



Appendix A

Completed UWMP Checklist

Completed UWMP Checklist
 2020 Urban Water Management Plan
 City of East Palo Alto



Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Chapter 1	10615	A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities.	Introduction and Overview	Chapter 1
x	x	Chapter 1	10630.5	Each plan shall include a simple description of the supplier's plan including water availability, future requirements, a strategy for meeting needs, and other pertinent information. Additionally, a supplier may also choose to include a simple description at the beginning of each chapter.	Summary	Section 1.6
x	x	Section 2.2	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
x	x	Section 2.6	10620(d)(2)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan Preparation	Section 2.2 and Table 2-4
x	x	Section 2.6.2	10642	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan and contingency plan.	Plan Preparation	Section 2.2.4

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Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x		Section 2.6, Section 6.1	10631(h)	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 2.2.2
	x	Section 2.6	10631(h)	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	N/A
x	x	Section 3.1	10631(a)	Describe the water supplier service area.	System Description	Chapter 3
x	x	Section 3.3	10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.3
x	x	Section 3.4	10631(a)	Provide population projections for 2025, 2030, 2035, 2040 and optionally 2045.	System Description	Section 3.1.1 and Table 3-1
x	x	Section 3.4.2	10631(a)	Describe other social, economic, and demographic factors affecting the supplier's water management planning.	System Description	Section 3.1.3 and Table 3-3
x	x	Sections 3.4 and 5.4	10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Section 3.1.1 and Table 3-1
x	x	Section 3.5	10631(a)	Describe the land uses within the service area.	System Description	Section 3.2

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Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 4.2	10631(d)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Sections 4.1 and 4.2, Tables 4-2 and 4-4
x	x	Section 4.2.4	10631(d)(3)(C)	Retail suppliers shall provide data to show the distribution loss standards were met.	System Water Use	Section 4.1.3
x	x	Section 4.2.6	10631(d)(4)(A)	In projected water use, include estimates of water savings from adopted codes, plans, and other policies or laws.	System Water Use	Section 4.2.4 and Table 4-6
x	x	Section 4.2.6	10631(d)(4)(B)	Provide citations of codes, standards, ordinances, or plans used to make water use projections.	System Water Use	Section 4.2.1
x	optional	Section 4.3.2.4	10631(d)(3)(A)	Report the distribution system water loss for each of the 5 years preceding the plan update.	System Water Use	Section 4.1.3 and Table 4-3
x	optional	Section 4.4	10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Section 4.2.3 and Table 4-5
x	x	Section 4.5	10635(b)	Demands under climate change considerations must be included as part of the drought risk assessment.	System Water Use	Section 4.5
x		Chapter 5	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

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Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x		Chapter 5	10608.24(a)	Retail suppliers shall meet their water use target by December 31, 2020.	Baselines and Targets	Section 5.4 and Table 5-3
	x	Section 5.1	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	N/A
x		Section 5.2	10608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	N/A
x		Section 5.5	10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5-year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	N/A
x		Section 5.5 and Appendix E	10608.4	Retail suppliers shall report on their compliance in meeting their water use targets. The data shall be reported using a standardized form in the SBX7-7 2020 Compliance Form.	Baselines and Targets	Section 5.4 and Table 5-4
x	x	Sections 6.1 and 6.2	10631(b)(1)	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought.	System Supplies	Chapter 6

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Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Sections 6.1	10631(b)(1)	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought, <i>including changes in supply due to climate change.</i>	System Supplies	Section 7.1
x	x	Section 6.1	10631(b)(2)	When multiple sources of water supply are identified, describe the management of each supply in relationship to other identified supplies.	System Supplies	Chapter 6
x	x	Section 6.1.1	10631(b)(3)	Describe measures taken to acquire and develop planned sources of water.	System Supplies	Section 6.8
x	x	Section 6.2.8	10631(b)	Identify and quantify the existing and planned sources of water available for 2020, 2025, 2030, 2035, 2040 and optionally 2045.	System Supplies	Section 6.9 and Table 6-9
x	x	Section 6.2	10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2
x	x	Section 6.2.2	10631(b)(4)(A)	Indicate whether a groundwater sustainability plan or 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
x	x	Section 6.2.2	10631(b)(4)(B)	Describe the groundwater basin.	System Supplies	Section 6.2.1

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x	x	Section 6.2.2	10631(b)(4)(B)	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	N/A
x	x	Section 6.2.2.1	10631(b)(4)(B)	For unadjudicated basins, indicate whether or not the department has identified the basin as a high or medium priority. Describe efforts by the supplier to coordinate with sustainability or groundwater agencies to achieve sustainable groundwater conditions.	System Supplies	Section 6.2.1
x	x	Section 6.2.2.4	10631(b)(4)(C)	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	Table 6-2
x	x	Section 6.2.2	10631(b)(4)(D)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Section 6.2.4
x	x	Section 6.2.7	10631(c)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System Supplies	Section 6.7
x	x	Section 6.2.5	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

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Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 6.2.5	10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.3
x	x	Section 6.2.5	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 6.5.3
x	x	Section 6.2.5	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 6.5.3 and 6.5.4 and Table 6-5 and 6-6
x	x	Section 6.2.5	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
x	x	Section 6.2.5	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
x	x	Section 6.2.6	10631(g)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6
x	x	Section 6.2.5	10633(a)	Describe the wastewater collection and treatment systems in the supplier's service area with quantified amount of collection and treatment and the disposal methods.	System Supplies (Recycled Water)	Section 6.5.2 and Table 6-3 and 6-4

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x	x	Section 6.2.8, Section 6.3.7	10631(f)	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 for a period of drought lasting 5 consecutive water years.	System Supplies	Section 6.8
x	x	Section 6.4 and Appendix O	10631.2(a)	The UWMP must include energy information, as stated in the code, that a supplier can readily obtain.	System Suppliers, Energy Intensity	Section 6.11 and Table 6-11
x	x	Section 7.2	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 7.1.1.3
x	x	Section 7.2.4	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	Chapter 7
x	x	Section 7.3	10635(a)	Service Reliability Assessment: Assess the water supply reliability during normal, dry, and a drought lasting five consecutive 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 7.1 and Tables 7-3 through 7-5

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Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 7.3	10635(b)	Provide a drought risk assessment as part of information considered in developing the demand management measures and water supply projects.	Water Supply Reliability Assessment	Section 7.2
x	x	Section 7.3	10635(b)(1)	Include a description of the data, methodology, and basis for one or more supply shortage conditions that are necessary to conduct a drought risk assessment for a drought period that lasts 5 consecutive years.	Water Supply Reliability Assessment	Section 7.2.1 and Table 7-6
x	x	Section 7.3	10635(b)(2)	Include a determination of the reliability of each source of supply under a variety of water shortage conditions.	Water Supply Reliability Assessment	Section 7.2.2 and Table 7-7
x	x	Section 7.3	10635(b)(3)	Include a comparison of the total water supply sources available to the water supplier with the total projected water use for the drought period.	Water Supply Reliability Assessment	Section 7.2.3 and Table 7-8
x	x	Section 7.3	10635(b)(4)	Include considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.	Water Supply Reliability Assessment	Section 7.5
x	x	Chapter 8	10632(a)	Provide a water shortage contingency plan (WSCP) with specified elements below.	Water Shortage Contingency Planning	Appendix J
x	x	Chapter 8	10632(a)(1)	Provide the analysis of water supply reliability (from Chapter 7 of Guidebook) in the WSCP	Water Shortage Contingency Planning	Appendix J Section 2

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Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 8.10	10632(a)(10)	Describe reevaluation and improvement procedures for monitoring and evaluation the water shortage contingency plan to ensure risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented.	Water Shortage Contingency Planning	Appendix J Section 11
x	x	Section 8.2	10632(a)(2)(A)	Provide the written decision- making process and other methods that the supplier will use each year to determine its water reliability.	Water Shortage Contingency Planning	Appendix J Section 2
x	x	Section 8.2	10632(a)(2)(B)	Provide data and methodology to evaluate the supplier’s water reliability for the current year and one dry year pursuant to factors in the code.	Water Shortage Contingency Planning	Appendix J Section 2
x	x	Section 8.3	10632(a)(3)(A)	Define six standard water shortage levels of 10, 20, 30, 40, 50 percent shortage and greater than 50 percent shortage. These levels shall be based on supply conditions, including percent reductions in supply, changes in groundwater levels, changes in surface elevation, or other conditions. The shortage levels shall also apply to a catastrophic interruption of supply.	Water Shortage Contingency Planning	Appendix J Section 4
x	x	Section 8.3	10632(a)(3)(B)	Suppliers with an existing water shortage contingency plan that uses different water shortage levels must cross reference their categories with the six standard categories.	Water Shortage Contingency Planning	Appendix J Section 4 and Table 4-1

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Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 8.4	10632(a)(4)(A)	Suppliers with water shortage contingency plans that align with the defined shortage levels must specify locally appropriate supply augmentation actions.	Water Shortage Contingency Planning	Appendix J Section 5.2 and Table 5-2
x	x	Section 8.4	10632(a)(4)(B)	Specify locally appropriate demand reduction actions to adequately respond to shortages.	Water Shortage Contingency Planning	Appendix J Section 5.1 and Table 5-1
x	x	Section 8.4	10632(a)(4)(C)	Specify locally appropriate operational changes.	Water Shortage Contingency Planning	Appendix J Section 5.3
x	x	Section 8.4	10632(a)(4)(D)	Specify additional mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions are appropriate to local conditions.	Water Shortage Contingency Planning	Appendix J Section 5.4
x	x	Section 8.4	10632(a)(4)(E)	Estimate the extent to which the gap between supplies and demand will be reduced by implementation of the action.	Water Shortage Contingency Planning	Appendix J Section 5.1 and 5.2 and Table 5-1 and 5-2
x	x	Section 8.4.6	10632.5	The plan shall include a seismic risk assessment and mitigation plan.	Water Shortage Contingency Plan	Appendix J Section 5.6
x	x	Section 8.5	10632(a)(5)(A)	Suppliers must describe that they will inform customers, the public and others regarding any current or predicted water shortages.	Water Shortage Contingency Planning	Appendix J Section 6

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Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 8.5 and 8.6	10632(a)(5)(B) 10632(a)(5)(C)	Suppliers must describe that they will inform customers, the public and others regarding any shortage response actions triggered or anticipated to be triggered and other relevant communications.	Water Shortage Contingency Planning	Appendix J Section 6
x		Section 8.6	10632(a)(6)	Retail supplier must describe how it will ensure compliance with and enforce provisions of the WSCP.	Water Shortage Contingency Planning	Appendix J Section 7
x	x	Section 8.7	10632(a)(7)(A)	Describe the legal authority that empowers the supplier to enforce shortage response actions.	Water Shortage Contingency Planning	Appendix J Section 8
x	x	Section 8.7	10632(a)(7)(B)	Provide a statement that the supplier will declare a water shortage emergency Water Code Chapter 3.	Water Shortage Contingency Planning	Appendix J Section 6.1.1
x	x	Section 8.7	10632(a)(7)(C)	Provide a statement that the supplier will coordinate with any city or county within which it provides water for the possible proclamation of a local emergency.	Water Shortage Contingency Planning	Appendix J Section 6.1.1
x	x	Section 8.8	10632(a)(8)(A)	Describe the potential revenue reductions and expense increases associated with activated shortage response actions.	Water Shortage Contingency Planning	Appendix J Section 9
x	x	Section 8.8	10632(a)(8)(B)	Provide a description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions.	Water Shortage Contingency Planning	Appendix J Section 9

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x		Section 8.8	10632(a)(8)(C)	Retail suppliers must describe the cost of compliance with Water Code Chapter 3.3: Excessive Residential Water Use During Drought	Water Shortage Contingency Planning	Appendix J Section 9
x		Section 8.9	10632(a)(9)	Retail suppliers must describe the monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance.	Water Shortage Contingency Planning	Appendix J Section 10
x		Section 8.11	10632(b)	Analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas.	Water Shortage Contingency Planning	Appendix J Section 12
x	x	Sections 8.12 and 10.4	10635(c)	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 30 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Appendix J Section 13
x	x	Section 8.14	10632(c)	Make available the Water Shortage Contingency Plan to customers and any city or county where it provides water within 30 after adopted the plan.	Water Shortage Contingency Planning	Appendix J Section 13

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Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
	x	Sections 9.1 and 9.3	10631(e)(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	N/A
x		Sections 9.2 and 9.3	10631(e)(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	Section 9.1 and 9.2
x		Chapter 10	10608.26(a)	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets (recommended to discuss compliance).	Plan Adoption, Submittal, and Implementation	Section 10.3
x	x	Section 10.2.1	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. Reported in Table 10-1.	Plan Adoption, Submittal, and Implementation	Section 10.1
x	x	Section 10.4	10621(f)	Each urban water supplier shall update and submit its 2020 plan to the department by July 1, 2021.	Plan Adoption, Submittal, and Implementation	Section 10.4

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x	x	Sections 10.2.2, 10.3, and 10.5	10642	Provide supporting documentation that the urban water supplier made the plan and contingency plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan and contingency plan.	Plan Adoption, Submittal, and Implementation	Section 10.2
x	x	Section 10.2.2	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	Section 10.2
x	x	Section 10.3.2	10642	Provide supporting documentation that the plan and contingency plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.3
x	x	Section 10.4	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
x	x	Section 10.4	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
x	x	Sections 10.4.1 and 10.4.2	10644(a)(2)	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Section 10.4

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x	x	Section 10.5	10645(a)	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
x	x	Section 10.5	10645(b)	Provide supporting documentation that, not later than 30 days after filing a copy of its water shortage contingency 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
x	x	Section 10.6	10621(c)	If supplier is regulated by the Public Utilities Commission, include its plan and contingency plan as part of its general rate case filings.	Plan Adoption, Submittal, and Implementation	N/A
x	x	Section 10.7.2	10644(b)	If revised, submit a copy of the water shortage contingency plan to DWR within 30 days of adoption.	Plan Adoption, Submittal, and Implementation	Section 10.6



Appendix B

UWMP Agency Notification Letters

Tyler Colyer

From: Batool Zaro <bzaro@cityofepa.org>
Sent: Thursday, February 04, 2021 4:34 PM
To: dsmithson@calwater.com; kjenkins@calwater.com; Rmoilan@calwater.com; Jflanagan@ci.brisbane.ca.us; rbreault@ci.brisbane.ca.us; tmcauliffe@burlingame.org; amorimoto@burlingame.org; gkrauss@dalcycity.org; wdonnelly@dalcycity.org; Cheryl.Munoz@Hayward-ca.gov; alex.ameri@hayward-ca.gov; Elli.Lo@hayward-ca.gov; whej@haywardrec.org; ctlamm@menlopark.org; phlowe@menlopark.org; klim@ci.millbrae.ca.us; sreider@ci.millbrae.ca.us; tndah@ci.milpitas.ca.gov; Elizabeth.Flegel@mountainview.gov; Lisa.au@mountainview.gov; Karla.Dailey@CityofPaloAlto.org; lisa.bilar@CityofPaloAlto.org; jchapel@redwoodcity.org; WateRmanager@redwoodcity.org; jtan@sanbruno.ca.gov; MReinhardt@sanbruno.ca.gov; gwellington@santaclaraca.gov; smehta@SantaClaraCA.gov; mnasser@ci.sunnyvale.ca.us; Rchinnakotla@sunnyvale.ca.gov; cbrennan@coastsidewater.org; mrogren@coastsidewater.org; Sergio Ramirez; Akin Okupe; ndorais@fostercity.org; asmith@fostercity.org; tammyr@midpeninsulawater.org; rramirez@midpeninsulawater.org; acarr@nccwd.com; philw@purissimawater.org; samv@purissimawater.org; Jeffrey.provenzano@sanjoseca.gov; henry.louie@sanjoseca.gov; Bmanning@stanford.edu; juliann@stanford.edu; pwillis@hillsborough.net; dbarrow@westboroughwater.com; pmairena@westboroughwater.org; Nicole Sandkulla; Tom Francis; dmcpherson@bawsca.org; Negin Ashoori; Kyle Ramey; jzipkin@ebda.org; michael.tognolini@ebmud.com; Albert.Lopez@acgov.org; leonard.ash@acwd.com
Cc: Adrian Biggs; Humza Javed; Perez, Richard J; Tyler Colyer; Kamal Fallaha
Subject: Preparation of City of East Palo Alto 2020 Urban Water Management Plan
Attachments: 2020 UWMP Notice to Regional Agencies.pdf

Good Afternoon,

Please see the attached for the City of East Palo Alto 2020 UWMP Notice to Regional Agencies letter. Please let me know if you have any questions!

