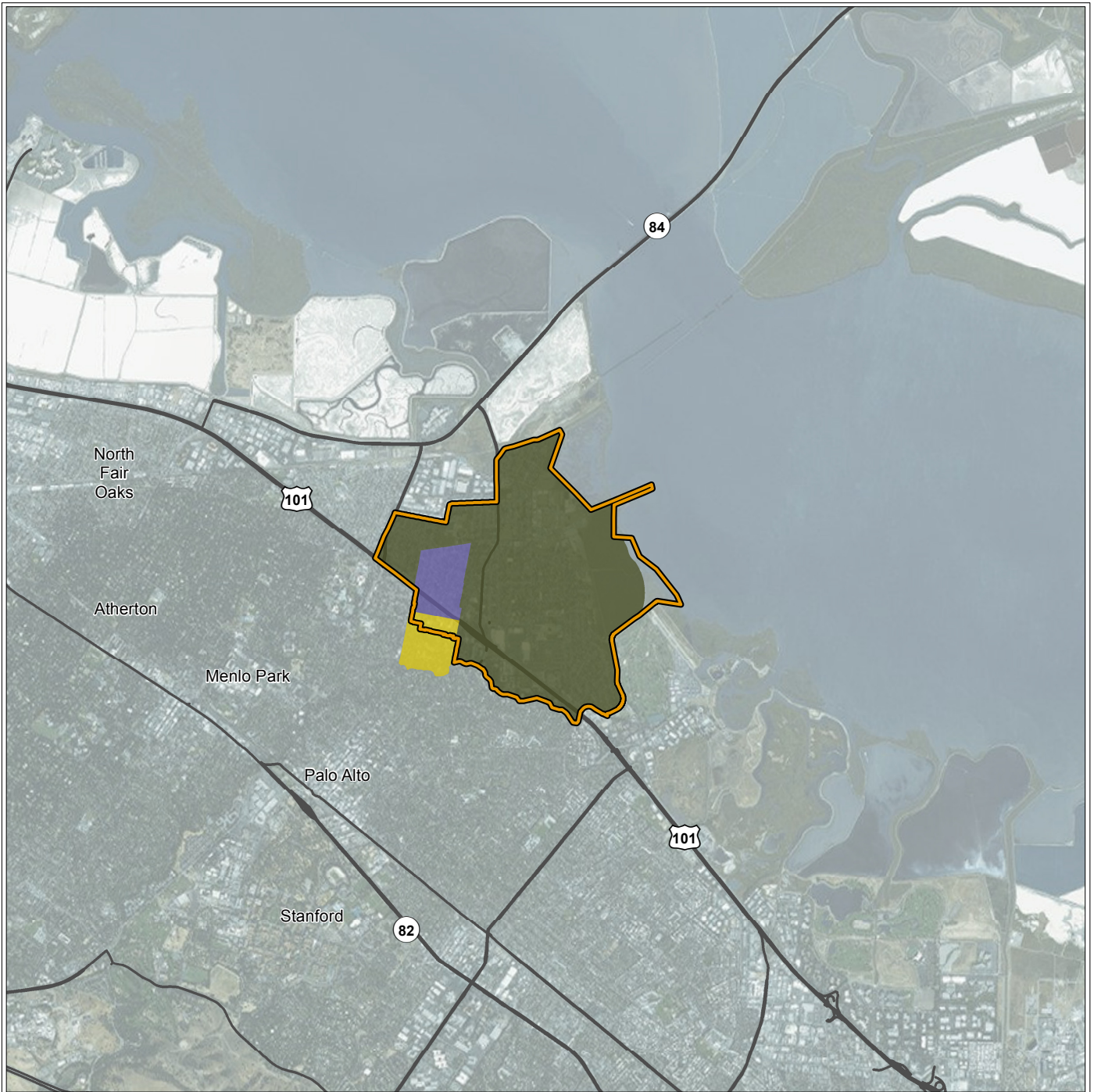
World Topographic base map provided by ArcGIS Online (ESRI, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBease, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, OpenStreetMap contributors, and the GIS User Community), obtained 27 June 2016.

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Regional Vicinity Map


City of East Palo Alto
 2015 Urban Water Management Plan
 East Palo Alto, CA
 June 2016
 EKI B60027.00
 Figure 1-1





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Legend

 East Palo Alto City Limit

Service Areas

-  City of East Palo Alto
-  Palo Alto Park Mutual Water Company
-  O'Connor Tract Co-operative Water Company
-  Highway

Sources

Aerial base map provided by ArcGIS Online (ESRI, DigitalGlobe, GeoEye, Earthstar Geopgrphics, CNES/Airbus DS, USDA, AEX, Getmapping, Aerigrd, IGN, IGP, swisstopo, and the GIS User Community), obtained 27 June 2016.

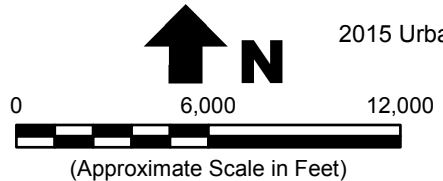
Notes

1. All locations are approximate.
2. Service area data were provided by City of East Palo Alto on 12 April 2016.

Erler & Kalinowski, Inc.

**City of East Palo Alto
Water Service Area**

City of East Palo Alto
2015 Urban Water Management Plan
East Palo Alto, CA
June 2016
EKI B60027.00
Figure 1-2





The City'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 text 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 K. 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 the City and 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;
- 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 the City. As part of the coordination effort for the 2015 UWMP, and in compliance with CWC Section 10631(j), the City supplied BAWSCA with its water demand projections through 2040 for transmittal to the SFPUC.¹

Additionally, as described in more detail in Section 6, the City 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 Email from the City to BAWSCA dated 3 February 2016.

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



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, the City has coordinated closely with BAWSCA and its 25 other member agencies throughout the update of the City's UWMP. On 26 January 2016, the City 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 dry year supply allocations described in Section 6. The City 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 City has also coordinated with the wastewater agencies serving the City's service area, the East Palo Alto Sanitary District (EPASD) and the West Bay Sanitary District (WBSD), in the preparation of this Plan. This coordination included, among other things, the provision of data regarding the volume of wastewater collected within the City's service area.

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

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.

Drafts of the Plan were made available for public inspection at the City of East Palo Alto's City Hall and Central Public Library and at the American Water Enterprise offices. Additionally, the Plan was available on the City's website during the public review period.³

³ Accessible at the following link: <http://www.ci.east-palo-alto.ca.us/index.aspx?NID=612>.

**CITY OF EAST PALO ALTO
2015 URBAN WATER MANAGEMENT PLAN**



**Table 1-1
Notification to Cities, Counties, and Other Agencies (DWR Table 10-1)**
City of East Palo Alto, 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 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 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"/>	
Estero Municipal Improvement District		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Mid-Peninsula Water District		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
O'Connor Tract Cooperative Water		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Palo Alto Park Mutual Water Company		<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	yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
San Jose Municipal Water System		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
San Mateo County Environmental Health	yes	<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 are 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 5 April 2016.
- (c) The notice of public hearing was distributed to recipients on 3 June 2016.



On 10 June 2016 and 17 June 2016, the City published a notice in the *Palo Alto Daily News* informing the public that the 2015 UWMP would be available for public review at the above mentioned locations, consistent with requirements of California Government Code 6066.⁴ The notice also informed the public that the 2015 UWMP public hearing would be held at City Hall on 21 June 2016. A copy of the newspaper announcement is included in Appendix C.

1.3 RELATIONSHIP OF THE 2015 UWMP TO OTHER PLANNING EFFORTS

In addition to the efforts mentioned above, the City's 2015 UWMP was prepared in close coordination with the City's Planning Division and has been integrated with the City's other planning efforts. As described in more detail below, major planning efforts are underway within the City related to the update of the City's General Plan (City of East Palo Alto, 2016a). Information related to future land use changes and the associated water demand and supply impacts were integrated into the 2015 UWMP based on reliance on the proposed General Plan Update – also referred to as “Vista 2035” – and the recent Water Supply Assessment (WSA) that was prepared in support of the General Plan Update (IRM, 2015).

1.3.1 General Plan Update

General Plans are required by State law to guide land use and development within cities (California Government Code Section 65030.1). The City's General Plan and Zoning Ordinance (current General Plan) was last updated in 1999. In 2012, the City began to engage the community and refine the City's vision through an update to the current General Plan. The General Plan Update will provide the foundation for establishing goals, purposes, zoning, and activities allowed on each land parcel. The Public Draft East Palo Alto General Plan was released in January 2016. A copy of the draft General Plan Update and more information regarding the General Plan Update process is available through the Vista 2035 website: <http://vista2035epa.org/>.

The General Plan Update planning process has evolved in conjunction with preparation of this Plan. Specifically, the future population, employment, and water demand projections presented in Sections 2 and 3 of this UWMP are consistent with those developed as part of the General Plan Update and the associated WSA.

1.3.2 Water Supply Assessments

In January 2015, the City completed a WSA in support of its General Plan Update (IRM, 2015). The water demand projections presented in Section 3 of this UWMP are consistent with the General Plan Update WSA. However, as described in Sections 5 and 6, this Plan has utilizes different assumptions regarding the availability of future water supplies. The differences reflect new and updated information that has become available since the development of the General Plan Update WSA, as well as a modified approach to the supply and demand assessment.

⁴ 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.



The City also completed a WSA in August 2011 in support of the Ravenswood/4 Corners Transit-Oriented Development Specific Plan (Ravenswood/4 Corners WSA; IRM, 2011). The General Plan Update WSA built upon the findings of the Ravenswood/4 Corners WSA.

1.3.3 Water Supply Limitations to New Development

In September 2012, the City adopted the Ravenswood/4 Corners Specific Plan, which shapes future development of the northeastern portion of the City. As part of this specific plan, the City established Goal UTIL-2, which is intended to ensure that an adequate water supply exists to support new development in the Ravenswood/4 Corners area. The policies associated with this goal provide a framework for ensuring that appropriate environmental review is conducted prior to pursuing an additional water supply. Furthermore, Policy UTIL-2.2 imposes the following requirement on the City's Planning Division:

Before individual development projects are approved in the Plan Area, require the developer to demonstrate verifiable, enforceable proof that either they have secured new water supplies to serve the new development or that the proposed development will create no net increase in total water demand in East Palo Alto. Ensure that environmental review is carried out for augmentations to the supply from additional groundwater pumping in the Specific Plan area and within a quarter mile radius.

While Policy UTIL-2.2 applies only to the Ravenswood/4 Corners area, the City's General Plan Update builds upon this policy and establishes a water supply policy for the City of East Palo Alto. Policy 2.2 under Goal ISF-2 of the General Plan Update directs the City to consider and adopt an ordinance or other policy to ensure adequate water supplies exist to meet the needs of new projects or intensified development. It further empowers the City to require a WSA for any development project, regardless of size.

The Draft Environmental Impact Report for the General Plan Update includes Mitigation Measure UTL-1, which provides for an amendment to the General Plan Update to include the following policy under Infrastructure, Services, and Facilities Goal ISF-2 (City of East Palo Alto, 2016b):

Require new or intensified development to demonstrate that adequate water is available before project approval. Before new or intensified development projects are approved, the development proponent must provide the City with enforceable, verifiable proof that adequate water supply exists to supply the new or intensified development.⁵

The City's water planning policies described above have limited its ability to approve new development due to the normal year water supply shortfall consistently reported in its water planning documents.⁶ While the City used less than its full entitlement of SFPUC RWS water in 2015, the low water demand in this year was attributable to mandatory and voluntary water

⁵ Enforceable proof can take three forms: (1) a will-serve letter or similar instrument from the applicable water supplier, (2) A verifiable recordable water demand offset project or program that ensures that there is no net increase in new water demand, or (3) Verifiable and enforceable proof that the developer has secured new water supplies necessary to serve the project.

⁶ Including the following recent documents: the 2005 UWMP; the initial and amended 2010 UWMPs; the Ravenswood/4 Corners WSA; and the General Plan Update WSA.



conservation during the recent drought (Section 3.1). Furthermore, several entitled projects were not constructed or occupied, including approximately 268,000 square feet of commercial development and 165 residential units. These entitled projects will increase the City's water demand over the coming years, and the City's current water demand does not reflect this anticipated water usage. In recent years, the City's lack of water has delayed the processing of entitlements for several projects, including (City of East Palo Alto, 2016c):

- An affordable Housing project with 120 potential units;
- A new private school (the Primary School) for up to 500 students;
- A 200,000 square feet office project that could create up to 650 new jobs; and
- A 1.4 million square feet office project that could provide up to 4,500 new jobs, increase commercial office square footage within the City by 215%, and remediate one of the most contaminated sites in the City.

In order to address the City's lack of water supply and the associated constraints imposed on the approval of new development, the City has been actively pursuing additional water supplies. On 16 December 2014, the City accepted and filed a Water Strategy Blueprint, which identified seven projects to prioritize for implementation, including the reactivation of the existing Gloria Way Well and construction of a new production well (i.e., the Pad D Well, see Section 5.2.5). Additionally, the City is planning to advocate for additional SFPUC RWS water supplies (Section 5.7.1).

1.4 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 (FY) basis. As such, "2015" refers to FY 2014-15 and so forth. The units of measure for reporting water volumes is acre-feet (AF) and is maintained consistently throughout the Plan, unless otherwise noted (see Appendix A, DWR Table 2-3).

In accordance with the Guidebook, this UWMP distinguishes between potable and raw water demand and recycled water demand. Further, consistent with the Guidebook, the terms "water use", "water consumption", and "water demand" are used interchangeably in this UWMP.



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 City's water system is operated as a public-private partnership between the City and American Water Enterprise. The City serves the majority of the City of East Palo Alto, which is located along San Francisco Bay in San Mateo County, between the cities of Menlo Park and Palo Alto (Figure 1-1). Other purveyors within City limits include: (1) the Palo Alto Park Mutual Water Company, which serves customers within the western portion of the City using five groundwater production wells located within the City, and (2) the O'Connor Tract Co-operative Water Company, which serves the southwestern portion of the City using two groundwater production wells located in the City of Menlo Park. Figure 1-2 shows the City's service area and the approximate service area extents of the other water purveyors within the City. This UWMP is only for the City's water service area.

The City is a member of BAWSCA and purchases all of its potable water from the SFPUC RWS. The City's public water system is run through the City's Department of Public Works under contract by American Water Enterprises. A major portion of the City's water system was formerly operated by the County of San Mateo under the name East Palo Alto County Waterworks District. The City of East Palo Alto assumed operation of the water distribution system from the County of San Mateo in 2001. Currently, American Water Enterprise manages the distribution, operation, and maintenance of the municipal water system on behalf of, and under contract with, the City.

Information regarding the City's service area, population, climate, and potable water distribution system is included in the following sections.

2.1 POPULATION AND EMPLOYMENT

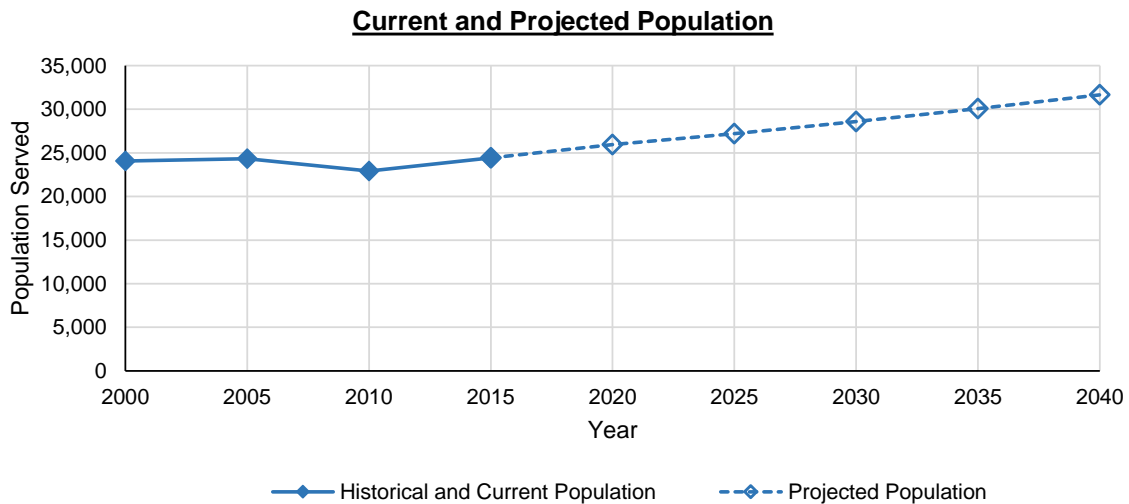
As discussed in Section 1, the City provides water retail service to a portion of the City of East Palo Alto. The rest of the City is served by Palo Alto Park Mutual Water Company and O'Connor Tract Co-operative Water Company. Population and job data reported in this Plan reflect values for the City's water service area, not for the City of East Palo Alto as a whole.

Historical and projected population data from 2000 through 2040 within the City's service area are shown in Table 2-1 and the associated chart. Consistent with DWR requirements, the historical and current population served by the City has been estimated herein using Department of Finance (DOF) and United States Census (Census) data and is discussed in detail in Section 4.1. Current and projected employment data from 2015 through 2040 within the City's service area are presented in Table 2-2 and the associated chart. Future population and employment projections are consistent with the General Plan Update Plan and associated WSA.



**Table 2-1
Historical and Projected Service Area Population (DWR Table 3-1)**
City of East Palo Alto, California

Historical and Current Service Area Population (a)					
	2000	2005	2010	2015	--
Population Served	24,048	24,319	22,916	24,424	--
Projected Service Area Population					
	2020	2025	2030	2035	2040
Population Served	25,935	27,215	28,589	30,062	31,646



Abbreviations:

DWR = California Department of Water Resources

Notes:

- (a) Historical and current population data are further documented in Tables 3-1 and 4-1.
- (b) Projected population growth from Reference 1.

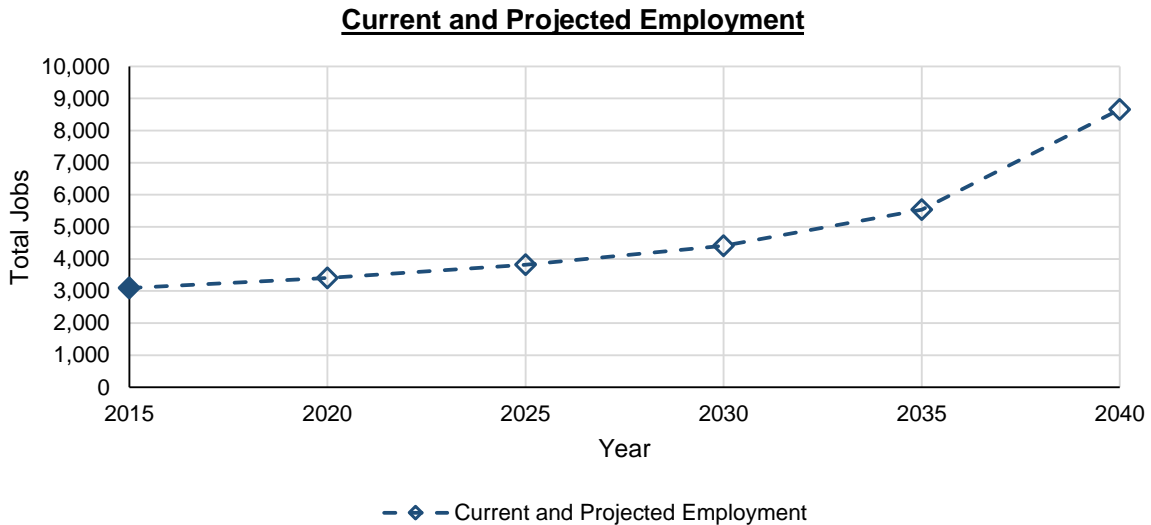
References:

- (1) City of East Palo Alto, 2016. *Vista 2035: East Palo Alto General Plan, Public Draft*, January 2016.



**Table 2-2
Current and Projected Service Area Employment**
City of East Palo Alto, California

Current and Projected Service Area Employment						
	2015	2020	2025	2030	2035	2040
Total Jobs	3,093	3,407	3,815	4,409	5,539	8,659



Abbreviations:

C/CAG = City/County Association of Governments of San Mateo County

Notes:

- (a) Projected employment growth from Reference 1, based on the C/CAG Traffic Model used for employment projections in the City's Draft General Plan Update (see Reference 1).

References:

- (1) City of East Palo Alto, 2016. *Vista 2035: East Palo Alto General Plan, Public Draft*, January 2016.



2.1.1 Future Population Growth

The population projections presented in Table 2-1 are consistent with the General Plan Update and associated WSA. The City-wide population projected in the General Plan Update was adjusted, based on 2010 Census data, to reflect the portion of this population that is included the City's service area.

The total projected population within the City's service area is expected to be 31,646 by 2040, which is equivalent to a 1% average annual increase over 25 years relative to the 2015 population of 24,424.

2.1.2 Future Employment Growth

The City also supplies water to its commercial, industrial, and institutional (CII) customers, which were collectively estimated to provide 3,093 jobs within the City's service area in 2015 (General Plan Update WSA, 2016). The City is anticipating significant commercial growth over the forecast timeframe, with the number of jobs within the City's service area projected to increase by 180% to 8,659 in 2040 (Table 2-2). Employment is projected to increase at a steady rate from 2015 to 2030, with a large increase in jobs occurring between 2030 and 2040.

2.2 CLIMATE

The City's 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 15.4 inches per year and is generally confined to the wet season from late October to early May. 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 30 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. Although there is limited landscaping in the City's service area, the City does experience seasonal peaks in demand that are attributable to irrigation.

2.3 WATER SUPPLY INFRASTRUCTURE

The City's water distribution system and current and planned groundwater production wells are described in the following sections.

2.3.1 Distribution System

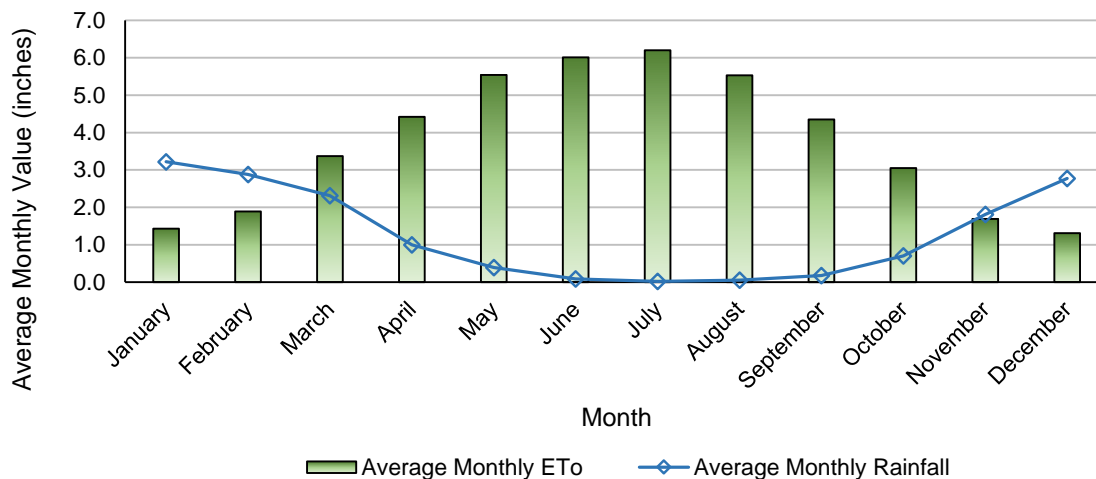
The City obtains SFPUC RWS water through three turnouts off SFPUC Bay Division Pipelines 1 and 2. The turnouts are located on the aqueduct near Willow Road, O'Brien Drive, and University Avenue. Treated water is supplied from the Hetch Hetchy Aqueduct within one pressure zone, at pressures ranging from 105 to 140 pounds per square inch (psi). Pressure-regulating valves at each turnout reduce the pressure as it enters the distribution system. The pressure-regulating valves at each turnout are set at the following pressures: 70 psi at Willow Road, 75 psi at O'Brien Drive, and 75 psi at University Avenue. From the turnouts, water flows through the City's distribution system, which includes a network of 1½-inch to 12-inch diameter pipes.



**Table 2-3
Average Monthly Climatic Conditions**
City of East Palo Alto, California

Month	Average Temperature (a)		Standard Average ETo (b) (inches)	Average Rainfall (a) (inches)
	Min (°F)	Max (°F)		
January	38.6	57.4	1.4	3.22
February	41.4	61.3	1.9	2.88
March	43.2	64.1	3.4	2.31
April	44.8	68.4	4.4	1
May	48.5	72.8	5.5	0.39
June	52.5	77.3	6.0	0.09
July	54.8	78.3	6.2	0.02
August	54.7	78.5	5.5	0.05
September	52.7	78.1	4.4	0.18
October	48	73.1	3.1	0.7
November	42.6	64.4	1.7	1.81
December	38.3	58	1.3	2.77
Annual	46.7	69.3	45	15.4

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 #046646 Palo Alto from 1 September 1953 to 31 December 2005.
- (b) Reference evapotranspiration data are from the Department of Water Resources, California Irrigation Management Information System.



The City has currently has three interties with other water systems: two, one-way interties with Palo Alto Park Mutual Water Company and O'Connor Tract Co-operative Water Company, and one intertie with the City of Menlo Park. The City previously had an intertie with the City of Palo Alto and is exploring the option of constructing an intertie in the future. There is currently no storage within the City's water distribution system.

2.3.2 Groundwater Wells

The City currently owns and operates one groundwater well located at the intersection of Gloria Way and Bay Road. The "Gloria Way Well" was constructed by the East Palo Alto County Water District in 1981. Use of the well for potable purposes ceased shortly thereafter due to customer complaints related to elevated concentrations of manganese. The Gloria Way Well is currently used for non-potable purposes such as street cleaning and construction dust control.

As described in more detail in Section 5.2.5, the City is currently working to bring the Gloria Way Well into potable service with addition of a treatment system and to install a second potable water supply well at the Pad D site at the corner of Clarke Road and East Bayshore Drive (i.e., the "Pad D Well").



3. SYSTEM WATER DEMANDS

For the purposes of this Plan, potable and raw water demand is defined as the total volume of

*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).*

potable water that the City produces, which is comprised mostly of purchases from the SFPUC RWS, with the remainder made up of raw water supplied from local groundwater production. Among other things, water demand is dependent on climate, population, industry, and the types of development present in a community. Sections 3.1 and 3.2 describe the historical and projected water demands for the residential, commercial, industrial, and institutional and governmental sectors within the City's service area (water use sectors A through E and J, as described per CWC Section 10631(e)(1)(A) through (E) and (J)). Water use sectors A and B are reported as a combined, total value for residential water use. As described in Section 3.3, this discussion does not include demands for water use sectors F through I, as they are not applicable or present within the City's service area or data does not currently exist to track this demand.

3.1 CURRENT AND HISTORIC TOTAL WATER DEMAND

All demands within the City's service area are currently met with potable water purchased wholesale from the SFPUC RWS or raw water supplied by the Gloria Way Well. The current and historical total water demands within the City's service area include water consumed by metered accounts in the service area ("metered water consumption") and the water that is lost within the distribution system or otherwise unaccounted for ("unaccounted-for-water").

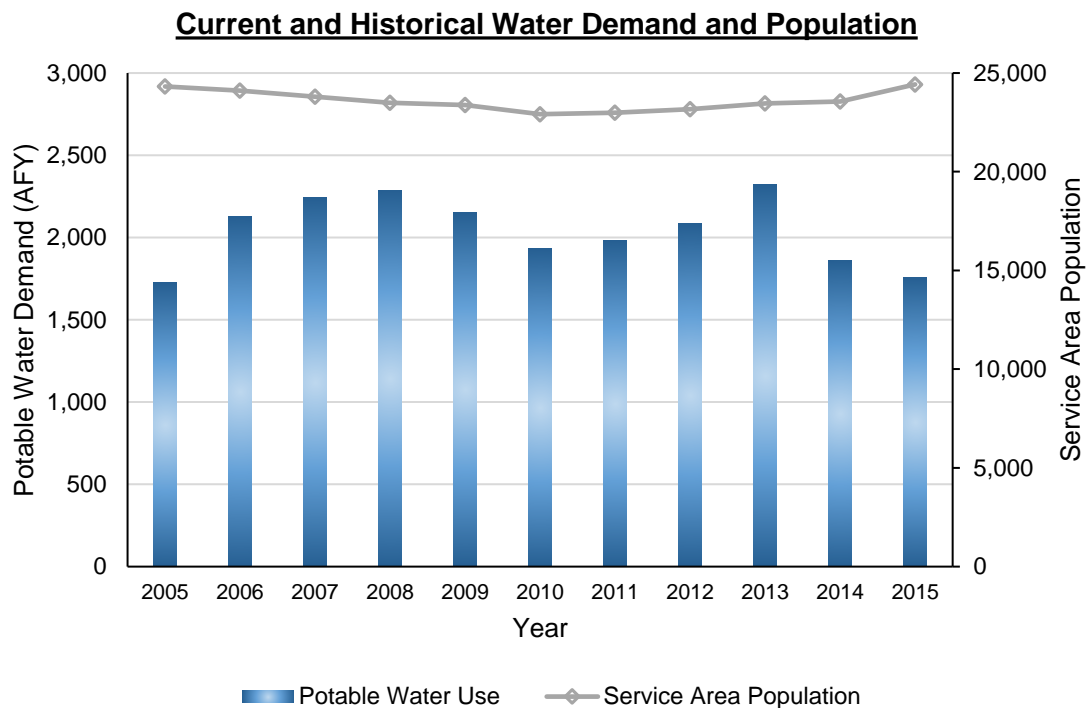
3.1.1 Current and Historical Potable Water Demand

Total water demand within the City's service area was approximately 1,759 AF 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 2008 and 2010 likely



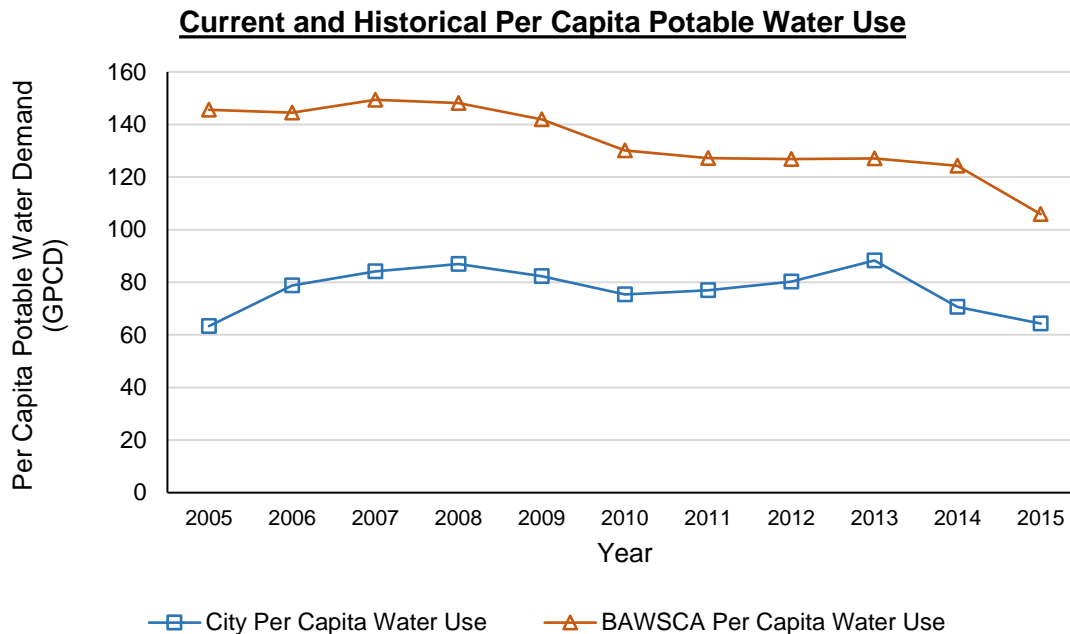
**Table 3-1
Current and Historical Potable Water Demand and Population**
City of East Palo Alto, California

Year	Potable Water Demand (AF) (a)	Service Area Population (b)	Per Capita Potable Water Use (GPCD) (c)
2005	1,725	24,319	63
2006	2,130	24,115	79
2007	2,243	23,808	84
2008	2,288	23,499	87
2009	2,155	23,384	82
2010	1,935	22,916	75
2011	1,982	22,991	77
2012	2,084	23,170	80
2013	2,321	23,465	88
2014	1,863	23,562	71
2015	1,759	24,424	64





**Table 3-1 (Continued)
Current and Historical Potable Water Demand and Population**
City of East Palo Alto, California



Abbreviations:

- AF = acre-feet
- BAWSCA = Bay Area Water Supply and Conservation Agency
- GPCD = gallons per capita per day

Notes:

- (a) Detailed historical and current water demand data from 2011 through 2015 are documented in Table 3-2.
- (b) Service area population data from 2005 through 2010 are from Table 4-1. Service area population from 2011 through 2015 was estimated assuming the City served 82% of the City-wide population, based on the percentage of total population within the City's service area in 2010. City-wide population data for 2010 through 2015 were obtained from Reference 1.
- (c) Per capita potable water use is calculated by dividing the total annual potable water demand by service area population and the number of days in a year.
- (d) BAWSCA per capita potable water use from Reference 2.

References:

- (1) Department of Finance, 2012. *E-4 Population and Housing Estimates for Cities, Counties, and the State, 2001-2010, with 2000 & 2010 Census Counts*. California Department of Finance, Sacramento, California, November 2012.
- (2) BAWSCA, 2015. *Draft Annual Survey, FY 2014-2015*.



reflect impacts of the 2007-2009 drought and the economic downturn, which resulted in lower residential and non-residential water use. The subsequent increase in water use observed between 2010 and 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)⁶ in response to the recent historic drought led to a significant decline in water use (i.e., a 24% reduction between 2013 and 2016).

As shown in Table 3-1 and the associated charts, per capita potable water use in the City's service area has been relatively constant over the past 10 years, with a decrease in 2014 and 2015 that is likely attributable to conservation during the recent drought. The highest per capita water use was observed in 2013 at 88 gallons per capita per day (GPCD), whereas the lowest per capita water uses were observed in 2005 and 2015 at 63 GPCD and 64 GPCD, respectively. Overall, the City's per capita water use is significantly lower than the average per capita water use across all BAWSCA agencies and throughout the state.

Water demand within the City's service area is measured using water meters that are installed at each customer account. Water demand within the City's service area is tracked and reported on a monthly basis for the following sectors:

- Residential (combined Single Family and Multi-Family);
- Commercial;
- Industrial; and
- Institutional/Governmental/Other.

As shown in Table 3-2 and the associated charts, the residential sector accounted for an average of approximately 71% of the potable water demand in the City's service area between 2011 and 2015. The City's CII accounts accounted for approximately 23% of potable water demand for the 2011-2015 period. The commercial sector accounted for most of the City's CII demand (18%), while the industrial and institutional sectors each accounted for approximately 2% of the total water demand. Since irrigation demand is not tracked as a separate water demand sector, water that is used for irrigation is embedded in the residential and CII water demands presented in Table 3-2 and discussed above.

The City's unaccounted-for-water has varied over the past five years. Unaccounted-for-water includes unmetered water consumption, such as water used for system flushing, leak repair flushing, hydrant leaks, and street sweeping, as well as water lost in the distribution system due to leaks and other water losses. In 2014, the City recorded negative water loss that is believed to be due to metering inaccuracies. The City also experienced a notable spike in

⁶ On 28 July 2014, the SWRCB adopted emergency regulations to mandate water agencies, including the City, 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 City has a SWRCB-mandated reduction target of 8%. As of March 2016, the City has surpassed its SWRCB-mandated reduction target and has achieved a 24.1% reduction in water demand relative to water demand in 2013.