Best,

Batool Zaro, EIT

Assistant Civil Engineer

City of East Palo Alto

Engineering Division

1960 Tate Street

East Palo Alto, CA 94303

Cell: (650) 388-8921

Email: bzaro@cityofepa.org



CITY OF EAST PALO ALTO

Public Works Department

1960 Tate Street, East Palo Alto, CA 94303

Tel. No. 650.853.3189, Fax. No. 650.853.3179

February 4, 2021

To Whom It May Concern,

Re: Notice of Preparation of Urban Water Management Plan and Water Shortage Contingency Plan - 2020 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) and associated Water Shortage Contingency Plan (WSCP) every 5 years. The City is currently reviewing its existing UWMP and associated WSCP, which were updated in 2016, and considering revisions to the documents. The updated UWMP and WSCP are due by July 1, 2021. We invite your agency/city/county's participation in this revision process.

A draft of the 2020 UWMP and WSCP will be made available for public review and a public hearing will be scheduled in Spring 2021. In the meantime, if you would like more information regarding the City's 2015 UWMP and WSCP and the schedule for updating these documents, or if you would like to participate in the preparation of the 2020 UWMP and WSCP, please contact Batool Zaro at:

City of East Palo Alto
1960 Tate Street
East Palo Alto, CA 94303
Phone: (650) 388-8921
Email: bzaro@cityofepa.org
Batool Zaro, Assistant Engineer

Sincerely,

Kamal Fallaha

Kamal Fallaha, P.E.
Public Works Director
City of East Palo Alto
1960 Tate Street
East Palo Alto, CA 94303
650-853-3117 kfallaha@cityofepa.org

CC: Jaime Fontes, City Manager, City of East Palo Alto
Rafael Alvarado, City Attorney, City of East Palo Alto

Tyler Colyer

From: Batool Zaro <bzaro@cityofepa.org>
Sent: Friday, March 12, 2021 8:50 AM
To: Jim Porter; sritchie@swater.org; aakastama@swater.org; striolo@swater.org
Cc: Tyler Colyer; Anona Dutton
Subject: Preparation of City of East Palo Alto 2020 Urban Water Management Plan
Attachments: 2020 UWMP Notice to Regional Agencies.pdf

Good Morning,

Please see the attached for the City of East Palo Alto 2020 UWMP Notice to Regional Agencies letter. Please let me know if you have any questions!

Best,

Batool Zaro, EIT

Assistant Civil Engineer

City of East Palo Alto

Engineering Division

1960 Tate Street

East Palo Alto, CA 94303

Cell: (650) 388-8921

Email: bzaro@cityofepa.org



CITY OF EAST PALO ALTO

Public Works Department

1960 Tate Street, East Palo Alto, CA 94303

Tel. No. 650.853.3189, Fax. No. 650.853.3179

March 12, 2021

To Whom It May Concern,

Re: **Notice of Preparation of Urban Water Management Plan and Water Shortage Contingency Plan - 2020 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) and associated Water Shortage Contingency Plan (WSCP) every 5 years. The City is currently reviewing its existing UWMP and associated WSCP, which were updated in 2016, and considering revisions to the documents. The updated UWMP and WSCP are due by July 1, 2021. We invite your agency/city/county's participation in this revision process.

A draft of the 2020 UWMP and WSCP will be made available for public review and a public hearing will be scheduled in Spring 2021. In the meantime, if you would like more information regarding the City's 2015 UWMP and WSCP and the schedule for updating these documents, or if you would like to participate in the preparation of the 2020 UWMP and WSCP, please contact Batool Zaro at:

City of East Palo Alto
1960 Tate Street
East Palo Alto, CA 94303
Phone: (650) 388-8921
Email: bzaro@cityofepa.org
Batool Zaro, Assistant Engineer

Sincerely,

Kamal Fallaha

Kamal Fallaha, P.E.
Public Works Director
City of East Palo Alto
1960 Tate Street
East Palo Alto, CA 94303
650-853-3117 kfallaha@cityofepa.org

CC: Jaime Fontes, City Manager, City of East Palo Alto
Rafael Alvarado, City Attorney, City of East Palo Alto

Tyler Colyer

From: Batool Zaro <bzaro@cityofepa.org>
Sent: Friday, May 28, 2021 2:49 PM
To: dsmithson@calwater.com; kjenkins@calwater.com; Rmoilan@calwater.com; Jflanagan@ci.brisbane.ca.us; rbreault@ci.brisbane.ca.us; tmcauliffe@burlingame.org; amorimoto@burlingame.org; gkrauss@dalycity.org; wdonnelly@dalycity.org; Cheryl.Munoz@Hayward-ca.gov; alex.ameri@hayward-ca.gov; Elli.Lo@hayward-ca.gov; whej@haywardrec.org; ctlamm@menlopark.org; phlowe@menlopark.org; klim@ci.millbrae.ca.us; sreider@ci.millbrae.ca.us; tndah@ci.milpitas.ca.gov; Elizabeth.Flegel@mountainview.gov; Lisa.au@mountainview.gov; Karla.Dailey@CityofPaloAlto.org; lisa.bilar@CityofPaloAlto.org; jchapel@redwoodcity.org; WateRmanager@redwoodcity.org; jtan@sanbruno.ca.gov; MReinhardt@sanbruno.ca.gov; gwellling@santaclaraca.gov; smehta@SantaClaraCA.gov; mnasser@ci.sunnyvale.ca.us; Rchinnakotla@sunnyvale.ca.gov; cbrennan@coastsidewater.org; mrogren@coastsidewater.org; Sergio Ramirez; Akin Okupe; ndorais@fostercity.org; asmith@fostercity.org; tammyr@midpeninsulawater.org; rramirez@midpeninsulawater.org; acarr@nccwd.com; philw@purissimawater.org; samv@purissimawater.org; Jeffrey.provenzano@sanjoseca.gov; henry.louie@sanjoseca.gov; Bmanning@stanford.edu; juliann@stanford.edu; pwillis@hillsborough.net; dbarrow@westboroughwater.com; pmairena@westboroughwater.org; Nicole Sandkulla; Tom Francis; dmcpherson@bawsca.org; Negin Ashoori; Kyle Ramey; jzipkin@ebda.org; michael.tognolini@ebmud.com; Albert.Lopez@acgov.org; O'Connor Water; Leonard Ash; niambi lincoln; Jim Porter; sritchie@sflower.org; aakastama@sflower.org; striolo@sflower.org
Cc: Tyler Colyer; Anona Dutton; Kamal Fallaha; Humza Javed; Adrian Biggs
Subject: Public Hearing Notice for the Urban Water Management Plan and Water Shortage Contingency Plan - 2020 Update
Attachments: Public Hearing Notice_EPA UWMP_WSCP.pdf

Good Afternoon,

Please see the attached for the City of East Palo Alto's Public Hearing Notice for the 2020 Urban Water Management Plan and Water Shortage Contingency Plan .

Best,

Batool Zaro, EIT

Assistant Civil Engineer

City of East Palo Alto

Engineering Division

1960 Tate Street

East Palo Alto, CA 94303

Cell: (650) 388-8921

Email: bzaro@cityofepa.org



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

May 28, 2021

Re: Public Hearing Notice for the Urban Water Management Plan and Water Shortage Contingency Plan - 2020 Update

The Urban Water Management Planning Act (California Water Code §10608–10656) requires the City of East Palo Alto (City or East Palo Alto) to update its Urban Water Management Plan (UWMP) and associated Water Shortage Contingency Plan (WSCP) every 5 years. East Palo Alto must also make the draft documents available for public review and hold a public hearing before adopting its UWMP and associated WSCP.

This is to notify you that the City will hold a public hearing on June 15, 2021 at 6:30 p.m. by virtual meeting to consider proposed revisions and updates to the 2020 UWMP and associated WSCP. We invite your agency's participation in the process. In conjunction with the update to the UWMP, the public may also provide input on the urban water use target included in the UWMP, any impacts to the local economy, and East Palo Alto's method of determining its urban water use target.

The UWMP and associated WSCP are available for public review at <https://www.cityofepa.org/publicworks/project/urban-water-management-plan-update-2020>. Visit <https://www.cityofepa.org/citycouncil> for the City Council meeting agenda and for links to the virtual public hearing.

If you have any questions about the 2020 UWMP or WSCP or the process for updating these documents, please contact Batool Zaro at:

City of East Palo Alto
1960 Tate Street
East Palo Alto, CA 94303
Phone: (650) 388-8921
Email: bzaro@cityofepa.org

Sincerely,

Kamal Fallaha, P.E.
Public Works Director

CC: Jaime Fontes, City Manager, City of East Palo Alto
Rafael Alvarado, City Attorney, City of East Palo Alto



Appendix C

UWMP Public Notification Notices

San Mateo County Times

c/o Bay Area News Group
4 N. 2nd Street Suite 700
San Jose, CA 95113
408-920-5332
3342777

CITY OF EAST PALO ALTO
ATTN: CITY CLERK'S OFFICE/MARIA BUELL
2415 UNIVERSITY AVE 2ND FLOOR
EAST PALO ALTO, CA 94303

PROOF OF PUBLICATION

FILE NO. S.Wendt: Public Hearing 2020 UWMP

In the matter of

San Mateo County Times

The undersigned deposes that he/she is the Public Notice Advertising Clerk of the SAN MATEO COUNTY TIMES, a newspaper of general circulation as defined by Government Code Section 6000, adjudicated as such by the Superior Court of the State of California, County of San Mateo (Order Nos. 55795 on September 21, 1951), which is published and circulated in said county and state daily (Sunday excepted).

The PUBLIC NOTICE

was published in every issue of the SAN MATEO COUNTY TIMES on the following date(s):

06/01/2021, 06/08/2021

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated: June 8, 2021



Public Notice Advertising Clerk

Legal No.

0006579808



NOTICE IS HERBY GIVEN that the City of East Palo Alto, California, will hold a PUBLIC HEARING on June 15, 2021 at 6:30 p.m. by virtual meeting to consider proposed revisions and updates to the 2020 Urban Water Management Plan (UWMP) and associated Water Shortage Contingency Plan (WSCP). In conjunction with the update to the UWMP, the public may also provide input on the urban water use target included in the UWMP, any impacts to the local economy, and East Palo Alto's method of determining its urban water use target.

Public Draft Release Date: Friday May 28, 2021 (Updated Date)

Public Hearing: Tuesday, June 15, 2021 at 6:30 p.m. at City Hall, 2415 University Avenue, East Palo Alto, CA via a ZOOM call. Visit <https://www.cityofepa.org/citycouncil> for the City Council meeting agenda and for links to the virtual public hearing.

Please contact Batool Zaro at bzaro@cityofepa.org or (650)388-8921 with any questions. The UWMP and associated WSCP are available for public review at <https://www.cityofepa.org/publicworks/project/urban-water-management-plan-update-2020>.

SMCT#6579808; June 1,8,2021



Appendix D

SB X7-7 Compliance Tables

SB X7-7 2020 Compliance Form

The SB X7-7 2020 Compliance Form is for the calculation of 2020 compliance only. All retail suppliers must complete the SB X7-7 Compliance Form. Baseline and target calculations are done in the SB X 7-7 Verification Form.

The SB X7-7 Verification Form is for the calculation of baselines and targets and is a separate workbook from the SB X7-7 2020 Compliance Form.

Most Suppliers will have completed the SB X7-7 Verification Form with their 2015 UWMP and do not need to complete this form again in 2020. See Chapter 5 Section 5.3 of the UWMP Guidebook for more information regarding which Suppliers must, or may, complete the SB X7-7 Verification Form for their 2020 UWMP. 2020 compliance calculations are done in the SB X7-7 2020 Compliance Form.

Process Water Deduction tables will not be entered into WUE Data Portal tables.

SB X7-7 tables 4-C, 4-C.1, 4-C.2, 4-C.3, 4-C.4 and 4-D

A supplier that will use the process water deduction will complete the appropriate tables in Excel, submit them as a separate upload to the WUE Data Portal, and include them in its UWMP.

Where to submit? Suppliers submit the completed table data and UWMPs (including the Water Shortage Contingency Plan) electronically through the WUE Data Portal (<https://wuedata.water.ca.gov/>). The portal will be updated in Spring 2021 and will be announced to the urban listserv, DWR webpage and WUE Data Portal opening page when it is available for plan and table submittals.

Unlocking templates (use with caution): The templates provided in this workbook are formatted to mirror the structure of information that is submitted through the WUE Data Portal for the electronic submission of Submittal Tables in the UWMP. The tables are offered in a protected (locked) version to maintain the structure of the templates. However, for those needing to adjust the tables for their own planning needs beyond the Submittal Tables, the password to 'unprotect' each worksheet is 'dwr' (no quotes). To unprotect the worksheet, go to the Review tab, select Unprotect Sheet, and enter the password 'dwr' in the pop-up (no quotes). Preparers will still need to submit the information using the original template structure provided. To redownload the templates in their original format, visit <https://wuedata.water.ca.gov> in the Resources button of the Urban Water Management Plan section (no login necessary).

SB X7-7 Table 0: Units of Measure Used in 2020 UWMP*

(select one from the drop down list)

Million Gallons

**The unit of measure must be consistent throughout the UWMP, as reported in Submittal Table 2-3.*

NOTES:

SB X7-7 Table 2: Method for 2020 Population Estimate

Method Used to Determine 2020 Population
(may check more than one)

**1. Department of Finance (DOF) or
American Community Survey (ACS)**

2. Persons-per-Connection Method

3. DWR Population Tool

4. Other
DWR recommends pre-review

NOTES:

SB X7-7 Table 3: 2020 Service Area Population

2020 Compliance Year Population

2020	25,935
-------------	--------

NOTES:

SB X7-7 Table 4: 2020 Gross Water Use

Compliance Year 2020	2020 Volume Into Distribution System <i>This column will remain blank until SB X7-7 Table 4-A is completed.</i>	2020 Deductions					2020 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>	
	572			-		-	572

* Units of measure (AF, MG , or CCF) must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.

NOTES:

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment

Complete one table for each source.

Name of Source SFPUC

This water source is (check one):

The supplier's own water source

A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System ¹	Meter Error Adjustment ² <i>Optional</i> (+/-)	Corrected Volume Entering Distribution System
	572	-	572

¹ **Units of measure (AF, MG, or CCF)** must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.

² **Meter**

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

NOTES

SB X7-7 Table 5: 2020 Gallons Per Capita Per Day (GPCD)

2020 Gross Water <i>Fm SB X7-7 Table 4</i>	2020 Population <i>Fm</i> <i>SB X7-7 Table 3</i>	2020 GPCD
572	25,935	60

NOTES:

SB X7-7 Table 9: 2020 Compliance

Actual 2020 GPCD ¹	Optional Adjustments to 2020 GPCD				2020 Confirmed Target GPCD ^{1,2}	Did Supplier Achieve Targeted Reduction for 2020?	
	Enter "0" if Adjustment Not Used			TOTAL Adjustments ¹			Adjusted 2020 GPCD ¹ <i>(Adjusted if applicable)</i>
	Extraordinary Events ¹	Weather Normalization ¹	Economic Adjustment ¹				
60	-	-	-	-	60	124	YES

¹ All values are reported in GPCD

² **2020 Confirmed Target GPCD** is taken from the Supplier's SB X7-7 Verification Form Table SB X7-7, 7-F.

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>
<p>NOTES:</p>				

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:



Appendix E

Conceptual Analysis of Adding O'Connor Tract Co-operative Water Company and Palo Alto Park Mutual Water Company Systems into the City of East Palo Alto's Service Area



1. INTRODUCTION

The following appendix describes the potential impacts of incorporating the O'Connor Tract Co-operative Water Company (O'Connor Tract) and the Palo Alto Park Mutual Water Company (PAPMWC) water systems into the City of East Palo Alto's (City's or East Palo Alto's) service area. This analysis is purely conceptual and the City does not currently have plans to add either system into its service area. Included is an analysis of: (1) additional water demands that would be incurred by the City from absorption of the two systems; and (2) the potential effects on water supply reliability assuming assimilation of the O'Connor Tract's and PAPMWC's groundwater supply wells into the City's water supply portfolio.