**Table 3-2
Current and Historical Potable and Raw Water Demand by Sector (DWR Table 4-1)**
City of East Palo Alto, California

Water Use Sector	Potable and Raw Water Demand (acre-feet) (a)						Average
	2011	2012	2013	2014	2015		
<i>Residential Water Use</i>							
Residential	1,521	1,541	1,499	1,482	1,024	1,413	71%
<i>CII Water Use</i>							
Commercial	307	322	308	292	533	352	18%
Industrial	45	96	44	33	18	47	2%
Institutional/Governmental/Other	47	(b)	45	56	62	52	3%
<i>Subtotal CII</i>	399	418	396	381	613	452	23%
Metered Water Use	1,920	1,959	1,895	1,863	1,638	1,865	93%
Raw Water	0	0	6	2	1	2	0.1%
Unaccounted-for-Water (c)	62	125	419	(d)	120	182	8.9%
<i>% UAW</i>	3%	6%	18%	(d)	7%	--	8.9%
Total Water Demand (e)	1,982	2,084	2,321	1,863	1,759	2,002	100%

Annual Water Demand by Sector: 2011-2015

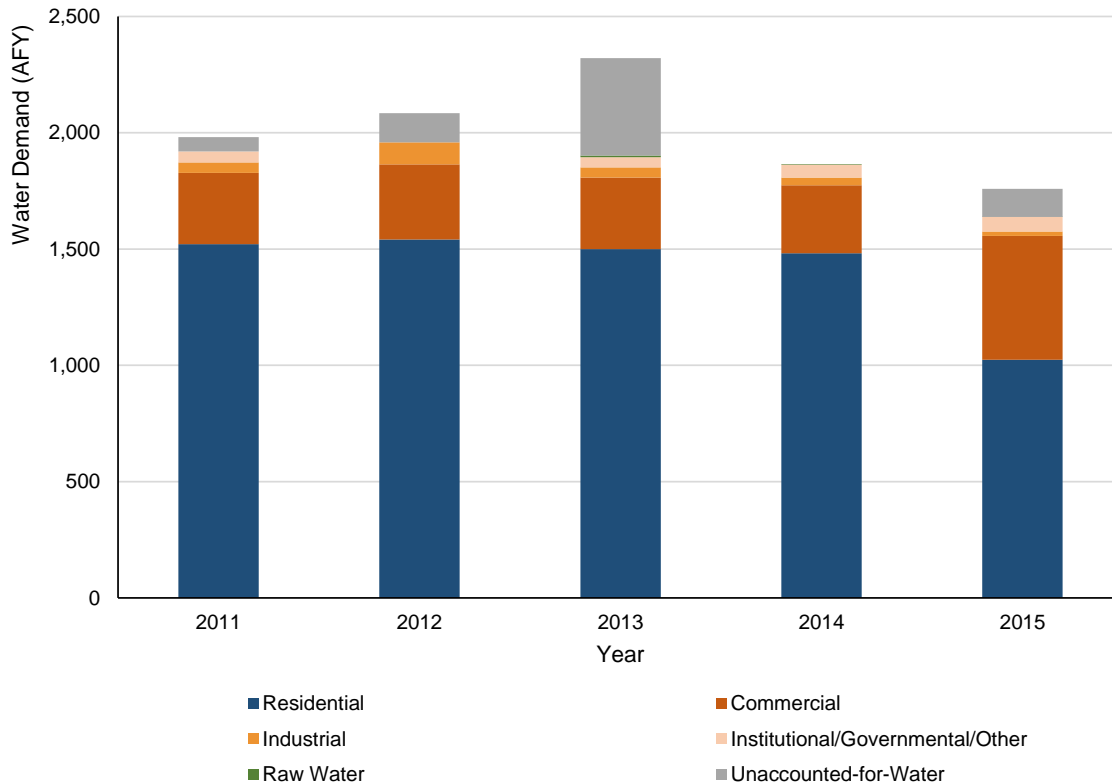
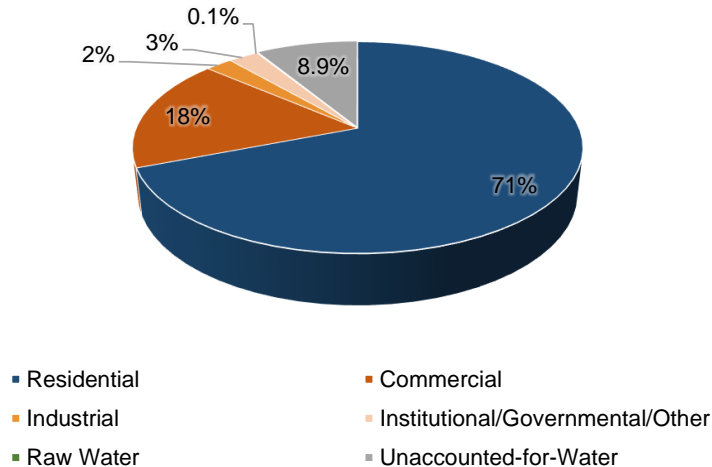




Table 3-2 (Continued)
Current and Historical Potable and Raw Water Demand by Sector (DWR Table 4-1)
City of East Palo Alto, California

Percentage of Total Water Demand by Sector: 2011-2015



Abbreviations:

- AFY = acre-feet per year
- BAWSCA = Bay Area Water Supply and Conservation Agency
- CII = commercial, industrial, and institutional
- DWR = California Department of Water Resources

Notes:

- (a) Water demand from 2011 through 2014 from BAWSCA Annual Surveys. Water demand for 2015 from City's billing data.
- (b) Institutional/Governmental/Other water use was reported as a combined value with Industrial water use in 2012.
- (c) Unaccounted-for-water is the difference metered water use and it's total water demand, and thus includes unmetered water consumption and distribution system water losses.
- (d) In 2014, SFPUC's meters reported less water served to the City than the City distributed to its retail customers. The actual water loss for this year cannot be estimated as a difference between reported supply and demand and is therefore not shown. Average unaccounted-for-water is based on 2011-2013 and 2015.
- (e) Total water demand is the sum of metered water consumption and non-revenue water. Totals may not sum due to rounding.



unaccounted-for-water in 2013 that was associated with several major water main breaks that resulted in substantial water loss. Over the period 2011 through 2015, excluding 2014, the City's average unaccounted-for-water was 8.9% of total water demand.

3.1.2 Current and Historical Non-Potable Water Demand

Untreated water from the Gloria Way Well is currently used for non-potable purposes such as street cleaning and construction dust control. Over the period 2011 through 2015, raw demands within the City's service area ranged from 0 to 6 AFY (see Table 3-2). There are no current or historical water demands that are met with recycled water supplies within the City's 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.

For the 2015 UWMP, water suppliers must report distribution water loss data for the most recent 12-month period available; in subsequent UWMPs, distribution system water loss must be reported annually. 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. The total differential between water supply and metered water use is categorized as unaccounted-for-water in Table 3-2 and discussed in Section 3.1.1. However, this category includes unbilled water uses such as system flushing, leak repair flushing, hydrant leaks, and street sweeping. In order to isolate the water loss attributed to the distribution system, the City has completed the American Water Works Association (AWWA) Water Loss Worksheet (M36). This analysis separates water loss into "apparent" and "real" losses. Apparent losses include metering inaccuracies, systematic data handling errors, and unauthorized consumption. Real losses represent water loss attributable to the distribution system and include physical water losses from the pressurized system and storage tanks up to the point of customer consumption.

Using the AWWA Water Loss Worksheet, the City estimated that water losses for 2015 within the City's service area were approximately 82 AF (see Appendix A, DWR Table 4-4).

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

In June 2015, the City completed the General Plan Update WSA, which included water demand projections through 2040. This WSA was prepared in close coordination with the General Plan



Update and reflects the most current population and job growth projections within the City's service area. The future population data presented in this Plan are consistent with the General Plan Update (see Section 2.1.1) and the future employment data were obtained from the City/County Association of Governments (C/CAG) traffic model developed in support of the General Plan Update.

The General Plan Update WSA calculates projected water demands by applying unit water demand factors to assumptions about future population and job growth within the City's service area.

- The residential water demand factor was developed by dividing the total residential water demand in 2010 by the total population within the City's service area in 2010. Using these data, the residential water demand factor was determined to be 60 GPCD.
- The per-job water demand factor was developed by dividing the total non-residential water demand in 2010 by the total employment within the City's service area in 2010. Using these data, the per-job water demand factor was determined to be 133 GPCD⁷.

The General Plan Update WSA embeds water loss in the residential and non-residential water demand factors. The water demand projections for both sectors have been adjusted in this Plan to include unaccounted-for-water, but the total potable water demand remains unchanged relative to the General Plan Update WSA. For the purposes of this Plan, the unaccounted-for-water was assumed to be the average value over the period 2011 through 2015, excluding 2014 (8.9%).⁸

The City's projected potable water demands are presented in Table 3-3 in five-year increments from 2020 through 2040. It is estimated that potable water demand within the City's service area will be approximately 3,417 AFY in 2040, representing an 81% increase in water demand relative to 2015.

3.2.2 Projected Non-Potable Water Demand

The future demand for raw water from the Gloria Way for street cleaning and construction dust control is assumed to be equal to the average demand over the period 2011 through 2015 (see Table 3-3). The City does not supply recycled 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).

⁷ Although the per job water demand factor is reported in units of GPCD, it is applied to the number of jobs, rather than the population.

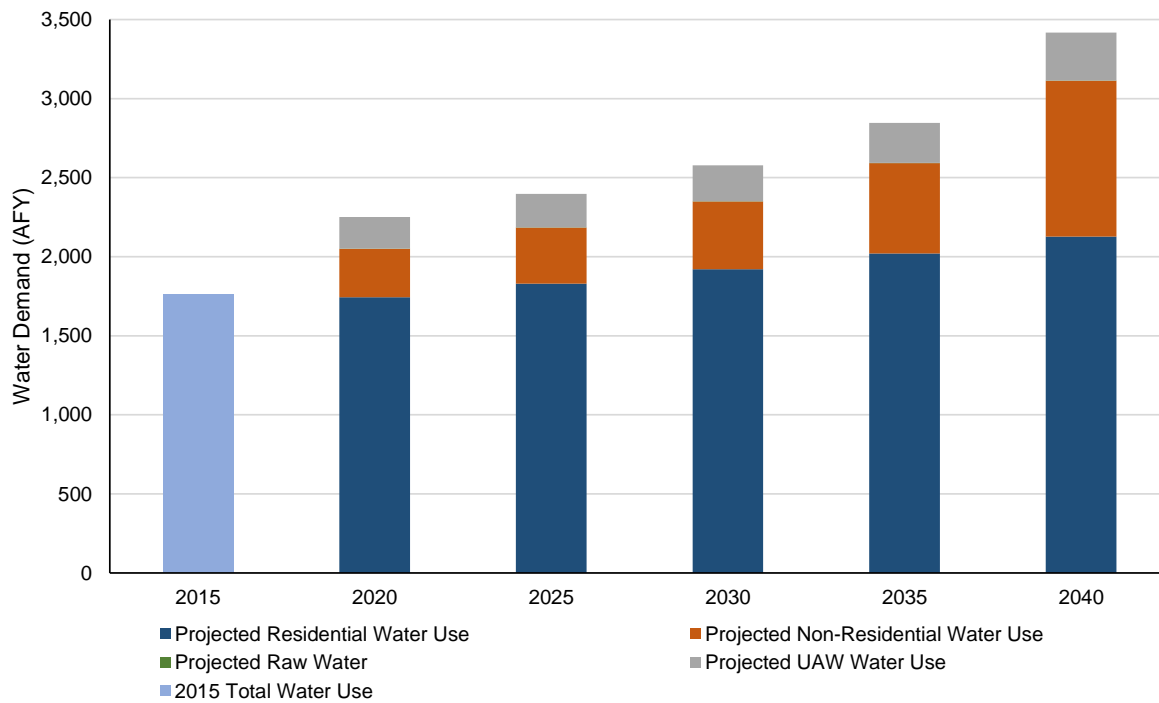
⁸ The City reported negative unaccounted-for-water in 2014 due to metering inaccuracies.



**Table 3-3
Projected Potable and Raw Water Demand by Sector (DWR Table 4-2)**
City of East Palo Alto, California

Water Use Sector	Projected Potable and Raw Water Demand (AFY) (a)				
	2020	2025	2030	2035	2040
Projected Residential Water Use (b)	1,743	1,829	1,921	2,020	2,127
Projected Non-Residential Water Use (c)	307	355	427	571	985
Total Projected Water Use	2,050	2,184	2,348	2,592	3,112
Raw Water	2	2	2	2	2
Unaccounted-for Water (8.9%) (d)	199	212	228	252	303
Total Projected Water Demand (e)	2,251	2,397	2,578	2,846	3,417

Actual and Projected Water Demand by Sector



**CITY OF EAST PALO ALTO
2015 URBAN WATER MANAGEMENT PLAN**



Table 3-3 (Continued)
Projected Potable and Raw Water Demand by Sector (DWR Table 4-2)
City of East Palo Alto, California

Abbreviations:

AFY = acre-feet per year

C/CAG = City/County Association of Governments of San Mateo County

DWR = California Department of Water Resources

GPCD = gallons per capita per day

UAW = unaccounted-for-water

Notes:

- (a) Water demand projections from Reference 1.
- (b) Residential water demand projections are calculated as the residential per capita water use factor multiplied by the projected population from Table 2-1. The residential per capita water use factor is based on actual billing data in 2010 and is equal to 60 GPCD. Population projections are consistent with the City's population projections included in Reference 2.
- (c) Non-residential water demand projections are calculated as the per-job water demand factor multiplied by the projected number of jobs from Table 2-2. The per-job water demand factor is based on actual billing data in 2010 and is equal to 133 GPCD. Job projections are consistent with the C/CAG Traffic Model developed to support Reference 2.
- (d) Unaccounted-for-water is assumed to be equal to the average over the period 2011 through 2015, excluding 2014 due to negative water loss (8.9%).
- (e) Total water demand is the sum of metered water consumption and unaccounted-for-water.

References:

- (1) Integrated Resource Management Inc., 2015. *Water Supply Assessment - City of East Palo Alto General Plan Update*, prepared for City of East Palo Alto, 25 January 2015.
- (2) City of East Palo Alto, 2016. *Vista 2035: East Palo Alto General Plan, Public Draft*, January 2016.



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.

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 City's median income.

The Existing Conditions Report (Raimi and Associates, 2014) indicates that in 2011 there were 7,759 housing units within the City and that approximately 57% of these units served residents with less than 80% of the median income adjusted for family size. It is assumed that the service area includes the same general percentage of lower income households as is observed in the totality of the City. The City's Draft 2015-2023 Housing Element (City of East Palo Alto, 2016c) projects that, per the Association of Bay Area Government's Residential Housing Needs Allocation, 25% of future housing demands will serve residents with less than 80% of the median income. Therefore, it is assumed that approximately 57% of current residential demand within the City's service area is associated with lower income households, and that 25% of additional, future residential water demand will be associated with lower income households. Table 3-4 contains the estimated future water use by lower income households. These demands were included in the total potable water demand projections described above and shown in Table 3-3 (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,⁹ and (2) the installation of water-efficient fixtures and equipment in new buildings and retrofits as required under CALGreen Building Code Standards.

"Active conservation" refers to water savings resulting from the City's implementation of water conservation programs, education programs, and the offering of financial incentives

⁹ 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.



**Table 3-4
Projected Potable and Raw Water Demand of Lower Income Households
City of East Palo Alto, California**

	Projected Potable and Raw Water Demand (AFY) (a)				
	2020	2025	2030	2035	2040
Lower Income Water Demand	810	831	855	880	907

Abbreviations:

AFY = acre-feet per year

Notes:

- (a) Projected potable water demands for lower income households are estimated as the sum of current demands associated with lower income households and future demands associated with lower income households. Per Reference 1, approximately 57% of current residential demands listed in Table 3-2 are associated with lower income households. Per Reference 2, approximately 25% of the additional, future residential demands listed in Table 3-3 will be associated with lower income households.

References:

- (1) Raimi and Associates, 2014. *Existing Conditions Report: East Palo Alto General Plan Update*, February 2014.
- (2) City of East Palo Alto, 2016. *Vista 2035: East Palo Alto General Plan, Housing*



(e.g., rebates). The City's current and planned active conservation programs are discussed in Section 8.

The potable water demand projections discussed in Section 3.2.1 do not take into account future water savings associated with passive and active conservation, as the demand projections are designed to be conservative (see Appendix A, DWR Table 4-5). As such, it is anticipated that, per Appendix K of the Guidebook, future water demands may be overestimated by as much as 5% to 10%.

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)(F) through (I) and listed below were not included in the water demand calculations because they are not applicable to the City or data are not currently available to track these sectors:

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

3.3.1 Landscape

Landscape irrigation does occur within the City, but the City does not currently track landscape irrigation as a separate water use sector. Therefore, water used for landscape irrigation is included in the historical demands and demand projections for the residential and CII water use sectors.

3.3.2 Sales to Other Agencies

Under the terms of the dissolution of the East Palo Alto County Waterworks District, the City is required to transfer up to 243 AFY of SFPUC RWS water to the City of Menlo Park. The City does not consider water that is received on behalf of, and immediately sold to, the City of Menlo Park to be a part of its water supply or demand.

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

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

3.3.4 Agricultural

The City 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 City provides the SFPUC with water use projections annually as part of reporting for 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 the 2015 UWMP, and in compliance with CWC Section 10631(j), the City supplied BAWSCA with its water demand projections through 2040 for transmittal to the SFPUC.¹⁰

¹⁰ Email from the City to BAWSCA dated 3 February 2016.



4. BASELINE WATER USE AND WATER CONSERVATION TARGETS

The Water Conservation Act of 2009 (Water Conservation Act) directed 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 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 City's service area were presented in the 2010 UWMP in response to the Water Conservation Act. Per DWR requirements described in Section 4.1, the 2015 UWMP includes an update to the baseline and water use target calculations using 2010 Census data and analyzes the City's compliance with its 2015 interim water use target. Water use targets and 2015 compliance data are summarized in Tables 4-2 and 4-3. Detailed calculations are included in Appendix E.



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 City estimated its service area population for baseline periods spanning from 2001 through 2010 in the 2010 UWMP. Per the Methodologies, DWR examined the actual population estimates and the 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 City is subject to this requirement, as the full 2010 Census data set was not available until 2012, while the City submitted its initial 2010 UWMP update in 2011 and did not modify its baseline populations as part of the amended 2010 UWMP submitted in 2013. As a result, the City must modify its baseline and target GPCD values in this UWMP.

In 2010, the population for the City's service area was estimated using the persons-per-connection method described in Appendix A of the Methodologies. Census data for 2000 was compared to City records to determine a persons-per-connection factor, which was then applied to the number of connections in each year over the period 2001 through 2010 to estimate the City's service area population. For the 2015 UWMP update, the City used the DWR Population Tool to estimate service area population. This tool applies the persons-per-connection methodology and incorporates 2010 Census data.

The revised baseline population is presented in Table 4-1. The 2010 service area population is 22,916, approximately 82% of the total City-wide population according to 2010 Census data. The 2015 population for the City's service area is estimated to be 24,424.

4.2 BASELINE WATER USE

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

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 City does not meet this criterion and thus selected a 10-year baseline.



**Table 4-1
SBx7-7 Service Area Population (DWR SBx7-7 Table 3)
City of East Palo Alto, California**

Year		Population (a)
<i>10 to 15 Year Baseline Population</i>		
Year 1	2001	23,399
Year 2	2002	23,338
Year 3	2003	23,685
Year 4	2004	24,012
Year 5	2005	24,319
Year 6	2006	24,115
Year 7	2007	23,808
Year 8	2008	23,499
Year 9	2009	23,384
Year 10	2010	22,916
<i>5 Year Baseline Population</i>		
Year 1	2006	24,115
Year 2	2007	23,808
Year 3	2008	23,499
Year 4	2009	23,384
Year 5	2010	22,916
<i>2015 Compliance Year Population</i>		
2015		24,424

Abbreviations:

DWR = California Department of Water Resources

SBx7-7 = Senate Bill x7-7

Notes:

(a) Population from 2001 to 2010 and for 2015 was estimated using the DWR Population Tool.



The 10-year baseline water use was calculated as 82 GPCD using gross per capita water usage data (calculated as total water entering the City's water distribution system divided by total population) for the 10-year period between 1 July 2000 and 30 June 2010. The 5-year baseline water use was also calculated as 82 GPCD using per capita water usage data for the 5-year period between 1 July 2005 and 30 June 2010. The updated 5- and 10-year baseline water uses are shown in Table 4-2 and in Appendix E.



**Table 4-2
SBx7-7 Baselines and Targets (DWR Table 5-1) (a)**
City of East Palo Alto, California

Baseline Period	Baseline Years		Average GPCD	SBx7-7 Targets (GPCD)	
	Start Year	End Year		2015 Interim	Confirmed 2020
10-15 Year	2001	2010	82	103	124
5-Year	2006	2010	82		

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 E, SBx7-7 Tables 1, 5, 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 the City's 2010 UWMP and are updated below based on the revised population and baseline water use estimates.

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



- Method 1: Eighty percent of the water supplier's baseline per capita water use;
- Method 2: Per capita daily water use estimated using the sum of performance standards applied to indoor residential use, landscaped area water use, and commercial, industrial, and institutional uses;
- Method 3: 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 CWC Section 10608.24 directs that water suppliers must compare their actual water use in 2020 with their calculated Target to assess compliance. The City's 2020 Target was calculated using Method 3 in 2010. Using the updated service area population listed in Table 4-1, the 2020 Target has not changed and is calculated as 124 GPCD, or 95% of the 2020 Target of 131 GPCD for the San Francisco Bay Hydrologic Region. In addition, water suppliers must comply with an "Interim Target." The City's 2015 Interim Target is calculated as 137 GPCD, or 95% of the 2015 Interim Target of 144 GPCD for the San Francisco Bay Hydrologic Region. Per the Methodologies, an urban water supplier's Interim Target is calculated as the midpoint between the 10-year baseline and the 2020 Target. Since the City's 10-year baseline water use is well below its 2020 Target, this results in an Interim Target that is lower than the 2020 Target. As directed by DWR,¹¹ the City has established its Interim Target as 103 GPCD using this method (see Table 4-2). Complete Target calculations are included in Appendix E. The years 2015 and 2020 are referred to in the Methodologies as compliance years.

The Water Conservation Act requires a minimum allowable cutback in per capita water consumption, which is calculated as 95% of the 5-year baseline per capita water use. However, since the City's 5-year baseline per capita water use is less than 100 GPCD, the City is exempt from this requirement (CWC Section 10608.22).

¹¹ Personal communication, Gwen Huff, DWR Department of Water Use Efficiency, 13 May 2016.



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 the City's 2015 per capita water use calculations.

As above, in 2015, actual water demand within the City's service area was 1,759 AF and the service area population was 24,424. Therefore, the calculated per capita water use in 2015 was 64 GPCD, approximately 62% of the City's 2015 Interim Target of 103 GPCD (Table 4-3). Therefore, the City is in compliance with its 2015 Interim Target.

4.5 WATER USE REDUCTION PLAN

The actual water demand within the City's service area in 2015 was well below the 2015 Interim Target. This is due to the low per capita water usage within the City relative to the rest of the state, which means that significant additional water use reductions are not required of the City under SBx7-7. The City's per capita water use further decreased from its low historical baseline due to water use cutbacks achieved during the recent drought and the conservation efforts that the City has supported during the past five years (see Section 8.3).

Between 2016 and 2020, a rebound in per capita water use is expected within the City's service area due to potential growth in the commercial sector and a rebound in water use if the severity of the current drought subsides. Per capita water use within the City's service area is projected to increase to approximately 77 GPCD by 2020; this estimate is based on the population and employment projections described in Section 2.1 and the future water demand projections



**Table 4-3
2015 SBx7-7 Compliance (DWR Table 5-2) (a)**
City of East Palo Alto, California

Actual and Interim Target GPCD			
2015 Actual GPCD		2015 Interim Target	
64		103	
Optional Adjustments to 2015 GPCD			
Extraordinary Events	Economic Adjustment	Weather Normalization	Adjusted Actual 2015 GPCD
0	0	0	64
SBx7-7 Compliance			
Actual (or Adjusted Actual) 2015 GPCD as Percent of Target		In Compliance? (y/n)	
62.1%		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 E, SBx7-7 Tables 5 and 8.



described in Section 3.2. That being said, based on the current planned growth within the City's service area, the City is expected to achieve compliance with its 2020 Target of 124 GPCD.

The City will continue to actively manage its per capita water use through implementation of demand management measures as discussed in Section 8.



5. WATER SYSTEM SUPPLIES

The City currently purchases all of its potable water from the SFPUC RWS in accordance with

*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 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 UWMPs prepared by the SFPUC and the other 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. The City is also developing groundwater supplies that will be used to supplement the SFPUC RWS potable water supply in the future. A small volume of groundwater is currently used to meet raw water demands associated with construction and street sweeping within the City.

The City's historical, current, and potential future water supplies are discussed in the following sections.

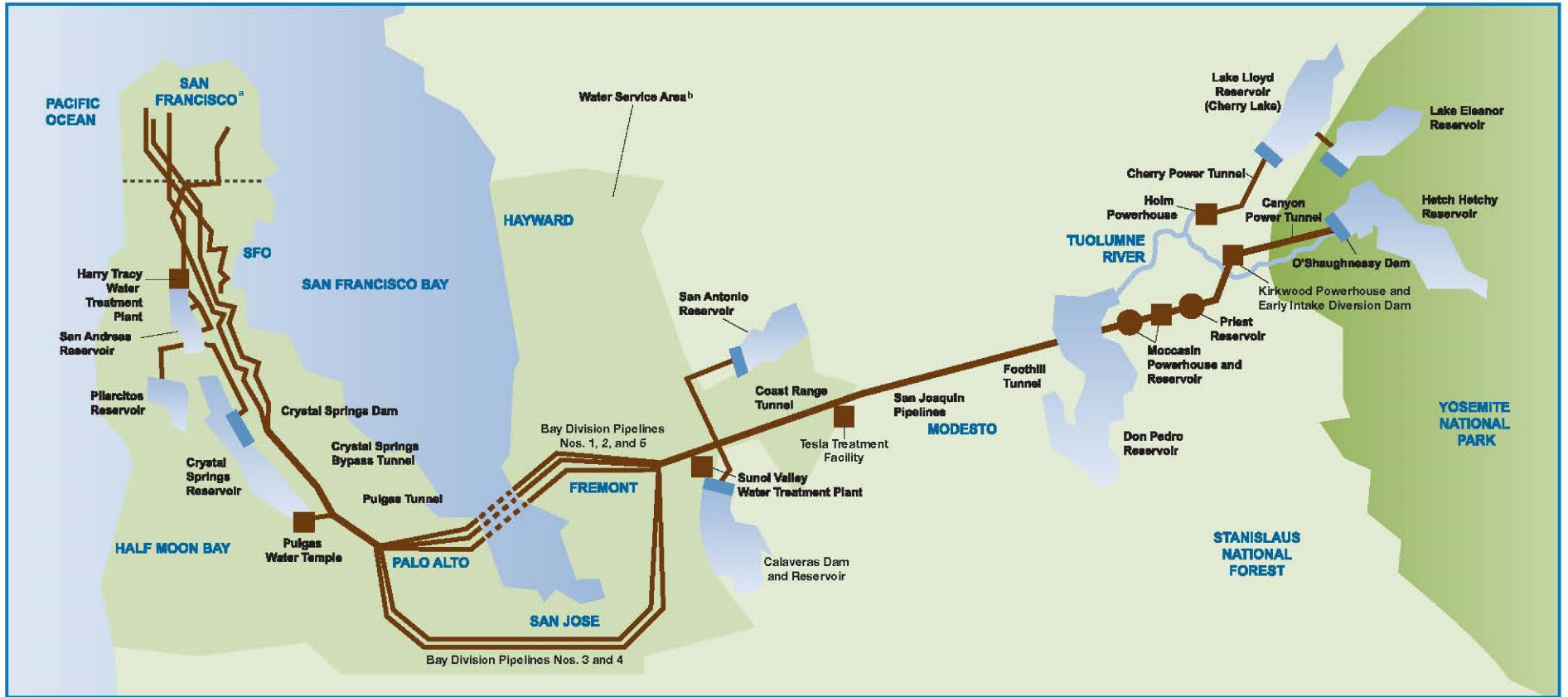
5.1 SFPUC WHOLESAL WATER

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.

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



Path: X:\B60027\Maps\2016\06\Fig5-1_EastPA_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.

Erler & Kalinowski, Inc.

SFPUC Regional Water System

City of East Palo Alto
 2015 Urban Water Management Plan
 East Palo Alto, CA
 June 2016
 EKI B60027.00
 Figure 5-1



watersheds, storage reservoirs, two water 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 Bay Division Pipelines (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 City of San Francisco 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 City of San Francisco 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 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 million gallons per day (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.¹² 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.

¹² 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. The 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-Feet (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 City's ISG is 1.963 MGD, or approximately 2,199 AFY (see Table 5-1). Between 2011 and 2015, the City purchased between 75% and 105% of its ISG.

5.1.3 2018 Interim Supply Limitation

As part of its adoption of the WSIP in October 2008, the SFPUC adopted a water supply limitation, the Interim Supply Limitation (ISL), which limits sales from San Francisco 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 Water Supply Agreement 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 ISL. On 14 December 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 ISGs. The ISAs are effective only until 31 December 2018 and do not affect the Supply Assurance or ISGs. San Francisco's ISA is 81 MGD.

As stated in the Water Supply Agreement, 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 City's ISA is 1.963 MGD, or 2,199 AFY per year, the same as its ISG.



**Table 5-1
Current and Historical Potable Water Supply (DWR Table 6-8)**
City of East Palo Alto, California

Potable Water Source	Annual Production (AFY) (a)				
	2011	2012	2013	2014	2015
<i>Imported Water</i>					
SFPUC Purchases	2,106	2,185	2,325	1,661	1,764
Resales to Menlo Park	124	101	10	10	6
<i>Net SFPUC Production</i>	<i>1,982</i>	<i>2,084</i>	<i>2,315</i>	<i>1,651</i>	<i>1,758</i>
<i>% of ISG (b)</i>	<i>90%</i>	<i>95%</i>	<i>105%</i>	<i>75%</i>	<i>80%</i>
<i>Groundwater</i>					
Local Groundwater Production (c)	0	0	6	2	1
Total	1,982	2,084	2,321	1,653 (d)	1,759

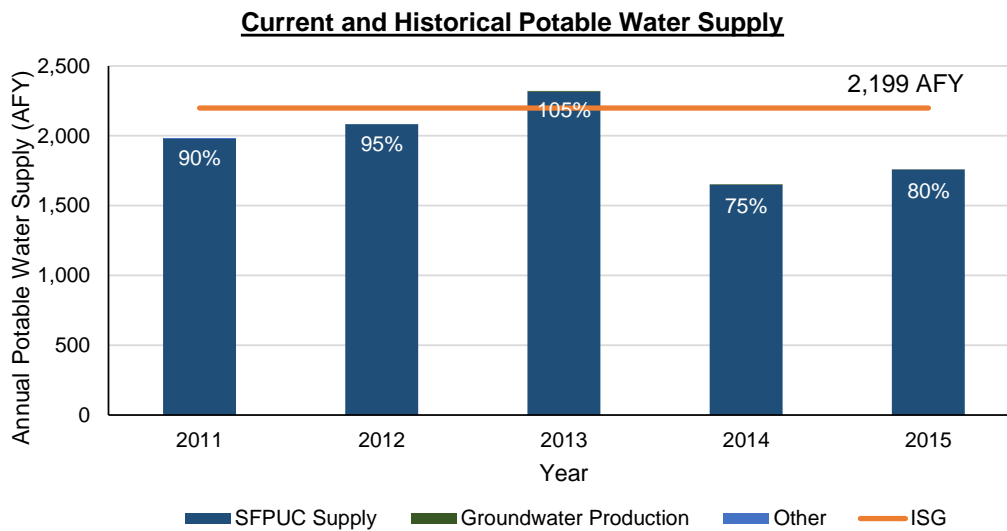




Table 5-1 (Continued)
Current and Historical Potable Water Supply (DWR Table 6-8)
City of East Palo Alto, California

Abbreviations:

AFY = acre-feet per year
BAWSCA = Bay Area Water Supply and Conservation Agency
DWR = California Department of Water Resources
ISA = Interim Supply Allocation
ISG = Individual Supply Guarantee
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 and local metering of groundwater production, as reported to BAWSCA.
- (b) The City has an ISG of 1.963 MGD, or approximately 2,199 AFY. The City's ISA through 2018 is also 1.96 MGD, or approximately 2,199 AFY, 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 the City would be charged an environmental surcharge for any incremental use over its ISA.
- (c) Untreated groundwater from the City's Gloria Way Well is used for street cleaning and construction.
- (d) In 2014, total water production is less than the total water consumption presented in Table 3-2 due to negative unaccounted-for-water.



5.1.5 Environmental Enhancement Surcharge

As an incentive to keep RWS deliveries below the ISL of 265 MGD, the SFPUC adopted an Environmental Enhancement Surcharge for collective deliveries in excess of the ISL effective at the beginning of 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 Water Supply Agreement, 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

The remaining portion of the City's water supply comes from local groundwater production. The City currently uses groundwater solely to meet limited non-potable water demands, such as street sweeping and construction. However, the City is planning to increase groundwater production in the near future to meet potable water demands within the City's service area. The following sections provide information regarding the groundwater basin underlying the City, groundwater management efforts by the City and others, and the City's historical and projected uses of groundwater.



Much of the information in the following sections has been pulled directly from the City's Groundwater Management Plan (Todd Groundwater, 2015), with minor edits to terminology for consistency with the rest of the UWMP. The City's full Groundwater Management Plan is available at the following link: <http://www.ci.east-palo-alto.ca.us/index.aspx?NID=554>.

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.

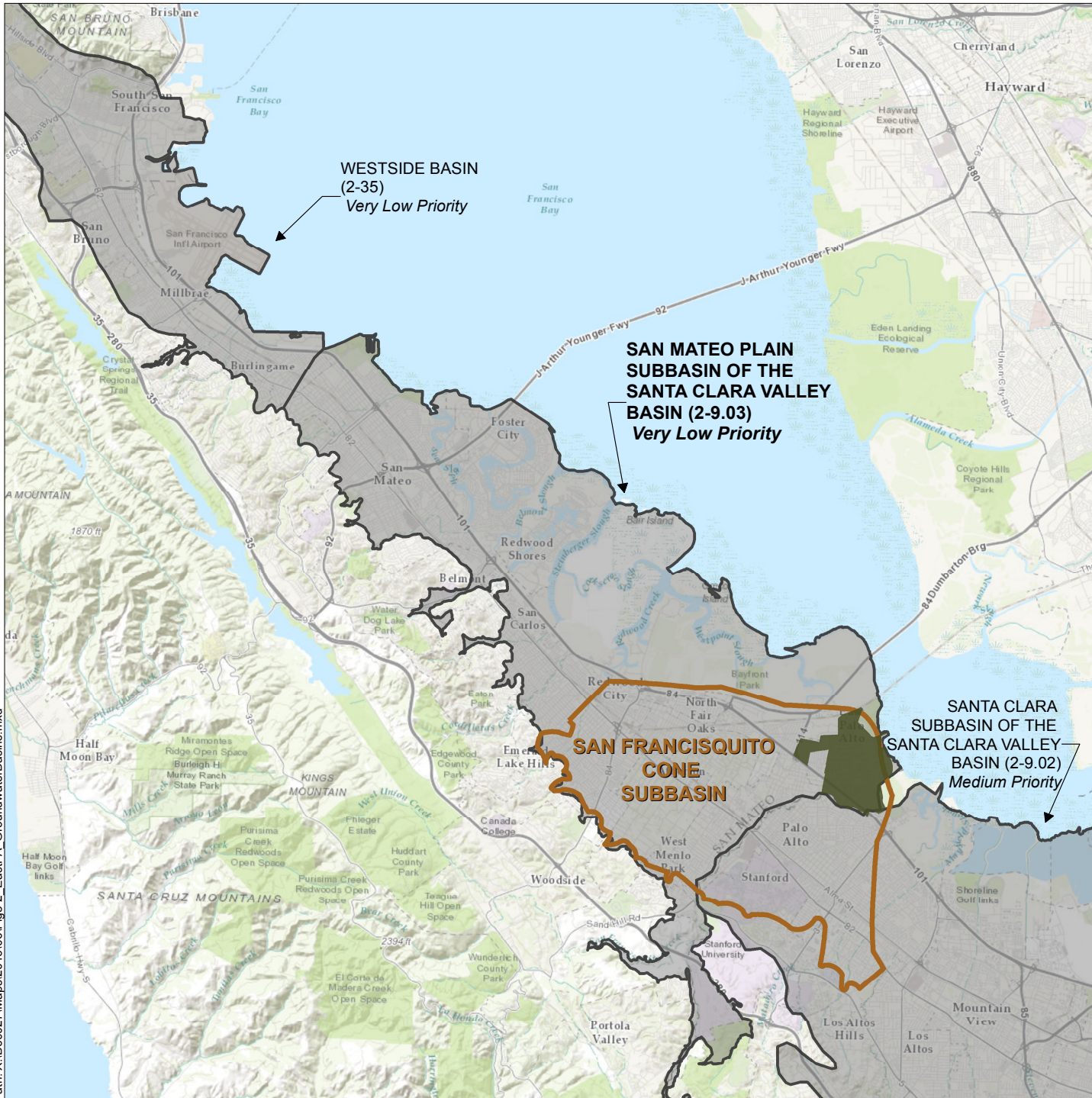
The City overlies the southern end of the San Mateo Plain Groundwater Subbasin of the Santa Clara Valley Groundwater Basin (Subbasin; DWR Basin 2-9.03). The Subbasin is not adjudicated, nor has it been found by DWR to be in a condition of overdraft. Figure 5-2 shows the Subbasin boundary, the San Francisquito Cone Subbasin, the surrounding basins and subbasins, and the location of the City's service area. The Subbasin is bounded by:

- The Santa Cruz Mountains on the west;
- San Francisco Bay on the east;¹³
- The Westside Basin (DWR Basin 2-35) on the north near Burlingame Avenue and Coyote Point; and
- San Francisquito Creek and the Santa Clara Subbasin of the Santa Clara Valley Groundwater Basin (DWR Basin 2-9.02) to the south.

The U.S. Geological Survey (USGS) defines groundwater basins differently than DWR and groups the southern portion of the Subbasin with the northern portion of the Santa Clara Subbasin. A portion of the City overlies the USGS-defined San Francisquito Cone Subbasin.

The Santa Clara Valley Groundwater Basin (DWR Basin 2-9) occupies a geologic trough that is filled with alluvial and bay sediments, and partially inundated by San Francisco Bay. The Subbasin is composed of alluvial fans formed by a series of streams draining to sloughs along San Francisco Bay. From north to south, major streams include San Mateo, Laurel, Belmont,

¹³ The Subbasin is likely hydrologically connected to subbasins on the east side of the San Francisco Bay, including the Niles Cone Subbasin of the Santa Clara Valley Groundwater Basin (DWR Basin 2 9.01) and the East Bay Plain Subbasin of the Santa Clara Valley Groundwater Basin (DWR Basin 2 9.04). However, the extent of this connection is the subject of continuing investigation.



(Approximate Scale in Miles)

Legend

- DWR Bulletin 118 Groundwater Basin
- City of East Palo Alto
- San Francisquito Cone Subbasin

Abbreviations

- CASGEM = California Statewide Groundwater Elevation Monitoring Program
- DWR = Department of Water Resources

Notes

1. All locations are approximate.
2. Priority rankings from CASGEM groundwater basin prioritization, June 2014.

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, Ordinance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, OpenStreetMap contributors, and the GIS User Community), obtained 27 June 2016.

Erler & Kalinowski, Inc.

Groundwater Basins in the Vicinity of the East Palo Alto Service Area

City of East Palo Alto
2015 Urban Water Management Plan
East Palo Alto, CA
June 2016
EKI B60027.00
Figure 5-2



Pulgas, Cordilleras, Redwood, Atherton, and San Francisquito creeks (Oakland Museum, 2014). All but two of these streams have relatively small watersheds draining mostly the plain and accordingly, have relatively small alluvial fans. In general, the alluvial deposits are thinner and more fine-grained in the northern Subbasin relative to the southern portions. However, San Francisquito Creek, with a watershed extending into the foothills, has a relatively extensive and thick alluvial fan also known as the San Francisquito Cone.