As discussed below and shown in the following charts, cutbacks to the San Francisco Public Utilities Commission (SFPUC) Regional Water System (RWS) are significantly offset in both supply reliability scenarios with the inclusion of the O'Connor Tract and PAPMWC supplies during multiple dry year conditions.

2. SYSTEM DESCRIPTIONS

The O'Connor Tract and PAPMWC serve customers in or around the City's sphere of influence. The O'Connor Tract (Public Water System [PWS] #CA4110019) serves a population of approximately 3,130 customers via 348 connections in portions of Menlo Park and East Palo Alto, while PAPMWC (PWS #CA4110020) serves approximately 2,900 customers via 692 connections in East Palo Alto. The O'Connor Tract serves entirely residential customers, while PAPMWC serves primarily residential customers along with three commercial customers. Below is a summary of each system's water infrastructure:

O'Connor Tract

- Two groundwater production wells with a total production rate of 740 gallons per minute (gpm);
- Chlorine storage and injection;
- One triplex pump station;
- One 100,000-gallon potable water storage tank;
- Two hydropneumatic tanks; and
- Two emergency connections (East Palo Alto and Menlo Park).

PAPMWC

- Five wells (one permanently off-line, one temporarily off-line) with a total production rate of 1,790 gpm¹;
- Chlorine storage and injection;

¹ Total production rate is based on historical flow rates provided by PAPMWC, excluding the well that is permanently off-line.



- One duplex pump station;
- One 350,000-gallon tank; and
- One 11,500-gallon tank.

3. HISTORICAL AND PROJECTED WATER DEMAND

This section documents historical water use by the O’Connor Tract and PAPMWC from 2016-2020 and discusses the basis, methodology, and resulting projected total water demands for the two systems through 2045. For comparison purposes, the City’s historical and projected demands (as described in the City’s 2020 Urban Water Management Plan [UWMP]; see Tables 4-2 and 4-4) have also been included.

3.1 Historical Water Demand

All demands within both the O’Connor Tract and PAPMWC service areas are currently met with potable water produced from groundwater supply wells. The current and historical water demands include the 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 (i.e., “losses”). Water demands during the 2016-2020 time period for the O’Connor Tract and PAPMWC are shown below in Table 1².

Table 1 Historical Water Demand

System	Volume					
	2016	2017	2018	2019	2020	Average (2017-2018)
O’Connor Tract	80	86	90	90	97	88
PAPMWC	114	124	126	105	112	125
East Palo Alto	514	550	566	556	572	--
NOTES: (a) Volumes are in units of MG. (b) Data are presented on a fiscal-year basis. (c) The average water use for 2017 and 2018 was used to represent “average post-drought usage” for PAPMWC and O’Connor Tract because it excludes anomalous years (i.e., complete data for 2016, 2019 and 2020 were not available for PAPMWC, and water use in 2020 for O’Connor Tract appears to be impacted by COVID 19 restrictions). (d) East Palo Alto water demands are from Table 4-2 of the UWMP.						

² Historical demands for the O’Connor Tract are based on monthly metered consumption data, while demands for PAPMWC are based on monthly well production data.



3.2 Projected Residential Per Capita Water Use

Table 2 below shows the projected per capita residential water use for each system in gallons per capita per day (GPCD) for 2025. As shown in Table 4-8 of the UWMP, the per capita residential usage within the City is projected to remain constant between 2025 and 2045. Therefore, for this analysis, it is assumed that per capita residential water use within O’Connor Tract and PAPMWC would also remain constant during this planning period. As shown in Table 2, given that per capita water use for both the O’Connor Tract and PAPMWC is substantially higher than for the City, there are likely water conservation opportunities that could be realized within those systems.

Table 2 2025 Per Capita Residential Water Use

System	Population	Residential Potable Water Demand (MG) in 2025	Per Capita Residential Potable Water Use (GPCD) in 2025
O’Connor Tract	3,128	88	77
PAPMWC	2,900	123	116
East Palo Alto	27,215	529	53
NOTES: (a) 2025 water demands for the O’Connor Tract and PAMMWC are assumed to stay fixed at the values shown in Table 1, exclusive of PAMMWC’s commercial usage. The population of both systems is assumed to remain fixed. (b) East Palo Alto 2025 population and water demands are from Table 3-1 and Table 4-4 of the City’s UWMP, respectively.			

3.3 Projected Potable Water Demand

The future water demands for the O’Connor Tract and PAMMWC were estimated by evaluating average demand for each system and assuming limited growth within each systems’ respective service area.

Specifically, as shown in Table 1, average historical water demand between 2017 and 2018 was used for as the basis to estimate projected water demands for each system, because it appears that those years include complete data and best represent post-drought, pre-COVID water demands³. Given that both the O’Connor Tract and PAMMWC are largely built out, the population of each of the systems is not expected to increase significantly through the planning horizon, and, as discussed in Section 3.2, per capita usage is assumed to remain constant. Therefore, water demands are also conservatively projected to remain constant at the post-drought level of usage.

Table 3 below mirrors Table 4-4 in the UWMP and shows the projected demands for the O’Connor Tract, PAMMWC, and the City for the 2025-2045 planning period. Demands for the O’Connor Tract and PAMMWC do not consider water savings due to passive and active conservation, whereas demands for the City include water savings due to passive conservation.

³ Complete data was not available in 2016, 2019, and 2020 for PAMMWC, and demands for O’Connor Tract were potentially impacted by COVID 19 stay-at-home orders.



Table 3 Projected Potable Water Demand

System	Volume				
	2025	2030	2035	2040	2045
O'Connor Tract (b)	88	88	88	88	88
PAPMWC (b)	125	125	125	125	125
City of East Palo Alto (c)	692	721	779	927	1,078
TOTAL	905	934	991	1,140	1,290
NOTES: (a) Volumes are in units of MG. (b) Values from Table 1. Demand projections for O'Connor Tract and PAPMWC do not include estimates of passive or active water conservation savings. (c) See Table 4-4 of the City's UWMP.					

4. WATER SUPPLY RELIABILITY

This section includes an analysis of the potential impacts and benefits on water supply reliability of incorporating the O'Connor Tract and PAPMWC into the City's distribution system.

4.1 East Palo Alto Water Supply Availability

As discussed in Section 6.9 of the City's UWMP, normal year supply projections for East Palo Alto include water supplied by the SFPUC RWS, as well as local groundwater supplied by the City's Gloria Way groundwater well. Normal year SFPUC RWS water supply availability is based on the City's Individual Supply Guarantee (ISG) of 3.46 million gallons per day (MGD), or 1,264 MG per year.

Under dry year conditions, SFPUC water supply availability is based on a percentage of the City's demands, consistent with the revised Bay Area Water Supply and Conservation Agency (BAWSCA) Drought Methodology that assumes equal percentage cutbacks across all Wholesale Agencies supplied by SFPUC (see Appendix G of the City's UWMP). More information regarding dry year supply availability can be found in Section 7.1 of the City's UWMP. Table 4 below (consistent with Table 7-2 of the City's UWMP) shows the projected water supply availability under normal and dry year conditions for the City per the projections and assumed allocations provided by SFPUC and BAWSCA.



Table 4 Projected SFPUC Water Supply Availability

Base Year	Normal Year	Single Dry Year	Multiple Dry Years				
			Year 1	Year 2	Year 3	Year 4	Year 5
2025	100%	64%	64%	55%	55%	55%	55%
2030	100%	64%	64%	55%	55%	55%	55%
2035	100%	64%	64%	54%	54%	54%	50%
2040	100%	63%	63%	54%	54%	48%	48%
2045	100%	54%	54%	54%	54%	46%	46%

NOTES:
 (a) Normal-year water supply availability is presented in terms of percentage of East Palo Alto’s ISG (3.46 MGD).
 (b) Dry-year water supply availability is presented in terms of percentage of projected RWS demands for each base year (Table 3) consistent the revised BAWSCA Drought Methodology that assumes equal percent cutbacks across all Wholesale Agencies.
 (c) Results reflect scenario with Bay-Delta Plan Amendment implemented in 2023 and the use projected RWS purchases.

Table 5 below shows the projected SFPUC RWS water supply availability based on the demands shown in Table 3 and the percentages shown for single and multiple dry years in Table 4.

Table 5 Projected SFPUC Water Supply Availability – Volumes

Base Year	Normal Year	Single Dry Year	Multiple Dry Years				
			Year 1	Year 2	Year 3	Year 4	Year 5
2025	905	579	579	498	498	498	498
2030	934	598	598	513	513	513	513
2035	991	634	634	535	535	535	496
2040	1,140	718	718	615	615	547	547
2045	1,290	697	697	697	697	594	594

NOTES:
 (a) Volumes are in units of MG.
 (b) Water supply availability is based on the demands shown in Table 3 multiplied by the percentages shown for single and multiple dry years in Table 4.

4.2 Water Service Reliability – Normal Year

Table 6 and the associated chart below mirrors Table 7-3 in the City’s UWMP and shows the projected supply and demand totals under normal year conditions. It is expected that, under normal conditions, both the O’Connor Tract and PAPMWC demands could be met primarily by East Palo Alto’s water supply from the SFPUC RWS (more information regarding the City’s normal year supply availability can be found



in Section 7.1 of the City’s UWMP). It is estimated that approximately 16 MG of water would be supplied by the O’Connor Tract and PAMWVC groundwater wells as part of regular well maintenance⁴.

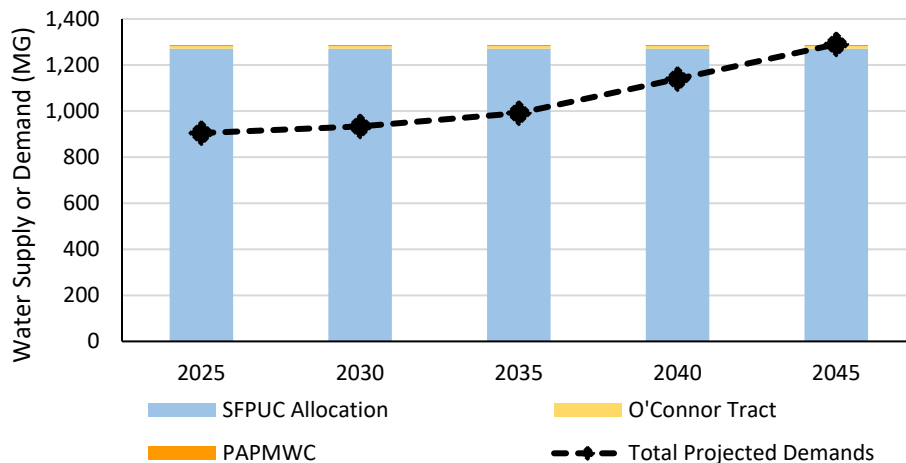
With the inclusion of the O’Connor Tract and PAMWVC water demands, the City is expected to have adequate water supplies during normal years to meet its projected demands through 2040, but would experience a slight supply shortfall by 2045 unless the City’s groundwater production were increased. As discussed in Section 3.2, demands for the O’Connor Tract and PAMWVC do not include estimates of passive or active conservation savings, and thus demands for these systems could potentially be reduced through incorporation of those system’s customers into the City’s water conservation programs.

Table 6 Normal Year Supply and Demand Comparison (DWR Table 7-2)

	2025	2030	2035	2040	2045
Supply totals	1,287	1,287	1,287	1,287	1,287
Demand totals	905	934	991	1,140	1,290
Difference	382	353	296	147	(4)

NOTES:
 (a) Volumes are in units of MG.
 (b) Supply volumes include the City’s SFPUC RWS, the City’s Gloria Way well, and a baseline production of 16 MG from the O’Connor Tract’s and PAMWVC’s groundwater wells.

Chart 6 Normal Year Supply vs. Demand



⁴ Normal year well production for the O’Connor Tract and PAMWVC is based on an assumption that each well would be operated for two hours per week to support well maintenance, or 104 hours of production per year. The wells in O’Connor Tract have a total flow rate of 740 gpm, and the wells in PAMWVC have a total flow rate of 1,790 gpm.



4.3 O’Connor Tract and PPMWC Dry Year Water Supply Availability Scenarios

Under dry year water supply conditions, it is assumed that the O’Connor Tract and PPMWC wells would be available to help meet potential supply shortfalls from the SFPUC RWS. Two scenarios are presented below detailing the City’s potential supply reliability under dry year conditions, as well as the impacts on the City’s reliability estimates for single dry year and multiple dry year conditions under each scenario.

Scenario 1 assumes that the water supplies available from the O’Connor Tract and PPMWC systems during dry years would be equal to the maximum annual demand (production) of each system over the last five years (i.e., 97 MG in 2020 from the O’Connor Tract and 126 MG from PPMWC in 2018) based on production records provided by PPMWC and O’Connor Tract.

Scenario 2 assumes that that the water supplies available from the O’Connor Tract and PPMWC systems during dry years would be equal to the maximum monthly demand (production) of each system from the last five years (i.e., 9.5 MG in June 2020 for the O’Connor Tract and 15 MG in August 2016 for PPMWC) based on production records provided by PPMWC and O’Connor Tract.

These two scenarios represent a potential range of supplemental water supplies that could be available to the City during dry years to offset the cutbacks from the SFPUC RWS.

4.3.1 O’Connor Tract and PPMWC Dry Year Water Supply Availability - Scenario 1

As described above, Scenario 1 assumes that the maximum annual demand from the O’Connor Tract and PPMWC systems from the last five years will be available as a supplemental supply source through 2045. Table 7 below shows the assumed availability of dry-year supply for the O’Connor Tract and PPMWC based on the maximum annual demand, as well as projected supplies for the City’s Gloria Way well. Supply volumes from the SFPUC RWS under normal, single dry and multiple dry year conditions are shown above in Table 5.

Table 7 Projected Dry Year Groundwater Supply Availability (Scenario 1)

System	Volume				
	2025	2030	2035	2040	2045
O’Connor Tract (b)	97	97	97	97	97
PPMWC (b)	126	126	126	126	126
City Well(s) (c)	7	7	7	7	7
TOTAL	229	229	229	229	229
NOTES: (a) Volumes are in units of MG. (b) Supplies are based on the maximum annual demand (production) of each system from the last five years based on production records provided by PPMWC and O’Connor Tract. (c) Assumes Gloria Way Well production at 150 gpm for 7 hours per day and 2 days per week, based on current operation.					



4.3.1.1 Water Service Reliability – Single Dry Year (Scenario 1)

Table 8 below mirrors Table 7-4 in the UWMP and shows the projected supply and demand totals under single dry year conditions under Scenario 1⁵. Under these conditions, it is expected that water supplies from the O’Connor Tract and PAPMWC wells will be available to help offset supply shortfalls experienced by the City.

Table 8 Single Dry Year Supply and Demand Comparison (Scenario 1) (DWR Table 7-3)

	2025	2030	2035	2040	2045
Supply totals	808	827	864	947	926
Demand totals	905	934	991	1,140	1,290
Difference	(96)	(107)	(128)	(192)	(364)
NOTES: (a) Volumes are in units of MG. (b) Includes supply from the SFPUC RWS (Table 5), the City's Gloria Way Well, and the O’Connor Tract and PAPMWC groundwater wells (Table 7).					

4.3.1.2 Water Service Reliability – Multiple Dry Years (Scenario 1)

Table 9 and the associated chart below mirrors Table 7-5 in the UWMP and shows the projected supply and demand totals under multiple dry year conditions under Scenario 1⁵. Under these conditions, it is expected that water supplies from the O’Connor Tract and PAPMWC wells will be available to help offset supply shortfalls experienced by the City.