The principal groundwater aquifers of the basin and subbasins are composed of interbedded coarse- and fine-grained alluvial fan deposits of San Francisquito Creek, extending from the Santa Cruz Mountains north and under San Francisco Bay, and distal alluvial fan deposits of the Niles Cone, extending from the Diablo Range. Most of the permeable alluvial sediments occurring in the Subbasin and beneath the City originated from the Santa Cruz Mountains to the south-southwest; however, some alluvial sediments from the Niles Cone may interfinger under San Francisco Bay with sediments of the San Francisquito Cone.

The alluvial fan deposits vary in composition with distance from the head of the San Francisquito Cone. Deposits near the head of the fan are characterized as poorly sorted clays and gravels, and deposits near the central portion of the fan and the active stream course are generally cleaner sands and gravels. Deposits near the terminal or distal portion of the fan consist of finer-grained silts, clays and fine sands. Relatively finer-grained materials were deposited laterally away from the stream channel course. Overlying most of the alluvial sediments beneath the City are thick, laterally-extensive fine-grained materials, deposited when the area was below sea level. These Bay Mud sediments form a continuous aquitard or confining layer, thereby producing a multiple aquifer zone system.

The USGS (Metzger, 2002) characterized the groundwater aquifers and aquitards as a generalized three-layer system: an upper unconfined to confined shallow aquifer zone, a fine-grained Bay Mud unit near the Bay, and a deep principal aquifer beneath the confining layer. Most large production wells derive their water from the deep aquifer zone, at depths ranging from 200 to over 800 feet below ground surface (ft-bgs). The alluvial deposits of the San Francisquito Cone form a wedge that generally thins near the bedrock hills and thickens toward the Bay. Review of water well logs and references indicate that the thickness of the alluvial deposits ranges from zero where bedrock crops out to over 1,000 feet nearer to the bay.

Shallow Aquifer Zone

The shallow aquifer zone underlying East Palo Alto is comprised of localized gravel-filled stream channels etched into a prevailing clayey surface in past geologic time and subsequently buried by younger sedimentary deposits. The shallow aquifer coarse-grained deposits are generally thin (10's of feet thick) localized groundwater bearing zones and form sinuous paths with limited lateral continuity. Some local domestic wells produce groundwater from this shallow aquifer zone, however most municipal groundwater production is from the deeper principal aquifer zone.

Bay Mud Aquitard

The Bay Mud aquitard occurs beneath San Francisco Bay and extends south-southwest under the entire City. There is a clear increase in aquitard thickness (up to 300 ft-bgs) in the northeast closer to the Bay. The unit does not extend to the foothills in the southwest. The southwestern extent of the Bay Mud aquitard has been mapped by USGS and others, and demarcates the unconfined and confined aquifer zones. The confined zone occurs in the Subbasin's northern portion. The Subbasin's southern portion, south of the aquitard, is an unconfined zone, and is



generally characterized by permeable alluvial fan deposits. This portion of the groundwater Subbasin is also a groundwater recharge area, where mountain-front recharge, rainfall infiltration, urban landscaping return flows and percolation of San Francisquito Creek water can directly recharge the principal aquifer.

Deep Aquifer Zone

The principal groundwater-bearing aquifer zone comprises unconsolidated to semi-consolidated gravel, sand, silt and non-marine clay that generally has high permeability and thickness compared with the overlying shallow aquifer zone and Bay Mud aquitard. Where the Bay Mud aquitard is present, the principal aquifer zone is confined. The thickness of the principal aquifer zone ranges from less than 100 feet near the Santa Cruz Mountains to almost 1,000 feet near San Francisco Bay. The principal aquifer zone underlying the City does not end at the shoreline of San Francisco Bay; rather it extends offshore beneath the Bay and may be hydraulically connected to aquifer zones in the southeast side of the Bay including the Niles Cone aquifer.

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.

The City has taken individual and collective action in recent years to facilitate groundwater management in the Subbasin. Groundwater management by the City and the regional level is discussed in the following sections.

5.2.2.1 East Palo Alto Groundwater Management

In August 2015, the City adopted the first groundwater management plan within the Subbasin (Todd Groundwater, 2015).¹⁴ The City's Groundwater Management Plan (GWMP) was prepared in accordance with Assembly Bill 3030, Senate Bill 1938, and Assembly Billy 359. The objectives of the City's GWMP were to:

- Provide the City with a long-term, reliable and affordable high quality supply;
- Maintain or improve groundwater quality and quantity for the benefit of all groundwater users; and
- Provide integrated water resource management for resilience during droughts, with service interruptions and emergencies, and with long-term climate change effects.

The GWMP identified six basin management objectives (BMOs) that express the desired achievements for the GWMP. The BMOs are intended to be measurable and achievable, and

¹⁴ A groundwater management plan (SCVWD, 2012) had previously been developed by the SCVWD for the Santa Clara Subbasin to the south, which shares a border with the Subbasin along San Francisquito Creek.



each BMO is associated with specific management actions. The BMOs are also intended to be adaptive and subject to regular re-examination and update as more information becomes available and as conditions change. The BMOs identified in the City's GWMP are as follows:

1. Maintain acceptable ground water levels.
2. Avoid subsidence
3. Protect groundwater quality
4. Integrate management of groundwater and surface water
5. Improve understanding of the groundwater system
6. Promote regional groundwater management

The City's full GWMP is accessible at the following link: <http://www.ci.east-palo-alto.ca.us/index.aspx?NID=554>.

5.2.2.2 Regional Groundwater Management

On 2 September 2014, the City passed *Resolution No. 4542* in support of sustainable groundwater management in the San Francisquito Creek area. This resolution was also passed by six other local agencies – Santa Clara Valley Water District (SCVWD), San Mateo County and the cities of Palo Alto, Menlo Park, Atherton, and Portola Valley – and represents a regional commitment to groundwater management. While these resolutions are specific to each agency, they express shared beliefs regarding:

- The threats of rising SFPUC RWS water prices, population growth, and potential water supply reductions from droughts and climate change;
- The potential risks of overdraft, saltwater intrusion, and land subsidence if groundwater development occurs without cooperative management;
- The interconnected nature of groundwater and surface water in the San Francisquito Creek area;
- The ability for groundwater resources to be managed cooperatively through water conservation/efficiency, use of alternative supplies such as recycled water, storm water infiltration, and groundwater recharge; and
- The recognition that more information on hydrology and geology of the San Francisquito Creek area is needed to better design and implement sustainable groundwater management.

Accordingly, per the resolution, the agencies resolved to collaborate with other agencies and organizations to better understand the hydrology and geology of the San Francisquito Creek area. They also stated their respective commitment to the sustainable management of local groundwater to protect its quality and ensure its availability during droughts and emergencies.

Additionally, BAWSCA has recently initiated work with San Mateo County and its member agencies to form the Groundwater Reliability Partnership 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. The City is actively participating in this regional forum for groundwater management.



Furthermore, San Mateo County has initiated work on a comprehensive groundwater assessment of the Subbasin to increase scientific understanding of the Subbasin and to support ongoing sustainable groundwater management.

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 City has historically used groundwater as a non-potable water source for street sweeping and construction. The volume of groundwater extracted over the period 2011 through 2015 is presented in Table 5-1 and ranged from 0 to 6 AFY.

5.2.4 Sustainable Groundwater Management Act

The first comprehensive groundwater legislation in California history, the Sustainable Groundwater Management Act of 2014 (SGMA), was enacted on 16 September 2014 as part of a three-bill package including AB 1739 (Dickinson), SB 1169 (Pavley), and SB 1319 (Pavley). The legislation provides a framework for the sustainable management of groundwater by local agencies, with an emphasis on the preservation of local control. The state agencies primarily responsible for implementing SGMA are DWR and the SWRCB. The Subbasin was ranked as a Very Low priority basin under the California Statewide Groundwater Elevation Monitoring (CASGEM) basin prioritization process and is therefore not subject to the requirements of SGMA. However, the Subbasin received a Very Low priority ranking due to the limited current use of groundwater within the Subbasin. As groundwater production expands within the Subbasin, it is possible that the Subbasin's priority ranking will be revised and the Subbasin will be subject to the requirements of SGMA. These requirements include, among other things: (1) the establishment of a Groundwater Sustainability Agency (GSA) or multiple GSAs to manage the Subbasin, (2) the development of a Groundwater Sustainability Plan (GSP) or multiple GSPs to govern the Subbasin, and (3) the achievement of sustainable groundwater management, as defined under SGMA, within 20 years of adoption of the Subbasin's GSP(s).



5.2.5 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 City has identified the need to expand groundwater production within the City's service area to meet future water demands, provide sufficient fire flow,¹⁵ and provide the City with a supplemental potable water supply in the event of a water-quality breach, supply interruption, or other potential water supply emergency. Over the last several years, the City has secured approximately \$3.4 million in federal and State funding to pursue the development additional groundwater supplies, including the following grants:

- Two rounds of funding totaling approximately \$800,000 from the U.S. Department of housing and Urban Development's Community Development Block Grant Program;
- A \$1.1 million grant from the U.S. Environmental Protection Agency (USEPA) State and Tribal Assistance Grant Program; and
- Approximately \$1.5 million of Proposition 84 funding through the Integrated Regional Water Management Grant Program.

The City has used this money and other funds to complete significant work related to assessing the availability of groundwater. In 2012, the City completed a report entitled *Gloria Way Water Well Production Alternatives Analysis and East Palo Alto Water Security Feasibility Study* (Feasibility Study; Todd Engineers, 2012). Based on the findings of the Feasibility Study, the City is pursuing a multi-pronged approach to development of its local groundwater supplies: (1) install an iron and manganese treatment system to allow use of its existing Gloria Way well, and (2) construct a new water supply well and treatment system (the Pad Well).

The City is currently working to bring the Gloria Way Well back on-line to provide potable water to City customers. On 4 June 2013, the City adopted a Mitigated Negative Declaration pursuant to the California Environmental Quality Act (CEQA). The Gloria Way Well project includes the design and construction of the well pump, treatment system (including chemical feed and

¹⁵ In large portions of the City, water distribution system pressures are routinely as low as 20 psi, as compared to typical distribution system pressures of 70 to 80 psi (IRM, 2013). City fire regulations require a residual water pressure of 20 psi at all times, including during periods of maximum demand (East Palo Alto Code of Ordinances Section 8.16.460). The City does not currently meet this fire flow standard.



storage), disinfection system, filter backwash recovery system, distribution system injection, and associated controls and piping. The Gloria Way Well is expected to produce up to 300 gallons per minute (gpm), or between 200 and 450 AFY, depending on final well operation parameters and final groundwater basin management and conjunctive use criteria. Design of the Gloria Way Well Treatment System is expected to be completed by Fall 2016, with construction completed by August 2017.

The City is also pursuing additional groundwater supplies through the construction of the new Pad D Well, located at the corner of Clarke Road and East Bayshore Drive, and its associated treatment system. In 2014, the City drilled, constructed, and tested a six-inch diameter test well at the Pad D site for the purposes of assessing local aquifer characteristics, water quality, and the potential yield of a municipal supply well at the Pad D site (EKI, 2014). The current work being completed includes the preparation of the required CEQA documents, permitting, and design of the well, pump, treatment/blending system, disinfection system, and associated controls and piping. The results of aquifer testing at the test well indicate that the Pad D Well is likely to produce between 350 and 500 gpm, or between 500 and 750 AFY, depending on operational or other constraints (EKI, 2014). Design of the Pad D Well is expected to be completed by Spring 2017, with construction completed by June 2018.

The combined production capacity of the City's wells is anticipated to be between 700 and 1,200 AFY, and construction of the wells and treatment systems is anticipated to be complete by June 2018. Therefore, for the purposes of this Plan, the City is projecting that between 700 and 1,200 AFY of groundwater will be available to the City by 2020.

5.3 LOCAL SURFACE WATER

The City does not draw on any local surface water sources for drinking water purposes, and has no plans to do so in the future.

5.4 WASTEWATER AND RECYCLED WATER

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.

All wastewater generated within the City is collected by EPASD and WSBSD, conveyed outside the City limits, and treated by wastewater treatment facilities. These facilities provide treated wastewater that meets the regulatory requirements for recycled water, as defined in California Code of Regulations, Title 22, Article 3 (Title 22). While recycled water is currently used in the City of Redwood City and in northern Santa Clara County, there is no infrastructure in place to transfer recycled water back into East Palo Alto. The City does not currently use recycled water and has not quantified future recycled water use in the supply projections included in this Plan.

The following section describes wastewater collection and treatment for the City's service area and potential future uses of recycled water.



5.4.1 Coordination

As described in Section 1.2.3, the City has coordinated with EPASD and WBSD on the potential options for recycled water. The sections below summarize City's efforts with respect to recycled water planning and use.

5.4.2 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 City's service area is collected by two wastewater agencies: EPASD and WBSD. The collection, treatment, and disposal of the City's wastewater is described for each of these agencies in the following sections. No wastewater is treated or disposed of within the City's service area (see Appendix A, DWR Table 6-3).

5.4.2.1 East Palo Alto Sanitary District

The EPASD serves portions of the City and the City of Menlo Park through a collection system comprised of approximately 35 miles of gravity sewer mains, ranging from 6-inch diameter to 24-inch diameter pipe. The EPASD discharges all collected wastewater to the City of Palo Alto's Regional Water Quality Control Plant (RWQCP). The EPASD has an annual average treatment capacity allotment from the RWQCP of 3.06 MGD, or 7.64% of the plant's total treatment capacity. The RWQCP has a dry-weather capacity of 39 MGD and a wet-weather capacity of 80 MGD. The EPASD collected approximately 423 MG of wastewater from the City's service area in 2015 (Table 5-2).

The 2008 Palo Alto Recycled Water Facility Plan states that the RWQCP treats wastewater to the disinfected secondary-23 recycled water level and discharges most of its effluent to the San Francisco Bay. For effluent that is not discharged to the Bay, the RWQCP has a 4 MGD recycled water facility that filters and disinfects the effluent to meet the requirements for disinfected tertiary recycled water "unrestricted use" as defined in Title 22.

5.4.2.2 West Bay Sanitary District

The WBSD serves customers within the northern portion of the City, as well as other customers within the cities of Menlo Park, Atherton, Portola Valley, and Woodside, and unincorporated San Mateo and Santa Clara Counties. The WBSD collection system conveys wastewater to the Menlo Park Pumping Station, where it is then transported to the Silicon Valley Clean Water (SVCW) facilities in Redwood City for treatment and discharge to the San Francisco Bay. The volume of wastewater collected from the City's service area in 2015 was approximately 1,351 MG (Table 5-2).



**Table 5-2
Wastewater Collected Within Service Area in 2015 (DWR Table 6-2)**
City of East Palo Alto

Wastewater Collection	
Name of Wastewater Collection Agency	East Palo Alto Sanitary District
Wastewater Volume Metered or Estimated?	Estimated
Volume of Wastewater Collected in 2015 (MG) (a)	423
Recipient of Collected Wastewater	
Name of Wastewater Treatment Agency Receiving Collected Wastewater	City of Palo Alto
Treatment Plant Name	Regional Water Quality Control Plant
Is WWTP Located Within UWMP Area?	No
Is WWTP Operation Contracted to a Third Party?	No
Wastewater Collection	
Name of Wastewater Collection Agency	West Bay Sanitary District
Wastewater Volume Metered or Estimated?	Estimated
Volume of Wastewater Collected in 2015 (MG) (b)	1,351
Recipient of Collected Wastewater	
Name of Wastewater Treatment Agency Receiving Collected Wastewater	Silicon Valley Clean Water
Treatment Plant Name	Silicon Valley Clean Water Wastewater Treatment Plant
Is WWTP Located Within UWMP Area?	No
Is WWTP Operation Contracted to a Third Party?	Yes (c)

Abbreviations:

- DWR = California Department of Water Resources
- MG = million gallons
- UWMP = Urban Water Management Plan
- WWTP = wastewater treatment plant

Notes:

- (a) Metered volume of wastewater collected within the City's service area provided by the East Palo Alto Sanitary District on 1 June 2016.
- (b) Estimated volume of wastewater collected within the City's service area provided by the West Bay Sanitary District on 1 June 2016.
- (c) The Silicon Valley Clean Water WWTP is jointly owned and operated by West Bay Sanitary District and the Cities of Redwood City, Belmont, and San Carlos as a joint powers authority.



The SVCW wastewater treatment plant (WWTP) is jointly owned and operated by WBSD and the Cities of Redwood City, Belmont, and San Carlos as a joint powers authority. The treatment processes at the SVCW WWTP involve the following: primary sedimentation, dual secondary treatment with fixed film reactors and activated sludge, filtration, disinfection using sodium hypochlorite, and dechlorination with sodium bisulfide. Discharge of the advanced secondarily-treated effluent is permitted by the San Francisco Regional Water Quality Control Board (RWQCB).

Since 2000, the SVCW WWTP has produced tertiary-treated, unrestricted use recycled water under Title 22 for reuse in Redwood City. Approximately 750 acre-feet per year (AFY) was reused in Redwood City in 2014. The Redwood City recycled water distribution system was designed with a capacity of delivering up to 3,238 AFY (or 907 MG per year) with the potential to exporting recycled water to neighboring communities. Redwood City has completed construction on Phase I of its recycled water distribution system and began Phase II construction in 2016 (Redwood City, 2016).

5.4.3 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 City's service area (see Appendix A, DWR Table 6-4).

5.4.4 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 City's service area and there were no recycled water use projections made for 2015 in the City's 2010 UWMP (see Appendix A, DWR Table 6-5).¹⁶

¹⁶ The 2010 UWMP projected 100 AFY of recycled water use beginning in 2020.



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

In June 2015, the California Department of Transportation (Caltrans) began construction on the San Francisquito Creek Bridge Replacement Project, which involves the replacement of the Highway 101 bridge over San Francisquito Creek, as well as the West Bayshore Road and East Bayshore Road bridges over the creek. The project is being developed through a partnership with the San Francisquito Creek Joint Powers Authority (SFCJPA), a recently-established government agency consisting of the cities of East Palo Alto, Menlo Park, and Palo Alto, San Mateo County, and the SCVWD. Although the project was initially motivated by the identification of structural deficiencies, the current scope of the project has expanded to include improvements to the hydraulic capacities of the bridges to provide flood protection. Through its participation in the SFCJPA, the City has been involved in the water planning for this project, including the installation of a four-inch pipeline to supply recycled water for construction from the Palo Alto RWQCP. Upon completion of the project, this recycled water pipeline will be turned over to the City. It is anticipated that this recycled water supply will become available in 2018 and will allow recycled water to be used for irrigation within the City's service area, such as at Martin Luther King Park. The ultimate quantities and use of this recycled water supply are unknown, and therefore this supply has not been quantified in supply projections included in this Plan.

5.4.6 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.

Currently there are no financial or other incentives to the City's customers to encourage use of recycled water, as recycled water is not available within the City's service area (see Appendix A, DWR Table 6-6). If and when recycled water becomes available within the City's service area in the future, appropriate financial incentives would be considered to encourage recycled water use.



5.5 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 BAWSCA as part of Phase II of its Long Term Reliable Water Supply 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 City is not pursuing desalination at this time.

5.6 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 long-term basis.*

The Water Supply Agreement allows for the transfer or exchange of water among parties, both inside and outside of the RWS. Within the SFPUC system, it is possible to transfer ISG and/or unused portions of water allocations among contracting agencies. The Water Shortage Allocation Plan, adopted by SFPUC and its wholesale customers, provides for voluntary transfers of water among wholesale customers during periods when mandatory rationing is in effect within the RWS (see Section 6.3.1). Some wholesale customers have the capacity to draw more heavily on other water supplies, such as the State Water Project or groundwater, during dry years and may therefore be willing to transfer a portion of their ISG to other customers.

Both the Water Supply Agreement and state law also allow for the purchase and transfer of water from outside the SFPUC service area. Water may be purchased from outside of the RWS and conveyed to SFPUC and/or the City through third-party transmission systems. Such an arrangement would require both a contract with the third-party water supplier and an agreement between the City and the SFPUC on the water quality, price, and operational terms.

In addition to acquiring transferred water individually, BAWSCA has statutory authority to assist the wholesale customers of the Hetch Hetchy regional water system to plan for and acquire supplemental water supplies. BAWSCA continues to evaluate the feasibility of water transfers as part of its implementation of Phase II of its Long Term Reliable Water Supply Strategy (see Section 6.1).



5.7 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 the City. The effects of these projects on the City's long-term water supply are not quantifiable at this point in time, and therefore only narrative descriptions are provided below (see Appendix A, DWR Table 6-7).

5.7.1 Additional SFPUC RWS Allocation

The City is currently advocating that BAWSCA and SFPUC support an increase in its allocation of SFPUC RWS water, up to an additional 1.5 MGD, or 1,680 AFY. The City has consistently projected a normal year water supply shortfall in its water planning documents, including the following recent documents: the 2005 UWMP; the initial and amended 2010 UWMPs; the Ravenswood/4 Corners WSA; and the General Plan Update WSA. This lack of water supply has immediate negative impacts on the City's ability to develop affordable housing and achieve its economic development goals. On 19 April 2016, the City authorized the City Manager to work with the City's partners at BAWSCA and the SFPUC to secure up to an additional 1.5 MGD of SFPUC RWS water.

5.7.2 Recycled Water

The City anticipates that a four-inch pipeline from the Palo Alto RWQCP to the San Francisquito Creek Bridge will be available to supply recycled water for irrigation purposes within the City's service area by 2018. More information regarding the availability of this supply is included in Section 5.4.5.

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.



5.8 SUMMARY OF EXISTING AND PLANNED SOURCES OF WATER

The City's existing historical and current water supplies are summarized in Table 5-1. The City purchases water from the SFPUC RWS to meet all of the potable water demands within the City's service area. In 2015, the City purchased approximately 1,758 AF from the SFPUC RWS. Over the period 2011 through 2015, the City also distributed between 0 and 6 AFY of raw water from local groundwater extracted by the Gloria Way well.

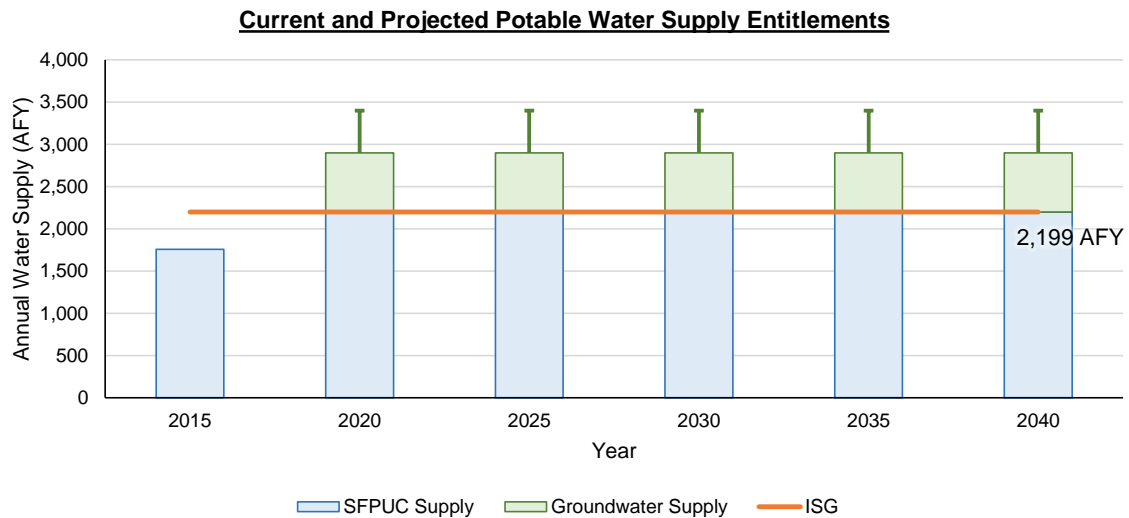
The City plans to continue to purchase wholesale water from the SFPUC RWS. Water supplies from the SFPUC RWS through 2040 are projected to be equivalent to the City's ISG of 2,199 AFY, which is the City's contractual entitlement to SFPUC wholesale water and survives in perpetuity. As discussed in Section 5.2, the City is also pursuing the development of groundwater supplies to supplement its potable water supply. It is anticipated that groundwater provided by the Gloria Way and Pad D wells will provide between 700 and 1,200 AFY by 2020. The City's total water supply projections are shown in Table 5-3 in five-year increments through 2040.

**CITY OF EAST PALO ALTO
2015 URBAN WATER MANAGEMENT PLAN**



**Table 5-3
Current and Projected Potable Water Supply (DWR Table 6-9)**
City of East Palo Alto, California

Potable Water Source	Current and Projected Potable Water Supply (AFY)					
	2015	2020	2025	2030	2035	2040
<i>Imported Water</i>						
SFPUC (a)	1,758	2,199	2,199	2,199	2,199	2,199
<i>Groundwater</i>						
Groundwater Production (b)	0	700 – 1,200	700 – 1,200	700 – 1,200	700 – 1,200	700 – 1,200
Total Water Supplies	1,758	2,899 – 3,399	2,899 – 3,399	2,899 – 3,399	2,899 – 3,399	2,899 – 3,399



Abbreviations:

- AFY = acre-feet per year
- DWR = California Department of Water Resources
- ISA = Interim Supply Allocation
- ISG = Individual Supply Guarantee
- MGD = million gallons per day
- SFPUC = San Francisco Public Utilities Commission

Notes:

- (a) The City has an ISG of 1.963 MGD, or approximately 2,199 AFY. The City's ISA through 2018 is also 1.963 MGD, or approximately 2,199 AFY. 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 the City would be charged an environmental surcharge for any incremental use over its ISA.
- (b) The City anticipates that between 700 and 1,200 AFY of groundwater will be available by 2020 due to reactivation of the City's Gloria Way well and construction of the Pad D well.



6. WATER SUPPLY RELIABILITY

As described in Section 5, the City's current potable water supply is purchased from the SFPUC

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.

RWS and is subject to varying supply reliability depending on the year type. The City's future groundwater supplies are considered to be 100% reliable, although the ultimate annual production capacity is presented in this UWMP as a range of values (i.e., 700 to 1,200 AFY; see Section 5.2).

This section describes the constraints on the City's water supplies and the management strategies that the City 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 the City and the corresponding supply and demand reliability assessments in normal years, single dry years, and multiple dry year periods.

6.1 BAWSCA'S LONG TERM RELIABLE WATER SUPPLY STRATEGY

BAWSCA's Long Term Reliability Water Supply Strategy (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).

Information regarding the reliability of the SFPUC RWS was provided by BAWSCA in coordination with the SFPUC, and is presented verbatim below.

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
<p>Water Supply – <i>meet customer water needs in non-drought and drought periods</i></p>	<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 F; 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-water 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 Area¹⁷

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

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

¹⁷ 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.



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 Water Supply Agreement 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, 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 Water Supply Agreement 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 Water Supply Agreement, 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 EAST PALO ALTO 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.*

A normal year represents an averaged range of years that most closely represents the median water supply available to the City. As discussed in Section 5.1 and summarized in Table 6-1, the City has the rights to purchase SFPUC RWS water equal to its ISG of 1.963 MGD, or 2,199 AFY. The SFPUC is obligated to provide the City with up to 100% of the City's ISG during normal years. The City is also pursuing groundwater supplies and anticipates that between 700 and 1,200 AFY of groundwater will be available in all year types by 2020 (see Section 5.2). For the purposes of the supply projections presented in this Plan, the City has conservatively assumed that 700 AFY of groundwater will be available over the forecast timeframe. The City's anticipated water supplies in normal years are presented in Table 6-2 and are projected to be 2,899 AFY.

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 F) and per hypothetical application of the Tier 1 and Tier 2 allocation processes described in Section 6.3. The 2016 Tier 2 Plan assigns an allocation factor of 1.51% to the City.¹⁸ However, the 2016 Tier 2 Plan is based in part on actual SFPUC RWS purchases in 2013, a year in which the City's SFPUC RWS purchases were higher than both its ISG and typical purchases over the last five years (see Table 5-1). Therefore, the current allocation factor of 1.51% may be higher than the City can expect to receive in the future. 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. For supply reliability projections in this Plan, the City has conservatively assumed an allocation factor of 1.39%, as was presented in the City's 2010 UWMP and the General Plan Update WSA. Even with this conservative assumption, the Tier 2 Plan allocates the City a volume of SFPUC RWS water greater than its ISG in single dry years and in the first year of a multi-year drought.

While the supply reliability estimates reflect the best data available for use at this time, these 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 WSIP by 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.

¹⁸ Email from BAWSCA to the City dated 6 January 2016.

**CITY OF EAST PALO ALTO
2015 URBAN WATER MANAGEMENT PLAN**



**Table 6-1
Basis of SFPUC Supply Reliability**
City of East Palo Alto, California

Year Type	Base Year (a)	Available Water Supplies if Year Repeats, 2020 to 2040			
		Volume Available to SFPUC Wholesale Customers (MGD) (a)	City's Allocation Factor (b)	SFPUC Volume Available to the City (MGD) (b)	Annual SFPUC Volume Available to the City (AFY)
Normal Year	FY 1987-88	184.0	--	1.963	2,199
Single Dry Year	FY 1989-90	152.6	1.39%	2.12	2,376
<i>Multiple Dry Years</i>					
Dry Year 1	FY 1989-90	152.6	1.39%	2.12	2,376
Dry Year 2	FY 1990-91	132.5	1.39%	1.84	2,063
Dry Year 3	FY 1991-92	132.5	1.39%	1.84	2,063

Abbreviations:

- AFY = acre-feet per year
- BAWSCA = Bay Area Water Supply and Conservation Agency
- DWR = California Department of Water Resources
- FY = fiscal year
- 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 F.
- (b) Water supply available to the City during a normal year is assumed to be equal to City's ISG. The City's allocation factor provided by BAWSCA in Reference 2 was 1.51% based upon application of the Tier 2 Plan. However, as discussed in Section 6.4, this allocation factor was based upon a year in which the City's SFPUC RWS purchases were higher than average. Therefore, the City has conservatively assumed an allocation factor of 1.39%, as was presented in References 3 and 4.

References:

- (1) SFPUC, 2016. Regional Water System Long-Term Supply Reliability 2015-2040, letter to BAWSCA, dated 5 January 2016.
- (2) BAWSCA, 2016. UWMP Tier 2 Drought Implementation Plan Scenarios, email message to BAWSCA member agencies, dated 6 January 2016.
- (3) City of East Palo Alto, 2013. *2010 Urban Water Management Plan*, amended 2 April 2013.
- (4) City of East Palo Alto, 2016. *Vista 2035: East Palo Alto General Plan, Public Draft*, January 2016.



As shown in Table 6-2, during single dry years between 2020 and 2040, the annual supply available to the City is estimated to be 3,076 AFY, which is greater than the City's normal year supply. During multiple dry years between 2020 and 2040, the annual supply available to the City is estimated to be reduced to 3,076 AFY during the first year of a multi-year drought and to 2,763 AFY 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.

The City'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 6-3 through 6-5. The City's total projected supplies are equal to the sum of the City's expected SFPUC RWS water and local groundwater production, as discussed in Section 6.4 and presented in Table 6-2. The City's projected demands are discussed in Section 3.2 and presented in in Table 3-3.

As shown in Table 6-3, demand within the City's service area is expected to exceed the City's projected supplies in 2040 by approximately 518 AFY, which results in a total water supply shortfall of 15% (Table 6-3). This normal year shortfall is consistent with the findings of the City's previous water supply planning documents and has restricted the City's ability to approve development projects (see Section 1.3.3). The City is actively pursuing additional water supplies to meet its future water demand and is requesting an additional allocation of SFPUC RWS water to fill this projected water supply deficit (see Section 5.7.1). Furthermore, this UWMP has made conservative assumptions in its water demand and water supply projections. For example, the range of available groundwater supplies is expected to be between 700 and 1,200 AFY, but the supply projections have assumed that only 700 AFY will be available. If the full potential of groundwater production is realized, then the City's projected shortfall in normal years in 2040 will be reduced to 18 AFY, or a 0.5% shortfall.

As discussed in Section 6.4, based on information provided by SFPUC and BAWSCA, based on the best available data, the City is projecting to receive more SFPUC RWS water in single dry years than in normal years. During single dry years in 2040, the City's total annual water demand is estimated to exceed total annual supply by approximately 341 AFY, which results in a projected water supply shortfall of 10% (Table 6-4).

Beginning in 2035, it is projected that during multiple dry years, water supplies will also be insufficient to meet total projected demands. During the second and third years of a multiple dry year period in 2035, the City's total annual water demand is estimated to exceed total annual supply by approximately 83 AFY, which results in a projected total water supply shortfall of 3% (Table 6-5). This shortfall is projected to increase to approximately 654 AFY by 2040, which results in a projected water supply shortfall of 19% (Table 6-5).



**Table 6-2
Basis of Water Year Data (DWR Table 7-1)**
City of East Palo Alto, California

Year Type	Base Year (a)	Available Water Supplies if Year Repeats, 2020 to 2040 (AFY)		
		SFPUC Water Supply (a)(b)	Groundwater Production (c)	Total Available Water Supplies
Normal Year	FY 1987-88	2,199	700	2,899
Single Dry Year	FY 1989-90	2,376	700	3,076
<i>Multiple Dry Years</i>				
Dry Year 1	FY 1989-90	2,376	700	3,076
Dry Year 2	FY 1990-91	2,063	700	2,763
Dry Year 3	FY 1991-92	2,063	700	2,763

Abbreviations:

- AFY = acre-feet per year
- BAWSCA = Bay Area Water Supply and Conservation Agency
- DWR = California Department of Water Resources
- FY = fiscal year
- 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 F.
- (b) Water supply available to the City during a normal year is assumed to be equal to City's ISG. The City's allocation factor provided by BAWSCA in Reference 2 was 1.51% based upon application of the Tier 2 Plan. However, as discussed in Section 6.4, this allocation factor was based upon a year in which the City's SFPUC RWS purchases were higher than average. Therefore, the City has conservatively assumed an allocation factor of 1.39%, as was presented in References 3 and 4.
- (c) The City has conservatively assumed that available groundwater supplies will be equal to the lowest projected volume (700 AFY). The supplies presented in Table 5-3 show the range of potential groundwater supplies (700 – 1,200 AFY).

References:

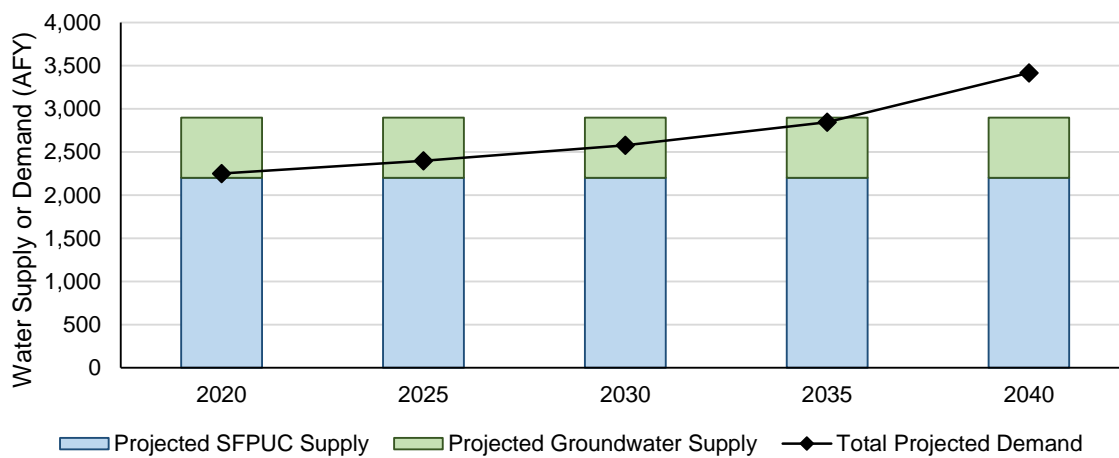
- (1) SFPUC, 2016. Regional Water System Long-Term Supply Reliability 2015-2040, letter to BAWSCA, dated 5 January 2016.
- (2) BAWSCA, 2016. UWMP Tier 2 Drought Implementation Plan Scenarios, email message to BAWSCA member agencies, dated 6 January 2016.



**Table 6-3
Projected Supply Versus Demand for Normal Year Scenario (DWR Table 7-2)
City of East Palo Alto, California**

	Estimated Supply and Demand (AFY)				
	2020	2025	2030	2035	2040
Total Projected Supply (a)	2,899	2,899	2,899	2,899	2,899
Total Projected Demand (b)	2,251	2,397	2,578	2,846	3,417
<i>Surplus or Deficit</i>	648	502	321	53	(518)
<i>Percent Shortfall</i>	--	--	--	--	15%

Normal Year Supply vs. Demand



Abbreviations:

AFY = acre-feet per year
DWR = California Department of Water Resources

Notes:

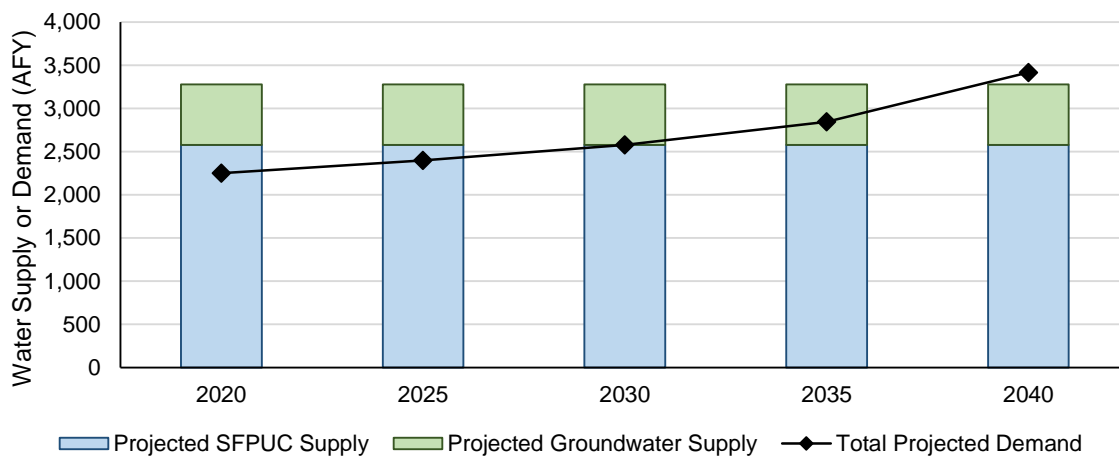
- (a) Projected available water supplies during normal years are presented in Table 6-2. The City has conservatively assumed that available groundwater supplies will be equal to the lowest projected volume (700 AFY). An additional 500 AFY of groundwater supplies (up to a total 1,200 AFY) may be available to the City in the future.
- (b) Values for projected water demand are summarized in Table 3-4.