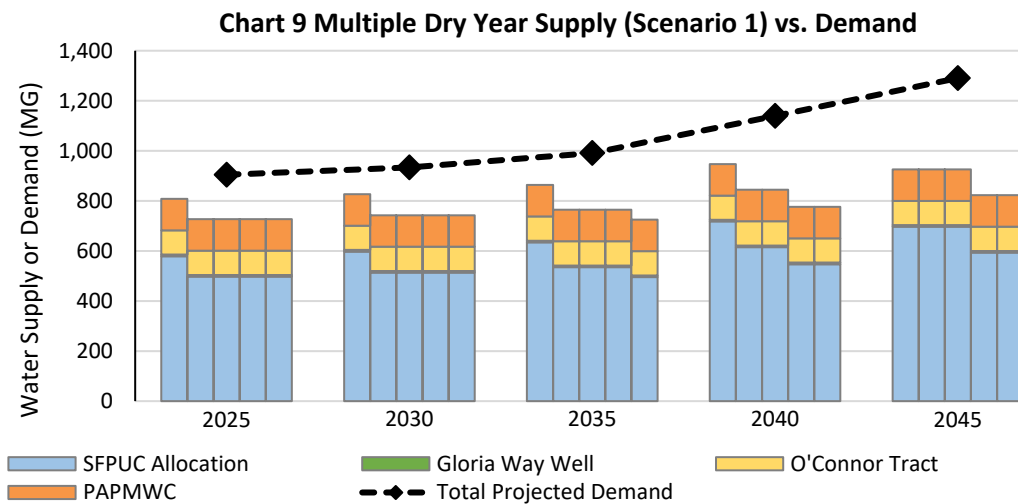
⁵ As described above, supplies include the volumes listed in Table 7 as well as the projected allocation from the SFPUC RWS, which is based on a percentage of the City’s demands, including demands from O’Connor Tract and PAPMWC (see Table 3).



Table 9 Multiple Dry Years Supply and Demand Comparison (Scenario 1) (DWR Table 7-4)

		2025	2030	2035	2040	2045
First year	Supply totals	808	827	864	947	926
	Demand totals	905	934	991	1,140	1,290
	Difference	(96)	(107)	(128)	(192)	(364)
Second year	Supply totals	727	743	765	845	926
	Demand totals	905	934	991	1,140	1,290
	Difference	(178)	(191)	(227)	(295)	(364)
Third year	Supply totals	727	743	765	845	926
	Demand totals	905	934	991	1,140	1,290
	Difference	(178)	(191)	(227)	(295)	(364)
Fourth year	Supply totals	727	743	765	776	823
	Demand totals	905	934	991	1,140	1,290
	Difference	(178)	(191)	(227)	(363)	(468)
Fifth year	Supply totals	727	743	725	776	823
	Demand totals	905	934	991	1,140	1,290
	Difference	(178)	(191)	(266)	(363)	(468)

NOTES:
 (a) Volumes are in units of MG.
 (b) Includes supply from the SFPUC RWS (Table 5), the City's Gloria Way Well, and the O'Connor Tract and PAPMWC groundwater wells (Table 7).



4.3.1.3 Drought Risk Assessment (Scenario 1)

In addition to the long-term water service reliability assessment presented above, the Drought Risk Assessment (DRA) evaluates the City's supply risks under a severe drought period lasting for the next five

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consecutive years after the assessment is completed, i.e., from 2021 through 2025. The DRA is intended to inform the demand management measures and water supply projects and programs to be included in the City’s UWMP (see Appendix J and Section 9 of the main UWMP).

Table 10 below mirrors Table 7-8 in the UWMP and provides a comparison of the water supply sources available to East Palo Alto with the total projected water use for an assumed drought period of 2021 through 2025 with inclusion of additional supplies and demands from the O’Connor Tract and PAPMWC water systems under Scenario 1. The City is expected to experience significant shortfalls on the SFPUC RWS in years 2023-2025 of the DRA with unconstrained demands because of the assumed implementation of the Bay-Delta Plan Amendment in 2023, however added dry-year supply from the O’Connor Tract and PAPMWC water systems would significantly reduce the need for demand reduction measures over the next five years.

Table 10 **Five-Year Drought Risk Assessment Tables to Address Water Code 10635(b) (Scenario 1) (DWR Table 7-5)**

2021	Total
Total Water Use	827
Total Supplies	827
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
Resulting % Use Reduction from WSCP action	

2022	Total
Total Water Use	850
Total Supplies	850
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
Resulting % Use Reduction from WSCP action	



Table 10 Five-Year Drought Risk Assessment Tables to Address Water Code 10635(b) (Scenario 1) (DWR Table 7-5)

2023	Total
Total Water Use	875
Total Supplies	453
Surplus/Shortfall w/o WSCP Action	(421)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	354
WSCP - use reduction savings benefit	67
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	48%

2024	Total
Total Water Use	900
Total Supplies	453
Surplus/Shortfall w/o WSCP Action	(446)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	354
WSCP - use reduction savings benefit	92
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	50%

2025	Total
Total Water Use	905
Total Supplies	453
Surplus/Shortfall w/o WSCP Action	(451)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	354
WSCP - use reduction savings benefit	97
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	50%

NOTES:

- (a) Volumes are in units of MG.
- (b) Assumes use of Pad D well at 500 gpm, 12 hrs/day, year-round to augment supplies during the projected shortage of greater than 40%.
- (c) Assumes dry-year supplies from Gloria Way, O'Connor Tract and PAPMWC wells at rates shown in Table 7.

Based on the above analysis, it appears that under Scenario 1, required demand cutbacks during single dry years would range from 11% - 28% and during multiple dry years would range from 20% - 36%.



Required demand cutbacks for both scenarios are significantly less than those presented in the UWMP (i.e., without wells from O’Connor Tract and PAPMWC). Those required demand cutbacks ranged from 17% - 34% during single dry years, and 26% - 42% during multiple dry years.

4.3.2 O’Connor Tract and PAPMWC Dry Year Water Supply Availability - Scenario 2

Under Scenario 2, projected dry year supplies for the O’Connor Tract and PAPMWC are estimated using the maximum monthly demand for each system from the last five years and multiplying that number by twelve months to get an annual supply. Table 11 below shows the assumed availability of dry-year supply for each system based on the maximum monthly demand from the last five years, as well as projected supplies for the City’s Gloria Way well. Supply volumes from the SFPUC RWS under normal, single dry and multiple dry year conditions are shown above in Table 5.

Table 11 Projected Dry Year Groundwater Supply Availability (Scenario 2)

System	Volume				
	2025	2030	2035	2040	2045
O’Connor Tract (b)	123	123	123	123	123
PAPMWC (b)	179	179	179	179	179
City Well(s) (c)	7	7	7	7	7
TOTAL	308	308	308	308	308
NOTES: (a) Volumes are in units of MG. (b) Projected supplies are estimated based on the maximum monthly demand for each system from the last five years. (c) Assumes Gloria Way Well production at 150 gpm for 7 hours per day and 2 days per week, based on current operation.					

Although this supply scenario is based on a maximum monthly production rates that are assumed to occur year-round during a dry-year sequence, which may not be a normally sustainable operations scheme, it could be viable if operated as a conjunctive use program, wherein the City “stores” the groundwater during normal and wet years and extracts the water only during dry years. A conjunctive use program similar to the one described herein is currently being implemented in the Westside Basin by the SFPUC, the Cities of San Bruno and Daly City, and the California Water Service Company.

4.3.2.1 Water Service Reliability – Single Dry Year (Scenario 2)

Table 12 below mirrors Table 7-4 in the UWMP and shows the projected supply and demand totals under single dry year conditions under Scenario 2⁶. Under these conditions, it is expected that water supplies

⁶ As described above, supplies include the volumes listed in Table 11 as well as the projected allocation from the SFPUC RWS, which is based on a percentage of the City’s demands, including demands from O’Connor Tract and PAPMWC (see Table 3).



from the O'Connor Tract and PPMWC wells will be available to help offset supply shortfalls experienced by the City.

Table 12 Single Dry Year Supply and Demand Comparison (Scenario 2) (DWR Table 7-3)

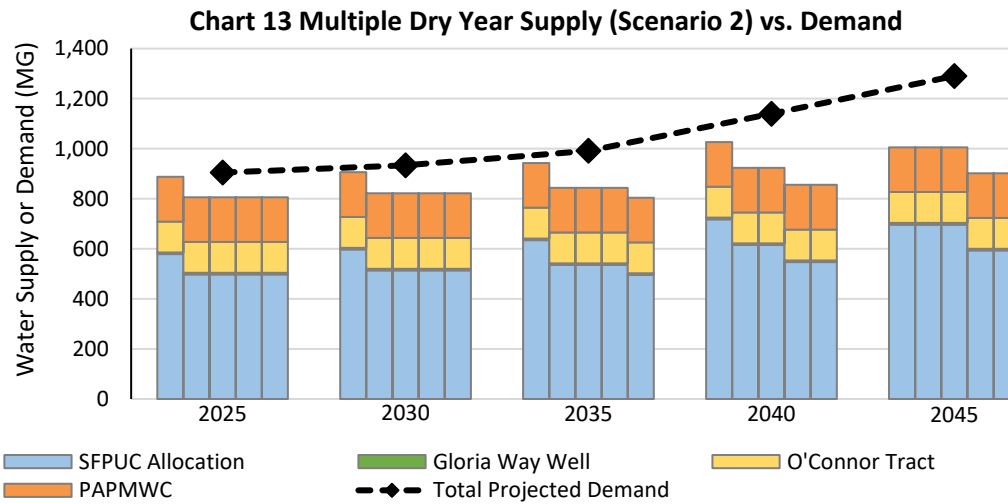
	2025	2030	2035	2040	2045
Supply totals	887	906	943	1,026	1,005
Demand totals	905	934	991	1,140	1,290
Difference	(17)	(28)	(48)	(113)	(285)
NOTES: (c) Volumes are in units of MG. (d) Includes supply from the SFPUC RWS (Table 5), the City's Gloria Way Well, and the O'Connor Tract and PPMWC groundwater wells (Table 11).					

4.3.2.2 *Water Service Reliability – Multiple Dry Years (Scenario 2)*

Table 13 and the associated chart below mirrors Table 7-5 in the UWMP and shows the projected supply and demand totals under multiple dry year conditions under Scenario 2⁶. Under these conditions, it is expected that water supplies from the O'Connor Tract and PPMWC wells will be available to help offset supply shortfalls experienced by the City.

Table 13 Multiple Dry Years Supply and Demand Comparison (Scenario 2) (DWR Table 7-4)

		2025	2030	2035	2040	2045
First year	Supply totals	887	906	943	1,026	1,005
	Demand totals	905	934	991	1,140	1,290
	Difference	(17)	(28)	(48)	(113)	(285)
Second year	Supply totals	806	822	844	924	1,005
	Demand totals	905	934	991	1,140	1,290
	Difference	(99)	(112)	(148)	(216)	(285)
Third year	Supply totals	806	822	844	924	1,005
	Demand totals	905	934	991	1,140	1,290
	Difference	(99)	(112)	(148)	(216)	(285)
Fourth year	Supply totals	806	822	844	855	902
	Demand totals	905	934	991	1,140	1,290
	Difference	(99)	(112)	(148)	(284)	(388)
Fifth year	Supply totals	806	822	804	855	902
	Demand totals	905	934	991	1,140	1,290
	Difference	(99)	(112)	(187)	(284)	(388)
NOTES: (c) Volumes are in units of MG. (d) Includes supply from the SFPUC RWS (Table 5), the City's Gloria Way Well, and the O'Connor Tract and PPMWC groundwater wells (Table 11).						



4.3.2.3 Drought Risk Assessment (Scenario 2)

Table 14 below mirrors Table 7-8 in the UWMP and provides a comparison of the water supply sources available to East Palo Alto with the total projected water use for an assumed drought period of 2021 through 2025 with inclusion of additional supplies and demands from the O'Connor Tract and PAMMWC water systems under Scenario 2. The City is expected to experience significant shortfalls on the SFPUC RWS in years 2023-2025 of the DRA with unconstrained demands because of the assumed implementation of the Bay-Delta Plan Amendment in 2023, however added dry-year supply from the O'Connor Tract and PAMMWC water systems would significantly reduce the need for demand reduction measures over the next five years.



Table 14 Five-Year Drought Risk Assessment Tables to Address Water Code 10635(b) (Scenario 2) (DWR Table 7-5)

2021	Total
Total Water Use	827
Total Supplies	827
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
Resulting % Use Reduction from WSCP action	

2022	Total
Total Water Use	850
Total Supplies	850
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
Resulting % Use Reduction from WSCP action	

2023	Total
Total Water Use	875
Total Supplies	453
Surplus/Shortfall w/o WSCP Action	(421)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	433
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	12
Resulting % Use Reduction from WSCP action	50%



Table 14 Five-Year Drought Risk Assessment Tables to Address Water Code 10635(b) (Scenario 2) (DWR Table 7-5)

2024	Total
Total Water Use	900
Total Supplies	453
Surplus/Shortfall w/o WSCP Action	(446)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	433
WSCP - use reduction savings benefit	13
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	50%

2025	Total
Total Water Use	905
Total Supplies	453
Surplus/Shortfall w/o WSCP Action	(451)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	433
WSCP - use reduction savings benefit	18
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	50%

NOTES:

- (d) Volumes are in units of MG.
- (e) Assumes use of Pad D well at 500 gpm, 12 hrs/day, year round to augment supplies during the projected shortage of greater than 40%.
- (f) Assumes dry-year supplies from Gloria Way, O'Connor Tract and PAPMWC wells at rates shown in Table 11.

Under Scenario 2, required demand cutbacks during single dry years would range from 2% - 22% and during multiple dry years would range from 11% - 30%. Required demand cutbacks for both scenarios are significantly less than those presented in the City's UWMP (i.e., without wells from O'Connor Tract and PAPMWC). Those required demand cutbacks ranged from 17% - 34% during single dry years, and 26% - 42% during multiple dry years.

5. DISCUSSION AND CONCLUSIONS

As discussed above, the additional demands incurred from the O'Connor Tract and PAPMWC customers can be met with the City's ISG during normal years through 2040, with only a small deficit in 2045 that could likely be offset through water conservation in those systems or increased groundwater use. Under single and multiple dry year conditions, use of both system's groundwater wells can help offset the



significant cutbacks faced by the SFPUC RWS. Two scenarios were analyzed using different methods of calculating projected supply availability for both systems, as described in Section 4.

- Under Scenario 1, required demand cutbacks during single dry years would range from 11% - 28% and during multiple dry years would range from 20% - 36%.
- Under Scenario 2, required demand cutbacks during single dry years would range from 2% - 22% and during multiple dry years would range from 11% - 30%.
- Required demand cutbacks for both scenarios are significantly less than those presented in the City's UWMP (i.e., without wells from O'Connor Tract and PAPMWC). Those required demand cutbacks ranged from 17% - 34% during single dry years, and 26% - 42% during multiple dry years.

Furthermore, the five-year drought risk assessment under either scenario indicates that these supplemental supply sources could significantly reduce the need for demand reduction measures over the next five years.

5.1 Uncertainties and Limitations

The analysis presented herein is based on the best available data and has numerous uncertainties regarding supply availability and projected demands. The water supply reliability analysis assumes that SFPUC RWS allocations to the City would increase based on the increase in City demands incurred by the two new systems. As discussed above, the methodology SFPUC is assuming for drought allocations during shortages greater than 20% has not been formally agreed to by BAWSCA member agencies. Therefore, these supply projections could potentially be drastically different than assumed (See Section 7.1.3.4 of the main UWMP for more discussion on uncertainties regarding SFPUC drought allocations).

Additionally, the demand projections for both the O'Connor Tract and PAPMWC are assumed to be constant over the planning period, but it is possible that demands may increase or reduce over time given shifts in population or water use in those communities. Lastly, groundwater supplies for the O'Connor Tract and PAPMWC were not evaluated with respect to the sustainable yield of the groundwater basin and thus the amount of groundwater supply available to the City during dry year conditions under Scenario 2 could potentially be different than what is presented in this analysis⁷. Given these uncertainties, the analysis presented herein should be considered a conceptual analysis to help the City determine the potential impacts and benefits of incorporating the O'Connor Tract and PAPMWC into their distribution system.

⁷ Under Scenario 1, long-term average groundwater use would be less than current conditions. Depending on the actual frequency of dry year conditions, long-term average groundwater use under Scenario 2 could also be less than current conditions.



Appendix F

SFPUC AND BAWSCA COMMON LANGUAGE FOR 2020 UWMPs

Draft Common Language for BAWSCA Member Agencies' 2020 UWMPs

Tier One Drought Allocations

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

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

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 as well as between Wholesale Customers themselves. In addition, water "banked" by a Wholesale Customer, through reductions in usage greater than required, may also be transferred.

As amended in 2018, the Tier One Plan requires Retail Customers to conserve a minimum of 5% during droughts. If Retail Customer demands are lower than the Retail Customer allocation (resulting in a "positive allocation" to Retail¹) then the excess percentage would be re-allocated to the Wholesale Customers' share. The additional water conserved by Retail Customers up to the minimum 5% level is deemed to remain in storage for allocation in future successive dry years.