**Table 6-4
Projected Supply Versus Demand for Single Dry Year Scenario (DWR Table 7-3)
City of East Palo Alto, California**

	Estimated Supply and Demand (AFY)				
	2020	2025	2030	2035	2040
Total Projected Supply (a)	3,076	3,076	3,076	3,076	3,076
Total Projected Demand (b)	2,251	2,397	2,578	2,846	3,417
<i>Surplus or Deficit</i>	825	679	498	230	(341)
<i>Percent Shortfall</i>	--	--	--	--	10%

Single Dry Year Supply vs. Demand



Abbreviations:

AFY = acre-feet per year
DWR = California Department of Water Resources

Notes:

- (a) Projected available water supplies during single dry years are presented in Table 6-2. The City has conservatively assumed that available groundwater supplies will be equal to the lowest projected volume (700 AFY). An additional 500 AFY of groundwater supplies (up to a total 1,200 AFY) may be available to the City in the future.
- (b) Values for projected water demand are summarized in Table 3-4.



**Table 6-5
Projected Supply Versus Demand for Multiple Dry Years Scenario (DWR Table 7-4)**
City of East Palo Alto, California

	Estimated Supply and Demand (AFY)				
	2020	2025	2030	2035	2040
<i>First Dry Year</i>					
Total Projected Supply (a)	3,076	3,076	3,076	3,076	3,076
Total Projected Demand (b)	2,251	2,397	2,578	2,846	3,417
Surplus or Deficit	825	679	498	230	(341)
Percent Shortfall	--	--	--	--	10%
<i>Second Dry Year</i>					
Total Projected Supply (a)	2,763	2,763	2,763	2,763	2,763
Total Projected Demand (b)	2,251	2,397	2,578	2,846	3,417
Surplus or Deficit	512	366	185	(83)	(654)
Percent Shortfall	--	--	--	3%	19%
<i>Third Dry Year</i>					
Total Projected Supply (a)	2,763	2,763	2,763	2,763	2,763
Total Projected Demand (b)	2,251	2,397	2,578	2,846	3,417
Surplus or Deficit	512	366	185	(83)	(654)
Percent Shortfall	--	--	--	3%	19%

Multiple Dry Year Supply vs. Demand

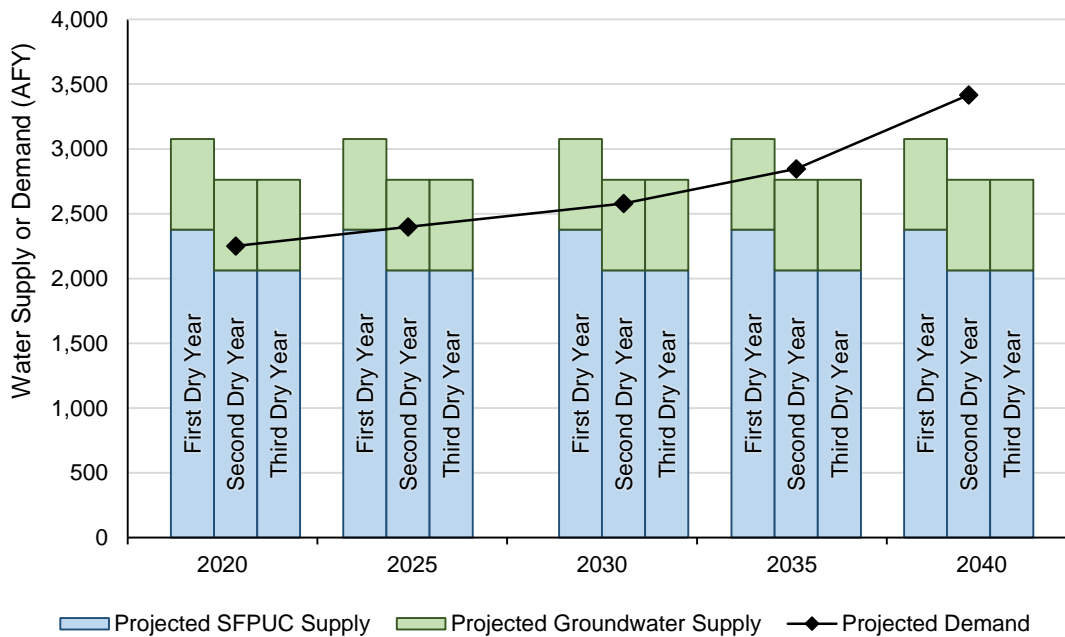




Table 6-5 (Continued)
Projected Supply Versus Demand for Multiple Dry Years Scenario (DWR Table 7-4)
City of East Palo Alto, California

Abbreviations:

AFY = acre-feet per year

DWR = California Department of Water Resources

Notes:

- (a) Projected available water supplies during multiple dry years are presented in Table 6-2. The City has conservatively assumed that available groundwater supplies will be equal to the lowest projected volume (700 AFY). An additional 500 AFY of groundwater supplies (up to a total 1,200 AFY) may be available to the City in the future.
- (b) Values for projected water demand are summarized in Table 3-4.



During dry years, the City expects to meet these shortfalls through implementation of its Water Shortage Contingency Plan (see Section 7). However, as discussed above, the demand and supply projections included herein are relatively conservative (i.e., they do not take into account the water savings associated with passive and active conservation). To the extent that the total future demands are lower than those projected herein, and future supplies are higher, 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.

The water quality of the City's SFPUC RWS and groundwater sources are described in the following sections.

6.6.1 SFPUC RWS Water Quality

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 2014, the WQD conducted more than 96,000 drinking water tests in the transmission and distribution systems. This monitoring effort is in addition to the extensive treatment process control monitoring performed by the SFPUC certified operators and online instruments. The SFPUC also has online instruments providing continuous water quality monitoring at numerous locations.

Additionally, the City collects water quality samples and monitors water quality within its own distribution system. Copies of the City's 2014 Annual Consumer Confidence Report and the SFPUC 2014 Water Quality Report are included as Appendix G. In May and June 2014, the City detected total coliform in excess of the MCL (detection in greater than 5% of samples). In May 2014, 57 samples were collected and analyzed for coliform bacteria. Four of those samples reflected positive results. In June 2014, 84 samples were collected and analyzed for coliform bacteria. Fourteen of those samples reflected positive results. No samples showed the presence of *Escherichia coli* (E. coli). In response to these detections of coliform bacteria, the City flushed hydrants in the vicinity of the sampling locations and cleaned and disinfected the sample stations.

The results of the City'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 the combination of SFPUC RWS water and treated groundwater will allow the City to continue to provide high-quality potable water to its customers



through the planning horizon ending in the year 2040. Water quality is expected to be similar for 2015, 2020, 2025, 2030, 2035, and 2040.

On 3 March 2015, the SFPUC released untreated water to the RWS, which the City had no choice but to serve to its customers due to lack of storage or alternate sources within the City water system. Following the incident, residents were notified of the water-quality breach, and the SWRCB requested that the City prepare and implement a corrective action plan (CAP) to mitigate impacts of future water-quality breaches. The City has prepared and is currently implementing its CAP, a portion of which includes the addition of potable water supply wells to its system, as described in Section 5.2.5.

6.6.2 Groundwater Quality

The Gloria Way Well currently produces non-potable water due to high levels of manganese. Based on recent water-quality data, water produced from the Gloria Way Well contains manganese at concentrations up to 0.19 milligrams per liter (mg/L), which is greater than the secondary MCL of 0.05 mg/L (EKI, 2015a). As part of the City's reactivation of the Gloria Way Well, the City is designing and constructing a groundwater treatment system for operation at the Gloria Way Well. Using chemical oxidation and filtration, the treatment system at the Gloria Way Well will reduce the concentration of manganese to below its MCL prior to delivery to the City's customers (EKI, 2015b).

Water samples collected from the Pad D test well did not exceed any primary or secondary MCLs, indicating that treatment of the produced groundwater may not be required in order to meet drinking water standards (EKI 2014). However, it should be noted that water quality measured in the test well samples is a snapshot of the groundwater in the vicinity of the test well at the time of sampling. Water quality may change as groundwater is pumped. Thus, either a treatment system and/or blending with a higher quality source (i.e., the City's existing supply from the SFPUC RWS) will be incorporated into the design of the Pad D Well.

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	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.



Vulnerability Areas	General Overview of Vulnerabilities
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>
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>



Vulnerability Areas	General Overview of Vulnerabilities
	<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>
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>



Vulnerability Areas	General Overview of Vulnerabilities
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

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.

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 has shown that, based on the delivery estimates of the SFPUC wholesale water and the City's future water demand estimates, by 2040, the City could be facing up to a 20% shortfall during a normal year, up to a 10% supply shortfall during a single dry year, and up to a 19% supply shortfall during the second and third years of a multiple dry year period.

It should be noted that the City's future water demand and supply projections have been prepared based on a set of conservative assumptions. As described in Section 5.7, the City is actively pursuing additional water supplies to meet its future water demand, including advocating BAWSCA and the SFPUC for an additional allocation of SFPUC RWS water. In addition, the City has been implementing, and plans to continue to implement, the demand management measures described in Section 8.

At a regional level, the City 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, the City plans to implement its Water Shortage Contingency Plan to reduce water demands. The Water Shortage Contingency Plan is included in Section 7.



7. WATER SHORTAGE CONTINGENCY PLANNING

This section presents the City's Water Shortage Contingency Plan (WSCP), which has been developed to provide the City with a strategy for addressing future water supply shortages. This WSCP supersedes the 2001 WSCP that was adopted through Ordinance No. 253. Supporting documentation for the WSCP is presented in Appendix H.

7.1 GUIDING PRINCIPLE

Given that the City has among the lowest per capita water use of the BAWSCA agencies and across the State (i.e., 64 GPCD in 2015), significant drought reductions may be difficult to achieve. As such, the City developed this WSCP based on the following guiding principle:

Eliminate water waste, prioritize the reduction of non-essential water uses, and preserve water uses that are essential to the health, safety, welfare, and economic vitality of the City's customers during periods of water shortage.

Practically, this principle guides the City to ask for a shared contribution from all of its customers towards meeting water use reduction goals during periods of water shortage. It further directs the City 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.

7.2 METHODOLOGY

To assist in development of the WSCP, the City used the Drought Response Tool (DRT),¹⁹ an Excel spreadsheet model. The DRT provides a quantitative framework that allowed the City to:

- 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 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 H, which walks the user through the model structure, and the key input parameters, assumptions, and calculations that form the basis for the DRT.

¹⁹ ©2015 Erlar & Kalinowski, Inc.



7.3 BASELINE WATER USE PROFILE

Using the DRT, the City developed a pre-drought baseline water use profile that reflected usage patterns within the City's service area by major water use sector in 2013 (selected as a representative "pre-drought" year, consistent with SWRCB methodology). The analysis of the baseline water use profile was used to guide development of the WSCP; key findings from this analysis are presented below.

Residential Per Capita Demand

The City's baseline residential gallons per capita per day (R-GPCD) demand in 2013 was approximately 55 R-GPCD. As shown in Table 7-1 and the associated chart, this R-GPCD is significantly lower than the statewide average of 109 R-GPCD and the average of the other BAWSCA agencies (i.e., 79 R-GPCD).

Proportion of Outdoor Water Use

As shown in 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 24% of the City's total consumption in 2013. The seasonal variation in baseline water use generally 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 the City during 2015 in response to the recent historic drought support the findings of the baseline water use profile (i.e., that certain discretionary uses can be targeted to help achieve the necessary 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 2016.²⁰ The Executive Order also requires CII users to implement water efficiency measures, prohibits irrigation with potable water of ornamental turf in public street medians, and prohibits irrigation

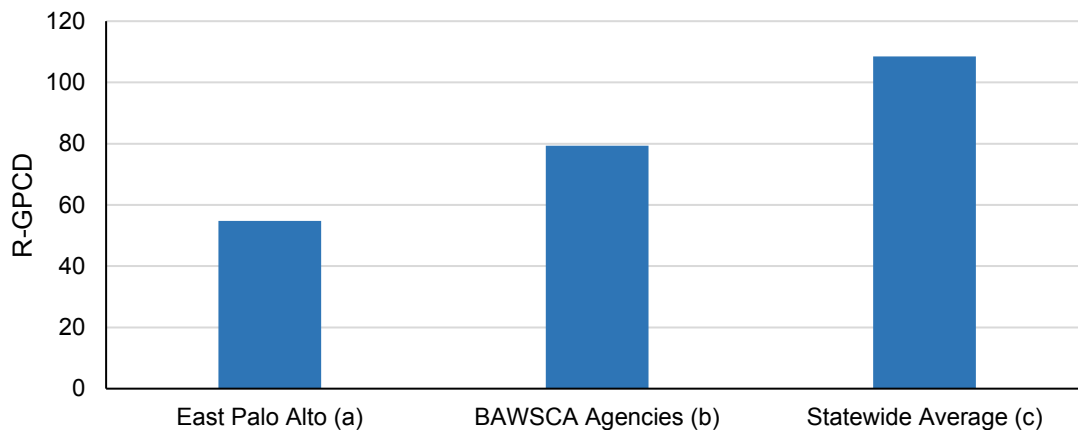
²⁰ Executive Order B-29-15 located online at https://www.gov.ca.gov/docs/11.13.15_EO_B-36-15.pdf, accessed 2 March 2016.



**Table 7-1
Baseline (2013) Residential Per Capita Water Demand
City of East Palo Alto, California**

	Baseline Residential Per Capita Water Demand (R-GPCD)
East Palo Alto (a)	55
BAWSCA Agencies (b)	79
Statewide Average (c)	109

Baseline (2013) Residential Per Capita Water Demand



Abbreviations:

BAWSCA = Bay Area Water Supply and Conservation Agency
R-GPCD = residential gallons per capita per day

Notes:

- (a) East Palo Alto R-GPCD in 2013 was calculated using metering data and population data from Table 2-1.
- (b) BAWSCA R-GPCD in 2013 was calculated from data provided in Reference 1.
- (c) State-wide R-GPCD for 2013 was calculated using state-wide residential water use and population provided in Reference 2.

References:

- (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 http://www.waterboards.ca.gov/water_issues/programs/conservation_portal/conservation_reporting.shtml accessed 3 March 2016.

**CITY OF EAST PALO ALTO
2015 URBAN WATER MANAGEMENT PLAN**



**Table 7-2
Baseline (2013) Water Use Profile
City of East Palo Alto, California**

Sector	End-Use	Baseline (2013) Average Water Use (acre-feet) (a)													Annual % of Total by Sector
		January	February	March	April	May	June	July	August	September	October	November	December	Annual	
Residential	Indoor (b)	93	84	93	90	93	90	93	93	90	93	90	93	1,099	73%
	Outdoor (b)	31	1	25	8	42	28	67	27	92	34	45	0	400	27%
	<i>Subtotal Residential</i>	<i>124</i>	<i>86</i>	<i>118</i>	<i>99</i>	<i>136</i>	<i>118</i>	<i>160</i>	<i>121</i>	<i>182</i>	<i>127</i>	<i>135</i>	<i>93</i>	<i>1,499</i>	-
CII	Indoor (b)	21	19	21	20	21	20	21	21	20	21	20	21	248	63%
	Outdoor (b)	0	2	2	3	13	13	19	19	29	28	10	9	148	37%
	<i>Subtotal CII</i>	<i>21</i>	<i>21</i>	<i>23</i>	<i>23</i>	<i>34</i>	<i>34</i>	<i>41</i>	<i>41</i>	<i>50</i>	<i>50</i>	<i>30</i>	<i>30</i>	<i>396</i>	-
Dedicated Irrigation	Outdoor	0	0	0	0	0	0	0	0	0	0	0	0	0	100%
Non-Revenue	Non-Revenue	-17	42	-12	47	9	51	-51	-9	-74	27	-38	36	11	100%
Total	Indoor	114	103	114	111	114	111	114	114	111	114	111	114	1,347	58%
	Outdoor	31	3	27	11	55	41	86	47	121	62	55	9	548	24%
	Non-Revenue	-20	50	16	58	15	90	28	118	-9	50	-21	50	425	18%
	Total	125	157	157	180	185	243	228	280	223	227	145	173	2,321	-

Table 7-2 (Continued)
Baseline (2013) Water Use Profile
City of East Palo Alto, California

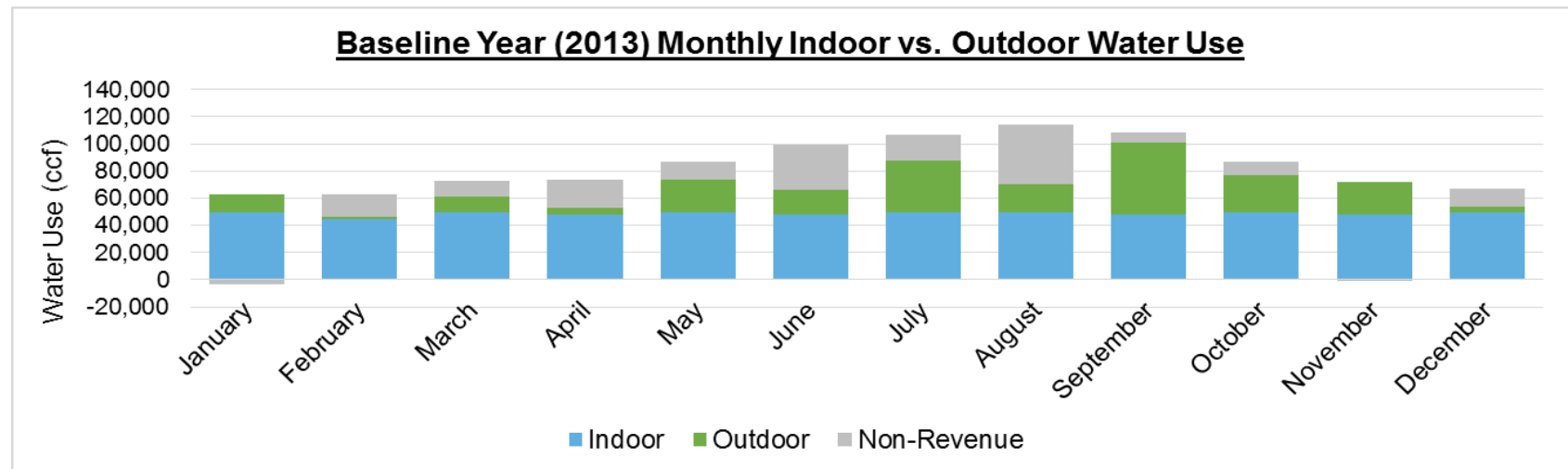
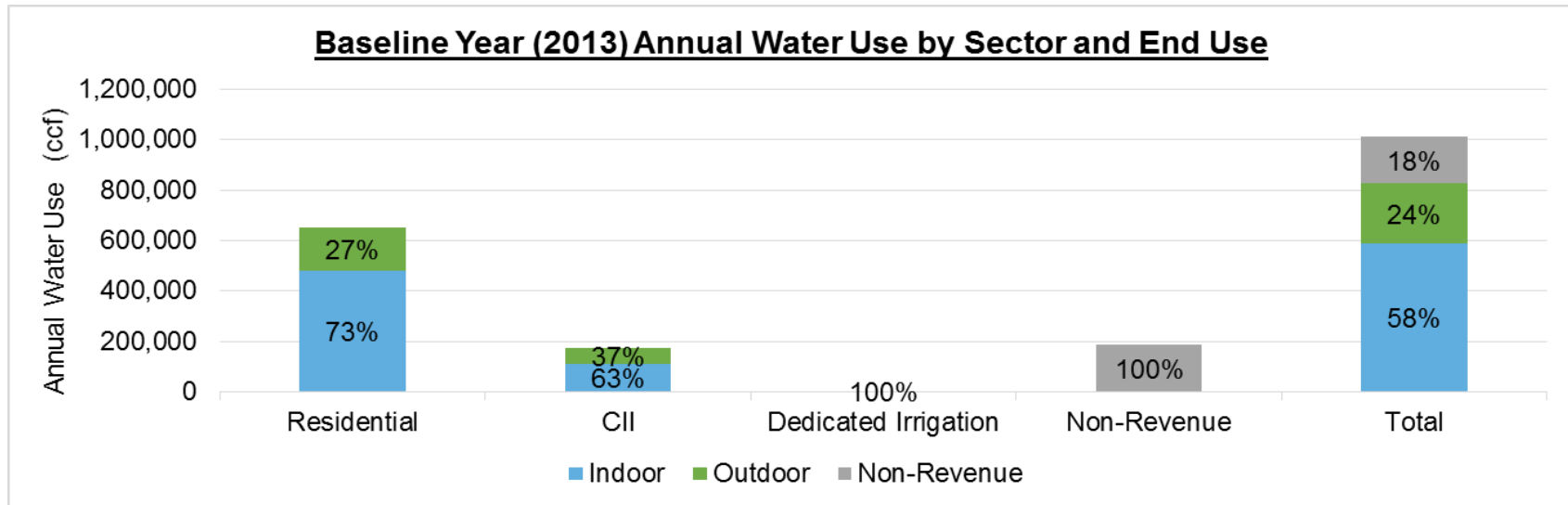


Table 7-2 (Continued)
Baseline (2013) Water Use Profile
City of East Palo Alto, California

Abbreviations:

ccf = hundred cubic feet

CII = commercial, industrial, and institutional

Notes:

(a) Baseline water use is calculated using the City's monthly metering data in 2013 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 and the estimated indoor water use.



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 CWC on 18 May 2015. On 2 February 2016, the SWRCB voted to extend the emergency regulations until October 2016 with some modifications.²¹ On 9 May 2016, the Governor issued Executive Order B-37-16, which directed the SWRCB to extend the emergency regulations through the end of January 2017 as well to as make certain water use restrictions permanent. On 18 May 2016, the SWRCB adopted Resolution 2016-0029 that adjusts the water conservation savings goals and replaces the February 2016 emergency regulation. The SWRCB is expected to take separate action to make some of the requirements of the regulations permanent in response to Executive Order B-37-16.

The mandatory conservation standards included in CWC Section 865(c) range from 8% for suppliers with an R-GPCD below 65 R-GPCD, to up to 36% for suppliers with an R-GPCD of greater than 215 GPCD. As with previous emergency drought regulations adopted by the SWRCB in 2014, the water conservation regulation was primarily intended to reduce outdoor urban water use. Based on its R-GPCD, the City was required to reduce its water use by 8% relative to its 2013 water use. The City surpassed its mandated conservation standard, and the City's monthly water use reduction is presented in Table 7-3.

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.

This WSCP establishes five stages of increasingly restrictive actions to be implemented in response 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. The City's stages of action are associated with determinations that SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use of between 5% and 50% due to water supply shortages or an emergency.

In the event of an emergency, the Public Works Director may declare any of the stages of action. The Public Works Director will then immediately report this declaration to the City Council and

²¹ 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



**Table 7-3
2015 Water Use Reductions**
City of East Palo Alto, California

	2015 Monthly Water Savings From 2013 Baseline		
	East Palo Alto	San Francisco Bay Region	Statewide
January	-6.8%	2.4%	6.6%
February	17.2%	7.9%	2.5%
March	--	6.6%	3.9%
April	20.0%	19.9%	13.7%
May	24.0%	31.9%	29.0%
June	11.4%	32.3%	27.5%
July	37.9%	32.3%	31.4%
August	5.2%	30.5%	27.0%
September	36.8%	25.3%	26.2%
October	24.6%	23.4%	22.4%
November	39.6%	26.8%	20.4%
December	2.5%	23.7%	18.3%

Monthly Water Use Reduction for 2015 Compared to 2013 Baseline



Abbreviations:

na = not available

References:

- (1) DRINC Portal (<http://drinc.ca.gov/>) Urban Water Supplier Monitoring Reports, June 2016.
- (2) 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 1 March 2016.



**Table 7-4
Stages of Water Shortage Contingency Plan (DWR Table 8-1)**
City of East Palo Alto, California

Stage	Percent Supply Reduction	Rationale	Water Supply Condition
1	N/A	Mandatory prohibitions to prevent water waste	In force at all times.
2	5%	Estimated multiple dry year shortfall in 2035 is 3% of projected demands	<p>Declaration by the Public Works Director or his designee, as affirmed by the City Council in the form of a resolution, upon the determination that one of the following conditions exist:</p> <p>(1) The SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use of up to 5% due to water supply shortages or an emergency, or</p> <p>(2) Local conditions impacting the quantity or quality of the City's water supply warrant the need for a reduction in water use of up to 5%.</p>
3	10%	<p>(1) SFPUC called for voluntary 10% rationing in 2007-2009 and 2014-2015,</p> <p>(2) The City's 2015 SWRCB mandatory water reduction target was 8%, and</p> <p>(3) Estimated single dry year shortfall in 2040 is 10% of projected demands</p>	<p>Declaration by the Public Works Director or his designee, as affirmed by the City Council in the form of a resolution, upon the determination that one of the following conditions exist:</p> <p>(1) 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, or</p> <p>(2) Local conditions impacting the quantity or quality of the City's water supply warrant the need for a reduction in water use of up to 10%.</p>



**Table 7-4 (Continued)
Stages of Water Shortage Contingency Plan (DWR Table 8-1)
City of East Palo Alto, California**

Stage	Percent Supply Reduction	Rationale	Water Supply Condition
4	20% (a)	Estimated multiple dry year shortfall in 2040 is 19% of projected demands	<p>Declaration by the Public Works Director or his designee, as affirmed by the City Council in the form of a resolution, upon the determination that one of the following conditions exist:</p> <p>(1) The SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use of up to 20% due to water supply shortages or an emergency, or</p> <p>(2) Local conditions impacting the quantity or quality of the City's water supply warrant the need for a reduction in water use of up to 20%.</p>
5	50% (a)	Required by UWMP Act	<p>Declaration by the Public Works Director or his designee, as affirmed by the City Council in the form of a resolution, upon the determination that one of the following conditions exist:</p> <p>(1) The SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use of up to 50% due to water supply shortages or an emergency, or</p> <p>(2) Local conditions impacting the quantity or quality of the City's water supply warrant the need for a reduction in water use of up to 50%.</p>

Abbreviations:

BAWSCA = Bay Area Water Supply and Conservation Agency
 SFPUC = San Francisco Public Utilities Commission
 SWRCB = State Water Resources Control Board
 UWMP = Urban Water Management Plan

Table 7-4 (Continued)
Stages of Water Shortage Contingency Plan (DWR Table 8-1)
City of East Palo Alto, California

Notes:

- (a) As described in Section 6.3.2, the City's SFPUC RWS water supply allocation during periods of water shortage is determined by implementation of the Tier 2 Plan. When the current Tier 2 Plan was developed, it was designed such that each BAWSCA agency was guaranteed to receive a sufficient amount of water to meet the basic needs of its customers. The City was specifically included in the allocation formula so that it would receive a sufficient supply of water to meet the health and safety needs for its low-water-using community. Therefore, absent a significant water supply emergency, it is unlikely that the City will be required to reduce its water use to the levels described in Stages 4 and 5. However, the Tier 2 Plan expires in 2018 and it is uncertain how exactly the Tier 2 allocations will be determined in the future. Furthermore, the experiences of this recent drought demonstrate that the level of required water conservation may be dictated by regulatory requirements, rather than actual water supply conditions.

References:

- (1) Letter from Arthur R. Jensen of BAWSCA to the BAWSCA Appointed Water Management Representatives, 'Tier 2 Drought Implementation Plan', dated 5 November 2010.



seek a resolution affirming the declaration. If a water shortage is anticipated or otherwise mandated as part of an overall drought response plan, the Public Works Director will request a resolution from the City Council declaring the appropriate stage.

As described in Section 6.3.2, the City's SFPUC RWS water supply allocation during periods of water shortage is determined by implementation of the Tier 2 Plan. When the current Tier 2 Plan was developed, it was designed such that each BAWSCA agency was guaranteed to receive a sufficient amount of water to meet the basic needs of its customers.²² The City was specifically included in the allocation formula so that it would receive a sufficient supply of water to meet the health and safety needs of its low-water-using community. Therefore, absent a significant water supply emergency, it is unlikely that the City will be required to reduce its water use to the levels described in Stages 4 and 5. However, the Tier 2 Plan expires in 2018 and it is uncertain how exactly the Tier 2 allocations will be determined in the future. Furthermore, the experiences of this recent drought demonstrate that the level of required water conservation may be dictated by regulatory requirements, rather than local water supply conditions.

Table 7-5 describes the customer restrictions and prohibitions and consumption reduction methods (i.e., the actions to be taken by the City) associated with each stage of action. Specific prohibitions and consumption reduction methods are discussed in more detail below.

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.

During each stage of the City's WSCP, certain mandatory prohibitions are enacted. These prohibitions are sector-specific and at times detail watering schedules and percentage restrictions on a sector-by-sector basis. Restrictions and prohibitions associated with 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 (to the extent that it exists), and preserves water uses that are essential to the health, safety, welfare, and economic vitality of the City'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 through 3 include each of the prohibitions on end uses mandated by the SWRCB in its 2015 emergency regulations. Other prohibitions in these stages and subsequent stages go beyond the SWRCB requirements and are increasingly restrictive with each stage.

²² Letter from Arthur R. Jensen of BAWSCA to the BAWSCA Appointed Water Management Representatives, 'Tier 2 Drought Implementation Plan', dated 5 November 2010.



Table 7-5
Stages of Action and Water Shortage Responses (DWR Tables 8-2 and 8-3)
City of East Palo Alto, California

Stage	Consumption Reduction Methods by Water Supplier	Restrictions and Prohibitions on End Uses (Customers)
<p style="text-align: center;">Stage 1</p> <p style="text-align: center;">Mandatory Prohibitions and Restrictions</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. • Broken or defective plumbing and irrigation systems must be repaired or replaced within a reasonable timeframe. • Recreational water features, including pools, spas, and jacuzzis, shall be covered when not in use. • 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 to water outdoor landscapes in a manner that causes runoff onto non-irrigated areas, walkways, roadways, parking lots, or other hard surfaces. • 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. • Using potable water to irrigate outside of newly constructed homes and buildings in a manner that is inconsistent with regulations or other requirements established by the California Building Standards Commission and the Department of Housing and Community Development is prohibited. • Removing, replacing, altering, or damaging any water meter is prohibited. • Other measures as may be approved by Resolution of the City Council.



**Table 7-5 (Continued)
Restrictions and Prohibitions on End Uses (DWR Tables 8-2)**
City of East Palo Alto, California

Stage	Consumption Reduction Methods by Water Supplier	Restrictions and Prohibitions on End Uses (Customers)
<p align="center">Stage 2</p> <p>Goal: Up to 5% Reduction</p>	<ul style="list-style-type: none"> • Increase public outreach, including publishing water conservation information on the City website and promoting conservation through social media. • Expand outreach for existing water conservation programs. 	<ul style="list-style-type: none"> • Broken or defective plumbing and irrigation systems must be repaired or replaced within a 48 hours. • Other measures as may be approved by resolution of the City Council.
<p align="center">Stage 3</p> <p>Goal: Up to 10% Reduction</p>	<ul style="list-style-type: none"> • Continue with actions and measures from Stage 2. • Increase public outreach, including information regarding fines or penalties for non-compliance and distributing water bill inserts regarding landscape irrigation restrictions. • Expand outreach for existing water conservation programs. • Increase water waste patrols. 	<ul style="list-style-type: none"> • Continue with actions and measures from Stage 2 except where superseded by more stringent requirements. • All landscape irrigation is restricted to two days per week between 10:00 pm and 8:00 am, on a schedule established by the Public Works Director and posted on the City's website. There is no restriction on agricultural or commercial water use. There is no restriction on watering using recycled water. • 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. • Other measures as may be approved by resolution of the City Council.



**Table 7-5 (Continued)
Restrictions and Prohibitions on End Uses (DWR Tables 8-2)
City of East Palo Alto, California**

Stage	Consumption Reduction Methods by Water Supplier	Restrictions and Prohibitions on End Uses (Customers)
<p align="center">Stage 4</p> <p>Goal: Up to 20% Reduction</p>	<ul style="list-style-type: none"> • Continue with actions and measures from Stage 3. • Increase public outreach. • Consider implementation of a drought rate structure and/or rate surcharge. • No new potable water service shall be provided by the City, except under the following circumstances: <ol style="list-style-type: none"> 1. A valid, unexpired building permit has been issued for the project; or 2. The project is necessary to protect the public's health, safety, and welfare; or 3. The applicant provides substantial evidence of an enforceable commitment that water demands for the project will be offset prior to the provision of a new water meter(s) to the satisfaction of the Director; or 4. To provide continuation of water service or to restore service that has been interrupted for a period of one year or less. 	<ul style="list-style-type: none"> • Continue with actions and measures from Stage 3 except where superseded by more stringent requirements. • Agricultural and commercial nursery water use is limited to three days per week between 10:00 pm and 8:00 am, on a schedule established by the Public Works Director and posted on the City's website. There is no restriction on watering using recycled water. • All other landscape irrigation, except for agricultural and commercial nursery water use, is restricted to one day per week between 10:00 pm and 8:00 am, on a schedule established by the Public Works Director and posted on the City's website. There is no restriction on watering using recycled water. • Other measures as may be approved by resolution of the City Council.



**Table 7-5 (Continued)
Restrictions and Prohibitions on End Uses (DWR Tables 8-2)
City of East Palo Alto, California**

Stage	Consumption Reduction Methods by Water Supplier	Restrictions and Prohibitions on End Uses (Customers)
<p align="center">Stage 5</p> <p>Goal: Up to 50% Reduction</p>	<ul style="list-style-type: none"> • Continue with actions and measures from Stage 4. • The Public Works Director may modify the operation of the City's water system to reduce water use, including reduction of water main flushing and reduction of distribution system pressures. • The Public Works Director may establish water budgets, such that no customer shall make, cause, use, or permit the use of water for any purpose in an amount in excess of a certain percentage of the amount of use on the customer's premises during the corresponding billing period during the prior calendar year. Waivers or reductions may be granted to individual customers as deemed appropriate by the City. No customer shall be required to reduce water consumption below the minimum amount required for health and safety, as determined by the City. 	<ul style="list-style-type: none"> • Continue with actions and measures from Stage 4 except where superseded by more stringent requirements. • The Public Works Director may prohibit water uses not required for public health and safety and fire protection. • The Public Works Director may prohibit all outdoor water uses, with the exception of agricultural and commercial nursery water use, which may be limited to two days per week between 10:00 pm and 8:00 am, on a schedule established by the Public Works Director and posted on the City's website. • The Public Works Director may prohibit all recreational water uses. • Other measures as may be approved by resolution of the City Council.



Per Municipal Code 13.21.310, the City Council may order implementation of water conservation measures in addition to those included in the WSCP. Such additional measures will be implemented by a resolution that is published in a daily newspaper of general circulation covering the City's service area. Any prohibitions on the use of water shall become effective immediately upon publication. The application of any drought rate surcharges shall commence one month after the date the curtailment becomes effective.

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, the City distinguishes between “decorative fountains, ponds, lakes or other similar aesthetic structures” 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

110632. (a) (6) Penalties or charges for excessive use, where applicable.

The City has established penalties, fines, restrictions, and criminal charges for excessive water use. The penalties or charges imposed on a customer are listed in Table 7-6.

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 the City will implement during each stage of action to reduce the City'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 H.

A main focus of the City'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.



Table 7-6
Enforcement of Water Use Restrictions and Prohibitions
City of East Palo Alto, California

Violation	Enforcement Action or Penalty
1st	Courtesy notice
2nd	\$50 fine
3rd	\$100 fine
4th	\$200 fine and installation of flow restriction device
5th	Termination of water service

References:

- (1) City of East Palo Alto Municipal Code 13.24.290.



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.

Water demands are monitored frequently during emergency water shortages to enable the City to effectively manage the balance between supply and demand. The City plans to increase the frequency of monitoring as it implements more strict stages of its WSCP:

- Normal Monitoring Procedure: In normal water supply conditions, production figures are recorded daily, and totals are reported monthly to the City's Departments of Finance and Public Works.
- Stage 2 and 3 Monitoring Procedure: When Stage 2 or 3 of the City's WSCP is enacted, weekly production figures are forwarded to the City's Departments of Finance and Public Works. These departments compare the weekly production to the target weekly production to verify that the reduction goal that is in place is being met. Monthly reports are sent to City Council. If reduction goals are not met, the Public Works Director will notify City Council so that corrective action can be taken.
- Stage 4 and 5 Monitoring Procedure: When Stage 4 or 5 of the City's WSCP is enacted, the monitoring procedure from Stages 2 and 3 will be continued, with the addition of a daily production report to the Public Works Director. Additionally, regular patrols will be sent out to directly monitor residential water usage and, if necessary, enforce conservation measures.

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.

The City's water utility expenditures can be categorized as fixed or variable expenses. Variable costs are almost entirely related to the costs of purchasing water supplies, whereas fixed costs primarily relate to the cost of operating and maintaining the distribution system. As customers reduce water usage in response to a drought or call for water conservation, the City will experience a decline in sales and therefore a decline in revenue. In the event of lost revenue, the City may draw upon its cash reserve balances or enact a rate increase. The City may consider the implementation of a drought rate structure or surcharge.

7.10 WATER SHORTAGE CONTINGENCY ORDINANCE AND RESOLUTION

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

A draft water shortage contingency resolution is included in Appendix H 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 City 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 City would follow are described in the SFPUC Emergency Operations Plan (EOP) as well as the San Mateo County Operational Area EOP (County of San Mateo, 2004). Actions described in the SFPUC EOP focus on maintaining flow within, and from, the RWS pipelines. The San Mateo Operational Area EOP addresses San Mateo County's planned response to extraordinary emergency situations associated with natural disasters, man-made technological incidents and national security emergencies. This EOP is a preparedness document that is designed to be read, understood, and exercised prior to an emergency. Each city is responsible for insuring the preparation and maintenance of appropriate and current Standard Operating Procedures, Emergency Operating Procedures, and alert lists that will support the EOP.