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

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

¹ See Water Supply Agreement, Water Shortage Allocation Plan (Attachment H), Section 2.1.

Section 350. Separate from a declaration of a water shortage emergency, the SFPUC may opt to request voluntary cutbacks from its Retail and Wholesale Customers to achieve necessary water use reductions during drought periods.

Tier Two Drought Allocations

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

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

The water made available to the Wholesale Customers collectively will be allocated among them in proportion to each Wholesale Customer's Allocation Basis, expressed in millions of gallons per day (mgd), which in turn is the weighted average of two components. The first component is the Wholesale Customer's Individual Supply Guarantee, as stated in the WSA, and is fixed. The second component, the Base/Seasonal Component, is variable and is calculated using the monthly water use for three consecutive years prior to the onset of the drought for each of the Wholesale Customers for all available water supplies. The second component is accorded twice the weight of the first, fixed component in calculating the Allocation Basis. Minor adjustments to the Allocation Basis are then made to ensure a minimum cutback level, a maximum cutback level, and a sufficient supply for certain Wholesale Customers.

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

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

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

Individual Supply Guarantee

San Francisco has a perpetual commitment (Supply Assurance) to deliver 184 mgd to the 24 permanent Wholesale Customers collectively. San Jose and Santa Clara are not included in the Supply Assurance commitment and each has temporary and interruptible water supply

contracts with San Francisco. The Supply Assurance is allocated among the 24 permanent Wholesale Customers through Individual Supply Guarantees (ISG), which represent each Wholesale Customer's allocation of the 184 mgd Supply Assurance.

[Name of Agency's] ISG is _____ mgd.

2028 SFPUC Decisions (formerly 2018 SFPUC Decisions)

[Note: This section is intended to be optional language that individual BAWSCA member agencies may use.]

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

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

Events since 2009 made it difficult for the SFPUC to conduct the necessary water supply planning and CEQA analysis required to make these three decisions before 2018. Therefore, in the 2018 Amended and Restated WSA, the decisions were deferred for 10 years to 2028.

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

Reliability of the Regional Water System

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

The SFPUC's LOS Goals and Objectives related to water supply are:

Program Goal	System Performance Objective
Water Supply – <i>meet customer water needs in non-drought and drought periods</i>	<ul style="list-style-type: none"> • Meet all state and federal regulations to support the proper operation of the water system and related power facilities. • Meet average annual water demand of 265 mgd from the SFPUC watersheds for retail and Wholesale Customers during non–drought years for system demands consistent with the 2009 Water Supply Agreement. • Meet dry-year delivery needs while limiting rationing to a maximum 20 percent system-wide reduction in water service during extended droughts. • Diversify water supply options during non-drought and drought periods. • Improve use of new water sources and drought management, including groundwater, recycled water, conservation, and transfers.

Factors Impacting Supply Reliability

Adoption of the 2018 Bay-Delta Plan Amendment

In December 2018, the State Water Resources Control Board (SWRCB) adopted amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan Amendment) to establish water quality objectives to maintain the health of the Bay-Delta ecosystem. The SWRCB is required by law to regularly review this plan. The adopted Bay-Delta Plan Amendment was developed with the stated goal of increasing salmonid populations in three San Joaquin River tributaries (the Stanislaus, Merced, and Tuolumne Rivers) and the Bay-Delta. The Bay-Delta Plan Amendment requires the release of 30-50% of the “unimpaired flow”² on the three tributaries from February through June in every year type. In SFPUC modeling of the new flow standard, it is assumed that the required release is 40% of unimpaired flow.

If the Bay-Delta Plan Amendment is implemented, the SFPUC will be able to meet the projected water demands presented in this UWMP in normal years but would experience supply shortages in single dry years or multiple dry years. Implementation of the Bay-Delta Plan Amendment will require rationing in all single dry years and multiple dry years. The SFPUC has initiated an Alternative Water Supply Planning Program to ensure that San Francisco can meet its Retail and Wholesale Customer water needs, address projected dry years shortages, and limit rationing to a maximum 20 percent system-wide in accordance with adopted SFPUC policies. This program is in early planning stages and is intended to meet future water supply challenges and vulnerabilities such as environmental flow needs and other regulatory changes; earthquakes, disasters, and emergencies; increases in population and employment; and climate

² "Unimpaired flow represents the natural water production of a river basin, unaltered by upstream diversions, storage, or by export or import of water to or from other watersheds." (Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Dec. 12, 2018) p.17, fn. 14, available at https://www.waterboards.ca.gov/plans_policies/docs/2018wqcp.pdf.)

change. As the region faces future challenges – both known and unknown – the SFPUC is considering this suite of diverse non-traditional supplies and leveraging regional partnerships to meet Retail and Wholesale Customer needs through 2045.

The SWRCB has stated that it intends to implement the Bay-Delta Plan Amendment on the Tuolumne River by the year 2022, assuming all required approvals are obtained by that time. But implementation of the Plan Amendment is uncertain for multiple reasons.

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

Second, the Bay-Delta Plan Amendment is not self-implementing and does not automatically allocate responsibility for meeting its new flow requirements to the SFPUC or any other water rights holders. Rather, the Bay-Delta Plan Amendment merely provides a regulatory framework for flow allocation, which must be accomplished by other regulatory and/or adjudicatory proceedings, such as a comprehensive water rights adjudication or, in the case of the Tuolumne River, may be implemented through the water quality certification process set forth in section 401 of the Clean Water Act as part of the Federal Energy Regulatory Commission's licensing proceedings for the Don Pedro and La Grange hydroelectric projects. It is currently unclear when the license amendment process is expected to be completed. This process and the other regulatory and/or adjudicatory proceedings would likely face legal challenges and have lengthy timelines, and quite possibly could result in a different assignment of flow responsibility (and therefore a different water supply impact on the SFPUC).

Third, in recognition of the obstacles to implementation of the Bay-Delta Plan Amendment, the SWRCB Resolution No. 2018-0059 adopting the Bay-Delta Plan Amendment directed staff to help complete a "Delta watershed-wide agreement, including potential flow measures for the Tuolumne River" by March 1, 2019, and to incorporate such agreements as an "alternative" for a future amendment to the Bay-Delta Plan to be presented to the SWRCB "as early as possible after December 1, 2019." In accordance with the SWRCB's instruction, on March 1, 2019, SFPUC, in partnership with other key stakeholders, submitted a proposed project description for the Tuolumne River that could be the basis for a voluntary substitute agreement with the SWRCB ("March 1st Proposed Voluntary Agreement"). On March 26, 2019, the Commission adopted Resolution No. 19-0057 to support the SFPUC's participation in the Voluntary Agreement negotiation process. To date, those negotiations are ongoing under the California Natural Resources Agency and the leadership of the Newsom administration.³

Water Supply – All Year Types

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

- Tuolumne River watershed
- Alameda Creek watershed

³ California Natural Resources Agency, "Voluntary Agreements to Improve Habitat and Flow in the Delta and its Watersheds," available at <https://files.resources.ca.gov/voluntary-agreements/>.

- 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.

WSIP Dry Year Water Supply Projects

The WSIP authorized the SFPUC to undertake a number of water supply projects to meet dry-year demands with no greater than 20 percent system-wide rationing in any one year. Those projects include the following:

- **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 constructed a new dam of equal height downstream of the existing dam. Construction on the project occurred between 2011 and July 2019. The SFPUC began impounding water behind the new dam in accordance with California Division of Safety of Dams (DSOD) guidance in the winter of 2018/2019.

- **Alameda Creek Recapture Project**

As a part of the regulatory requirements for future operations of Calaveras Reservoir, the SFPUC must implement bypass and instream flow schedules for Alameda Creek. The Alameda Creek Recapture Project will recapture a portion of the water system yield lost due to the 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. Construction of this project will occur from spring 2021 to fall 2022.

- **Lower Crystal Springs Dam Improvements**

The Lower Crystal Springs Dam (LCSD) Improvements were substantially completed in November 2011. The joint San Mateo County/SFPUC Bridge Replacement Project to replace the bridge across the dam was completed in January 2019. A WSIP follow up project to modify the LCSD Stilling Basin for fish habitat and upgrade the fish water release and other valves started in April 2019. While the main improvements to the dam have been completed, environmental permitting issues for reservoir operation remain significant. While the reservoir elevation was lowered due to DSOD 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 pre-project water storage volumes can be restored.

- **Regional Groundwater Storage and Recovery Project**

The Groundwater Storage and Recovery (GSR) 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 – to conjunctively operate the south Westside Groundwater Basin. The project sustainably manages groundwater and surface water resources in a way that provides 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 in lieu of groundwater pumping. Over time, reduced pumping creates water storage through natural recharge of up to 20 billion gallons of new water supply available during dry years.

The project's Final Environmental Impact Report was certified in August 2014, and the project also received Commission approval that month. Phase 1 of this project consists of construction of thirteen well sites and is over 99 percent complete. Phase 2 of this project consists of completing construction of the well station at the South San Francisco Main site and some carryover work that has not been completed from Phase 1. Phase 2 design work began in December 2019.

- **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 had discussions with the Oakdale Irrigation District for a one-year transfer agreement with the SFPUC for 2 mgd (2,240 acre-feet). No progress towards agreement on a transfer was made in 2019, but the irrigation districts recognize SFPUC's continued interest and SFPUC will continue to pursue transfers.

In order to achieve its target of meeting at least 80 percent of its customer demand during droughts with a system demand of 265 mgd, 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.

Alternative Water Supply Planning Program

The SFPUC is increasing and accelerating its efforts to acquire additional water supplies and explore other projects that would increase overall water supply resilience through the Alternative Water Supply Planning Program. The drivers for the program include: (1) the adoption of the Bay-Delta Plan Amendment and the resulting potential limitations to RWS supply during dry years, (2) the net supply shortfall following the implementation of WSIP, (3) San Francisco's perpetual obligation to supply 184 MGD to the Wholesale Customers, (4) adopted Level of Service Goals to limit rationing to no more than 20 percent system-wide during droughts, and (5) the potential need to identify water supplies that would be required to offer permanent status to interruptible customers. Developing additional supplies through this program would reduce water supply shortfalls and reduce rationing associated with such shortfalls. The planning priorities guiding the framework of the Alternative Water Supply Planning Program are as follows:

1. Offset instream flow needs and meet regulatory requirements
2. Meet existing obligations to existing permanent customers
3. Make interruptible customers permanent
4. Meet increased demands of existing and interruptible customers

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

- Meet dry-year delivery needs while limiting rationing to a maximum of 20 percent system-wide reduction in water service during extended droughts;
- Diversify water supply options during non-drought and drought periods;
- Improve use of new water sources and drought management, including groundwater, recycled water, conservation, and transfers;
- Meet, at a minimum, all current and anticipated legal requirements for protection of fish and wildlife habitat;
- Maintain operational flexibility (although this LOS Goal was not intended explicitly for the addition of new supplies, it is applicable here).

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

In addition to the Daly City Recycled Water Expansion project⁴, which was a potential project identified in the 2015 UWMP and had committed funding at that time, the SFPUC has taken action to fund the study of potential additional water supply projects. Capital projects under consideration to develop additional water supplies include surface water storage expansion, recycled water expansion, water transfers, desalination, and potable reuse. A more detailed list and descriptions of these efforts are provided below.

The capital projects that are under consideration would be costly and are still in the early feasibility or conceptual planning stages. Because these water supply projects would take 10 to 30 years to implement, and because required environmental permitting negotiations may reduce the amount of water that can be developed, the yield from these projects are not currently incorporated into SFPUC's supply projections. State and federal grants and other financing opportunities would be pursued for eligible projects, to the extent feasible, to offset costs borne by ratepayers.

- **Daly City Recycled Water Expansion (Regional, Normal- and Dry-Year Supply)**

This project can produce up to 3 mgd of tertiary recycled water during the irrigation season (~7 months). On an average annual basis, this is equivalent to 1.25 mgd or 1,400 acre-feet per year. The project is envisioned to provide recycled water to 13 cemeteries and other smaller irrigation customers, offsetting existing groundwater pumping from the South Westside Groundwater Basin; this will free up groundwater, enhancing the reliability of the Basin. The project is a regional partnership between the SFPUC and Daly City. The irrigation customers are located largely within California Water Service's (Cal Water's) service area. RWS customers will benefit from the increased reliability of the South Westside Basin for additional drinking water supply during droughts. In this way, this project supports the GSR Project, which is under construction.

⁴ While this potential project was identified in the 2015 UWMP, it has since been approved by Daly City following environmental review and has a higher likelihood of being implemented.

- **ACWD-USD Purified Water Partnership** (Regional, Normal- and Dry-Year Supply)

This project could provide a new purified water supply utilizing Union Sanitary District's (USD) treated wastewater. Purified water produced by advanced water treatment at USD could be transmitted to the Quarry Lakes Groundwater Recharge Area to supplement recharge into the Niles Cone Groundwater Basin or put to other uses in Alameda County Water District's (ACWD) service area. With the additional water supply to ACWD, an in-lieu exchange with the SFPUC would result in more water left in the RWS. Additional water supply could also be directly transmitted to the SFPUC through a new intertie between ACWD and the SFPUC.

- **Crystal Springs Purified Water** (Regional, Normal- and Dry-Year Supply)

The Crystal Springs Purified Water (PREP) Project is a purified water project that could provide 6-12 mgd of water supply through reservoir water augmentation at Crystal Springs Reservoir, which is a facility of the RWS. Treated wastewater from Silicon Valley Clean Water (SVCW) and/or the City of San Mateo would go through an advanced water treatment plant to produce purified water that meets state and federal drinking water quality standards. The purified water would then be transmitted 10-20 miles (depending on the alignment) to Crystal Springs Reservoir, blended with regional surface water supplies and treated again at Harry Tracy Water Treatment Plant. Project partners include the SFPUC, BAWSCA, SVCW, CalWater, Redwood City, Foster City, and the City of San Mateo. Partner agencies are contributing financial and staff resources towards the work effort.

- **Los Vaqueros Reservoir Expansion** (Regional, Dry Year Supply)

The Los Vaqueros Reservoir Expansion (LVE) Project is a storage project that will enlarge the existing reservoir located in northeastern Contra Costa County from 160,000 acre-feet to 275,000 acre-feet. While the existing reservoir is owned and operated by the Contra Costa Water District (CCWD), the expansion will have regional benefits and will be managed by a Joint Powers Authority (JPA) that will be set up prior to construction. Meanwhile, CCWD is leading the planning, design and environmental review efforts. CCWD's Board certified the EIS/EIR and approved the LVE Project on May 13, 2020. The additional storage capacity from the LVE Project would provide a dry year water supply benefit to the SFPUC. BAWSCA is working in concert with the SFPUC to support their work effort on the LVE project.

- **Conveyance Alternatives:** The SFPUC is considering two main pathways to move water from storage in a prospective LVE Project to the SFPUC's service area, either directly to RWS facilities or indirectly via an exchange with partner agencies. The SFPUC is evaluating potential alignments for conveyance.
- **Bay Area Regional Reliability Shared Water Access Program (BARR SWAP):** As part of the BARR Partnership, a consortium of 8 Bay Area water utilities (including ACWD, BAWSCA, CCWD, EBMUD, Marin Municipal Water District (MMWD), SFPUC, Valley Water, and Zone 7 Water Agency) are exploring opportunities to move water across the region as efficiently as possible, particularly during times of drought and emergencies. The BARR agencies are proposing two separate pilot projects in 2020-2021 through the Shared Water Access Program (SWAP) to test conveyance pathways and identify potential hurdles to better prepare for sharing water during a future drought or emergency. A strategy report identifying opportunities and considerations will accompany these pilot transfers and will be completed in 2021.

- **Bay Area Brackish Water Desalination** (Regional, Normal- and Dry-Year Supply)

The Bay Area Brackish Water Desalination (Regional Desalination) Project is a partnership between CCWD, the SFPUC, Valley Water, and Zone 7 Water Agency. East Bay Municipal Utilities District (EBMUD) and ACWD may also participate in the project. The project could provide a new drinking water supply to the region by treating brackish water from CCWD's existing Mallard Slough intake in Contra Costa County. While this project has independent utility as a water supply project, for the current planning effort the SFPUC is considering it as a source of supply for storage in LVE. While the allocations remain to be determined among partners, the SFPUC is considering a water supply benefit of between 5 and 15 mgd during drought conditions when combined with storage at LVE.

- **Calaveras Reservoir Expansion** (Regional, Dry Year Supply)

Calaveras Reservoir would be expanded to create 289,000 AF additional capacity to store excess Regional Water System supplies or other source water in wet and normal years. In addition to reservoir enlargement, the project would involve infrastructure to pump water to the reservoir, such as pump stations and transmission facilities.

- **Groundwater Banking**

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

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

- **Inter-Basin Collaborations**

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

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

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

Given the limited availability of water supply alternatives - unless the supply risks are significantly reduced or our needs change significantly - the SFPUC will continue to plan,

develop and implement all project opportunities that can help bridge the anticipated water supply gaps during droughts. In 2019, the SFPUC completed a survey among water and wastewater agencies within the service area to identify additional opportunities for purified water. Such opportunities remain limited, but the SFPUC continues to pursue all possibilities.

Projected SFPUC Regional Water System Supply Reliability

The SFPUC will provide tables presenting the projected RWS supply reliability under normal, single dry year, and multiple dry year scenarios.

Climate Change

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 processes, 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, annual average, intensity and variability of precipitation, and an increased amount of precipitation falling as rain rather than 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 2020 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.

Bay Area Integrated Regional Water Management Plan

Climate change adaptation continues to be an overarching theme for the 2019 BAIRWMP update. As stated in the BAIRWMP, identification of watershed characteristics that could

potentially be vulnerable to future climate change is the first step in assessing vulnerabilities of water resources in the Bay Area Region (Region). Vulnerability is defined as the degree to which a system is exposed to, susceptible to, and able to cope with or adjust to, the adverse effects of climate change. A vulnerability assessment was conducted in accordance with the Department of Water Resources' (DWR's) *Climate Change Handbook for Regional Water Planning* and using the most current science available for the Region. The vulnerability assessment, summarized in the table below, provides the main water planning categories applicable to the Region and a general overview of the qualitative assessment of each category with respect to anticipated climate change impacts.

Summary of BAIRWMP Climate Change Vulnerability Assessment

Vulnerability Areas	General Overview of Vulnerabilities
Water Demand	<p>Urban and Agricultural Water Demand – Changes to hydrology in the Region as a result of climate change could lead to changes in total water demand and use patterns. Increased irrigation (outdoor landscape or agricultural) is anticipated to occur with temperature rise, increased evaporative losses due to warmer temperature, and a longer growing season. Water treatment and distribution systems are most vulnerable to increases in maximum day demand.</p>
Water Supply	<p>Imported Water – Imported water derived from the Sierra Nevada sources and Delta diversions provide 66 percent of the water resources available to the Region. Potential impacts on the availability of these sources resulting from climate change directly affect the amount of imported water supply delivered to the Region.</p> <p>Regional Surface Water – Although future projections suggest that small changes in total annual precipitation over the Region will not change much, there may be changes to when precipitation occurs with reductions in the spring and more intense rainfall in the winter.</p> <p>Regional Groundwater – Changes in local hydrology could affect natural recharge to the local groundwater aquifers and the quantity of groundwater that could be pumped sustainably over the long-term in some areas. Decreased inflow from more flashy or more intense runoff, increased evaporative losses and warmer and shorter winter seasons can alter natural recharge of groundwater. Salinity intrusion into coastal groundwater aquifers due to sea-level rise could interfere with local groundwater uses. Furthermore, additional reductions in imported water supplies would lead to less imported water available for managed recharge of local groundwater basins and potentially more groundwater pumping in lieu of imported water availability.</p>
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),</p>

Vulnerability Areas	General Overview of Vulnerabilities
	<p>potentially requiring changes in treatment for drinking water. Increased temperature could result in an increase in algal blooms, taste and odor events, and a general increase in DBP formation</p> <p>Regional Surface Water – Increased temperature could result in lower dissolved oxygen in streams and prolong thermocline stratification in lakes and reservoirs forming anoxic bottom conditions and algal blooms. Decrease in annual precipitation could result in higher concentrations of contaminants in streams during droughts or in association with flushing rain events. Increased wildfire risk and flashier or more intense storms could increase turbidity loads for water treatment.</p> <p>Regional Groundwater – Sea-level rise could result in increases in chlorides and bromide for some coastal groundwater basins in the Region. Water quality changes in imported water used for recharge could also impact groundwater quality.</p>
Sea-Level Rise	<p>Sea-level rise is additive to tidal range, storm surges, stream flows, and wind waves, which together will increase the potential for higher total water levels, overtopping, and erosion.</p> <p>Much of the bay shoreline is comprised of low-lying diked baylands which are already vulnerable to flooding. In addition to rising mean sea level, continued subsidence due to tectonic activity will increase the rate of relative sea-level rise.</p> <p>As sea-level rise increases, both the frequency and consequences of coastal storm events, and the cost of damage to the built and natural environment, will increase. Existing coastal armoring (including levees, breakwaters, and other structures) is likely to be insufficient to protect against projected sea-level rise. Crest elevations of structures will have to be raised or structures relocated to reduce hazards from higher total water levels and larger waves.</p>
Flooding	<p>Climate change projections are not sensitive enough to assess localized flooding, but the general expectation is that more intense storms would occur thereby leading to more frequent, longer and deeper flooding.</p> <p>Changes to precipitation regimes may increase flooding.</p> <p>Elevated Bay elevations due to sea-level rise will increase backwater effects exacerbating the effect of fluvial floods and storm drain backwater flooding.</p>

Vulnerability Areas	General Overview of Vulnerabilities
Ecosystem and Habitat	<p>Changes in the seasonal patterns of temperature, precipitation, and fire due to climate change can dramatically alter ecosystems that provide habitats for California’s native species. These impacts can result in species loss, increased invasive species ranges, loss of ecosystem functions, and changes in vegetation growing ranges.</p> <p>Reduced rain and changes in the seasonal distribution of rainfall may alter timing of low flows in streams and rivers, which in turn would have consequences for aquatic ecosystems. Changes in rainfall patterns and air temperature may affect water temperatures, potentially affecting coldwater aquatic species.</p> <p>Bay Area ecosystems and habitat provide important ecosystem services, such as: carbon storage, enhanced water supply and quality, flood protection, food and fiber production. Climate change is expected to substantially change several of these services.</p> <p>The region provides substantial aquatic and habitat-related recreational opportunities, including: fishing, wildlife viewing, and wine industry tourism (a significant asset to the region) that may be at risk due to climate change effects.</p>
Hydropower	<p>Currently, several agencies in the Region produce or rely on hydropower produced outside of the Region for a portion of their power needs. As the hydropower is produced in the Sierra, there may be changes in the future in the timing and amount of energy produced due to changes in the timing and amount of runoff as a result of climate change.</p> <p>Some hydropower is also produced within the region and could also be affected by changes in the timing and amount of runoff.</p>

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

SFPUC Climate Change Studies

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

- With differing increases in temperature alone, the median annual runoff at Hetch Hetchy would decrease by 0.7-2.1% from present-day conditions by 2040 and by 2.6-10.2% from

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

- In critically dry years, these reductions in annual runoff at Hetch Hetchy would be significantly greater, with runoff decreasing up to 46.5% from present day conditions by 2100 utilizing the same climate change scenarios.
- In addition to the total change in runoff, there 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 conducting a comprehensive assessment of the potential effects of climate change on water supply using a wide range of plausible increases in temperature and changes in precipitation to address the wide uncertainty in climate projections over the planning horizon 2020 to 2070. There are many uncertain factors such as climate change, changing regulations, water quality, growth and economic cycles that may create vulnerabilities for the Regional Water System's ability to meet levels of service. The uncertainties associated with the degree to which these factors will occur and how much risk they present to the water system is difficult to predict, but nonetheless they need to be considered in SFPUC planning. To address this planning challenge, the project uses a vulnerability-based planning approach to explore a range of future conditions to identify vulnerabilities, assess the risks associated with these vulnerabilities that could lead to developing an adaptation plan that is flexible and robust to a wide range of future outcomes.

Common Language for BAWSCA Member Agencies'

2020 UWMP Updates

BAWSCA

Description of BAWSCA

BAWSCA provides regional water reliability planning and conservation programming for the benefit of its 26 member agencies that purchase wholesale water supplies from the San Francisco Public Utilities Commission (SFPUC). Collectively, the BAWSCA member agencies deliver water to over 1.8 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 2020 Urban Water Management Plan (UWMP) updates is to work with its member agencies and the SFPUC to seek consistency among UWMP documents.

Regional Water Demand and Conservation Projections

In June 2020, BAWSCA completed the Regional Water Demand and Conservation Projections Report (Demand Study).¹ The goal of the Demand Study was to develop transparent, defensible, and uniform demand and conservation savings projections for each Wholesale Customer using a common methodology to support both regional and individual agency planning efforts and compliance with the new statewide water efficiency targets required by Assembly Bill (AB) 1668 and Senate Bill (SB) 606.

Through the Demand Study process, BAWSCA and the Wholesale Customers (1) quantified the total average-year water demand for each BAWSCA member agency through 2045, (2) quantified passive and active conservation water savings potential for each individual Wholesale Customer through 2045, and (3) identified 24 conservation programs with high water savings potential and/or member agency interest. Implementation of these conservation measures, along with passive conservation, is anticipated to yield an additional 37.3 MGD of water savings by 2045. Based on the revised water demand projections, the identified water conservation savings, increased development and use of other local supplies by the Wholesale Customers, and other actions, the collective purchases of the BAWSCA member agencies from the SFPUC are projected to stay below 184 MGD through 2045.

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

¹ Phase III Final Report: http://bawasca.org/uploads/pdf/BAWSCA_Regional_Water_Demand_and_Conservation%20Projections%20Report_Final.pdf

Long-Term Reliable Water Supply Strategy

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

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

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

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

Water Transfers. BAWSCA successfully facilitated two transfers of portions of Individual Supply Guarantee (ISG) between BAWSCA agencies in 2017 and 2018. Such transfers benefit all BAWSCA agencies by maximizing use of existing supplies. BAWSCA is currently working on an amendment to the Water Supply Agreement between the SFPUC and BAWSCA agencies to establish a mechanism by which member agencies that have an ISG may participate in expedited transfers of a portion of ISG and a portion of a Minimum Annual Purchase Requirement. In 2019, BAWSCA participated in a pilot water transfer that, while ultimately unsuccessful, surfaced important lessons learned and produced interagency agreements that will serve as a foundation for future transfers. BAWSCA is currently engaged in the Bay Area Regional Reliability Partnership² (BARR), a partnership among eight Bay Area water utilities (including the SFPUC, Alameda County Water District, BAWSCA, Contra Costa Water District, Santa Clara Valley Water District) to identify opportunities to move water across the region as efficiently as possible, particularly during times of drought and emergencies.

Regional Projects. Since 2015, BAWSCA has coordinated with local and State agencies on regional projects with potential dry-year water supply benefits for BAWSCA's agencies. These efforts include storage projects, indirect/direct water reuse projects, and studies to evaluate the capacity and potential for various conveyance systems to bring new supplies to the region.

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

² <https://www.bayareareliability.com/>

Making Conservation a Way of Life Strategic Plan

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

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

- Conducted an assessment of the agencies’ current practices and water industry best practices for three components of the efficiency legislation that, based on a preliminary review, present the greatest level of uncertainty and potential risk to the BAWSCA agencies. The three components were:
 1. Development of outdoor water use budgets in a manner that incorporates landscape area, local climate, and new satellite imagery data.
 2. Commercial, Industrial, and Institutional water use performance measures.
 3. Water loss requirements.
- Organized an Advanced Metering Infrastructure symposium to enable information exchange, including case studies, implementation strategies, and data analysis techniques.
- Initiated a regional CII audit pilot program, which BAWSCA aims to complete in 2021.³
- Implemented a regional program for water loss control to help BAWSCA agencies comply with regulatory requirements and implement cost-effective water loss interventions.
- Engaged with the SFPUC to audit meter testing and calibration practices for SFPUC’s meters at BAWSCA agency turnouts.

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

³ Efforts on the CII audit pilot program stalled in March 2020 due to the COVID 19 pandemic and related shelter-in-place orders.

Tier Two Drought Allocations

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

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

The water made available to the Wholesale Customers collectively will be allocated among them in proportion to each Wholesale Customer's Allocation Basis, expressed in millions of gallons per day (mgd), which in turn is the weighted average of two components. The first component is the Wholesale Customer's Individual Supply Guarantee, as stated in the WSA, and is fixed. The second component, the Base/Seasonal Component, is variable and is calculated using the monthly water use for three consecutive years prior to the onset of the drought for each of the Wholesale Customers for all available water supplies. The second component is accorded twice the weight of the first, fixed component in calculating the Allocation Basis. Minor adjustments to the Allocation Basis are then made to ensure a minimum cutback level, a maximum cutback level, and a sufficient supply for certain Wholesale Customers.

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

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

Per WSA Section 3.11, the Tier One and Tier Two Plans will be used to allocate water from the Regional Water System between Retail and Wholesale Customers during system-wide shortages of 20% or less. For Regional Water System shortages in excess of 20%, San Francisco shall (a) follow the Tier 1 Shortage Plan allocations up to the 20% reduction, (b) meet and discuss how to implement incremental reductions above 20% with the Wholesale Customers, and (c) make a final determination of allocations above the 20% reduction. After the SFPUC has made the final allocation decision, the Wholesale Customers shall be free to challenge the allocation on any applicable legal or equitable basis. For purposes of the 2020 UWMPs, for San Francisco Regional Water System (RWS) shortages in excess of 20%, the allocations among the Wholesale Customers is assumed to be equivalent among them and to equal the drought cutback to Wholesale Customer by the SFPUC.

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

SFPUC's Efforts to Develop of Alternative Water Supplies

With the adoption of the Bay-Delta Plan Phase 1 (Bay-Delta Plan) by the State Water Resources Control Board in December of 2018, coupled with the uncertainties associated with litigation and the development of Voluntary Agreements that, if successful, would provide an alternative to the 40% unimpaired flow requirement that is required by the Bay-Delta Plan, BAWSCA redoubled its efforts to ensure that the SFPUC took necessary action to develop alternative water supplies such that they would be in place to fill any potential gap in supply by implementation of the Bay-Delta Plan and that the SFPUC would be able to meet its legal and contractual obligations to its Wholesale Customers.

In 2019, BAWSCA held numerous meetings with the SFPUC encouraging them to develop a division within their organization whose chief mission was to spearhead alternative water supply development. On June 25, 2019, BAWSCA provided a written and oral statement to the Commissioners urging the SFPUC to focus on developing new sources of supply in a manner similar to how it addressed the implementation of the Water System Improvement Program (WSIP). BAWSCA urged that a new water supply program was called for, with clear objectives, persistent focus, a dedicated team, adequate funding, and a plan for successful execution. The SFPUC Commission supported BAWSCA's recommendation and directed staff to undertake such an approach.

In early 2020, the SFPUC began implementation of the Alternative Water Supply Planning Program (AWSP), a program designed to investigate and plan for new water supplies to address future long-term water supply reliability challenges and vulnerabilities on the RWS.

Included in the AWSP is a suite of diverse, non-traditional supply projects that, to a great degree, leverage regional partnerships and are designed to meet the water supply needs of the SFPUC Retail and Wholesale Customers through 2045. As of the most recent Alternative Water Supply Planning Quarterly Update, SFPUC has budgeted \$264 million over the next ten years to fund water supply projects. BAWSCA is heavily engaged with the SFPUC on its AWSS efforts.

BAWSCA Conservation Programs

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

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

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

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

7. Additional language requested by the Member Agencies

SFPUC's Decision to use With Bay-Delta Plan Scenario in UWMP Submittal Tables

The adoption of the Bay-Delta Plan Amendment may significantly impact the supply available from the RWS. SFPUC recognizes that the Bay-Delta Plan Amendment has been adopted and that, given that it is now state law, we must plan for a future in which it is fully implemented. SFPUC also acknowledges that the plan is not self-implementing and therefore does not automatically go into effect. SFPUC is currently pursuing a voluntary agreement as well as a lawsuit which would limit implementation of the Plan. With both of these processes occurring on an unknown timeline, SFPUC does not know at this time when the Bay-Delta Plan Amendment is likely to go into effect. As a result, it makes sense to conduct future supply modeling for a scenario that doesn't include implementation of the Bay-Delta Plan Amendment, as that represents a potential supply reliability scenario.