On behalf of the City, American Water Enterprise conducted a Risk Based Vulnerability Assessment of the City's water system in 2002. The report discusses in specific detail the threats facing the City's distribution system and makes general and site-specific recommendations on how to mitigate the risks which have been assessed. The report further frames a methodology for the City to use to review the water system facilities and make informed decisions about the risks facing its system. This assessment process identified which facilities and operations are most critical to achieving core mission goals and providing reliable, high-quality, potable water to the customers. The methodology undertaken during the assessment process has helped the City implement security measures which are most effectively applied within the constraints of limited time and resources.

In the event of a total failure of the RWS, the City would first activate or expand production at the Gloria Way Well. If operational, the City would also expand production at the Pad D Well. Next, the City would seek local groundwater capacity from the O'Connor Tract Cooperative Water Company and the Palo Alto Park Mutual Water Company.

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 7-7. 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 F) and per hypothetical application of the Tier 1 and Tier 2



**Table 7-7
Estimated Minimum Three-Year Supply (DWR Table 8-4)
City of East Palo Alto, California**

	Average Normal Year Supply (AFY)	Multiple-Dry Year Water Supply (AFY) (a) (b)		
		2016	2017	2018
Available Water Supply	2,199	2,376	2,012	2,012

Abbreviations:

- AFY = acre-feet per year
- DWR = Department of Water Resources
- SFPUC = San Francisco Public Utilities Commission
- WSIP = Water Supply Improvement Program

Notes:

- (a) Groundwater supplies are not included in the City's water supply projections over the next three years.
- (b) The available water supplies during 2017 through 2018 are less than the multiple dry year supplies scenarios discussed in Section 6, which apply to years 2020 and later. Prior to is completion of the WSIP, which currently assumed to be complete by 2020, the SFPUC is projecting lower supply allocations during multiple dry years. See Appendix F.



allocation processes described in Section 6, with the conservative assumption that the City's allocation factor will be equal to the value in the City's 2010 UWMP (1.39%). 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 WSIP, the SFPUC has projected lower drought year allocations.

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 by declaration by the Public Works Director or his designee, as affirmed by the City Council in the form of a resolution, upon the determination that one of the following conditions exist:

1. The SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use of up to 5% due to water supply shortages or an emergency, or
2. Local conditions impacting the quantity or quality of the City's water supply warrant the need for a reduction in water use of up to 5%.

The stages of action will become effective after the City Council affirms a particular stage of action via resolution and the City 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 City Council determines that the water shortfall condition no longer exists and the City has published notice of this determination.

After the termination of the water shortage conditions, the City 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, the City's customers will be provided notice of water shortage rules and regulations via a variety of media and communications methods.



Coordination between the City 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. The City will coordinate with Palo Alto Park Mutual Water Company and O'Connor Tract Co-operative Water Company to ensure that City residents are aware of which water service area they reside in and the particular water shortage restrictions that apply. In a regional water shortage scenario, the City will use the public outreach resources and materials provided by BAWSCA and/or the SFPUC, in addition to materials developed by the City.

7.13.3 Staff Resources

Staff time dedicated to water conservation and enforcement action will increase with the severity of a supply shortage. Additional duties may be assigned to current 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 the City'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 City administers several of its DMMs through participation 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 the City.

8.1 REGIONAL WATER CONSERVATION

The City 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; BAWSCA, 2009), 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 City service area is done by City staff or American Water Enterprise.

The Core Programs provided as a part of the Regional Water Conservation Program include conservation measures that benefit from regional implementation, provide overall regional benefits, 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. Over the past five years, the City has participated in two of the available Subscription Programs: High-Efficiency Toilet (HET) Rebates and High-Efficiency Residential Washing Machine Rebates.

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

8.2 AGENCY WATER CONSERVATION

The City implements all of the DMMs listed in CWC Section 10631(f)(1)(B), as described below.

8.2.1 DMM 1 – Water Waste Prevention Ordinances

Chapter 17.04 of the City's Municipal Code prohibits water waste within the City. The City has prohibited the unreasonable use of water, which is defined as the failure to take appropriate measures to minimize excess application and incidental losses of water. Examples of unreasonable use include allowing excess runoff from irrigation, failing to fix broken plumbing, and more. Specific water-wasting actions are prohibited in Chapter 17.04 of the City's Municipal Code, which is included as Appendix I. While Chapter 17.04 of the City's Municipal Code is enforced at all times, the City increases enforcement during periods of water shortage.

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 City requires meters on all connections to the water distribution system, including detector check meters on new private fire protection services. Currently, there are no known unmetered connections to the water distribution. All new commercial and industrial developments are required to have dedicated water meters for landscape irrigation.

8.2.3 DMM 3 – Conservation Pricing

The City charges a set price for all customers per unit of potable water, referred to as a uniform volume charge. The current uniform volume charge is \$3.82 per 100 cubic feet of water delivered.²³ Although the City does not utilize an increasing block rate structure, the existing rate

²³ The City's current water rates are available at the following link: <http://www.ci.east-palo-alto.ca.us/index.aspx?NID=512>.



structure facilitates water conservation because the customer's water bill increases with the volume of water used.

8.2.4 DMM 4 – Public Education and Outreach

The City implements a number of public education and outreach initiatives with support from the BAWSCA Regional Water Conservation Program, including the following initiatives:

- Water efficient landscape education classes: The City coordinates with BAWSCA in the advertising of a series of Water-Efficient Landscape Education that are free to the public and are designed to introduce homeowners and landscape professionals to the concepts of sustainable landscape design. The classes focus on creating beautiful, water-efficient gardens as an alternative to lawns. Examples of specific class topics include “Lawn Replacement 101”, “Drought Tolerant Plants”, and “From Graywater to Green Garden”, among others.
- Water-Wise Gardening in the Bay Area landscape educational tool: The City promotes the popular landscape educational tool *Water-Wise Gardening in the Bay Area*. Initially created as a CD-ROM in 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.
- Water conservation messaging on bill inserts: The City includes water conservation-related messaging on customer water bills. Over the period 2011 through 2015, the City distributed approximately 90,000 water bills containing water conservation messages.
- Water conservation brochures: In 2014, the City distributed 1,080 brochures to water customers that paid their water bills in person. These brochures contained water-saving tips in both English and Spanish.

The full extent of public outreach that the City has conducted between 2010 and 2015 is discussed in Section 8.3.

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

As discussed in Section 3.1.1, the City tracks unaccounted-for-water within its system, which is calculated as the difference between metered water consumption and total water production. Unaccounted-for-water includes unmetered water consumption, such as water used for system flushing, leak repair flushing, hydrant leaks, and street sweeping, as well as water lost in the distribution system due to leaks and other water losses. Over the period 2011 through 2013, the City's average unaccounted-for-water was 8.9% of total water demand.²⁴ The portion of this

²⁴ The City recorded negative unaccounted-for-water in 2014 and 2015 due to metering inaccuracies.



unaccounted-for-water that was attributable to distribution system water losses was estimated to be 4.7% in 2015 (see Section 3.1.3).

In an effort to minimize water system loss, American Water Enterprise conducts leak investigations on behalf of the City. The City estimates that each leak investigation saves approximately 3,000 gallons. Over the period 2011 through 2015, American Water Enterprise conducted 218 leak investigations.

8.2.6 DMM 6 – Water Conservation Program Coordination and Staffing Support

The City's water conservation program is administered by the City Engineer. Duties of the City Engineer include program management, tracking, planning, responding to public requests, and completing any required reporting. The City Engineer is supported by one staff member. Contact information for the City Engineer is listed below:

Name: Kamal Fallaha
Phone: 650-853-3117
Email: kfallaha@cityofepa.org

8.2.7 DMM 7 – Other DMMs

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

- Water-Saving Fixtures Give-away: In 2011 and 2014, the City offers its residential customers free water-saving fixtures. The City encourages its customers to pick up and install the following free water saving fixtures from City Hall:
 - Bathroom aerator - uses 1.5 gpm
 - Kitchen aerator - uses 1.5 gpm
 - Low-flow shower head - uses 1.5 gpm
 - Toilet leak detection tablets (2 tablets per packet)

The City gave out a total of 1,591 fixtures or packs of tablets in 2011 and 2014.

- HET Rebates: In 2015, the City provided HET Rebates to its residential and commercial customers. The HET Rebate Program is one of the Subscription Programs available to BAWSCA member agencies. As part of this program, the City offered customers rebates of up to \$75 for replacing a high-volume toilet (i.e., 3.5 gallons per flush or more) with a standard HET (i.e., between 1.06 gallons and 1.28 gallons per flush).

Up to three rebates are allowed per residential account and up to ten rebates are allowed per commercial customer account. In 2015, the City provided a total of 150 rebates or direct installs.

- High-Efficiency Residential Washing Machine Rebates: Over the past five years, the City has locally administered 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.²⁵ The High-Efficiency Residential Washing Machine Rebate program is one of the Subscription Programs available to BAWSCA member agencies. Between 2010 and 2015, the City provided 186 washing machine rebates to its customers.

- Residential Water Use Surveys: The City offers water use surveys to residential customers, which are completed by American Water Enterprise on behalf of the City. The City estimates that each survey saves approximately 1,000 gallons. Over the period 2011 through 2015, the City conducted a total of 475 residential water use surveys.

The full extent of the DMMs that the City has implemented between 2010 and 2015 is discussed in Section 8.3.

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 City and the extent of implementation (e.g., number of kits, number of rebates) for each of the programs each year between 2010 and 2015.

Water savings from the HET rebates and high-efficiency residential clothes washer rebates are conservatively estimated to be over one million gallons over the past five years.²⁶ Through implementation of the DMMs, the City has been able to reduce water demands in its service area and help its customers to achieve water and cost savings.

²⁵ PG&E currently contributes \$50 of the total \$150 rebate. Total rebate value has varied from year to year.

²⁶ Expected annual water savings per each HET change out would be approximately 6,572 gallons per year, using the following calculation (BAWSCA, 2013): (3.5 gpf - 1.60 gpf) x 5 flushes/toilet/day/person x 4.17 persons/house / 2.2 toilets/house x 365 days = 6, 572 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 9,011 gallons per year, using the following calculation (BAWSCA, 2013): (43 gallons/load - 27 gallons/load) x 4.17 people/house x 0.37 loads/person/day x 365 days = 9,011 gallons.



Table 8-1
Summary of DMMs and Implementation over the Past Five Years (2010-2015)
City of East Palo Alto, California

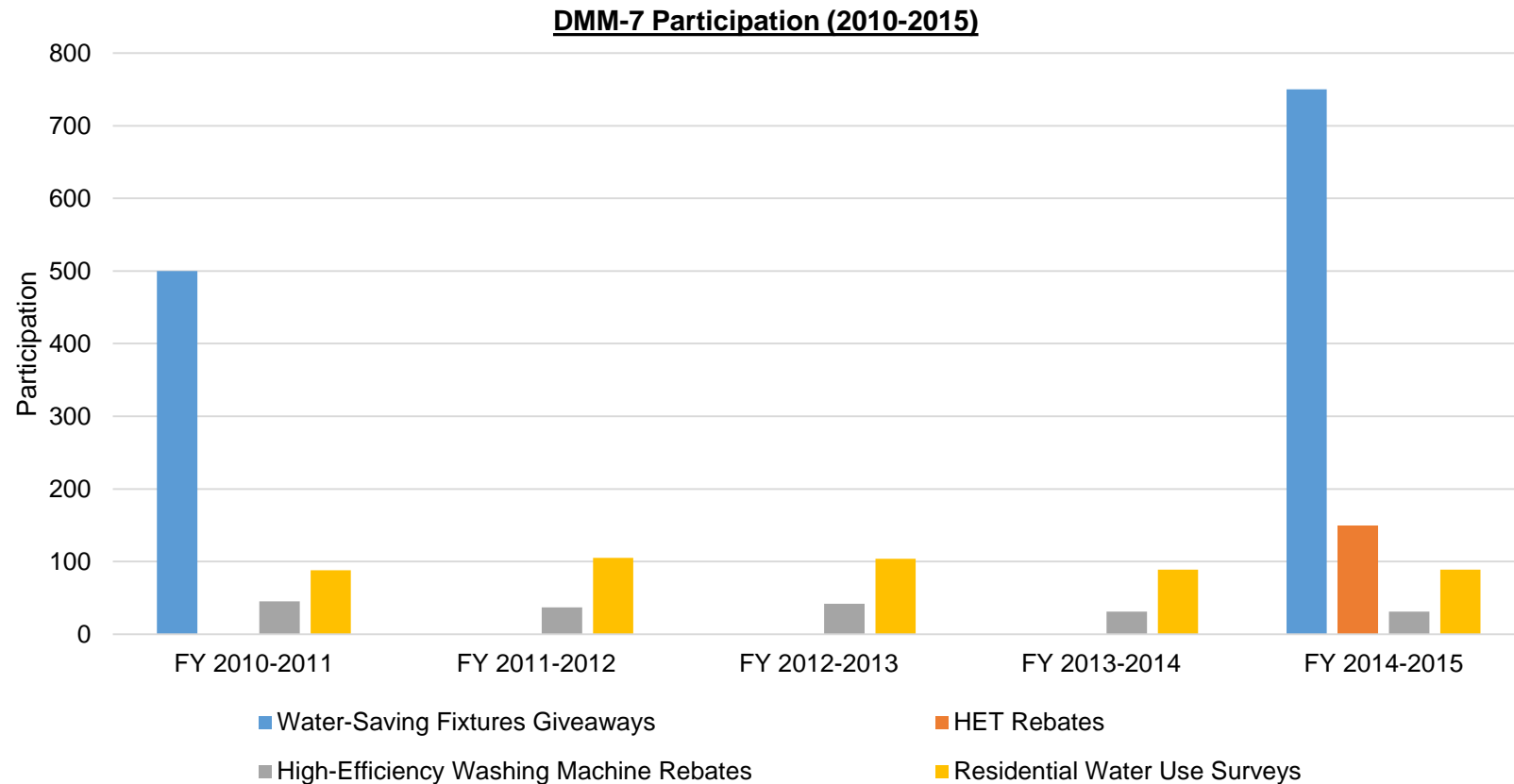
DMM Category	Program or Activity	Target Sector	Nature of Implementation	Extent of Implementation
1	Water Waste Prevention Ordinances	SFR, MFR, CII And IRR	Chapter 17.04 of the City's Municipal Code prohibits water waste within the City. The City has prohibited the unreasonable use of water, which is defined as the failure to take appropriate measures to minimize excess application and incidental losses of water.	The requirements of Chapter 17.04 of the City's Municipal Code are enforced at all times.
2	Metering	SFR, MFR, CII And IRR	The City requires meters on all connections to the water distribution system, including detector check meters on new private fire protection services. Currently, there are no known unmetered connections to the water distribution. All new commercial and industrial developments are required to have dedicated water meters for landscape irrigation.	All accounts are metered and read on a monthly basis.
3	Conservation Pricing	SFR, MFR, CII And IRR	The current water rate structure includes a uniform charge based on volume of water usage: http://www.ci.east-palo-alto.ca.us/index.aspx?NID=512 .	
4	Water Efficient Landscape Education Classes	SFR, MFR	Free classes developed by BAWSCA provide information regarding water efficient landscaping. The classes focus on creating beautiful, water-efficient gardens as an alternative to lawns, and include "Lawn Replacement 101," "Drought Tolerant Plants," and "From Graywater to Green Garden," among others. The City participates through the BAWSCA Regional Water Conservation Program.	
4	Bill Inserts and Brochures		The City includes water conservation-related messaging on customer water bills. The City also distributes brochures containing water-saving tips in both English and Spanish.	FY 2010-11: Not implemented FY 2011-12: 24,000 inserts, 0 brochures FY 2012-13: 22,000 inserts, 0 brochures FY 2013-14: 22,000 inserts, 1,080 brochures FY 2014-15: 22,000 inserts, 0 brochures
5	Leak Investigations	UAW	In an effort to minimize water system loss, American Water Enterprise conducts leak investigations on behalf of the City. The City estimates that each leak investigation saves approximately 3,000 gallons	FY 2010-11: 36 investigations FY 2011-12: 47 investigations FY 2012-13: 53 investigations FY 2013-14: 41 investigations FY 2014-15: 41 investigations
6	Conservation Program Coordination and Staff	SFR, MFR, CII And IRR	The City employs coordination staff and funds the water conservation program.	The water conservation program is coordinated and administered by the City Engineer.
7	Free Water-Saving Fixtures	SFR, MFR	Water-saving fixture kits are available to residential customers at City Hall, including a bathroom aerator, a kitchen aerator, a low-flow shower head, and toilet leak detection tablets.	FY 2010-11: 500 fixtures, 0 tablets FY 2011-12: Not implemented FY 2012-13: Not implemented FY 2013-14: Not implemented FY 2014-15: 750 fixtures, 750 tablets



Table 8-1 (Continued)
Summary of DMMs and Implementation over the Past Five Years (2010-2015)
City of East Palo Alto, California

DMM Category	Program or Activity	Target Sector	Nature of Implementation	Extent of Implementation
7	High Efficiency Toilet Rebate	SFR, MFR, CII	Up to \$75 rebate per HET (between 1.06 and 1.28 gpf). Up to three rebates are allowed per residential units and up to ten rebates are allowed per commercial customer account. The City participates through the BAWSCA Regional Water Conservation Program.	FY 2010-11: Not implemented FY 2011-12: Not implemented FY 2012-13: Not implemented FY 2013-14: Not implemented FY 2014-15: 150 rebates
7	High-Efficiency Residential Washing Machine Rebate Program	SFR, MFR	Through a partnership with PG&E, up to a \$150 rebate is offered to residential customers, for qualifying high-efficiency washing machines. The City participates through the BAWSCA Regional Water Conservation Program.	FY 2010-11: 45 rebates FY 2011-12: 37 rebates FY 2012-13: 42 rebates FY 2013-14: 31 rebates FY 2014-15: 31 rebates
7	Residential Water Use Surveys	SFR, MFR	The City offers water use surveys to residential customers, which are completed by American Water Enterprise on behalf of the City. The City estimates that each survey saves approximately 1,000 gallons.	FY 2010-11: 88 surveys FY 2011-12: 105 surveys FY 2012-13: 104 surveys FY 2013-14: 89 surveys FY 2014-15: 89 surveys

Table 8-1 (Continued)
Summary of DMMs and Implementation over the Past Five Years (2010-2015)
City of East Palo Alto, California



Abbreviations:

BAWSCA = Bay Area Water Supply and Conservation Agency
 CII = commercial, industrial, and institutional accounts
 DMM = demand management measure
 FY = fiscal year
 gpf = gallons per flush

HET = high-efficiency toilet
 IRR = irrigation accounts
 MFR = multi-family residential accounts
 SFR = single family residential accounts
 UAW = unaccounted-for-water



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, the City 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 City's ability to offer and participate in water conservation programs is limited by budgeting constraints. For example, the City did not offer free water-saving fixtures in 2012 and 2013 due to lack of funding. The City will continue to work with BAWSCA and individually to provide opportunities and incentives to its customers to conserve water.



9. PLAN ADOPTION AND SUBMITTAL

Preparation of the UWMP began in March 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.

The City notified local and regional water retailers and public agencies of the City's intent to prepare this 2015 UWMP and the associated public hearing. A total of 29 agencies and groups received notices as listed in Table 1-1, including the SFPUC, BAWSCA, each BAWSCA member agency, and San Mateo County. A sample copy of the notice is provided 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 5 April 2016, the City sent a letter to the entities listed in Table 1-1 informing them that the Public Review Draft 2015 UWMP would be available for review and welcoming their input and comments on the document. The Public Review Draft 2015 UWMP was available for public review at the City Hall and on the City's website.²⁷ The letter also informed the agencies that the UWMP public hearing would be occurring at City Hall on 21 June 2016. A sample copy of the notification letter is included in Appendix B.

²⁷ Accessible at the following link: <http://www.ci.east-palo-alto.ca.us/index.aspx?NID=612>.



9.2.2 Notice to the Public

On 10 June 2016 and 17 June 2016, the City published a notice in *The Mercury News* informing the public that the 2015 UWMP would be available for public review at City Hall and on the City's website, consistent with requirements of California Government Code 6066.²⁹ The notice also informed the public that the 2015 UWMP public hearing would be held at City Hall on 21 June 2016. 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 City 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. 4744 by the City Council during its 21 June 2016 City Council meeting. A copy of the resolution is included in Appendix J.

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 DWR, the California State Library, San Mateo County, and SFPUC within 30 days of the adoption. An

²⁹ 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.



electronic copy of the adopted 2015 UWMP will be submitted to the DWR using the DWR online submittal tool. The UWMP submittal documentation is included in Appendix K.

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 City Hall during normal business hours and on the City's website within 30 days of filing the plan with DWR.



10. REFERENCES

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- City of East Palo Alto, 2016a. *Public Draft General Plan 2035*, dated January 2016.
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SWRCB, Drought Actions and Information Webpage:
http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/, accessed 21 February 2016.

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Todd Engineers, 2012. *Gloria Way Water Well Production Alternatives Analysis and East Palo Alto Water Security Feasibility Study*, dated November 2012.

Todd Engineers, 2015. *Groundwater Management Plan for City of East Palo Alto*, dated August 2015.



**Appendix A
DWR Standardized 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
4110024	City of East Palo Alto	5,179	1,759
TOTAL		5,179	1,759
NOTES:			

Table 2-2: Plan Identification

Select Only One	Type of Plan	Name of RUWMP or Regional Alliance <i>if applicable 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)	
<i>07/01</i>	
Units of Measure Used in UWMP (select from Drop down)	
Unit	AF
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>)
	24,424	25,935	27,215	28,589	30,062	31,646
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
Other	Residential	Drinking Water	1,024
Commercial		Drinking Water	533
Industrial		Drinking Water	18
Institutional/Governmental		Drinking Water	62
Other	Construction and street cleaning	Raw Water	1
Losses		Drinking Water	120
TOTAL			1,759
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
Other	Residential	1,743	1,829	1,921	2,020	2,127
Other	Non-residential	294	341	412	555	966
Other	Raw water for construction and street cleaning	2	2	2	2	2
Losses		212	226	243	268	322
TOTAL		2,251	2,397	2,578	2,846	3,417
NOTES:						

Table 4-3 Retail: Total Water Demands

	2015	2020	2025	2030	2035	2040 (opt)
Potable and Raw Water <i>From Tables 4-1 and 4-2</i>	1,759	2,251	2,397	2,578	2,846	3,417
Recycled Water Demand* <i>From Table 6-4</i>	0	0	0	0	0	0
TOTAL WATER DEMAND	1,759	2,251	2,397	2,578	2,846	3,417

**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	82.12
<i>* Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.</i>	
NOTES:	

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>No</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>Are Lower Income Residential Demands Included In Projections? <i>Drop down list (y/n)</i></p>	<p>Yes</p>

NOTES:

Table 5-1 Baselines and Targets Summary					
<i>Retail Agency or Regional Alliance Only</i>					
Baseline Period	Start Year	End Year	Average Baseline GPCD*	2015 Interim Target *	Confirmed 2020 Target*
10-15 year	2001	2010	82	137	124
5 Year	2006	2010	82		
*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 <i>From Methodology 8</i>					2015 GPCD* <i>(Adjusted if applicable)</i>	Did Supplier Achieve Targeted Reduction for 2015? Y/N
		Extraordinary Events*	Economic Adjustment*	Weather Normalization*	TOTAL Adjustments*	Adjusted 2015 GPCD*		
64	137	0	0	0	0	64	64	Yes

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

NOTES:

Table 6-1 Retail: Groundwater Volume Pumped						
<input 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>						
Alluvial Basin	San Mateo Plain Subbasin of the Santa Clara Valley Groundwater Basin (DWR 2-9.03)	0	0	6	2	1
TOTAL		0	0	6	2	1
NOTES: Raw water for construction and street cleaning						

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>						
East Palo Alto Sanitary District	Estimated	1,298	City of Palo Alto	Regional Water Quality Control Plant	No	
West Bay Sanitary District	Estimated	4,146	Silicon Valley Clean Water	Silicon Valley Clea	No	
Total Wastewater Collected from Service Area in 2015:		5,444				
NOTES:						

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

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 (optional)	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.		
61	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

No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.

Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.

63 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>				

Add additional rows as needed

NOTES:

Table 6-8 Retail: Water Supplies — Actual

Water Supply		2015		
<p>Drop down list <i>May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool</i></p>	Additional Detail on Water Supply	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 RWS	1,889	Drinking Water	
Groundwater	Raw water for construction and street cleaning	1	Raw Water	
Total		1,890		0
NOTES:				

Table 6-9 Retail: Water Supplies — Projected

Projected Water Supply <i>Report To the Extent Practicable</i>											
Water Supply	Additional Detail on Water Supply	2020		2025		2030		2035		2040 (opt)	
<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>		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 RWS	2,199		2,199		2,199		2,199		2,199	
Groundwater	Potable water supply from Pad D and Gloria Way wells	700		700		700		700		700	
Total		2,899	0	2,899	0	2,899	0	2,899	0	2,899	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 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	2899	100%
Single-Dry Year	FY 1989-90	3076	106%
Multiple-Dry Years 1st Year	FY 1989-90	3076	106%
Multiple-Dry Years 2nd Year	FY 1990-91	2763	95%
Multiple-Dry Years 3rd Year	FY 1991-92	2763	95%
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.			
NOTES:			

Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 (Opt)
Supply totals (autofill from Table 6-9)	2,899	2,899	2,899	2,899	2,899
Demand totals (autofill from Table 4-3)	2,251	2,397	2,578	2,846	3,417
Difference	648	502	321	53	(518)
NOTES:					

Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 (Opt)
Supply totals	3,076	3,076	3,076	3,076	3,076
Demand totals	2,251	2397.44	2,578	2,846	3,417
Difference	825	679	498	230	(341)
NOTES:					

Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2020	2025	2030	2035	2040 (Opt)
First year	Supply totals	3,076	3,076	3,076	3,076	3,076
	Demand totals	2,251	2,397	2,578	2,846	3,417
	Difference	825	679	498	230	(341)
Second year	Supply totals	2,763	2,763	2,763	2,763	2,763
	Demand totals	2,251	2,397	2,578	2,846	3,417
	Difference	512	366	185	(83)	(654)
Third year	Supply totals	2,763	2,763	2,763	2,763	2,763
	Demand totals	2,251	2,397	2,578	2,846	3,417
	Difference	512	366	185	(83)	(654)
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	5%	Declaration by the Public Works Director or his designee, as affirmed by the City Council in the form of a resolution, upon the determination that one of the following conditions exist: (1) The SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use of up to 5% due to water supply shortages or an emergency, or (2) Local conditions impacting the quantity or quality of the City's water supply warrant the need for a reduction in water use of up to 5%.
3	10%	Declaration by the Public Works Director or his designee, as affirmed by the City Council in the form of a resolution, upon the determination that one of the following conditions exist: (1) 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, or (2) Local conditions impacting the quantity or quality of the City's water supply warrant the need for a reduction in water use of up to 10%.
4	20%	Declaration by the Public Works Director or his designee, as affirmed by the City Council in the form of a resolution, upon the determination that one of the following conditions exist: (1) The SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use of up to 20% due to water supply shortages or an emergency, or (2) Local conditions impacting the quantity or quality of the City's water supply warrant the need for a reduction in water use of up to 20%.

**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>
5	50%	Declaration by the Public Works Director or his designee, as affirmed by the City Council in the form of a resolution, upon the determination that one of the following conditions exist: (1) The SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use of up to 50% due to water supply shortages or an emergency, or (2) Local conditions impacting the quantity or quality of the City's water supply warrant the need for a reduction in water use of up to 50%.

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

NOTES: As described in Section 6.3.2, the City's SFPUC RWS water supply allocation during periods of water shortage is determined by implementation of the Tier 2 Plan. When the current Tier 2 Plan was developed, it was designed such that each BAWSCA agency was guaranteed to receive a sufficient amount of water to meet the basic needs of its customers. The City was specifically included in the allocation formula so that it would receive a sufficient supply of water to meet the health and safety needs for its low-water-using community. Therefore, absent a significant water supply emergency, it is unlikely that the City will be required to reduce its water use to the levels described in Stages 4 and 5. However, the Tier 2 Plan expires in 2018 and it is uncertain how exactly the Tier 2 allocations will be determined in the future. Furthermore, the experiences of this recent drought demonstrate that the level of required water conservation may be dictated by regulatory requirements, rather than actual water supply conditions.

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	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Broken or defective plumbing and irrigation systems must be repaired or replaced within a reasonable timeframe.	Yes
1	Pools and Spas - Require covers for pools and spas	Recreational water features, including pools, spas, and jacuzzis, shall be covered when not in use.	Yes
1	Water Features - Restrict water use for decorative water features, such as fountains	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
1	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
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	Landscape - Other landscape restriction or prohibition	Potable water cannot be applied to outdoor landscapes during and up to 48 hours after measurable rainfall.	Yes
1	Landscape - Prohibit certain types of landscape irrigation	Potable water shall not be used to irrigate ornamental turf on public street medians.	Yes
1	Landscape - Prohibit certain types of landscape irrigation	Using potable water to irrigate outside of newly constructed homes and buildings in a manner that is inconsistent with regulations or other requirements established by the California Building Standards Commission and the Department of Housing and Community Development is prohibited.	Yes
1	Other	Removing, replacing, altering, or damaging any water meter is prohibited.	Yes
1	Other	Other measures as may be approved by Resolution of the City Council.	Yes
2	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Broken or defective plumbing and irrigation systems must be repaired or replaced within a 48 hours.	Yes
2	Other	Other measures as may be approved by resolution of the City Council.	Yes
3	Other	Continue with actions and measures from Stage 2 except where superseded by more stringent requirements.	Yes
3	Landscape - Limit landscape irrigation to specific times	All landscape irrigation is restricted to two days per week between 10:00 pm and 8:00 am, on a schedule established by the Public Works Director and posted on the City's website. There is no restriction on agricultural or commercial water use. There is no restriction on watering using recycled water.	Yes
3	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

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>
3	CII - Restaurants may only serve water upon request	Restaurants and other food service operations shall serve water to customers only upon request.	Yes
3	Other	Other measures as may be approved by resolution of the City Council.	Yes
4	Other	Continue with actions and measures from Stage 3 except where superseded by more stringent requirements.	Yes
4	Landscape - Limit landscape irrigation to specific days	Agricultural and commercial nursery water use is limited to three days per week between 10:00 pm and 8:00 am, on a schedule established by the Public Works Director and posted on the City's website. There is no restriction on watering using recycled water.	Yes
4	Landscape - Limit landscape irrigation to specific days	All other landscape irrigation, except for agricultural and commercial nursery water use, is restricted to one day per week between 10:00 pm and 8:00 am, on a schedule established by the Public Works Director and posted on the City's website. There is no restriction on watering using recycled water.	Yes
4	Other	Other measures as may be approved by resolution of the City Council.	Yes
5	Other	Continue with actions and measures from Stage 4 except where superseded by more stringent requirements.	Yes
5	Other	The Public Works Director may prohibit water uses not required for public health and safety and fire protection.	Yes
5	Landscape - Prohibit certain types of landscape irrigation	The Public Works Director may prohibit all outdoor water uses, with the exception of agricultural and commercial nursery water use, which may be limited to two days per week between 10:00 pm and 8:00 am, on a schedule established by the Public Works Director and posted on the City's website.	Yes
5	Other	The Public Works Director may prohibit all recreational water uses.	Yes
5	Other	Other measures as may be approved by resolution of the City Council.	Yes

NOTES:

**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	Increase public outreach, including publishing water conservation information on the City website and promoting conservation through social media.
2	Expand Public Information Campaign	Expand outreach for existing water conservation programs.
3	Other	Continue with actions and measures from Stage 2.
3	Expand Public Information Campaign	Increase public outreach, including information regarding fines or penalties for non-compliance and distributing water bill inserts regarding landscape irrigation restrictions.
3	Expand Public Information Campaign	Expand outreach for existing water conservation programs.
3	Increase Water Waste Patrols	Increase water waste patrols.
4	Other	Continue with actions and measures from Stage 3.
4	Expand Public Information Campaign	Increase public outreach.
4	Implement or Modify Drought Rate Structure or Surcharge	Consider implementation of a drought rate structure and/or rate surcharge.
4	Moratorium or Net Zero Demand Increase on New Connections	No new potable water service shall be provided by the City, except under the following circumstances: 1. A valid, unexpired building permit has been issued for the project; or 2. The project is necessary to protect the public's health, safety, and welfare; or 3. The applicant provides substantial evidence of an enforceable commitment that water demands for the project will be offset prior to the provision of a new water meter(s) to the satisfaction of the Director; or 4. To provide continuation of water service or to restore service that has been interrupted for a period of one year or less.
5	Other	Continue with actions and measures from Stage 4.
5	Reduce System Water Loss	The Public Works Director may modify the operation of the City's water system to reduce water use, including reduction of water main flushing and reduction of distribution system pressures.
5	Other	The Public Works Director may establish water budgets, such that no customer shall make, cause, use, or permit the use of water for any purpose in an amount in excess of a certain percentage of the amount of use on the customer's premises during the corresponding billing period during the prior calendar year. Waivers or reductions may be granted to individual customers as deemed appropriate by the City. No customer shall be required to reduce water consumption below the minimum amount required for health and safety, as determined by the City.
NOTES:		

Table 8-4 Retail: Minimum Supply Next Three Years			
	2016	2017	2018
Available Water Supply	2,376	2,012	2,012
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 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 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 Santa Clara	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
City of Sunnyvale	<input checked="" type="checkbox"/>	<input checked="" 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"/>

NOTES: This list includes cities that the City of East Palo Alto chose to notify, not the cities that the City of East Palo Alto was required to notify.



**Appendix B
UWMP Agency Notification Letters**



CITY OF EAST PALO ALTO

Public Works Department - Engineering Division

1960 Tate Street, East Palo Alto, CA 94303

Tel. No. 650.853.3189, Fax. No. 650.853.3179

Sample 60-Day Notice to Agencies

April 03, 2016

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

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

The Urban Water Management Planning Act (California Water Code §10608–10656) requires the City of East Palo Alto (“City”) to update its Urban Water Management Plan (“UWMP”) every 5 years. The City is currently reviewing its existing UWMP, which was updated in 2011 and amended in 2013, 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 in May 2016 and a public hearing will occur at the City Council Meeting on June 21, 2016. In the meantime, if you would like more information regarding the City’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 Kamal Fallaha at:

City of East Palo Alto
1960 Tate Street
East Palo Alto, CA 94303
Phone: (650) 835-3117
kfallaha@cityofepa.org

Sincerely,

Kamal Fallaha, P.E.
Public Works Director / City Engineer



CITY OF EAST PALO ALTO

Public Works Department - Engineering Division

1960 Tate Street, East Palo Alto, CA 94303

Tel. No. 650.853.3189, Fax. No. 650.853.3179

June 3, 2016

Sample Public Hearing Notice to
Agencies

Steven Inn
Alameda County Water District
43885 South Grimmer Boulevard
Fremont, CA 94538

Subject: NOTICE OF PUBLIC HEARING TO CONSIDER ADOPTING THE URBAN WATER MANAGEMENT PLAN 2015 AND URBAN WATER USE TARGETS TO MEET SENATE BILL X7-7

The California Urban Water Management Planning Act requires the City of East Palo Alto (City) to prepare and adopt an Urban Water Management Plan (UWMP) every five years. The City must make the draft UWMP available for public review and hold a public hearing before adoption. In conjunction with the update to the UWMP, the community must be given an opportunity to give input on the City's method of determining its urban water use target, the City's implementation plan for meeting said target, and any impacts to the local economy resulting from this implementation plan.

NOTICE IS HEREBY GIVEN that the City Council of the City of East Palo Alto, California, will hold a public hearing to consider proposed revisions and updates to the 2015 UWMP and to adopt its urban water use target on 21 June 2016, at 7:30 p.m., or as near as possible thereafter at City Hall located at 2415 University Avenue, East Palo Alto, CA 94303, at which time and place interested persons may appear and be heard on the matter.

The proposed draft plan is available for public review at City Hall during business hours and at the following link: <http://www.ci.east-palo-alto.ca.us/index.aspx?NID=612>.

NOTICE IS HEREBY FURTHER GIVEN that if you challenge this matter in court, you may be limited to raising only those issues you or someone else raised at the Public Hearing described in this notice, or in written correspondence delivered to the City of East Palo Alto at, or prior to, the Public Hearing.

City of East Palo Alto
1960 Tate Street
East Palo Alto, CA 94303
Phone: (650) 835-3117
kfallaha@cityofepa.org

Sincerely,

Kamal Fallaha, P.E.
Public Works Director / City Engineer



**Appendix C
UWMP Public Notification**

The following notice was published on 10 June 2016 and 17 June 2016 in the “Local” Daily News.

NOTICE IS HEREBY GIVEN that pursuant to the provisions of Section §10608–10656 of the California Water Code, the City of East Palo Alto has prepared its Urban Water Management Plan and the City intends to adopt said Plan as a result of said preparation. The document will be available for public inspection at the City of East Palo Alto City Hall and public library both located at 2415 University Ave., East Palo Alto, California, 94303

On Tuesday, June 21, 2016, at the hour of 7:30 p.m., or as soon thereafter as the matter may be heard, in the City Council Chamber at 2415 University Avenue, East Palo Alto, the City Council will conduct a meeting on the following item:

- 1. Public Hearing:** Urban Water Management Plan 2015
Location/APN: Citywide
Project Manager: Kamal Fallaha; kfallaha@cityofepa.org; (650) 853-3189

A challenge to the above items in court may raise only those issues which were raised at the public hearing described in this notice or in written correspondence to the City of East Palo Alto at, or prior to, the public hearing. For your comments to be fully considered, you must (1) attend the meeting or (2) submit written comments to the City Council before the City Council takes action on the above item. Such written comments, if submitted before the meeting date, should be distributed to the undersigned. For further information regarding this item, contact the City of East Palo Alto Planning Division, (650) 853-3185 or visit 1960 Tate Street.