Because of the uncertainty surrounding implementation of the Bay-Delta Plan Amendment, the SFPUC conducted water service reliability assessment that includes: (1) a scenario in which the Bay-Delta Plan Amendment is fully implemented in 2023, and (2) a scenario that considers the SFPUC system's current situation without the Bay-Delta Plan Amendment. The two scenarios provide a bookend for the possible future scenarios regarding RWS supplies. The standardized tables associated with the SFPUC's UWMP contain the future scenario that assumes implementation of the Bay-Delta Plan Amendment starting in 2023.

Bay-Delta Plan Implementation Starting Year

Because of the uncertainty surrounding implementation of the Bay-Delta Plan Amendment, the water service reliability assessment presented in the SFPUC's draft UWMP looks at two future supply scenarios, both with and without implementation of the Bay-Delta Plan Amendment. Although the SWRCB has stated it intends to implement the Bay-Delta Plan Amendment on the Tuolumne River by the year 2022, given the current level of uncertainty, it is assumed for the purposes of the SFPUC's draft UWMP that the Bay-Delta Plan Amendment will be fully implemented starting in 2023.

SFPUC's Decision to Present Both Modeling Results in its UWMP

A key input for the HHLSTM model is the anticipated level of demand on the RWS. Supply modeling results presented in the text of the SFPUC's UWMP reflect an input of projected demands on the RWS consisting of (1) projected retail demands on the RWS (total retail demands minus local groundwater and recycled water supplies), and (2) projected Wholesale Customer purchases. The SFPUC has a Level of Service objective of meeting average annual water demand of 265 mgd from the SFPUC watersheds for retail and Wholesale Customers during non-drought years, as well as a contractual obligation to supply 184 mgd to the Wholesale Customers. Therefore, the SFPUC has also conducted modeling based on a demand of 265 mgd in order to facilitate planning that supports meeting this Level of Service goal and their contractual obligations.



Appendix G

SFPUC Regional Water System Supply Reliability and BAWSCA Tier 2 Drought Implementation Scenarios



February 18, 2021

TO: BAWSCA Member Agencies

FROM: Danielle McPherson, Senior Water Resources Specialist
Tom Francis, Water Resources Manager

SUBJECT: San Francisco Regional Water System Supply Reliability for 2020 Urban Water Management Plans

The purpose of this memorandum is to provide updated drought allocations among the Member Agencies under the various scenarios provided in the San Francisco Public Utilities Commission (SFPUC) Regional Water System (RWS) Supply Reliability Letter dated January 22, 2021 and transmitted to the Member Agencies via email on January 25th ("Supply Reliability Letter", Attachment A). As presented and discussed at the February 12th BAWSCA Urban Water Management Plan (UWMP) Workshop, the Tier 2 Drought Allocation Plan was not designed for RWS shortages greater than 20 percent. As a result, the Tier 2 allocation tables shared with the Supply Reliability Letter showed unexpected and wide-ranging results between Member Agencies that should not be used for UWMP purposes.

As provided for in the 2018 Amended and Restated Water Supply Agreement (WSA), the SFPUC will honor new Tier 2 allocations agreed upon by all Member Agencies if an RWS shortage greater than 20 percent is declared. However, at this time, there is no method for allocating supplies under such significant cutbacks. Additionally, the time it would take to negotiate a modified Tier 2 plan to address those significant cutbacks would be extensive and greater than the timeline required for BAWSCA to provide your agency with numbers for input into your 2020 UWMP submittals.

For these reasons, BAWSCA is recommending that for the purpose of the 2020 UWMP updates, allocation of wholesale RWS supplies should be as follows:

1. When the average Wholesale Customers' RWS shortages are 10 percent or less, an equal percent reduction will be applied across all agencies. This is consistent with the existing Tier 2 requirement of a minimum 10 percent cutback in any Tier 2 application scenario.
2. When average Wholesale Customers' shortages are between 10 and 20 percent, the Tier 2 Drought Allocation Plan will be applied.
3. When the average Wholesale Customers' RWS shortages are greater than 20 percent, an equal percent reduction will be applied across all agencies.

Attachment B "Updated 2020 UWMP Drought Cutbacks" provides further detail, including recommended wholesale RWS allocation tables, for use in your agency's 2020 UWMP.

BAWSCA recognizes that this is not an ideal situation or method for allocation of available drought supplies. In the event of actual RWS shortages greater than 20 percent, the Member Agencies would have the opportunity to negotiate and agree upon a more nuanced and equitable approach. Such an approach would likely consider basic health and safety needs, the

Memo To: Member Agencies

February 18, 2021

Page 2 of 2

water needs to support critical institutions such as hospitals, and minimizing economic impacts on individual communities and the region.

Enclosed: Attachment A: Supply Reliability Letter
Attachment B: Updated 2020 UWMP Drought Cutbacks

cc: Nicole Sandkulla
Allison Schutte



January 22, 2021

Danielle McPherson
 Senior Water Resources Specialist
 Bay Area Water Supply and Conservation Agency
 155 Bovet Road, Suite 650
 San Mateo, CA 94402

Dear Ms. McPherson,

Attached please find the information you requested on the Regional Water System’s supply reliability for use in the Wholesale Customer’s 2020 Urban Water Management Plan (UWMP) updates. The SFPUC has assessed the water supply reliability under the following planning scenarios:

- Projected supply reliability for year 2020 through 2045
- Projected single dry year and multiple dry year reliability for base year 2020, both with and without implementation of the Bay-Delta Plan Amendment
- Projected single dry year and multiple dry year reliability for base year 2025, both with and without implementation of the Bay-Delta Plan Amendment

The tables presented below assume full implementation of the Bay-Delta Plan Amendment will begin in 2023. All tables assume that the wholesale customers will purchase 184 mgd from the RWS through 2045. Assumptions about the status of the dry-year water supply projects included in the Water Supply Improvement Program (WSIP) are provided below in the table ‘WSIP Project Assumptions’. The tables reflect instream flow requirements at San Mateo and Alameda Creeks, as described in the common language provided to BAWSCA separately.

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 per the July 2009 Water Supply Agreement between the City and County of

London N. Breed
 Mayor

Sophie Maxwell
 President

Anson Moran
 Vice President

Tim Paulson
 Commissioner

Ed Harrington
 Commissioner

Michael Carlin
 Acting
 General Manager



San Francisco and Wholesale Customers in Alameda County, San Mateo County, and Santa Clara County. The WSAP, also known as the Tier One Plan, was amended in the 2018 Amended and Restated Water Supply Agreement. 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.

Compared to the reliability projections that were provided previously for the 2015 UWMP update, the biggest difference in projected future deliveries is caused by the implementation of the Bay-Delta Plan Amendment. Given the uncertainty about the implementation of the Amendment (described further in the common language provided to BAWSCA), tables are included to show future projected supplies both with and without the Bay-Delta Plan Amendment.

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 Sarah Triolo, at striolo@sfwater.org or (628) 230 0802.

Sincerely,



Paula Kehoe
Director of Water Resources

Table 1: WSIP Project Assumptions

	2020	2025 and Beyond
Calaveras Dam Replacement Project	Calaveras Reservoir partially refilled at spring 2020 level of 63,900 AF	Calaveras Reservoir fully refilled
Lower Crystal Springs Dam Improvements	Crystal Springs storage not restored	
Regional Groundwater Storage and Recovery (GSR) Project	GSR account partially filled at spring 2020 level of 23,500 AF; GSR recovery rate of 6.2 mgd	GSR account fully filled; GSR recovery rate of 6.2 mgd
Alameda Creek Recapture Project	Project not built	Project built
Dry-year Transfers	Not in effect	

Table 2: Projected Wholesale Supply from Regional Water System [For Table 6-9]:

Year	2020	2025	2030	2035	2040	2045
RWS Supply (mgd)	265	265	265	265	265	265
Wholesale Supply (mgd)	184	184	184	184	184	184

Table 3: Basis of Water Supply Data [For Table 7-1], 2020 Infrastructure Conditions With Bay Delta Plan

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2020	265	100%	184	
Single dry year		238.5	90%	157.5	<ul style="list-style-type: none"> • At 10% shortage, wholesale allocation is 64%, or 152.6 mgd • Retail allocation is 36%, or 85.9 mgd • Retail allocations above 81 mgd are re-allocated to Wholesale Customers, per the 2018 WSA • 4.9 mgd added to wholesale allocation, bringing it to 157.5 mgd
Consecutive 1 st Dry year		238.5	90%	157.5	<ul style="list-style-type: none"> • Same as above
Consecutive 2 nd Dry year		212	80%	132.5	<ul style="list-style-type: none"> • At a 20% shortage, wholesale allocation is 62.5%, or 132.5 mgd • Retail allocation is 37.5%, or 79.5 mgd
Consecutive 3 rd Dry year ¹		119.25	45%	74.5	<ul style="list-style-type: none"> • WSA does not define percentage split above a 20% shortage level • Assume same split as for a 20% shortage level, i.e. Wholesale Customers receive 62.5%
Consecutive 4 th Dry year		119.25	45%	74.5	<ul style="list-style-type: none"> • Same as above
Consecutive 5 th Dry year		119.25	45%	74.5	<ul style="list-style-type: none"> • Same as above

¹ Assuming this year represents 2023, when Bay Delta Plan Amendment would come into effect.

Table 4: Basis of Water Supply Data [For Table 7-1], 2020 Infrastructure Conditions Without Bay Delta Plan

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2020	265	100%	184	
Single dry year		238.5	90%	157.5	<ul style="list-style-type: none"> • At 10% shortage, wholesale allocation is 64%, or 152.6 mgd • Retail allocation is 36%, or 85.9 mgd • Retail allocations above 81 mgd are re-allocated to Wholesale Customers, per the 2018 WSA • 4.9 mgd added to wholesale allocation, bringing it to 157.5 mgd
Consecutive 1 st Dry year		238.5	90%	157.5	<ul style="list-style-type: none"> • Same as above
Consecutive 2 nd Dry year		212	80%	132.5	<ul style="list-style-type: none"> • At a 20% shortage, wholesale allocation is 62.5%, or 132.5 mgd • Retail allocation is 37.5%, or 79.5 mgd
Consecutive 3 rd Dry year		212	80%	132.5	<ul style="list-style-type: none"> • Same as above
Consecutive 4 th Dry year		212	80%	132.5	<ul style="list-style-type: none"> • Same as above
Consecutive 5 th Dry year		212	80%	132.5	<ul style="list-style-type: none"> • Same as above

Table 5: Basis of Water Supply Data [For Table 7-1], 2025 Infrastructure With Bay Delta Plan

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2025	265	100%	184	
Single dry year		132.5	50%	82.8	<ul style="list-style-type: none"> • WSA does not define percentage split above a 20% shortage level • Assume same split as for a 20% shortage level, i.e. Wholesale Customers receive 62.5%
Consecutive 1 st Dry year		132.5	50%	82.8	<ul style="list-style-type: none"> • Same as above
Consecutive 2 nd Dry year		119.25	45%	74.5	<ul style="list-style-type: none"> • Same as above
Consecutive 3 rd Dry year		119.25	45%	74.5	<ul style="list-style-type: none"> • Same as above
Consecutive 4 th Dry year		119.25	45%	74.5	<ul style="list-style-type: none"> • Same as above
Consecutive 5 th Dry year		119.25	45%	74.5	<ul style="list-style-type: none"> • Same as above

Table 6: Basis of Water Supply Data [For Table 7-1], 2025 Infrastructure Without Bay Delta Plan

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2025	265	100%	184	
Single dry year		238.5	90%	157.5	<ul style="list-style-type: none"> • At 10% shortage, wholesale allocation is 64% • Retail allocation is 36%, or 85.9 mgd; retail allocations above 81 mgd are re-allocated to Wholesaler Customers, per the 2018 WSA • 4.9 mgd added to wholesale allocation, bringing it to 157.5 mgd
Consecutive 1 st Dry year		238.5	90%	157.5	<ul style="list-style-type: none"> • Same as above
Consecutive 2 nd Dry year		238.5	90%	157.5	<ul style="list-style-type: none"> • Same as above
Consecutive 3 rd Dry year		238.5	90%	157.5	<ul style="list-style-type: none"> • Same as above
Consecutive 4 th Dry year		212	80%	132.5	<ul style="list-style-type: none"> • At a 20% shortage, wholesale allocation is 62.5%, or 132.5 mgd • Retail allocation is 37.5%, or 79.5 mgd
Consecutive 5 th Dry year		212	80%	132.5	<ul style="list-style-type: none"> • Same as above

Table 7: Projected Multiple Dry Years Wholesale Supply from RWS [For Table 7-4], With Bay Delta Plan

	2025	2030	2035	2040	2045
First year	82.8	82.8	82.8	82.8	82.8
Second year	74.5	74.5	74.5	74.5	74.5
Third year	74.5	74.5	74.5	74.5	74.5
Fourth year	74.5	74.5	74.5	74.5	74.5
Fifth year	74.5	74.5	74.5	74.5	74.5

Table 8: Projected Multiple Dry Years Wholesale Supply from RWS [For Table 7-4], Without Bay Delta Plan

	2025	2030	2035	2040	2045
First year	157.5	157.5	157.5	157.5	157.5
Second year	157.5	157.5	157.5	157.5	157.5
Third year	157.5	157.5	157.5	157.5	157.5
Fourth year	132.5	132.5	132.5	132.5	132.5
Fifth year	132.5	132.5	132.5	132.5	132.5

Table 9: Projected Regional Water System Supply for 5-Year Drought Risk Assessment [For Table 7-5], With Bay Delta Plan. This table assumes Bay Delta Plan comes into effect in 2023.

Year	2021	2022	2023	2024	2025
RWS Supply (mgd)	238.5	212	119.25	119.25	119.25
Wholesale Supply (mgd)	157.5	132.5	74.5	74.5	74.5

Table 10: Projected Regional Water System Supply for 5-Year Drought Risk Assessment [For Table 7-5], Without Bay Delta Plan

Year	2021	2022	2023	2024	2025
RWS Supply (mgd)	238.5	212	212	212	212
Wholesale Supply (mgd)	157.5	132.5	132.5	132.5	132.5

Attachment B: Updated 2020 UWMP Drought Cutbacks

The January 22, 2021, SFPUC Regional Water System (RWS) Supply Reliability Letter (Supply Reliability Letter) provides RWS supplies available to the Wholesale Customers under two scenarios: (1) With Bay-Delta Plan, and (2) Without Bay-Delta Plan. Your agency must choose which scenario to use for your agency's 2020 UWMP submittal tables. However, you may discuss both scenarios in the body of your agency's UWMP. The purpose of this attachment is to provide further detail about your agency's allocation of total RWS supplies available to the Wholesale Customers under both scenarios.

Data Sources for Projected RWS Purchases

Supply allocations are based on projected RWS purchases provided to BAWSCA by the Member Agencies. Following the completion of the Demand Study in June 2020, BAWSCA used the results to develop a table for each Member Agency listing possible supplies and total demand for 2025, 2030, 2035, 2040, and 2045. BAWSCA populated the tables with total demand after passive conservation and entered active conservation, as calculated in the agencies' DSS Model, as a source of supply. Multi-source agencies were asked to complete the table with supply projections, including from the RWS, to meet total demand. Single-source agencies were offered the opportunity to review the tables upon request. Because active conservation was treated as a source of supply, projected RWS purchases are after passive and active conservation.¹

Water Management Representatives (WMRs) received a draft copy of all projected wholesale RWS purchase requests as part of the January 7, 2021 WMR meeting agenda packet and meeting slides. Agencies were asked to notify BAWSCA if changes were necessary regarding their purchase requests prior to BAWSCA sending those purchase requests to the SFPUC. Purchase requests were transmitted to the SFPUC via a letter dated January 15, 2021 for use in their 2020 UWMP efforts.

Note that the projected RWS purchases used by BAWSCA for fiscal years 2020-21 and for 2021-22 were provided to Christina Tang, BAWSCA's Finance Manager, by each Member Agency in January 2021. This annual reporting is part of the SFPUC's wholesale rate setting process. Member Agencies have provided BAWSCA with these projected purchases annually for the past 10 years.