The Americans with Disabilities Act (ADA) requires reasonable accommodation and access for the physically challenged. Those requesting such accommodation should contact the Deputy City Clerk at (650) 853-3127 four days before the hearing date.



**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	N/A
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, Table 10-1, and Appendix B
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	Appendix 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	Section 2.1 and Table 2-1
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 3-2 and 3-3
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

CWC Section	UWMP requirement	Subject	Guidebook Location	UWMP Section
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 3-4
10608.20(b)	Retail suppliers shall adopt a 2020 water use target using one of four methods.	Baselines and Targets	Section 5.7 and App E	Section 4.3, Table 4-2, and Appendix F
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 F
10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply is the suppliers base GPCD is at or below 100.	Baselines and Targets	Section 5.7.2	Section 4.3 and Appendix F
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 E

CWC Section	UWMP requirement	Subject	Guidebook Location	UWMP Section
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
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 5.6

CWC Section	UWMP requirement	Subject	Guidebook Location	UWMP Section
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 5.7
10631(i)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6	Section 5.5
10631(j)	Retail suppliers will include documentation that they have provided their wholesale supplier(s) – if any - with water use projections from that source.	System Supplies	Section 2.5.1	Section 1.2.2
10631(j)	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	Section 2.5.1	N/A
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 5.4.1
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 5.4.2 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 5.4.2

CWC Section	UWMP requirement	Subject	Guidebook Location	UWMP Section
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 5.4.3
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 5.4.5
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 5.4.4 and 5.4.5
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 5.4.6
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 5.4.6
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 6-2

CWC Section	UWMP requirement	Subject	Guidebook Location	UWMP Section
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 6-3 through 6-5
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 7.9 and Table 7-4
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 7.8
10632(a)(4)	Identify mandatory prohibitions against specific water use practices during water shortages.	Water Shortage Contingency Planning	Section 8.2	Section 7.3 and Table 7-2

CWC Section	UWMP requirement	Subject	Guidebook Location	UWMP Section
10632(a)(5)	Specify consumption reduction methods in the most restrictive stages.	Water Shortage Contingency Planning	Section 8.4	Section 7.4 and Table 7-2
10632(a)(6)	Indicate penalties or charges for excessive use, where applicable.	Water Shortage Contingency Planning	Section 8.3	Section 7.3 and Table 7-3
10632(a)(7)	Provide an analysis of the impacts of each of the actions and conditions in the water shortage contingency analysis on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts.	Water Shortage Contingency Planning	Section 8.6	Section 7.6
10632(a)(8)	Provide a draft water shortage contingency resolution or ordinance.	Water Shortage Contingency Planning	Section 8.7	Section 7.7 and Appendix H
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 7.5
10631(f)(1)	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	Sections 9.2 and 9.3	Section 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 J
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 K
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 K
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 K
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

CWC Section	UWMP requirement	Subject	Guidebook Location	UWMP Section
10642	Provide supporting documentation that the plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.3.1	Appendix J
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 K
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 K
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 K
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 K



**Appendix E
SBx7-7 Compliance Tables**

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

(select one from the drop down list)

Acre Feet

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

NOTES:

SB X7-7 Table-1: Baseline Period Ranges

Baseline	Parameter	Value	Units
10- to 15-year baseline period	2008 total water deliveries	2,284	Acre Feet
	2008 total volume of delivered recycled water	-	Acre Feet
	2008 recycled water as a percent of total deliveries	0.00%	Percent
	Number of years in baseline period ^{1,2}	10	Years
	Year beginning baseline period range	2001	
	Year ending baseline period range ³	2010	
5-year baseline period	Number of years in baseline period	5	Years
	Year beginning baseline period range	2006	
	Year ending baseline period range ⁴	2010	

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

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

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

NOTES:

SB X7-7 Table 2: Method for Population Estimates

Method Used to Determine Population (may check more than one)	
<input type="checkbox"/>	1. Department of Finance (DOF) DOF Table E-8 (1990 - 2000) and (2000-2010) and DOF Table E-5 (2011 - 2015) when available
<input type="checkbox"/>	2. Persons-per-Connection Method
<input checked="" type="checkbox"/>	3. DWR Population Tool
<input type="checkbox"/>	4. Other DWR recommends pre-review
NOTES:	

SB X7-7 Table 3: Service Area Population		
Year		Population
10 to 15 Year Baseline Population		
Year 1	2001	23,399
Year 2	2002	23,338
Year 3	2003	23,685
Year 4	2004	24,012
Year 5	2005	24,319
Year 6	2006	24,115
Year 7	2007	23,808
Year 8	2008	23,499
Year 9	2009	23,384
Year 10	2010	22,916
<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	2006	24,115
Year 2	2007	23,808
Year 3	2008	23,499
Year 4	2009	23,384
Year 5	2010	22,916
2015 Compliance Year Population		
2015		24,424
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	2001	2,248			-		2,248
Year 2	2002	2,111			-		2,111
Year 3	2003	2,111			-		2,111
Year 4	2004	2,302			-		2,302
Year 5	2005	2,109			-		2,109
Year 6	2006	2,114			-		2,114
Year 7	2007	2,291			-		2,291
Year 8	2008	2,284			-		2,284
Year 9	2009	2,147			-		2,147
Year 10	2010	1,935			-		1,935
<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 baseline average gross water use							2,165
5 Year Baseline - Gross Water Use							
Year 1	2006	2,114			-		2,114
Year 2	2007	2,291			-		2,291
Year 3	2008	2,284			-		2,284
Year 4	2009	2,147			-		2,147
Year 5	2010	1,935			-		1,935
5 year baseline average gross water use							2,154
2015 Compliance Year - Gross Water Use							
2015		1,759	-		-		1,759
* 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 RWS

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	2001	2,248		2,248
Year 2	2002	2,111		2,111
Year 3	2003	2,111		2,111
Year 4	2004	2,302		2,302
Year 5	2005	2,109		2,109
Year 6	2006	2,114		2,114
Year 7	2007	2,291		2,291
Year 8	2008	2,284		2,284
Year 9	2009	2,147		2,147
Year 10	2010	1,935		1,935
Year 11	0			-
Year 12	0			-
Year 13	0			-
Year 14	0			-
Year 15	0			-

5 Year Baseline - Water into Distribution System

Year 1	2006	2,114		2,114
Year 2	2007	2,291		2,291
Year 3	2008	2,284		2,284
Year 4	2009	2,147		2,147
Year 5	2010	1,935		1,935

2015 Compliance Year - Water into Distribution System

2015	1,759		1,759
-------------	-------	--	-------

** 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	2001	23,399	2,248	86
Year 2	2002	23,338	2,111	81
Year 3	2003	23,685	2,111	80
Year 4	2004	24,012	2,302	86
Year 5	2005	24,319	2,109	77
Year 6	2006	24,115	2,114	78
Year 7	2007	23,808	2,291	86
Year 8	2008	23,499	2,284	87
Year 9	2009	23,384	2,147	82
Year 10	2010	22,916	1,935	75
<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				82
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	2006	24,115	2,114	78
Year 2	2007	23,808	2,291	86
Year 3	2008	23,499	2,284	87
Year 4	2009	23,384	2,147	82
Year 5	2010	22,916	1,935	75
5 Year Average Baseline GPCD				82
2015 Compliance Year GPCD				
2015		24,424	1,759	64
NOTES:				

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

10-15 Year Baseline GPCD	82
5 Year Baseline GPCD	82
2015 Compliance Year GPCD	64
NOTES:	

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

Target Method		Supporting Documentation
<input 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 checked="" type="checkbox"/>	Method 3	SB X7-7 Table 7-E
<input type="checkbox"/>	Method 4	Method 4 Calculator
NOTES:		

SB X7-7 Table 7-E: Target Method 3

Agency May Select More Than One as Applicable	Percentage of Service Area in This Hydrological Region	Hydrologic Region	"2020 Plan" Regional Targets	Method 3 Regional Targets (95%)
<input type="checkbox"/>		North Coast	137	130
<input type="checkbox"/>		North Lahontan	173	164
<input type="checkbox"/>		Sacramento River	176	167
<input checked="" type="checkbox"/>	100%	San Francisco Bay	131	124
<input type="checkbox"/>		San Joaquin River	174	165
<input type="checkbox"/>		Central Coast	123	117
<input type="checkbox"/>		Tulare Lake	188	179
<input type="checkbox"/>		South Lahontan	170	162
<input type="checkbox"/>		South Coast	149	142
<input type="checkbox"/>		Colorado River	211	200
<p align="center">Target <i>(If more than one region is selected, this value is calculated.)</i></p>				<p align="center">124</p>
NOTES:				

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

5 Year Baseline GPCD <i>From SB X7-7 Table 5</i>	Maximum 2020 Target ¹	Calculated 2020 Target ²	Confirmed 2020 Target
82	N/A	124	124

¹ Maximum 2020 Target is 95% of the 5 Year Baseline GPCD except for suppliers at or below 100 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
124	82	103

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				
64	103	<i>From Methodology 8 (Optional)</i>	<i>From Methodology 8 (Optional)</i>	<i>From Methodology 8 (Optional)</i>	-	64	64	YES

NOTES:

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
Tiffany Deng	East Palo Alto City Of	1086209952	4/20/2016 9:14:14 AM

Boundary Information		
Census Year	Boundary Filename	Internal Boundary ID
1990	No Boundary Selected	N/A
2000	EPA_Service_Area_Boundary.kml	1011
2010	EPA_Service_Area_Boundary.kml	1011
1990	No Boundary Selected	N/A
2000	EPA_Service_Area_Boundary.kml	1011
2010	EPA_Service_Area_Boundary.kml	1011

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: 2010

5-year baseline period

Year beginning baseline period range:

Year ending baseline period range²: 2010

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 Connection			
Year	Census Block Level	Number of Connections *	Persons per Connection
	Total Population		
1990	0		7.74
1991	-	-	7.65
1992	-	-	7.55
1993	-	-	7.46
1994	-	-	7.36
1995	-	-	7.27
1996	-	-	7.17
1997	-	-	7.08
1998	-	-	6.98
1999	-	-	6.89
2000	23,452	3453	6.79
2001	-	-	6.70
2002	-	-	6.60
2003	-	-	6.50
2004	-	-	6.41
2005	-	-	6.31
2006	-	-	6.22
2007	-	-	6.13
2008	-	-	6.03
2009	-	-	5.93
2010	22,916	3923	5.84
2015	-	-	5.37 **

Population Using Persons-Per-Connection				
Year		Number of Connections *	Persons per Connection	Total Population
10 to 15 Year Baseline Population Calculations				
Year 1	2001	3495	6.70	23,399
Year 2	2002	3536	6.60	23,338
Year 3	2003	3641	6.50	23,685
Year 4	2004	3746	6.41	24,012
Year 5	2005	3851	6.31	24,319
Year 6	2006	3877	6.22	24,115
Year 7	2007	3887	6.13	23,808
Year 8	2008	3897	6.03	23,499
Year 9	2009	3940	5.93	23,384
Year 10	2010	3923	5.84	22,916
5 Year Baseline Population Calculations				
Year 1	2006	3877	6.22	24,115
Year 2	2007	3887	6.13	23,808
Year 3	2008	3897	6.03	23,499
Year 4	2009	3940	5.93	23,384
Year 5	2010	3923	5.84	22,916
2015 Compliance Year Population Calculations				
	2015	4550	5.37 **	24,424

Hide Print Confirmation

QUESTIONS / ISSUES? CONTACT THE WUEdata HELP DESK



**Appendix F
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 (HHLSM). This base year reflects a wholesale Supply Assurance of 184 million gallons per day, as well as Regional Water System reservoir and pipeline capacities and instream flow requirements as they exist in 2015 (pre-Water System Improvement Program [WSIP] completion).

Edwin M. Lee
Mayor

Ann Moller Caen
President

Francesca Vietor
Vice President

Vince Courtney
Commissioner

Anson Moran
Commissioner

Ike Kwon
Commissioner

Harlan L. Kelly, Jr.
General Manager



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

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

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

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

Sincerely,

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 G
Consumer Confidence Report (2014)**



2014 Annual Consumer Confidence Report

East Palo Alto
PWS ID: 4110024



AMERICAN WATER MESSAGE:

As a trusted leader in the industry, American Water places a strong emphasis on sharing water quality information with our customers.

Please review this Consumer Confidence Report (CCR) which outlines information applicable to your local water system for testing completed through December 2014. You'll find that we provide water that surpasses or meets all Federal and State water Quality regulations.

Our customers are our top priority, and we are committed to providing them with the highest quality drinking water and service possible now and in the years to come. In addition to this report, you can view information about your water system at: www.ci.east-palo-alto.ca.us.

How To Contact Us

For more information about the contents of this report, contact Joe Blake (650) 325-6195, or visit us online at www.ci.east-palo-alto.ca.us.

Water quality policies are decided at public hearings held at the EPA Government Center 2415 University Ave – First Floor – City Council Chamber. For more information visit: www.ci.east-palo-alto.ca.us.

This state-mandated annual report contains important information on the quality of your drinking water. Translate it, or speak with someone who understands it.

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

此份有關你的食水報告,內有重要資料和訊息,請找他人為你翻譯及解釋清楚。

Conservation alert

Following another historically dry winter, we continue to ask all customers to voluntarily reduce water use by 10%. Also in accord with new State of California emergency water restrictions, reductions in outdoor irrigation of ornamental landscape and turf are still in place.

Water Quality: Contaminants and Regulations

As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Such substances are called contaminants. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk.

In order to ensure that tap water is safe to drink, the United States Environmental Protection Agency (USEPA) and State Water Resources Control Board's Division of Drinking Water (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. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline 800-426-4791.

Contaminants that may be present in source water include:

- **Microbial contaminants**, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- **Inorganic contaminants**, such as salts and metals that can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.



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- 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.
- **Cryptosporidium is a parasitic microbe found in most surface water. The SFPUC regularly tests for this waterborne pathogen, and found it at very low levels in source water and treated water in 2013. 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.**

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 Safe Drinking Water Hotline 800-426-4791 or at <http://www.epa.gov/safewater>.

Fluoridation and Dental Fluorosis

Mandated by State law, water fluoridation is a widely accepted practice proven to be safe and effective for preventing and controlling tooth decay. Our water is optimally fluoridated at 0.9 mg/l. Infants fed formula mixed with water containing fluoride at this level may have an increased chance of developing tiny white lines or streaks in their teeth. These marks are referred to as mild to very mild fluorosis, and are often only visible under a microscope. Even in cases where the marks are visible, they do not pose any health risk. CDC considers it safe to use optimally fluoridated water for preparing infant formula. To lessen this chance of

dental fluorosis, you may choose to use low-fluoride bottled water to prepare infant formula. Nevertheless, children may still develop dental fluorosis due to fluoride intake from other sources such as food, toothpaste and dental products. Contact your health provider or SWRCB if you have concerns about dental fluorosis. Additional information can be found at SWRCB website www.swrcb.ca.gov/ or CDC website www.cdc.gov/fluoridation.

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 our water distribution system. We are responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. It is possible that lead levels at your home may be higher than at others because of plumbing materials used in your property.

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

Drinking Water Sources and Treatment

The sources of drinking water (both tap water and bottled water) include rivers, lakes, oceans, streams, ponds, reservoirs, springs, and wells.

For our system, the major water source originates from spring snowmelt flowing down the Tuolumne River to storage in Hetch Hetchy Reservoir. Our pristine, well protected Sierra water source is approved by the United States Environmental Protection Agency (USEPA) and State Water Resources Control Board's Division of Drinking Water (SWRCB) so that no filtration is required. Water treatments including disinfections by ultraviolet light and chlorine, pH adjustment for corrosion control, fluoridation for dental health protection, and chloramination for maintaining disinfectant residual and minimizing disinfection byproduct formation are in place to meet the drinking water regulation requirements.



Hetch Hetchy water is supplemented with surface water from two local watersheds. Rainfall and runoff from the 35,000-acre Alameda Watershed spanning in Alameda and Santa Clara counties—are collected in the Calaveras Reservoir and San Antonio Reservoir for filtration and disinfection at the Sunol Valley Water Treatment Plant. Rainfall and runoff from the 23,000-acre Peninsula Watershed in San Mateo County are stored in the Crystal Springs Reservoir, San Andreas Reservoir, and Pilarcitos Reservoir, and are filtered and disinfected at the Harry Tracy Water Treatment Plant.

As in the past, the Hetch Hetchy Watershed provided the majority of our total water supply, with the remainder contributed by the two local watersheds in 2014.

Protecting Our Watersheds

Our annual Hetch Hetchy Watershed Sanitary Survey evaluates the sanitary conditions, water quality, potential contamination sources, and the results of watershed management activities with partner agencies including National Park Service and US Forest Service.

We also conduct sanitary surveys every five years to detect and track sanitary concerns for the local watersheds and the approved standby water sources in Early Intake Watershed, which includes Cherry Lake and Lake Eleanor. The latest 5-year surveys were completed in 2011 for the period of 2006-2010. These surveys identified wildlife, stock, and human activities as potential contamination sources. The reports are available for review at the San Francisco District office of the SWRCB, (510) 620-3474.

Key Water Quality Terms

Following are definitions of key terms referring to standards and goals of water quality noted on the adjacent data table.

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

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

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

Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant allowed in drinking water. There is

convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.


Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below 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.



There's a lot more to your water bill than just water.

When you turn on the tap, it's easy to see what your water bill buys. What's not as easy to see is what it takes to bring that water to your home. The miles of pipeline hidden below the ground. The facilities that draw water from the source. The plant where it's treated and tested. The scientists, engineers, and maintenance crews working around the clock to make sure that water is always there when you need it. Your water payments are helping to build a better tomorrow by supporting needed improvements that will keep water flowing for all of us—today and well into the future. All for about a penny a gallon.

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Water Quality Data for Year 2014

The table below lists all 2014 detected drinking water contaminants and the information about their typical sources. Contaminants below detection limits are not shown, in accord with SWRCB regulatory guidance. The SWRCB allows the SFPUC to monitor for some contaminants less than once per year because their concentrations do not change frequently.

Key	
< / ≤	= less than / less than or equal to
AL	= Action Level
Max	= Maximum
Min	= Minimum
N/A	= Not Available
ND	= Non-detect
NL	= Notification Level
NoP	= Number of Coliform-Positive Sample
NTU	= Nephelometric Turbidity Unit
ORL	= Other Regulatory Level
ppb	= part per billion
ppm	= part per million
µS/cm	= microSiemens / centimeter

City of East Palo Alto - Water Quality Data for Year 2014

Detected Contaminants

Substance	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 - 0.6 ⁽¹⁾	[2.8] ⁽²⁾	Soil runoff
Filtered Water from Sunol Valley Water Treatment Plant (SVWTP)	NTU	1 ⁽³⁾	N/A		[0.98]	Soil runoff
	-	Min 95% of samples ≤ 0.3 NTU ⁽³⁾	N/A	97-100%	-	
Filtered Water from Harry Tracy Water Treatment Plant (HTWTP)	NTU	1 ⁽³⁾	N/A		[0.07]	Soil runoff
	-	Min 95% of samples ≤ 0.3 NTU ⁽³⁾	N/A	100%	-	
DISINFECTION BY-PRODUCTS AND PRECURSOR (SFPUC Regional System) - for information only						
Total Organic Carbon ⁽⁴⁾	ppm	TT	N/A	1.3 - 2.8	1.9	Various natural and man-made sources
DISINFECTION BY-PRODUCTS AND PRECURSOR						
Total Trihalomethanes	ppb	80	N/A	27.2 - 56.8	[40.9] ⁽⁵⁾	By-product of drinking water disinfection
Haloacetic Acids	ppb	60	N/A	21.0 - 37.9	[31.3] ⁽⁵⁾	By-product of drinking water disinfection
MICROBIOLOGICAL						
Total Coliform	-	NoP ≤ 5.0% of monthly samples	(0)	-	[13%]*	Naturally present in the environment
<i>Giardia lamblia</i>	cyst/L	TT	(0)	<0.01 - 0.04	<0.01	Naturally present in the environment
INORGANICS						
Fluoride (source water) ⁽⁶⁾	ppm	2.0	1	ND - 0.8	0.4 ⁽⁷⁾	Erosion of natural deposits; water additive to promote strong teeth
Chloramine (as chlorine)	ppm	MRDL = 4.0	MRDLG = 4	2.1 - 3.2	[2.61] ⁽⁸⁾	Drinking water disinfectant added for treatment

Constituents with Secondary Standards

Substance	Unit	SMCL	PHG	Range	Average	Typical Sources of Contaminant
Chloride	ppm	500	N/A	<3 - 15	9	Runoff / leaching from natural deposits
Odor Threshold	TON	3	N/A	ND - 1	ND	Naturally occurring organic materials
Specific Conductance	µS/cm	1600	N/A	32 - 222	151	Substances that form ions when in water
Sulfate	ppm	500	N/A	0.9 - 32	17	Runoff / leaching from natural deposits
Total Dissolved Solids	ppm	1000	N/A	31 - 120	81	Runoff / leaching from natural deposits
Turbidity	NTU	5	N/A	0.1 - 0.2	0.1	Soil runoff

Lead and Copper

Substance	Unit	AL	PHG	Range	90th Percentile	Typical Sources in Drinking Water
Copper	ppm	1.3	0.3	<0.001 - 0.078 ⁽⁹⁾	0.03	Internal corrosion of household water plumbing systems
Lead	ppb	15	0.2	<1 - 10 ⁽¹⁰⁾	1.7	Internal corrosion of household water plumbing systems



Other Water Quality Parameters

Substance	Unit	ORL	Range	Average
Alkalinity (as CaCO ₃)	ppm	N/A	8 - 94	37
Bromide ⁽¹¹⁾	ppb	N/A	ND - 27	5
Calcium (as Ca)	ppm	N/A	3 - 20	11
Chlorate ⁽¹²⁾	ppb	(800) NL	34 - 740	314
Hardness (as CaCO ₃)	ppm	N/A	7 - 77	46
Magnesium	ppm	N/A	<0.2 - 6.4	3.9
pH	-	N/A	6.9 - 10.2	9.3
Potassium	Ppm	N/A	0.2 - 5	4
Silica	ppm	N/A	2 - 5	4
Sodium	ppm	N/A	2.4 - 16	10

¹ Turbidity is measured every four hours. These are monthly average turbidity values.

² The highest turbidity of the unfiltered water in 2013 was 3.6 NTU.

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

⁴ Total organic carbon is a precursor for disinfection by-product formation. The TT requirement applies to the filtered water from the SVWTP only

⁵ This is the highest locational running annual average value.

⁶ The SFPUC adds fluoride to an optimum level of 0.9 ppm to help prevent dental caries in consumers. The SWRCB specifies the fluoride levels in the treated water to be maintained within a range of 0.8 ppm - 1.5 ppm. In 2013, the range and average of the fluoride levels were 0.7 ppm - 1.4 ppm and 0.9 ppm, respectively.

⁷ The natural fluoride levels in the Hetch Hetchy was ND. Elevated fluoride levels in the SVWTP and HTWTP raw water are attributed to the transfer of fluoridated Hetch Hetchy water into the reservoirs.

⁸ This is the highest running annual average value.

⁹ The most recent Lead and Copper Rule monitoring was in 2012. Zero of 33 site samples collected at consumer taps had copper concentrations above the Action Level.

¹⁰ The most recent Lead and Copper Rule monitoring was in 2012. Zero of 33 site samples collected at consumer taps had lead concentrations above the Action Level.

¹¹ Bromide was monitored at HTWTP treated water in 2014.

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

Note: Additional water quality data may be obtained by calling the City of East Palo Alto water system (650) 325-6195.

*Summary Information for Contaminants Exceeding an MCL, MRDL, AL, or Violation of Any TT, or Monitoring and Reporting Requirements

VIOLATION OF A MCL, MRDL, AL, TT, OR MONITORING AND REPORTING REQUIREMENT				
Violation	Explanation	Duration	Actions Taken to Correct the Violation	Health Effects Language
>5% of sample above MCL for Total Coliform	In May, 57 samples were collected and analyzed for coliform bacteria. Four of those samples reflected positive results. In June, 84 samples were collected and analyzed for coliform bacteria. Fourteen of those samples reflected positive results. None, however, showed the presence of E. coli, a disease causing bacteria.	May - June	Flushed hydrants around those sampling locations and cleaned and disinfected the sample stations.	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.



Unregulated Contaminant Monitoring Rule (UCMR3)

In May 2012, USEPA published the third Unregulated Contaminant Monitoring Rule (UCMR₃) that lists a total of 28 chemical contaminants and two viruses for monitoring by some public water systems between 2013 and 2015. USEPA uses the UCMR to collect data for contaminants suspected to be present in drinking water to help determine if drinking water standards need to be developed in the future. East Palo Alto was required to monitor the 28 chemical contaminants, and completed four quarters of UCMR₃ monitoring in 2013. Only 4 of the 28 contaminants were detected at very low levels as reported in the following table. In the absence of identifiable industrial sources other than chlorate, these contaminants are naturally occurring in our watersheds. Chlorate is a degradation product of the disinfectant used by SFPUC for water disinfection, and is a common contaminant found in water treatment facilities throughout the nation.

UCMR3 Sampling Results

Detected Contaminants	Unit	MCL ¹	PHG or (MCLG)	Range	Average	Typical Sources in Drinking Water
Chlorate	ppb	800 (NL)	NA	44 - 130	88	Degradation of disinfectant
Chromium-6	ppb	10	0.02	<0.03 - 0.03	<0.03	Erosion of natural deposits; industrial discharges
Strontium	ppb	NA	NA	14.3 - 50.5	30.3	Erosion of natural and pipe deposits
Vanadium	ppb	50 (NL)	NA	<0.2 - 0.3	0.23	Erosion of natural and pipe deposits



Appendix H
Water Shortage Contingency Plan Documentation



**Appendix H.1
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:

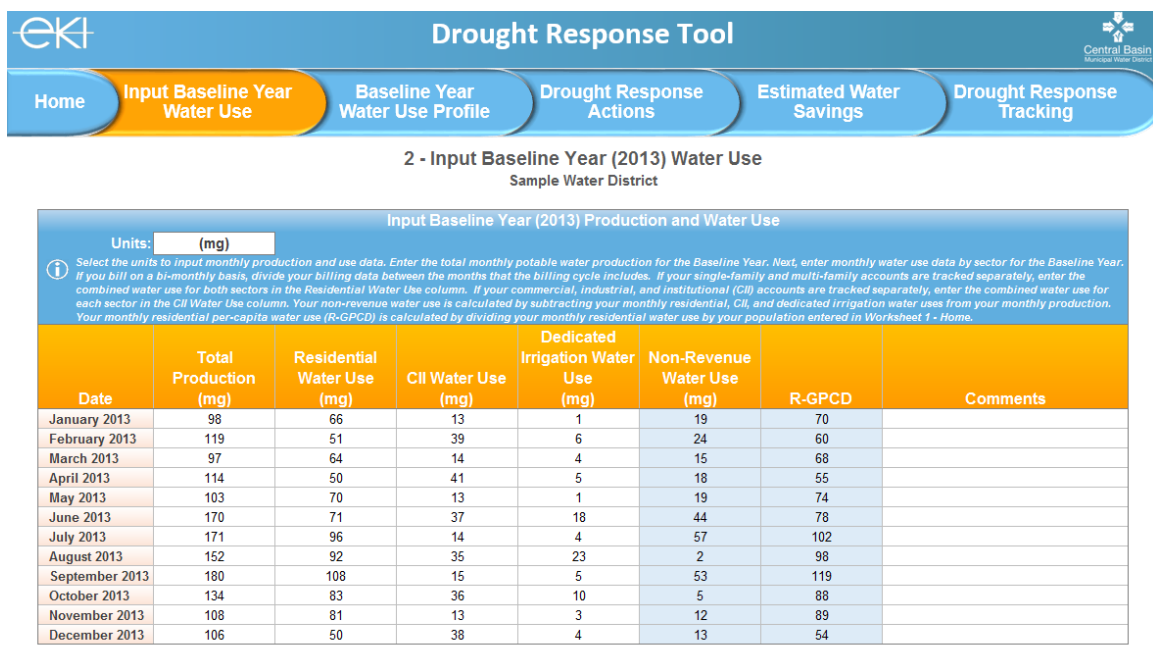


Figure 2: *Worksheet 2 – Water Use Data* of the DRT © 2015 Erler & Kalinowski, Inc.

- **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.

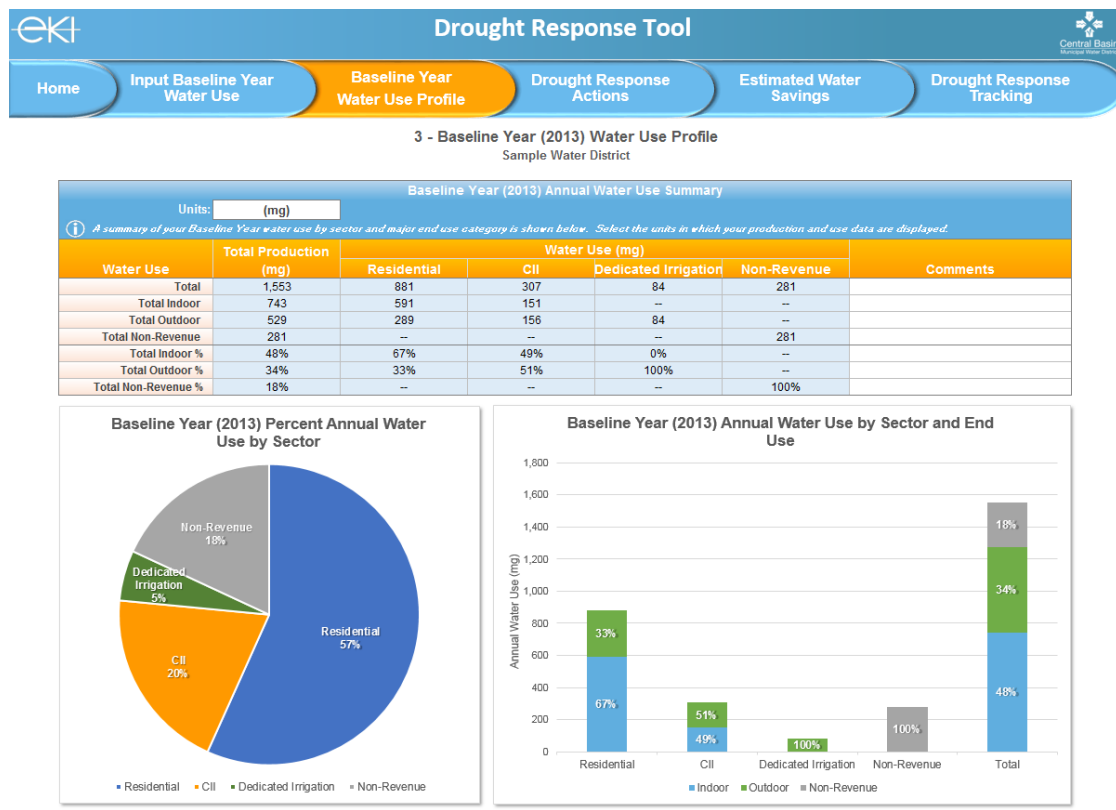


Figure 3: Worksheet 3 – Water Use Profile of the DRT © 2015 Erler & Kalinowski, Inc.

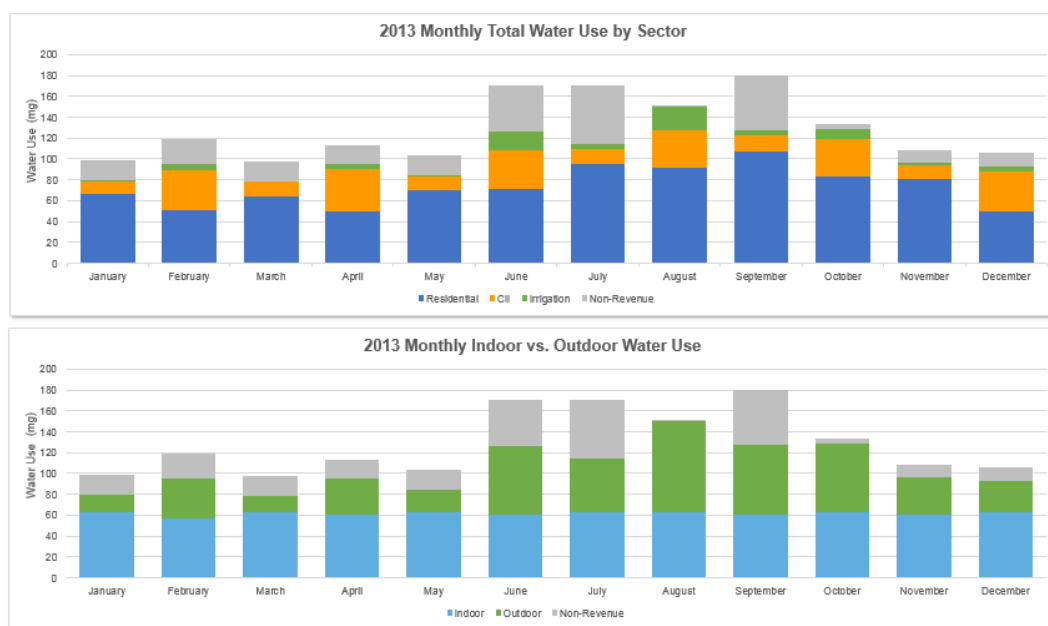


Figure 4: Worksheet 3 – Water Use Profile of the DRT © 2015 Eler & Kalinowski, Inc.

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.

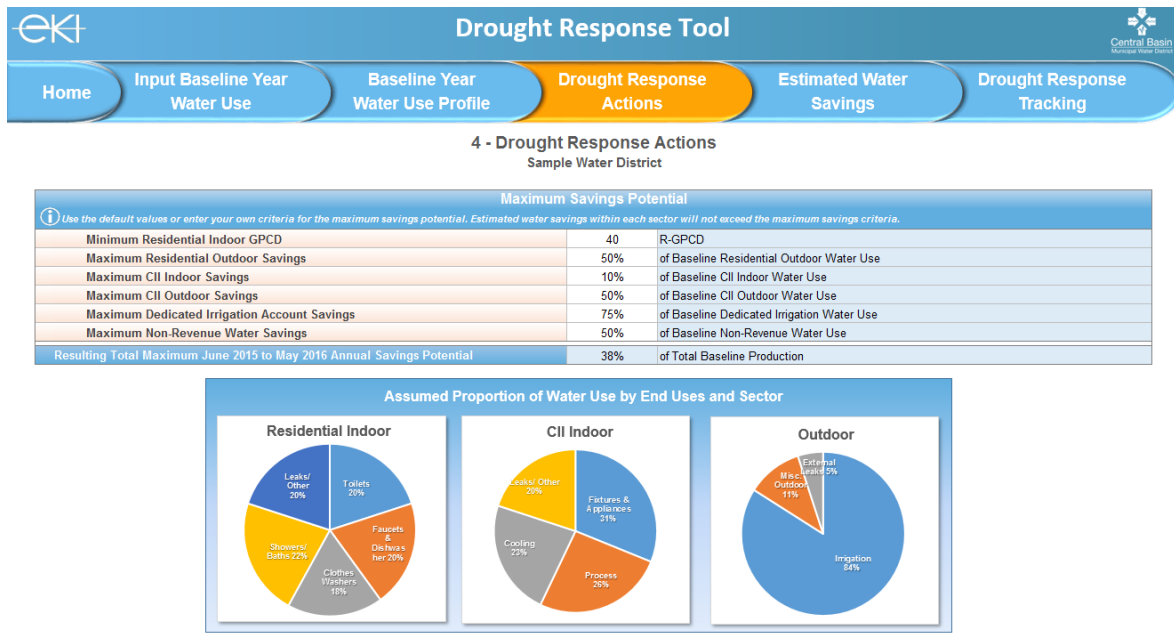


Figure 5: “Maximum Savings Potential” and “End Use Savings Potential” from *Worksheet 4 – Drought Response Actions* of the DRT © 2015 Erler & Kalinowski, Inc.

- 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

Units: **Estimated Monthly Water Use and Savings Summary**

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 (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%	

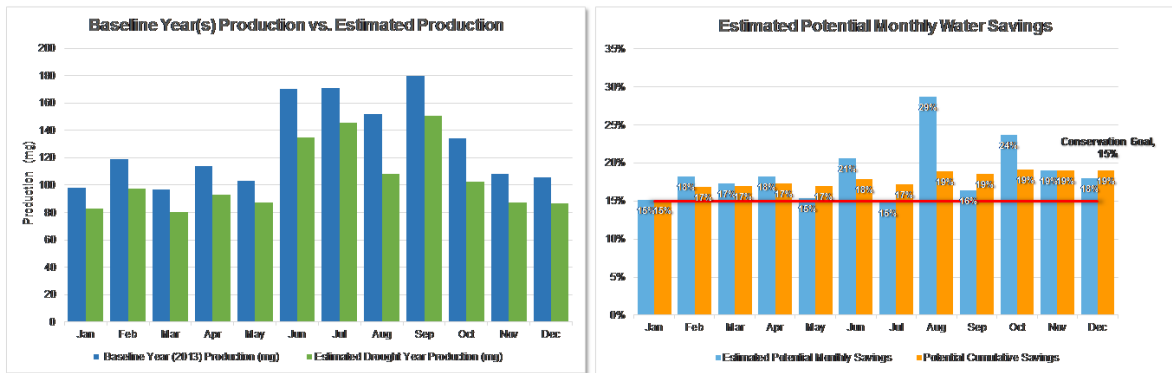


Figure 7: Worksheet 5 – Estimated Water Savings of DRT © 2015 Erler & Kalinowski, Inc.

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%	

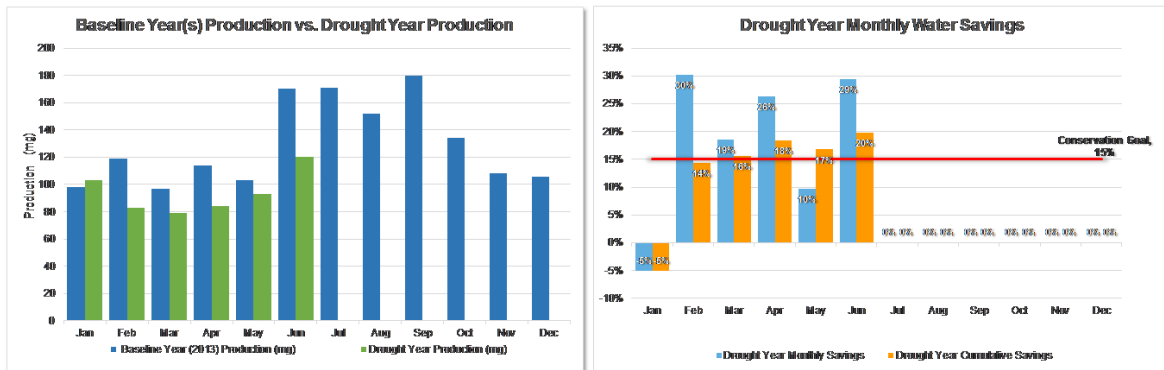


Figure 8: Worksheet 6 – Drought Response Tracking of DRT © 2015 Erler & Kalinowski, Inc.

For additional information and guidance, please contact Anona Dutton at adutton@ekiconsult.com or (650) 292-9100.

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**Appendix H.2
Drought Response Tool Quantitative Assessment**

1 - Home
City of East Palo Alto

Enter Agency Information	
Agency Name	City of East Palo Alto
Total Population Served	24,424
Conservation Goal (%)	5%
Number of Residential Accounts	4,550
Number of Commercial, Industrial, and Institutional (CII) Accounts	435
Number of Dedicated Irrigation Accounts	0
Baseline Year(s)	2013
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 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 water production and compare estimated savings to conservation target.
6 - DROUGHT RESPONSE TRACKING	Track production and water savings against the conservation target.



1 - Home

City of East Palo Alto

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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EKI
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 (2013) Water Use
City of East Palo Alto

Input Baseline Year (2013) Production and Water Use							
Units: <input style="width: 50px;" type="text" value="(ccf)"/>							
<i>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.</i>							
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	59,871	54,018	9,186	0	-3,333	53	
February	62,917	37,244	9,186	0	16,488	41	
March	72,887	51,327	10,072	0	11,488	51	
April	73,553	42,960	10,072	0	20,521	44	
May	87,037	59,150	14,704	0	13,183	58	
June	99,186	51,593	14,704	0	32,889	53	
July	106,841	69,750	17,663	0	19,428	69	
August	114,357	52,627	17,663	0	44,067	52	
September	108,800	79,333	21,588	0	7,880	81	
October	87,078	55,393	21,588	0	10,098	55	
November	71,564	58,982	13,084	0	-502	60	
December	66,848	40,651	13,084	0	13,114	40	

EKI
Drought Response Tool

Home

Input Baseline Year Water Use

Baseline Year Water Use Profile

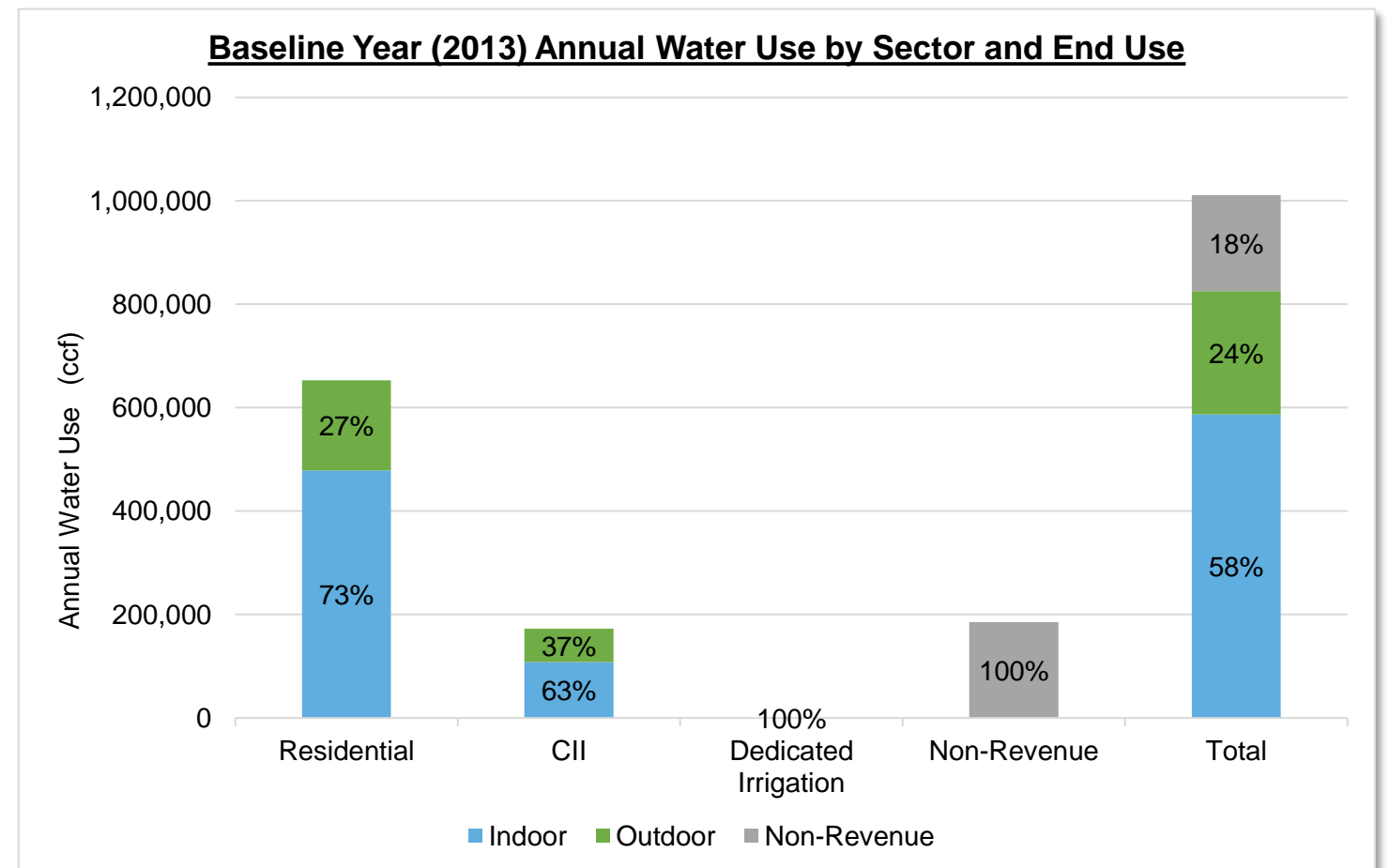
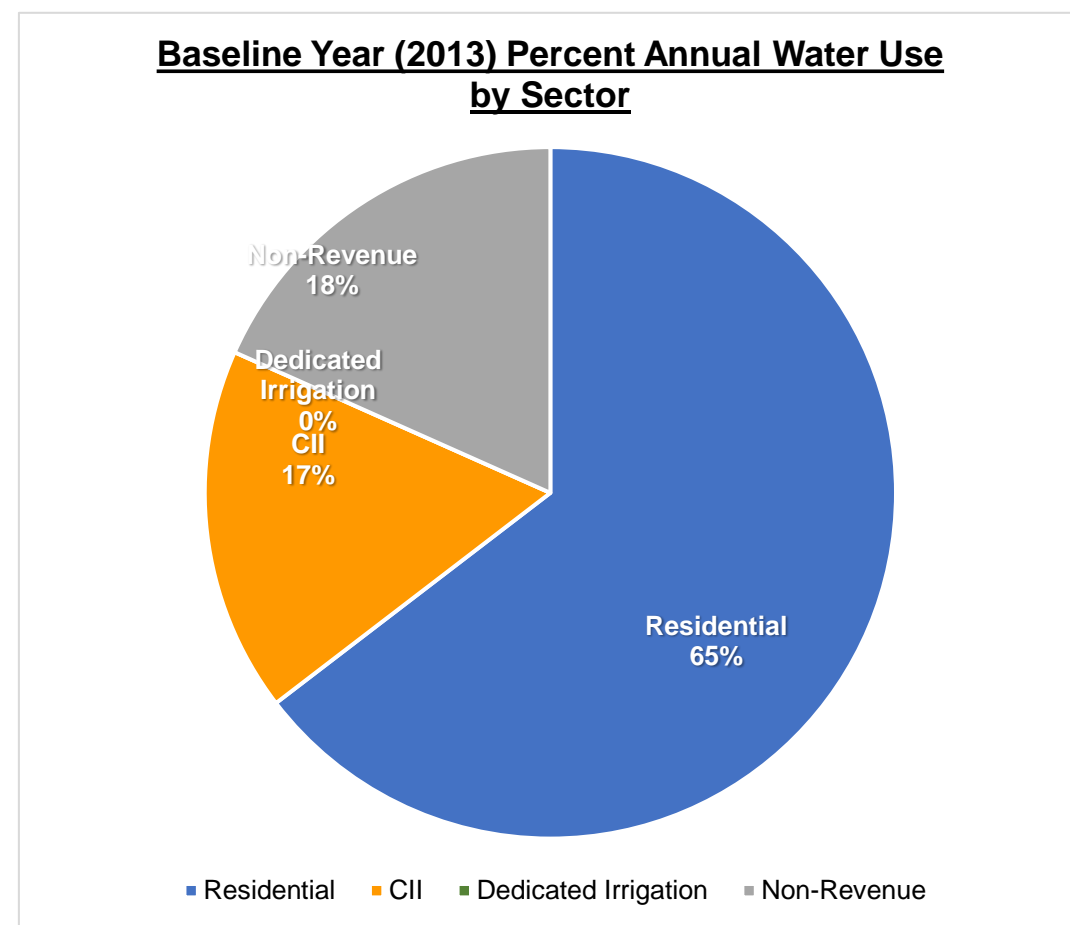
Drought Response Actions

Estimated Water Savings

Drought Response Tracking

3 - Baseline Year (2013) Water Use Profile
City of East Palo Alto

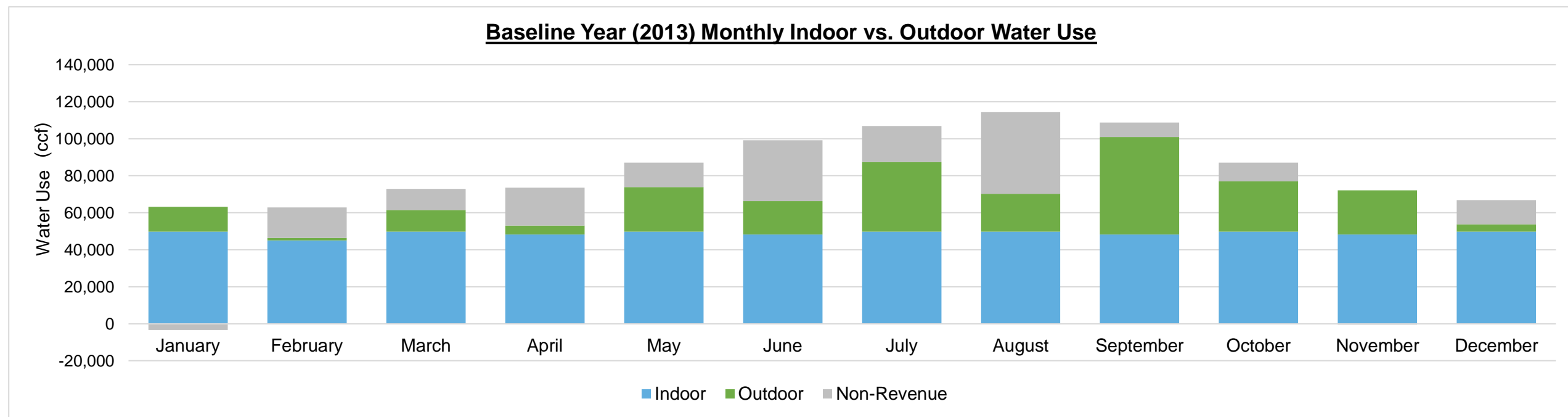
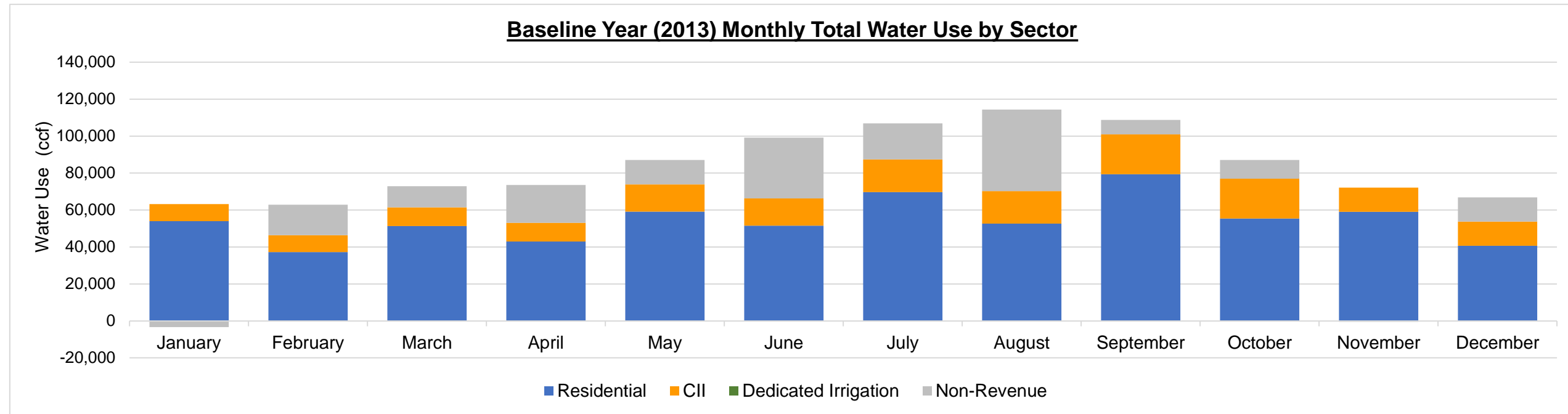
Baseline Year (2013) Annual Water Use Summary						
Units: <input type="text" value="(ccf)"/>						
A summary of your Baseline Year water use by sector and major end use category is shown below. Select the units in which your production and use data are displayed.						
Water Use	Total Production (ccf)	Water Use (ccf)				Comments
		Residential	CII	Dedicated Irrigation	Non-Revenue	
Total	1,010,939	653,028	172,591	0	185,320	
Total Indoor	586,785	478,633	108,152	--	--	
Total Outdoor	238,834	174,395	64,439	0	--	
Total Non-Revenue	185,320	--	--	--	185,320	
Total Indoor %	58%	73%	63%	0%	--	
Total Outdoor %	24%	27%	37%	100%	--	
Total Non-Revenue %	18%	--	--	--	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 (2013) Water Use Profile
City of East Palo Alto



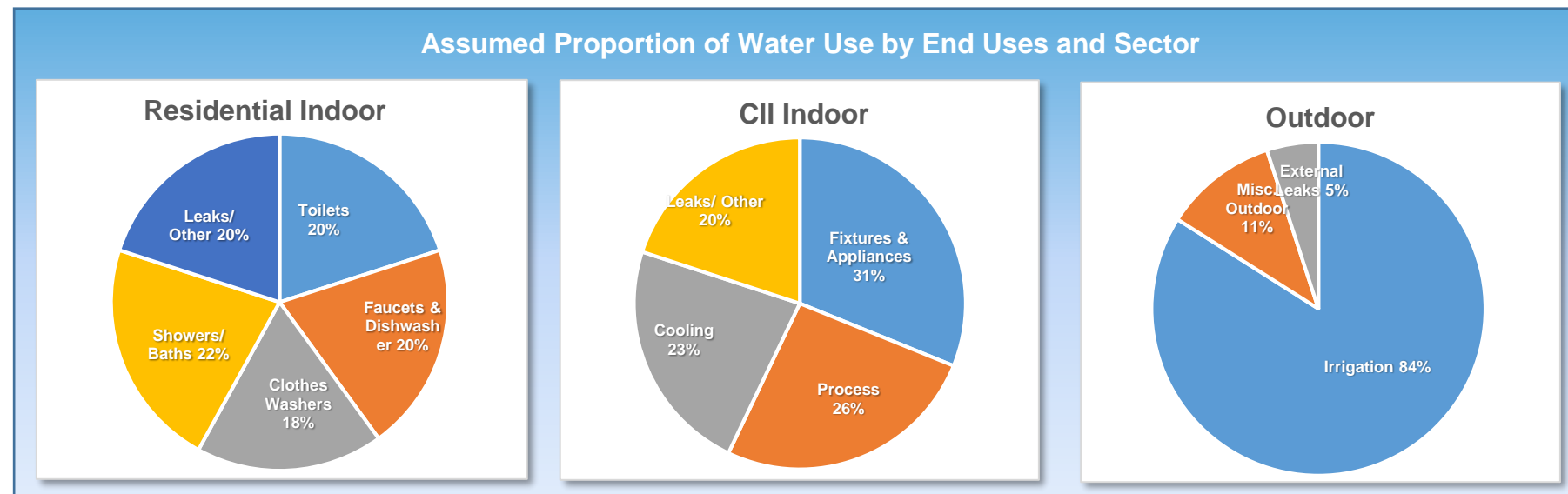


Drought Response Tool

Home
Input Baseline Year Water Use
Baseline Year Water Use Profile
Drought Response Actions
Estimated Water Savings
Drought Response Tracking

4 - Drought Response Actions City of East Palo Alto

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 Annual Savings Potential	28%	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

4 - Drought Response Actions City of East Palo Alto

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						
Prohibit Irrigation with Potable Water Outside of Newly Constructed Homes and Buildings that is not Delivered by Drip or Microspray Systems	All Outdoor Irrigation	<input type="checkbox"/> <input checked="" type="checkbox"/>	14%	75%	-- --	-- --
Require Shut-Off Nozzles on Hoses for Vehicle Washing	Misc. Outdoor	<input checked="" type="checkbox"/>	17%	50%	Assumes cumulative reduction in miscellaneous outdoor water use of 50%.	--
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 checked="" type="checkbox"/>			--	--
Prohibit Irrigation of Ornamental Turf with Potable Water on Street Medians	Irrigation	<input checked="" 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 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 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

City of East Palo Alto

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"/>	15%	50%	Significant portion of the savings from 2013 to 2015 (24%) was driven by public outreach	--
Promote Water Conservation / Rebate Programs	All	<input type="checkbox"/>		50%		--
Water Efficiency Workshops, Public Events	All	<input type="checkbox"/>	0.5%	25%		--
Water Bill Inserts	All	<input checked="" type="checkbox"/>	5%	100%		--
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%	25% of non-revenue water	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 2 Days/Week Between 10PM and 8AM	Irrigation	<input type="checkbox"/>	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week Between 10PM and 8AM	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 48 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

4 - Drought Response Actions City of East Palo Alto

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 type="checkbox"/>	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week Between 10PM and 8AM	Irrigation	<input type="checkbox"/>	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week Between 10PM and 8AM	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 48 hours	Leaks	<input checked="" 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 type="checkbox"/>	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week Between 10PM and 8AM	Irrigation	<input type="checkbox"/>	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week Between 10PM and 8AM	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 for New Construction	Cooling	<input checked="" type="checkbox"/>	80%	1%	Vickers, 2001	--
Require Repair of all Leaks within 48 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
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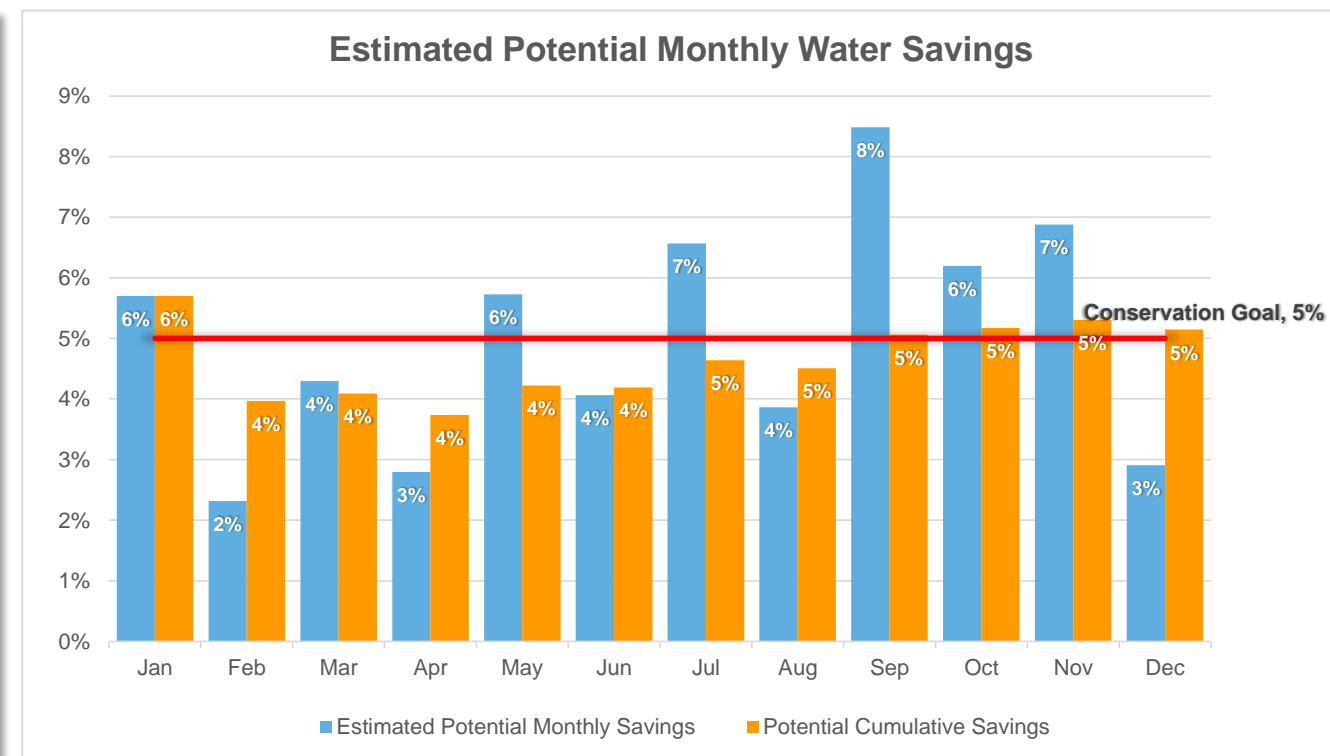
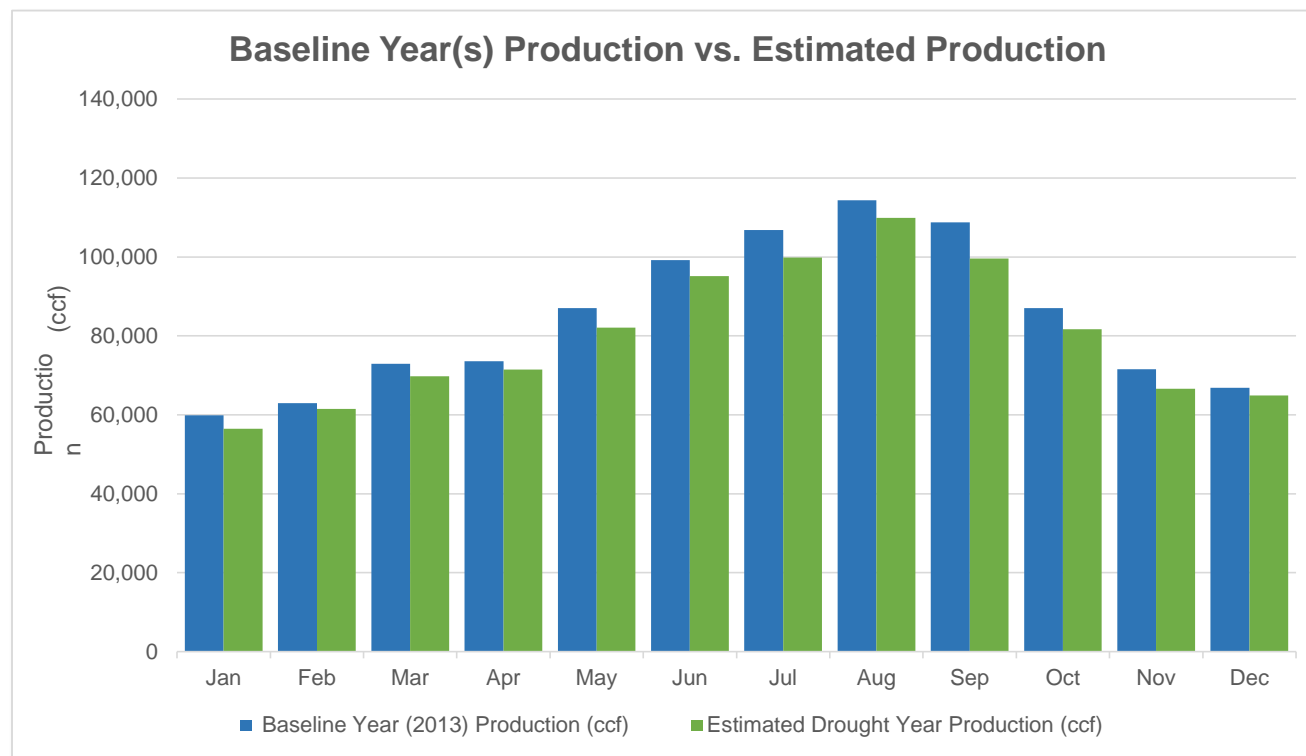
4 - Drought Response Actions

City of East Palo Alto

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
City of East Palo Alto

Estimated Monthly Water Use and Savings Summary						
Units: <input type="text" value="(ccf)"/>						
<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.</i>						
Month	Baseline Year (2013) Production (ccf)	Estimated Drought Year Production (ccf)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
January	59,871	56,457	6%	6%	5%	
February	62,917	61,460	2%	4%	5%	
March	72,887	69,755	4%	4%	5%	
April	73,553	71,495	3%	4%	5%	
May	87,037	82,053	6%	4%	5%	
June	99,186	95,153	4%	4%	5%	
July	106,841	99,824	7%	5%	5%	
August	114,357	109,941	4%	5%	5%	
September	108,800	99,568	8%	5%	5%	
October	87,078	81,680	6%	5%	5%	
November	71,564	66,641	7%	5%	5%	
December	66,848	64,906	3%	5%	5%	



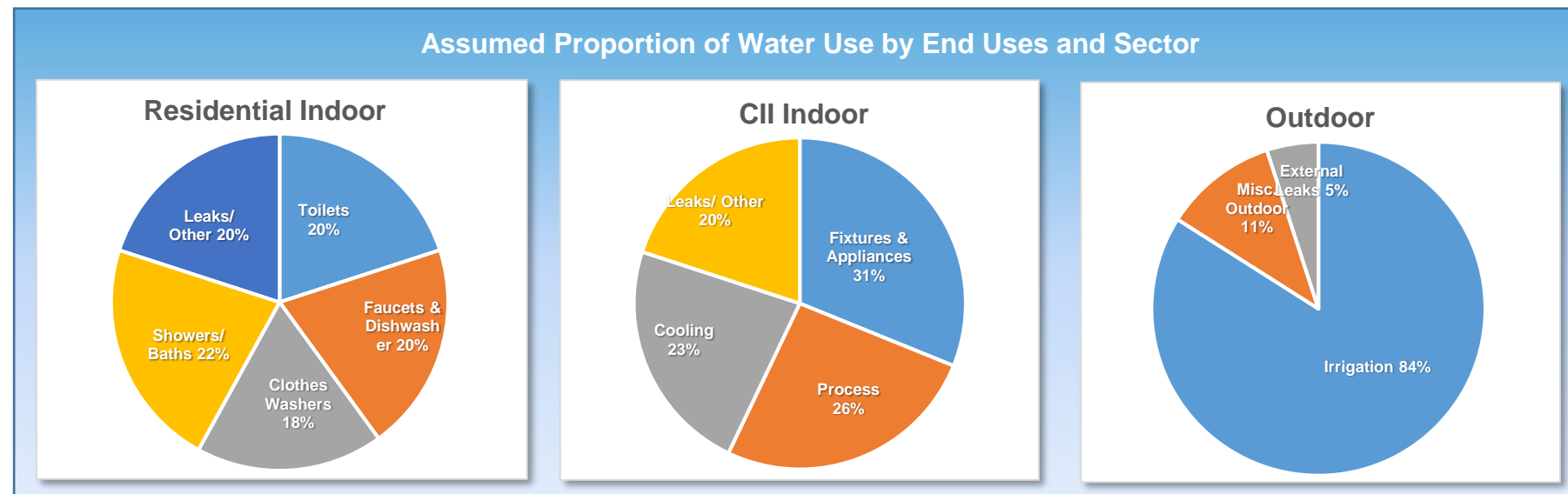


Drought Response Tool

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4 - Drought Response Actions City of East Palo Alto

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 Annual Savings Potential	28%	of Total Baseline Production





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4 - Drought Response Actions

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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						
Prohibit Irrigation with Potable Water Outside of Newly Constructed Homes and Buildings that is not Delivered by Drip or Microspray Systems	All Outdoor Irrigation	<input type="checkbox"/> <input checked="" type="checkbox"/>	14%	75%	--	--
Require Shut-Off Nozzles on Hoses for Vehicle Washing	Misc. Outdoor	<input checked="" type="checkbox"/>	17%	50%	Assumes cumulative reduction in miscellaneous outdoor water use of 50%.	--
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 checked="" type="checkbox"/>			--	--
Prohibit Irrigation of Ornamental Turf with Potable Water on Street Medians	Irrigation	<input checked="" 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	--



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4 - Drought Response Actions

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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"/>	15%	75%	Significant portion of the savings from 2013 to 2015 (24%) was driven by public outreach	--
Promote Water Conservation / Rebate Programs	All	<input checked="" type="checkbox"/>		50%		--
Water Efficiency Workshops, Public Events	All	<input type="checkbox"/>	0.5%	25%		--
Water Bill Inserts	All	<input checked="" type="checkbox"/>	5%	100%		--
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%	25% of non-revenue water	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 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 Between 10PM and 8AM	Irrigation	<input checked="" type="checkbox"/>	38%	75%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week Between 10PM and 8AM	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 48 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%	--	--



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4 - Drought Response Actions

City of East Palo Alto

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 type="checkbox"/>	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week Between 10PM and 8AM	Irrigation	<input checked="" type="checkbox"/>	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week Between 10PM and 8AM	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 48 Hours	Leaks	<input checked="" 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 type="checkbox"/>	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week Between 10PM and 8AM	Irrigation	<input checked="" type="checkbox"/>	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week Between 10PM and 8AM	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 for New Construction	Cooling	<input checked="" type="checkbox"/>	80%	1%	Vickers, 2001	--
Require Repair of all Leaks within 48 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

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Input Baseline Year
Water Use

Baseline Year
Water Use Profile

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4 - Drought Response Actions

City of East Palo Alto

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"/>			--	--



Drought Response Tool

Home

Input Baseline Year Water Use

Baseline Year Water Use Profile

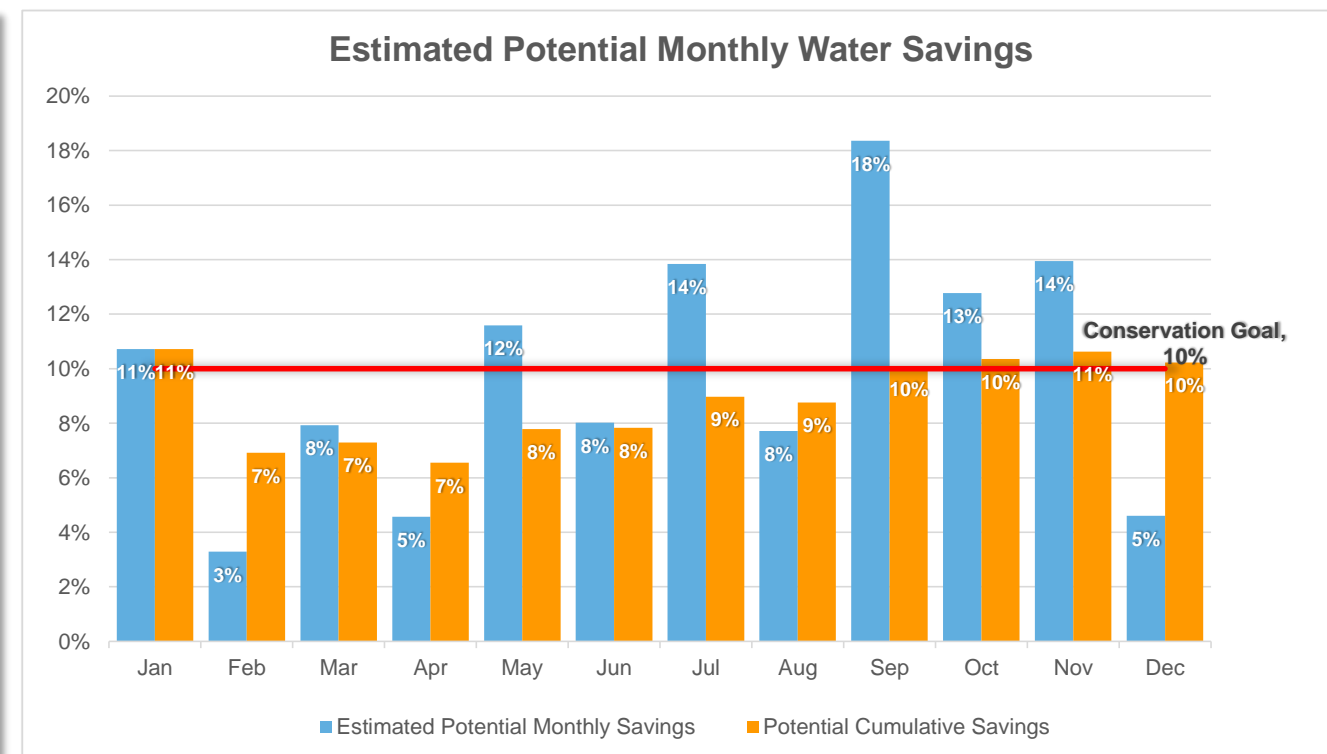
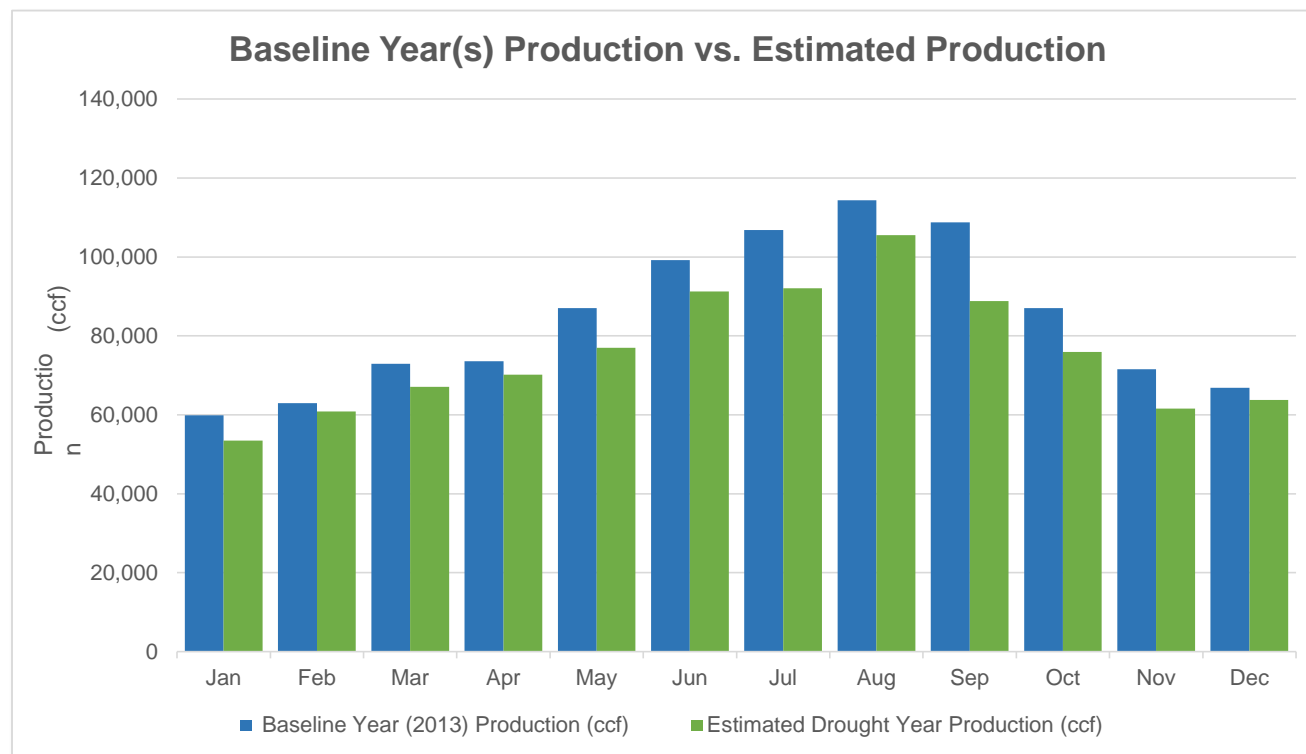
Drought Response Actions

Estimated Water Savings

Drought Response Tracking

5 - Estimated Water Savings City of East Palo Alto

Estimated Monthly Water Use and Savings Summary						
Units: <input type="text" value="(ccf)"/>						
ⓘ 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 (2013) Production (ccf)	Estimated Drought Year Production (ccf)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
January	59,871	53,453	11%	11%	10%	
February	62,917	60,847	3%	7%	10%	
March	72,887	67,106	8%	7%	10%	
April	73,553	70,190	5%	7%	10%	
May	87,037	76,950	12%	8%	10%	
June	99,186	91,234	8%	8%	10%	
July	106,841	92,048	14%	9%	10%	
August	114,357	105,539	8%	9%	10%	
September	108,800	88,825	18%	10%	10%	
October	87,078	75,960	13%	10%	10%	
November	71,564	61,585	14%	11%	10%	
December	66,848	63,768	5%	10%	10%	



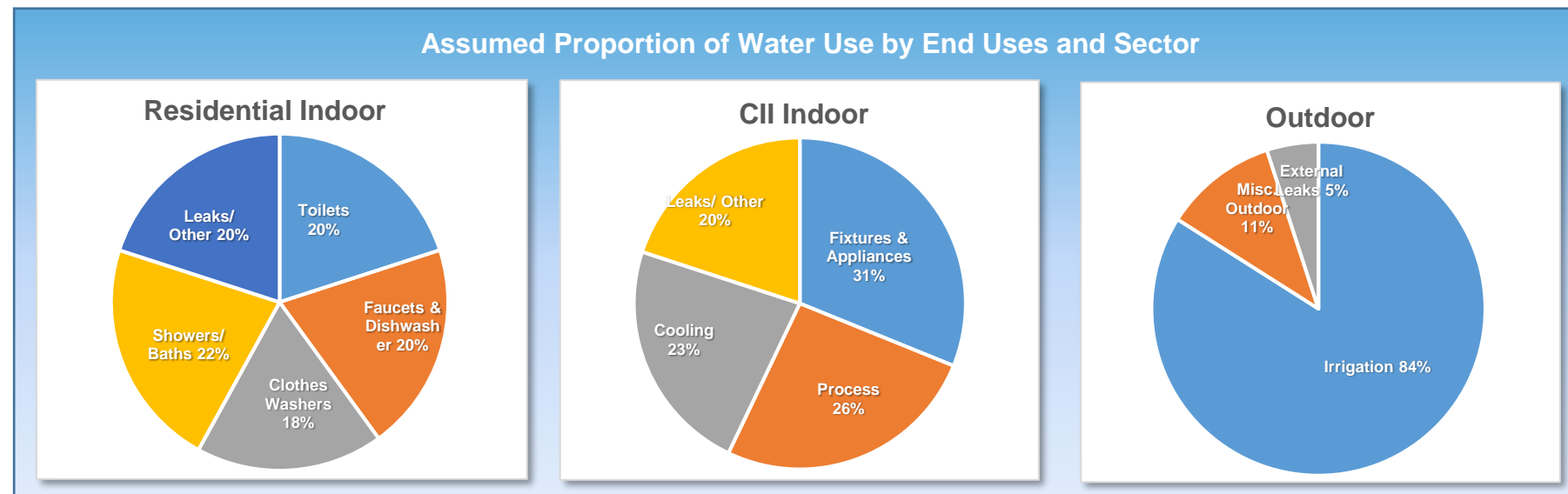


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4 - Drought Response Actions City of East Palo Alto

Maximum Savings Potential		
ⓘ 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.		
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 Annual Savings Potential	28%	of Total Baseline Production





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4 - Drought Response Actions City of East Palo Alto

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						
Prohibit Irrigation with Potable Water Outside of Newly Constructed Homes and Buildings that is not Delivered by Drip or Microspray Systems	All Outdoor Irrigation	<input type="checkbox"/> <input checked="" type="checkbox"/>	14%	75%	--	--
Require Shut-Off Nozzles on Hoses for Vehicle Washing	Misc. Outdoor	<input checked="" type="checkbox"/>	17%	50%	Assumes cumulative reduction in miscellaneous outdoor water use of 50%.	--
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 checked="" type="checkbox"/>			--	--
Prohibit Irrigation of Ornamental Turf with Potable Water on Street Medians	Irrigation	<input checked="" 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	--



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4 - Drought Response Actions

City of East Palo Alto

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"/>	15%	75%	Significant portion of the savings from 2013 to 2015 (24%) was driven by public outreach	--
Promote Water Conservation / Rebate Programs	All	<input checked="" type="checkbox"/>		50%		--
Water Efficiency Workshops, Public Events	All	<input type="checkbox"/>	0.5%	25%		--
Water Bill Inserts	All	<input checked="" type="checkbox"/>	5%	100%		--
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%	25% of non-revenue water	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 checked="" 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 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 Between 10PM and 8AM	Irrigation	<input type="checkbox"/>	38%	75%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week Between 10PM and 8AM	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 48 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

4 - Drought Response Actions

City of East Palo Alto

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 type="checkbox"/>	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week Between 10PM and 8AM	Irrigation	<input type="checkbox"/>	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week Between 10PM and 8AM	Irrigation	<input checked="" type="checkbox"/>	79%	75%		
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 48 Hours	Leaks	<input checked="" 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 type="checkbox"/>	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week Between 10PM and 8AM	Irrigation	<input type="checkbox"/>	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week Between 10PM and 8AM	Irrigation	<input checked="" type="checkbox"/>	79%	75%		
Prohibit Use of Potable Water for Construction and Dust Control	Misc. Outdoor	<input type="checkbox"/>		100%	--	--
Prohibit Single-Pass Cooling Systems for New Construction	Cooling	<input checked="" type="checkbox"/>	80%	1%	Vickers, 2001	--
Require Repair of all Leaks within 48 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%	--	--

EKI
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
City of East Palo Alto

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"/>			--	--



Drought Response Tool

Home

Input Baseline Year Water Use

Baseline Year Water Use Profile

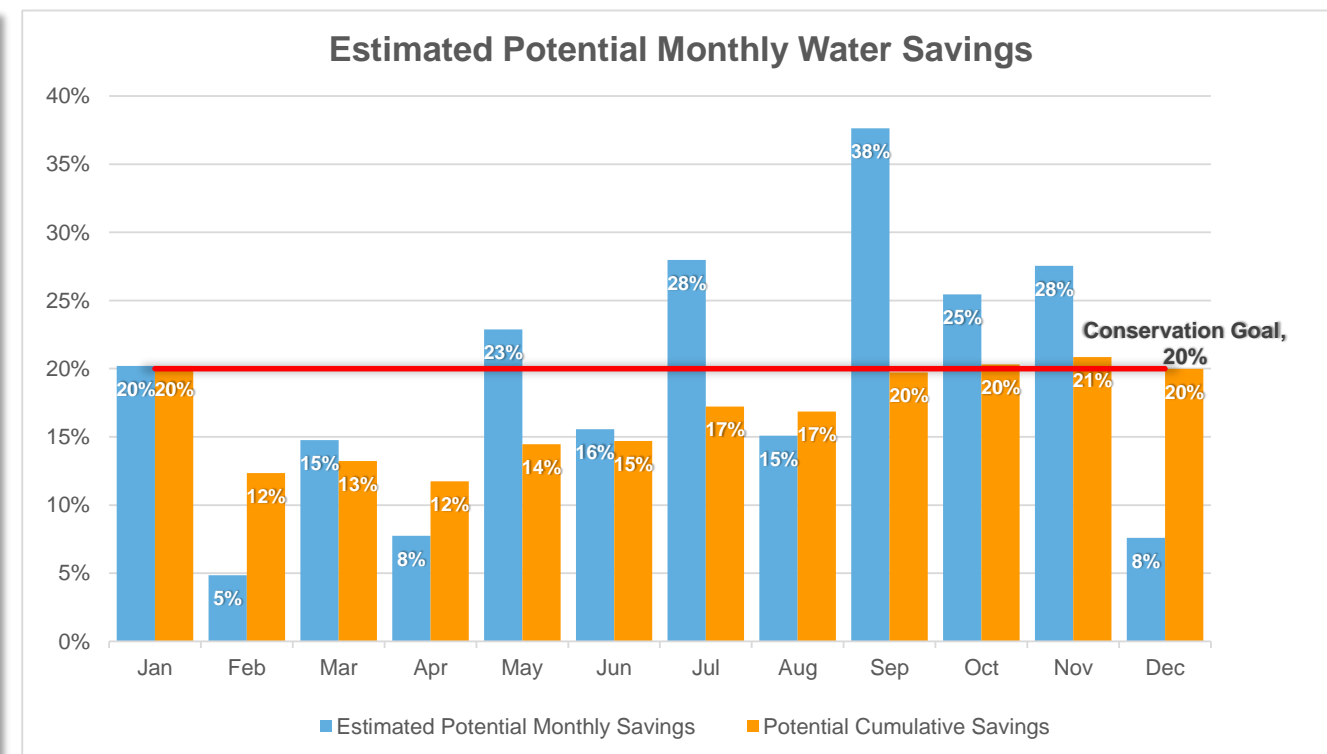
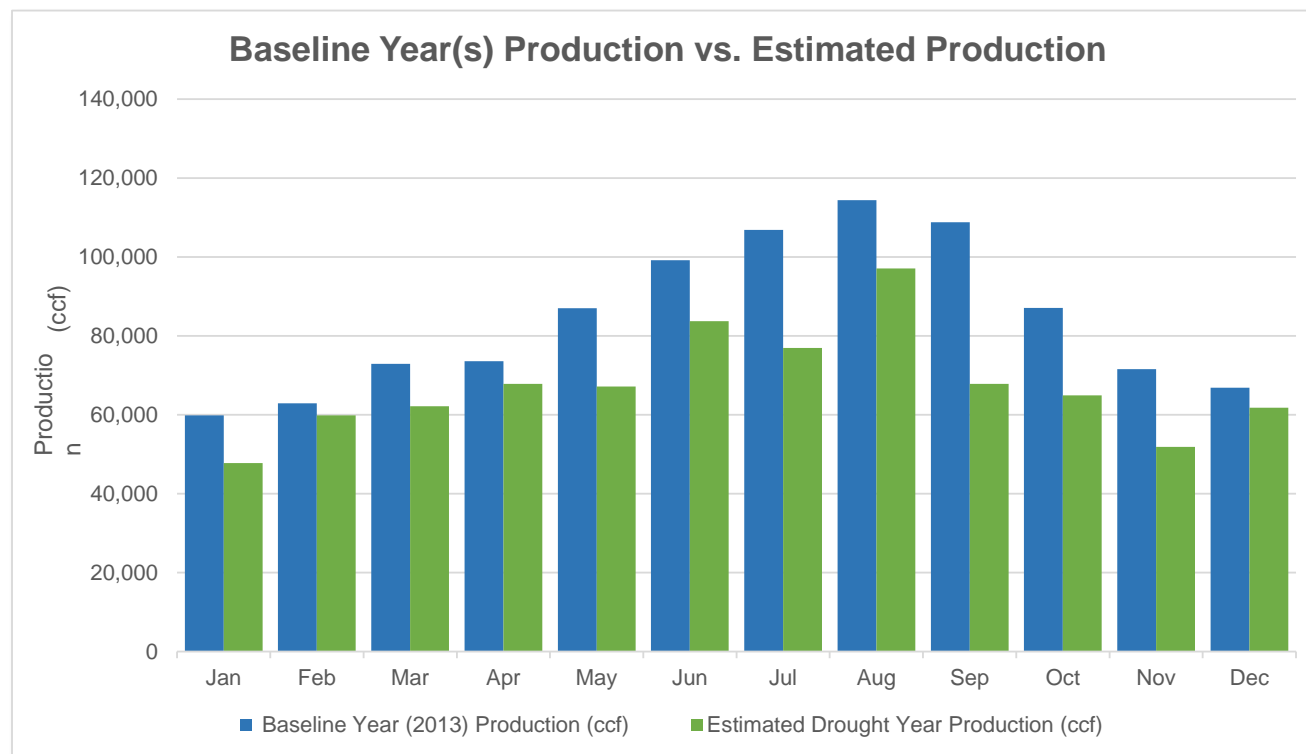
Drought Response Actions

Estimated Water Savings

Drought Response Tracking

5 - Estimated Water Savings City of East Palo Alto

Estimated Monthly Water Use and Savings Summary						
Units: <input type="text" value="(ccf)"/>						
<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.</i>						
Month	Baseline Year (2013) Production (ccf)	Estimated Drought Year Production (ccf)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
January	59,871	47,777	20%	20%	20%	
February	62,917	59,868	5%	12%	20%	
March	72,887	62,133	15%	13%	20%	
April	73,553	67,862	8%	12%	20%	
May	87,037	67,129	23%	14%	20%	
June	99,186	83,744	16%	15%	20%	
July	106,841	76,951	28%	17%	20%	
August	114,357	97,106	15%	17%	20%	
September	108,800	67,861	38%	20%	20%	
October	87,078	64,923	25%	20%	20%	
November	71,564	51,850	28%	21%	20%	
December	66,848	61,777	8%	20%	20%	





**Appendix H.3
Draft Water Shortage Contingency Resolution**

RESOLUTION NO. _____

**RESOLUTION OF THE CITY COUNCIL OF THE CITY OF EAST PALO ALTO
ADOPTING A WATER SHORTAGE CONTINGENCY PLAN PRESENTED IN
URBAN WATER MANAGEMENT PLAN 2015 UPDATE**

WHEREAS, on March 27, 2015 the State Water Resources Control Board (“State Water Board”) approved emergency regulatory action to further amend its previous two emergency regulations pertaining to drought emergency water conservation; and

WHEREAS, the State Water Board emergency regulations from March 27, 2015 require each urban water supplier to implement the following restrictions within forty-five (45) days:

- Prohibit application of potable water to outdoor landscapes during and within forty-eight (48) hours after measurable rainfall;
- Prohibit the serving of drinking water other than upon request in eating or drinking establishments, including but not limited to restaurants, hotels, cafes, cafeterias, bars, or other public places where food and drink are served and/or purchased;
- Require operators of hotels and motels to provide guests with the option of choosing not to have towels and linens laundered daily;
- Implement the stage of its Water Shortage Contingency Plan (WSCP) that includes a mandatory restriction on the number of days that outdoor irrigation of ornamental landscapes or turf with potable water is allowed.

WHEREAS, on April 1, 2015 the Governor issued an Executive Order directing the State Water Board to impose restrictions to achieve an aggregate statewide 25% reduction in potable urban water use for the period of June 1, 2015 through February 28, 2016, as compared to January 1, 2013 through February 28, 2013 and June 1, 2013 through December 31, 2013 water use; and

WHEREAS, on May 5, 2015 the State Water Board adopted a nine (9) tier system based on a water supplier’s residential gallons per capita per day, R-GPCD, range for July through September of 2014; and

WHEREAS, given that the City has among the lowest per capita water use of the Bay Area Water Supply & Conservation Agency and across the State (i.e. 64 GPCD in 2015), significant drought reduction may be difficult to achieve. As such, the Water Shortage Contingency Plan is based on the following principal to guide the City to ask

for a share contribution from all of its customers towards meeting water use reduction goals during periods of water shortage,

- *Eliminate water waste, prioritize the reduction of non-essential water uses, and preserve water uses that are essential to the health, safety, welfare, and economic vitality of the City's customers during periods of water shortage.*

WHEREAS, on May 5, 2015 in order to achieve the percentage reduction requirement, the State Water Board adopted additional regulations prohibiting the following:

- The use of potable water outside of newly constructed homes and buildings that is not delivered by drip or micro-spray systems;
- The use of potable water to irrigate ornamental turf on public street medians.

WHEREAS, on February 2, 2016, based on Governor Brown's November 2015 Executive Order, the State Water Board approved an updated and extended emergency regulation that continued mandatory reductions through October 2016; and

WHEREAS, on May 18, 2016, based on Governor Brown's May 9, 2016 Executive Order B-37-16, the State Water Board approved replacing the state-developed standards with locally developed conservation standards based upon each agency's specific circumstances and extending the emergency regulations for urban water conservation through the end of January 2017, and requiring urban water suppliers to continue reporting monthly water use production information to the SWRCB on a permanent basis; and

WHEREAS, the State Water Board approved continuing the following prohibitions on a permanent basis:

- Hosing off sidewalks, driveways and other hardscapes;
- Washing automobiles with hoses not equipped with a shut-off nozzle;
- Using non-recirculated water in a fountain or other decorative water feature;
- Watering landscapes in a manner that causes runoff.
- Watering landscapes within 48 hours after measurable precipitation.
- Irrigation ornamental turf on public street medians.
- Restaurants or other food establishments serving water other than upon request.
- Hotels and motels not providing the option of choosing not to have towels and linens laundered daily.

BE IT FURTHER RESOLVED that the City Council of City of East Palo Alto adopt the Water Shortage Contingency Plan presented in Urban Water Management Plan 2015 Update.

PASSED AND ADOPTED this _____ day of _____ 2016, by the following vote:

AYES:

NAES:

ABSENT:

ABSTAIN:

SIGNED:

Donna Rutherford, Mayor

ATTEST:

APPROVED AS TO FORM:

Terrie Gillen, Deputy City Clerk

Marc G. Hynes, City Attorney



**Appendix I
Chapter 17.04 of the East Palo Alto Municipal Code**

Title 17 - ENVIRONMENTAL CONTROL

Chapters:

Chapter 17.04 - WATER CONSERVATION

Sections:

Article I. - Purpose and Definitions

17.04.010 - Purpose.

This chapter is intended to promote reasonable conservation of water in the city consistent with maintaining a comfortable standard of living and a healthy economy. It provides a framework for the orderly and timely implementation of reasonable water conservation measures by the different elements of the city's economy. This chapter also carries out certain provisions of the Water Code of the state as embodied in Article XIV, Section 3 of the Constitution of the state which states that maximum beneficial use of the water resources of the state is necessary to prevent the waste or unreasonable use, or unreasonable method of use, of water. This chapter further implements the provisions of the conservation element of the comprehensive water resources management plan for San Mateo County as adopted by the San Mateo County board of supervisors on June 20, 1978.

It is recognized that stricter water conservation measures may be necessary during a future drought or water shortage emergency. Such further measures should not penalize water users for past conservation practices, nor should implementation of water conservation measures constitute a new basis to determine future reduction in case of a declared water shortage emergency. No provision in this chapter is intended to supersede any rule or regulation of the Public Utilities Commission of the state.

Sections 17.04.030, 17.04.040, 17.04.050 and 17.04.140 shall apply only to water agencies administered by the city council of East Palo Alto.

(Prior code § 6-7.101)

17.04.020 - Definitions.

The following words and terms as used in this chapter shall have the following meanings:

"Applied water" means water delivered to a user; also called delivered water. Applied water may be used for either inside uses or for outside watering. It does not include precipitations or distribution losses. It may apply to metered or unmetered deliveries.

"Commercial establishment" means establishments providing services, engaged in the fabrication of structures or other fixed improvements, or otherwise occupied in nonmanufacturing profit motivated activities. Examples are retail stores, restaurants, entertainment facilities and home building concerns.

"Commercial water use" means water used by a commercial establishment.

"Domestic use" means all inside and outside uses of water associated with residential use; water used by commercial and industrial establishments other than in their product manufacture.

"Establishment" means an economic unit which produces goods or services, such as a farm, a factory or a store. In most instances, the establishment is in a single physical location, and is engaged in only one, or predominantly one, type of economic activity.

"Evapotranspiration (ET)" means the process of water returning to the atmosphere through evaporation from land and water surfaces and through transpiration of plants.

"Farm ditch efficiency" means the percent of the total volume of water supplied to the farm which is applied to the fields (a measure of distribution losses.)

"Flat rate water" means water sold to customers at a fixed rate irrespective of quantity used.

"Industrial establishment" means an establishment engaged in the mechanical or chemical transformation of inorganic or organic substances into new products, and usually described as plant, factories or mills, which characteristically use power-driven machines and materials-handling equipment. Establishments engaged in assembling component parts of manufactured products are also considered manufacturing establishments if the new product is neither a structure nor other fixed improvement.

"Industrial water use" means water used by an industrial establishment in the process of their product manufacture.

"Inside water use" means that part of the water delivery used within a home, commercial establishment, or manufacturing establishment for any purpose; also called "internal water use."

"Leaching requirement (LR)" means the fraction of the irrigation water that must pass through the root zone in order to prevent soil salinity from reaching a level that would result in reduced growth to crops, trees, gardens or landscape plants.

"Metered water" means water sold to customers on the basis of actual measured use; does not include losses in distribution.

"Net water use" means the sum of delivered water consumptively used or otherwise not recoverable.

"Outside water use" means the use of water for irrigation of gardens, lawns, and other ornamentals, and for replenishing swimming pools, fountains, ponds, car washing, etc., also called external water use.

"Pool cover" means an installation over or on a swimming pool and hot tubs which is used to minimize water evaporation.

"Precipitation" means the total measurable supply of all natural forms of water falling on the land area, including dew, rain, mist, snow, hail and sleet; usually expressed as depth of liquid water on a horizontal surface on a daily, monthly or yearly basis.

"Public facilities" means all structures, parks and public places, other than open space, engaged either in serving the public or in providing a public use.

"Public water use" means water use associated with public facilities.

Reasonable Use. "Reasonable use" of water involves the application of sufficient applied water to meet demands of a designated beneficial use in a manner consistent with efficiency, public health and sanitation concerns, current technology and local economic conditions. During dry years, practical and economically feasible means should be taken to minimize applied water use and incidental losses. During periods of normal water supplies, reasonable urban water uses include, but are not limited to, the following beneficial uses:

1. The use of water for interior household purposes to maintain personal standards of cleanliness and sanitation;
2. The use of water for exterior household purposes to maintain personal standards of exterior cleanliness, landscaping and recreational facilities;
3. The use of water for commercial purposes to maintain the services offered and to satisfy the health, esthetic and safety needs of both employees and the public;
4. The use of water for industrial purposes, including cooling, processing and other production related needs, and to satisfy health, esthetic and safety needs of the employees;
5. The use of sufficient water to maintain community services including, but not limited to, public safety, including fire fighting; schools and institutions; transportation systems; public streets and buildings; water supplies; sewage and garbage disposals; recreational and esthetic enjoyment areas such as parks, swimming pools, lakes, streams, golf courses and landscaping.

"Recirculation" means the reuse of water within a partially or completely closed system of pipes and appliances without the benefit of treatment, where its quality, other than its temperature, may not be altered.

"Reclaimed water" means the collection and appropriate treatment of used water to bring it to a quality suitable for reuse.

"Recycle" means the recovery of water suitable for reuse without treatment.

"Residential water use" means all inside and outside uses of water associated with residential areas.

"Service area" means the area of land included in the distribution system of a water agency.

"Type of water use" means a distinction of water use based on either a kind of land use (recreational, residential, commercial, etc.) or a kind of water use (outside use, personal use, swimming pool use, dishwashing use, etc.)

"Unaccounted for water" means the difference between the quantity of water introduced into the system and the quantity delivered to the eventual consumer; usually expressed as a percentage of water introduced into the system.

"Unit water use" means the average quantity of water used per person, acre, etc., over a specified period of time.

"Unreasonable use (waste)" means failure to take appropriate measures to minimize excess application and incidental losses of water. Examples of waste are excessive runoff from irrigation or from broken plumbing.

"Unreclaimable water" means used water which is uneconomical to reclaim due to its location, or physical or chemical quality.

"Urban water use" means the use of water for urban purposes, including residential, municipal, commercial, industrial, recreational, military and institutional classes. The term is applied in the sense that it is a kind of use rather than a place of use; includes delivered water and unaccounted for water.

"Water agency" means the East Palo Alto water district; water agency organized, founded or established to produce and distribute water directly or indirectly to customers.

"Water application efficiency" means the percentage of the volume of water delivered to the farm or farms by a conveyance system to the volume of water delivered to the conveyance system at the supply source.

"Water produced" means the total water introduced into a system or the sum of applied water and unaccounted for water.

(Prior code § 6-7.102)

Article II. - Implementation

17.04.030 - Metering.

On or after adoption of the ordinance codified in this chapter, all new water service connections provided by the water agency, including detector check meters on private fire protection services, shall be metered.

(Prior code § 6-7.201)

17.04.040 - Public assistance.

Water saving devices and information shall be made available by the water agency. However, the cost of any water saving device or devices shall be borne by the consumer requesting the device. The water agency shall also reasonably assist customers to detect leaks and increase the efficiency of applied water.

(Prior code § 6-7.202)

17.04.050 - Waste.

Unreasonable use of water is prohibited. Upon written notification to the user by the water agency, all unreasonable use of water shall be terminated and any required repairs to broken or defective plumbing, sprinkler, watering or irrigation devices shall be made within five calendar days or water service to the use may be terminated until corrective measures are taken.

(Prior code § 6-7.203)

17.04.060 - Pool and hot tub covers.

Covers shall be required for all new swimming pools and hot tubs and encouraged to be installed for existing pools.

(Prior code § 6-7.204)

17.04.070 - Residential water pressure.

Except for fire protection service lines, a pressure reducing valve, or valves, that will limit the static water pressure to any internal water outlet of the structure to eighty (80) pounds per square inch gauge, shall be installed in all new residential structures or those existing residential structures requiring a plumbing permit for modification of, or addition to, the existing plumbing.

(Prior code § 6-7.205)

17.04.080 - New or remodeled structures.

The following shall be installed in all new or remodeled residential, commercial or industrial structures:

- A. Insulation of newly installed hot water pipes where such piping is located in attics, garages, crawl spaces or unheated spaces other than between floors or in interior walls, to provide a maximum heat loss of fifty (50) British Thermal Units per hour per linear foot for piping up to and including two inches in diameter, and one hundred (100) British Thermal Units per hour per linear foot for all sizes greater than two inches in diameter;
- B. If newly installed or replaced, tank toilets utilizing not more than three and one-half gallons of water per flush action;
- C. If newly installed or replaced, pressure reducing devices, or flow restrictors to limit the flow of water consistent with the intended use.

(Prior code § 6-7.206)

17.04.090 - Pressure reducing valve.

In new or remodeled commercial or industrial structures requiring a plumbing permit, a pressure reducing valve, or valves, to limit the static water pressure to eighty (80) pounds per square inch gauge to the upper floor of the structure, shall be installed only if no supplemental internal pumping is anticipated. The intent of this section is to limit available water pressure to the structure consistent with uses of water on the premises.

(Prior code § 6-7.207)

17.04.100 - Vehicle washing.

Any new or remodeled vehicle washing facility requiring a plumbing permit, which utilizes more than twenty-five (25) gallons of water per vehicle, shall have a waste wash water recycling system.

(Prior code § 6-7.208)

17.04.110 - Recirculation.

Two years from the effective date of the ordinance codified in this chapter, no use of water will be permitted where recirculation of the water is economically, technically and hygienically feasible in all new, commercial or industrial structures.

An "economically feasible recirculation installation" is defined as, over the useful life of the equipment to be installed, a system where the present worth of the cost of the water saved is more than the present worth of both the capital, and the annual operation and maintenance costs. Such economic and technical feasibility shall be prepared by the user with the determination of feasibility made by the city building official.

(Prior code § 6-7.209)

17.04.120 - Landscaping.

- A. Purpose. The ordinance codified in this section shall be known and referred to as the Water Efficient Landscaping Ordinance and is adopted for the following purposes:
1. To promote the values and benefits of landscaping while recognizing the need to invest water and other resources as efficiently as possible;
 2. To establish a structure for designing, installing and maintaining water efficient landscapes in new projects; and
 3. To establish provisions for water management practices and water waste prevention for established landscapes.
- B. Applicability. This section shall apply to the following types of projects, except as provided in subsection C of this section:
1. All projects where the entire property is being developed or redeveloped with one or more new structures, other than accessory structures. For purposes of this section, "new structures" are defined as those which have completely new foundations, walls and roofs;
 2. All projects where the existing structures are remodeled, renovated and/or expanded in size and where the project includes the relandscaping or loss due to damage or neglect during construction of fifty (50) percent, or more of the remaining landscape area. In such cases, only the newly landscaped areas and/or damaged areas shall be subject to this section;
 3. All landscaping projects, other than the construction of decks, patios, barbecues, play equipment and swimming pools, which require a planning approval or building permit.
- C. Exemptions. This section shall not apply to the following types of projects:
1. Cemeteries;
 2. Properties with an historical site designation;
 3. Ecological restoration projects that do not require a permanent irrigation system;
 4. Land reclamation projects that do not require a permanent irrigation system; or
 5. Any project with a landscaped area and/or existing landscaped area loss due to damage or neglect less than two thousand five hundred (2,500) square feet in area.
- D. Review and Approval of Landscape Plans.
1. A landscape plan shall be submitted to the city which shall include all of the documentation listed in subsection E of this section.
 2. Applicants must choose one of the following methods for submitting a landscape plan:
 - a. Prior to submittal to the city, the landscape plan and all supporting documentation shall be reviewed by an independent certified landscape architect to ensure that all components of the landscape plan adhere to this section. The certified landscape architect shall sign the plans as verification that the landscape plans comply with this section.
 - b. Applicants may submit a landscape plan to the city for review and at the time of submittal, inform the city that they wish to use the city's official landscape and irrigation specialist for the review and verification that the plans comply with this section. In this case, the applicant shall pay a fee to the city in an amount sufficient to cover the cost of all related reviews, inspections and verifications.
 - 3.

Verification by either an independent certified landscape architect or the city's official landscape and irrigation specialist shall be completed prior to issuance of a building permit for the project.

4. Prior to final building inspection of the project, the irrigation and landscaping shall be installed and the certified professional who reviewed the landscape plans shall verify that the installation was completed in compliance with the approved landscape plans and this section.
 5. Prior to final building inspection of the project, a deed restriction shall be filed with the San Mateo County recorder's office stating that the property is subject to the requirements of this section and that any relandscaping of the property by the present or future property owners shall adhere to this section.
- E. Landscape Plan Components. Landscape plans shall include the following information:
1. Landscape Area. The "landscape area" is defined as the gross lot area less the building footprint, driveway, parking areas, decks, patio, porches, walkways and grasscrete areas;
 2. Description of Water Delivery Elements. The description of the water delivery elements shall include the following:
 - a. The location, type and size of equipment such as meters, controllers, main and lateral lines, moisture sensors, valves, sprinkler heads, backflow devices and quick-couplers.
 - b. Flowrate and static water pressure at the point of connection (POC),
 - c. Flowrate and precipitation rate in inches per hour at each valve station,
 - d. Projected water use to maintain adequate plant health and growth;
 3. Soil Care Before Planting. Information on soil characteristics and preparation, including horticultural suitability of the soil and recommendations for amending and preparing the soil for planting;
 4. Soil Care After Planting. A minimum of two inches of mulch shall be used in nonturf areas after planting. Visqueen, sheet plastic, or other nonporous materials shall not be placed under mulch;
 5. Turf. The following shall apply:
 - a. Turf area includes turf and water areas such as ponds, fountains, swimming pools and outdoor spas.
 - b. No trees shall be planted in turf areas.
 - c. No turf shall be allowed in areas eight feet wide or less, or on slopes exceeding fifteen (15) percent (6.6:1).
 - d. Turf areas shall be limited to twenty-five (25) percent of landscape area or, for residential areas, five hundred (500) square feet per dwelling unit, whichever is greater.
 - e. Drought tolerant turf species are encouraged.
 6. Valves. The following shall apply:
 - a. Sprinkler head check valves shall be used to prevent low head drainage.
 - b. Separate valves for turf and nonturf areas shall be provided. Each valve shall service only plant materials of similar watering needs as well as similar micro-climates created within the project.
 7. Sprinkler Heads. The following shall apply:
 - a. Sprinkler heads shall be spaced at a maximum of fifty (50) percent of the diameter of throw for square spacing and sixty (60) percent for triangular spacing.
 - b. Sprinkler heads shall have matched precipitation rates within each control valve circuit.

- c. Pop-up sprinklers in turf areas shall have at least a four-inch pop-up height.
8. Controllers. The following shall apply:
 - a. Controllers shall be automatic and capable of dual programming, such that they may be set for separation of turf and nonturf areas.
 - b. Controllers shall have multiple cycle capability.
 - c. Controllers shall have percentage switches which should be able to be set for one season or one month and have switches that will easily increase or decrease the time programmed by a certain percentage. All stations should have their time increased/ decreased with only one entry.
 9. Irrigation Schedule and Characteristics. The following shall apply:
 - a. A schedule shall be developed which allows for plant material to be established. This shall have a maximum two-year time period. Once established, a revised schedule shall be developed for maintenance of the plant material. The schedule presently in effect shall be posted at the controller.
 - b. The schedule shall include run times and frequency, an application rate which is less than one-quarter inch per cycle on all irrigation, a minimum one hour time interval between all applications, and provisions for irrigation only between the hours of ten p.m. and seven a.m.
 - c. Drip, bubbler or mini-spray irrigation shall be provided for trees and shrubs.
 - d. Backflow prevention units shall comply with all applicable health and safety standards.
 - e. The irrigation system shall not deliver spray or run-off onto paved area or streets.
 - f. Rain sensing override devices shall be required on all irrigation systems.
 - g. Soil moisture sensing devices should be considered where appropriate.
 10. Plant Selection. Water conserving or drought tolerant plant materials are recommended.
 11. Water Features. All decorative pools, ponds, streams and fountains shall be equipped to recirculate water.
 12. Maintenance Schedule. A maintenance schedule shall be prepared which provides for checking, adjusting and repairing irrigation equipment, aerating and dethatching turf areas, replenishing mulch, and fertilizing, pruning, weeding and removing litter.

(Ord. 152 §§ 1—5, 1993; Ord. 99, 1988; Ord. 91, 1988; prior code § 6-7.210)

17.04.130 - Agriculture.

In determining the reasonable beneficial use of irrigation water for field agriculture, local custom should be considered, and perhaps modified, according to evapotranspiration rates for different crops, infiltration rates of applied water on different soil types and land areas with varying degrees of slope, and water application efficiency and the types of distribution systems available. The development and utilization, within legal constraints, of the following water saving techniques shall be encouraged with consideration given to the economics of the various agricultural enterprises. These concepts shall be encouraged by advisory and regulatory agencies as follows:

A. *Field agriculture.*

1. Utilization of an efficient irrigation system suited to the conditions with the scheduling of irrigation according to plant requirements;
- 2.

Use of reclaimed wastewater to irrigate field grown flowers and ornamentals when water quality, environmental conditions, public health and economic considerations permit such use;

3. Adjustment of planting schedules and amounts to projected water supply;
4. Construction of on-farm reservoirs to collect winter runoff and increase water storage;
5. Collection and recycling of runoff water where possible;
6. Encouragement of cooperation between riparian and nonriparian users who share a stream water supply.

B. *Greenhouse culture.*

1. Utilization of an efficient irrigation system suited to the conditions;
2. Construction of reservoirs to catch runoff water from greenhouse roofs and adjoining areas;
3. Construction of catch basins with return pumping systems to collect and recycle drainage water from plants grown inside the greenhouse, if the quality is satisfactory;
4. Collection and use of rainfall and runoff from adjoining farm lands.

(Prior code § 6-7.211)

17.04.140 - Shortages.

Notwithstanding the foregoing relating to conservation of water supplies, it is apparent that in times of a declared water shortage emergency pursuant to Section 350 et seq. of the Water Code of the state, certain additional mandatory water conservation practices will be necessary. It is the intent of this chapter that after allocation and setting aside the amount of water needed for domestic use, sanitation and fire protection, the emergency regulations shall establish priorities in the use of water for other purposes and shall provide for the allocation, distribution, and delivery of water for such other purposes, without discrimination between consumers using water for the same purpose or purposes. Regulations so adopted shall not penalize water users for past conservation practices.

(Prior code § 6-7.212)



**Appendix J
Resolution No. 4744, Urban Water Management Plan, 2015**

RESOLUTION NO. 4744

**A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF EAST PALO ALTO
ADOPTING THE 2015 URBAN WATER MANAGEMENT PLAN**

WHEREAS, the California Urban Water Management Planning Act (Act) (California Water Code Sections 10620 et seq.) requires every urban water supplier providing municipal water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually to prepare a 2015 Urban Water Management Plan (UWMP); and

WHEREAS, the Act requires review of the UWMP at least once every five years; and

WHEREAS, the City of East Palo Alto last updated its UWMP in 2010; and

WHEREAS, the deadline for submitting the 2015 UWMP is July 1, 2016, and

WHEREAS, the City has therefore prepared and circulated for public review a final draft of the 2015 UWMP and a properly public hearing regarding said UWMP was held by the City Council on June 21, 2016; and

WHEREAS, at a duly noticed public hearing on June 21, 2016, the City Council of the City of East Palo Alto, an urban water supplier, developed its 2015 UWMP including the Water Shortage Contingency Plan and its stages; and

NOW THEREFORE, BE IT HEREBY RESOLVED that the City Council of the City of East Palo Alto hereby approve and adopt the 2015 UWMP; and

BE IT HEREBY FURTHER RESOLVED by the City Council of the City of East Palo Alto that the City Manager is hereby authorized and directed to file the 2015 UWMP with the California Department of Water Resources no later than July 1st, 2016.

PASSED AND ADOPTED this 21st day of June 2016, by the following vote:


AYES: ROMERO, RUTHERFORD, MOODY, ABRICA, GAUTHIER

NOES:

ABSENT:

ABSTAIN:


SIGNED:


Donna Rutherford, Mayor

ATTEST:


Terrie Gillen, Deputy City Clerk

APPROVED AS TO FORM:


Marc G. Hynes, Interim City Attorney



**Appendix K
Plan Submittal Documentation**

From: [DO-NOT-REPLY](#)
To: [Tim Allan](#)
Subject: WUEdata - UWMP Submittal Confirmation
Date: Wednesday, June 29, 2016 2:38:23 PM

This serves as confirmation that the following UWMP was electronically submitted to DWR:

Water Supplier Name: East Palo Alto City Of
Submitted by: Tim Allan
Email Address: tallan@ekiconsult.com
Submitted Date: 6/29/2016 2:38:14 PM
Confirmation Number: 3188443839

Click the link below to view the submitted plan on WUEdata:

[View Submitted UWMP on WUEdata](#)

FREE WATER LOSS AUDIT ASSISTANCE

Senate Bill 555 requires all urban water suppliers to submit a completed and validated water loss audit by October of 2017 and annually thereafter. In response to this new requirement, the CA-NV Section of American Water Works Association (AWWA) is offering a water loss Technical Assistance Program (TAP) at no cost to water suppliers.

The water loss TAP is a series of workshops, in person meetings, and phone calls with experts in the field of water loss control. These experts will help you gather the right resources to make sure that your water audit is complete and informative. By working with these experts along the way, your water audit will be validated and in compliance with these new requirements.

Registration: [Register by June 30 here.](#)

If you have any questions about this upcoming program, please feel free to reach out to The Water Loss Control Collaborative Team directly at waterlosscontrolcollaborative@gmail.com

If you have questions about the UWMP Tool, please contact the UWMP Help Desk, (UWMPHelp@water.ca.gov).

Email auto-generated by WUEdata on 6/29/2016