UWMP Tables 7-1 and 7-5

UWMP Table 7-1 requests supply reliability for a normal year, a single dry year, and multiple (five) dry years. Tables 3, 4, 5, and 6 provided in the Supply Reliability Letter will help your agency complete UWMP Table 7-1. The Drought Risk Assessment (DRA) in UWMP Table 7-5 also requests a five-year drought sequence but specifies years 2021 through 2025. Supply Reliability Letter Tables 9 and 10 will help your agency complete UWMP Table 7-5.

The Supply Reliability Letter provides four scenarios to select from for completing UWMP Table 7-1. The Supply Reliability Letter Tables 3 (with Bay-Delta Plan) and 4 (without Bay-Delta Plan) use 2020 as the base year. Depending on which scenario you choose, these will be the basis for your agency's five-year DRA (UWMP Table 7-5). The Supply Reliability Letter Tables 5 (with Bay-Delta Plan) and 6 (without Bay-Delta Plan) use 2025 as the base year. Depending on which scenario you choose, these will be the basis for UWMP Tables 7-2 through 7-4.

¹ Projected RWS purchases are after conservation, except for Mountain View.

Attachment B: Updated 2020 UWMP Drought Cutbacks

Total RWS supplies available to the Wholesale Customers in the first through fifth consecutive dry years in Supply Reliability Letter Table 3 align with those in Table 9 of the same letter. Similarly, Supply Reliability Letter Table 4 aligns with Table 10 of the same letter.

Table A below provides a summary of the Member Agencies' RWS supply drought cutbacks under each of the four supply availability conditions and is intended to help you complete UWMP Tables 7-1 and 7-5.

Table A: Wholesale Customer Drought Cutbacks Based on a Single Dry Year and Multiple Dry Years (Base Year 2020)

	(a)	(b)	(c)	(d)	(e)	(f)	(g)
(1)	Projected SF RWS Wholesale Purchases	132.2 MGD	138.6 MGD	140.8 MGD	142.5 MGD	144.3 MGD	146.0 MGD
(2)	Supply Available to the Wholesale Customers	Percent Cutback on Wholesale RWS Purchases					
		2020	2021	2022	2023	2024	2025
(3)	157.5 MGD	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
(4)	132.5 MGD	0.0%	-4.4%	-5.9%	-7.0%	-8.2%	-9.3%
(5)	82.8 MGD	-37.4%	-40.3%	-41.2%	-41.9%	-42.6%	-43.3%
(6)	74.5 MGD	-43.7%	-46.3%	-47.1%	-47.7%	-48.4%	-49.0%

Table A, column (a), rows 3 through 6 lists total RWS supplies available to the Wholesale Customers as provided in the Supply Reliability Letter tables. Row 1 provides cumulative actual wholesale RWS purchases for 2020 and projected purchases for 2021 through 2025. Projected RWS purchases for years 2021 and 2022 were provided to Christina Tang, BAWSCA's Finance Manager, by the Member Agencies in January. Projected RWS purchases for 2025 were provided to BAWSCA by the Member Agencies as described previously in this memo. Projected wholesale RWS purchases for 2023 and 2024 were derived assuming a linear change between 2022 and 2025.

Table B below provides a summary of the Member Agencies' RWS supply drought cutbacks under each of the four supply availability conditions and is intended to help you complete UWMP Table 7-1.

Table B: Wholesale Customer Drought Cutbacks Based on a Single Dry Year and Multiple Dry Years (Base Year 2025)

	(a)	(b)	(c)	(d)	(e)	(f)	(g)
(1)	Projected SF RWS Wholesale Purchases	146.0 MGD	146.4 MGD	146.8 MGD	147.1 MGD	147.5 MGD	147.9 MGD
(2)	Supply Available to the Wholesale Customers	Percent Cutback on Wholesale RWS Purchases					
		2025	2026	2027	2028	2029	2030
(3)	157.5 MGD	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
(4)	132.5 MGD	-9.2%	-9.5%	-9.7%	-9.9%	-10.2%	-10.4%
(5)	82.8 MGD	-43.3%	-43.4%	-43.6%	-43.7%	-43.9%	-44.0%
(6)	74.5 MGD	-49.0%	-49.1%	-49.3%	-49.4%	-49.5%	-49.6%

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table B, column (a), rows 3 through 6 lists total RWS supplies available to the Wholesale Customers as provided in the Supply Reliability Letter tables. Row 1 provides cumulative projected wholesale RWS purchases for 2025 through 2030. Projected wholesale RWS purchases for years 2025 and 2030 were provided to BAWSCA by the Member Agencies as described previously in this memo. Projected wholesale RWS purchases for 2026 through 2029 were derived assuming a linear change between 2025 and 2030.

To complete UWMP Tables 7-1 and 7-5, reference tables in the Supply Reliability Letter to identify total RWS supplies available to the Wholesale Customers and apply the percent cutback in the corresponding year of the drought sequence using Tables A and B. For example, in Supply Reliability Letter Table 3, in the 5th consecutive year of a drought, the volume available to the Wholesale Customers is 74.5 MGD. To calculate RWS supplies available to your agency in 2025 using table A, locate the row with 74.5 MGD on the table – row 6 – and the column for 2025 – column (g). Then apply the percent cutback to your agency's RWS demand in 2025.

A list of purchase projections by agency are provided in Tables C, D, E, and F. The table also indicates the percent cutback that should be applied based on total RWS supplies available to the Wholesale Customers. Tables C and E use Scenario 1: With Bay-Delta Plan. Tables D and F use Scenario 2: Without Bay-Delta Plan. Tables C and D use 2020 as the base year and Tables E and F use 2025 as the base year.

BAWSCA understands that agencies are updating projected demands for their 2020 UWMPs and that projected RWS purchases may change from what was previously provided. Additionally, BAWSCA recognizes that not all Member Agencies will choose the same scenario for their UWMP supply reliability tables. For both reasons, projected RWS purchases in each Member Agency's 2020 UWMP may not add up to total Wholesale demands in the SFPUC's 2020 UWMP. This is consistent with direction given by the Department of Water Resources, which encourages suppliers use the UWMP tables to represent what they believe to be the most likely supply reliability scenario and to characterize the five-consecutive year drought in a manner that is best suited for understanding and managing their water service reliability and individual agency level of risk tolerance.

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table C: Scenario 1: With Bay-Delta Plan - Projected Wholesale Customer RWS Demand and Percent Cutback for a Single Dry Year and Multiple Dry Years (Base Year 2020)

Agency	2020 (184 MGD)		2021 (157.5 MGD)		2022 (132.5 MGD)		2023 (74.5 MGD)		2024 (74.5 MGD)		2025 (74.5 MGD)	
	Actual Purchases	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback
ACWD	7.87	0.0%	9.44	0.0%	9.46	-5.9%	8.87	-47.7%	8.27	-48.4%	7.68	-49.0%
Brisbane/GVMID	0.64	0.0%	0.62	0.0%	0.65	-5.9%	0.73	-47.7%	0.81	-48.4%	0.89	-49.0%
Burlingame	3.48	0.0%	3.34	0.0%	3.35	-5.9%	3.67	-47.7%	4.00	-48.4%	4.33	-49.0%
Coastside	1.02	0.0%	1.54	0.0%	1.23	-5.9%	1.29	-47.7%	1.34	-48.4%	1.40	-49.0%
CalWater Total	29.00	0.0%	29.66	0.0%	29.81	-5.9%	29.87	-47.7%	29.93	-48.4%	29.99	-49.0%
Daly City	3.97	0.0%	4.00	0.0%	4.01	-5.9%	3.86	-47.7%	3.72	-48.4%	3.57	-49.0%
East Palo Alto	1.57	0.0%	1.63	0.0%	1.69	-5.9%	1.75	-47.7%	1.81	-48.4%	1.88	-49.0%
Estero	4.34	0.0%	4.48	0.0%	4.51	-5.9%	4.36	-47.7%	4.22	-48.4%	4.07	-49.0%
Hayward	13.92	0.0%	14.47	0.0%	15.12	-5.9%	16.03	-47.7%	16.94	-48.4%	17.86	-49.0%
Hillsborough	2.62	0.0%	2.95	0.0%	3.05	-5.9%	3.12	-47.7%	3.19	-48.4%	3.26	-49.0%
Menlo Park	2.96	0.0%	2.92	0.0%	2.93	-5.9%	3.14	-47.7%	3.35	-48.4%	3.55	-49.0%
Mid-Peninsula	2.66	0.0%	2.65	0.0%	2.80	-5.9%	2.82	-47.7%	2.84	-48.4%	2.86	-49.0%
Millbrae	1.90	0.0%	1.95	0.0%	2.15	-5.9%	2.19	-47.7%	2.24	-48.4%	2.29	-49.0%
Milpitas	5.92	0.0%	5.88	0.0%	5.34	-5.9%	5.76	-47.7%	6.17	-48.4%	6.59	-49.0%
Mountain View	7.67	0.0%	7.80	0.0%	8.05	-5.9%	8.23	-47.7%	8.42	-48.4%	8.60	-49.0%
North Coast	2.37	0.0%	2.58	0.0%	2.66	-5.9%	2.56	-47.7%	2.45	-48.4%	2.34	-49.0%
Palo Alto	9.75	0.0%	9.44	0.0%	9.66	-5.9%	9.79	-47.7%	9.93	-48.4%	10.06	-49.0%
Purissima Hills	1.75	0.0%	1.97	0.0%	2.02	-5.9%	2.04	-47.7%	2.06	-48.4%	2.09	-49.0%
Redwood City	8.76	0.0%	8.72	0.0%	9.07	-5.9%	8.86	-47.7%	8.66	-48.4%	8.46	-49.0%
San Bruno	0.95	0.0%	3.39	0.0%	3.40	-5.9%	3.35	-47.7%	3.29	-48.4%	3.24	-49.0%
San José	4.26	0.0%	4.31	0.0%	4.51	-5.9%	4.51	-47.7%	4.50	-48.4%	4.50	-49.0%
Santa Clara	3.27	0.0%	3.29	0.0%	3.50	-5.9%	3.83	-47.7%	4.17	-48.4%	4.50	-49.0%
Stanford	1.43	0.0%	1.40	0.0%	1.54	-5.9%	1.70	-47.7%	1.85	-48.4%	2.01	-49.0%
Sunnyvale	9.33	0.0%	9.35	0.0%	9.45	-5.9%	9.35	-47.7%	9.26	-48.4%	9.16	-49.0%
Westborough	0.82	0.0%	0.84	0.0%	0.81	-5.9%	0.83	-47.7%	0.84	-48.4%	0.86	-49.0%
Wholesale Total	132.2	132.2†	138.6	138.6†	140.8	132.5†	142.5	74.5†	144.3	74.5†	146.0	74.5†

† Total supply available to the Wholesale Customers after drought cutback.

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table D: Scenario 2: Without Bay-Delta Plan - Projected Wholesale Customer RWS Demand and Percent Cutback for a Single Dry Year and Multiple Dry Years (Base Year 2020)

Agency	2020 (184 MGD)		2021 (157.5 MGD)		2022 (132.5 MGD)		2023 (132.5 MGD)		2024 (132.5 MGD)		2025 (132.5 MGD)	
	Actual Purchases	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback
ACWD	7.87	0.0%	9.44	0.0%	9.46	-5.9%	8.87	-7.0%	8.27	-8.2%	7.68	-9.2%
Brisbane/GVMID	0.64	0.0%	0.62	0.0%	0.65	-5.9%	0.73	-7.0%	0.81	-8.2%	0.89	-9.2%
Burlingame	3.48	0.0%	3.34	0.0%	3.35	-5.9%	3.67	-7.0%	4.00	-8.2%	4.33	-9.2%
Coastside	1.02	0.0%	1.54	0.0%	1.23	-5.9%	1.29	-7.0%	1.34	-8.2%	1.40	-9.2%
CalWater Total	29.00	0.0%	29.66	0.0%	29.81	-5.9%	29.87	-7.0%	29.93	-8.2%	29.99	-9.2%
Daly City	3.97	0.0%	4.00	0.0%	4.01	-5.9%	3.86	-7.0%	3.72	-8.2%	3.57	-9.2%
East Palo Alto	1.57	0.0%	1.63	0.0%	1.69	-5.9%	1.75	-7.0%	1.81	-8.2%	1.88	-9.2%
Estero	4.34	0.0%	4.48	0.0%	4.51	-5.9%	4.36	-7.0%	4.22	-8.2%	4.07	-9.2%
Hayward	13.92	0.0%	14.47	0.0%	15.12	-5.9%	16.03	-7.0%	16.94	-8.2%	17.86	-9.2%
Hillsborough	2.62	0.0%	2.95	0.0%	3.05	-5.9%	3.12	-7.0%	3.19	-8.2%	3.26	-9.2%
Menlo Park	2.96	0.0%	2.92	0.0%	2.93	-5.9%	3.14	-7.0%	3.35	-8.2%	3.55	-9.2%
Mid-Peninsula	2.66	0.0%	2.65	0.0%	2.80	-5.9%	2.82	-7.0%	2.84	-8.2%	2.86	-9.2%
Millbrae	1.90	0.0%	1.95	0.0%	2.15	-5.9%	2.19	-7.0%	2.24	-8.2%	2.29	-9.2%
Milpitas	5.92	0.0%	5.88	0.0%	5.34	-5.9%	5.76	-7.0%	6.17	-8.2%	6.59	-9.2%
Mountain View	7.67	0.0%	7.80	0.0%	8.05	-5.9%	8.23	-7.0%	8.42	-8.2%	8.60	-9.2%
North Coast	2.37	0.0%	2.58	0.0%	2.66	-5.9%	2.56	-7.0%	2.45	-8.2%	2.34	-9.2%
Palo Alto	9.75	0.0%	9.44	0.0%	9.66	-5.9%	9.79	-7.0%	9.93	-8.2%	10.06	-9.2%
Purissima Hills	1.75	0.0%	1.97	0.0%	2.02	-5.9%	2.04	-7.0%	2.06	-8.2%	2.09	-9.2%
Redwood City	8.76	0.0%	8.72	0.0%	9.07	-5.9%	8.86	-7.0%	8.66	-8.2%	8.46	-9.2%
San Bruno	0.95	0.0%	3.39	0.0%	3.40	-5.9%	3.35	-7.0%	3.29	-8.2%	3.24	-9.2%
San José	4.26	0.0%	4.31	0.0%	4.51	-5.9%	4.51	-7.0%	4.50	-8.2%	4.50	-9.2%
Santa Clara	3.27	0.0%	3.29	0.0%	3.50	-5.9%	3.83	-7.0%	4.17	-8.2%	4.50	-9.2%
Stanford	1.43	0.0%	1.40	0.0%	1.54	-5.9%	1.70	-7.0%	1.85	-8.2%	2.01	-9.2%
Sunnyvale	9.33	0.0%	9.35	0.0%	9.45	-5.9%	9.35	-7.0%	9.26	-8.2%	9.16	-9.2%
Westborough	0.82	0.0%	0.84	0.0%	0.81	-5.9%	0.83	-7.0%	0.84	-8.2%	0.86	-9.2%
Wholesale Total	132.2	132.2†	138.6	138.6†	140.8	132.5†	142.5	132.5†	144.3	132.5†	146.0	132.5†

† Total supply available to the Wholesale Customers after drought cutback.

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table E: Scenario 1: With Bay-Delta Plan - Projected Wholesale Customer RWS Demand and Percent Cutback for a Single Dry Year and Multiple Dry Years (Base Year 2025)

Agency	2025 (184 MGD)		2026 (82.8 MGD)		2027 (74.5 MGD)		2028 (74.5 MGD)		2029 (74.5 MGD)		2030 (74.5 MGD)	
	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback
ACWD	7.68	0%	7.68	-43.4%	7.68	-49.3%	7.68	-49.4%	7.68	-49.5%	7.68	-49.6%
Brisbane/GVMID	0.89	0%	0.89	-43.4%	0.89	-49.3%	0.89	-49.4%	0.89	-49.5%	0.89	-49.6%
Burlingame	4.33	0%	4.34	-43.4%	4.35	-49.3%	4.37	-49.4%	4.38	-49.5%	4.40	-49.6%
Coastside	1.40	0%	1.40	-43.4%	1.39	-49.3%	1.39	-49.4%	1.38	-49.5%	1.38	-49.6%
CalWater Total	29.99	0%	29.94	-43.4%	29.89	-49.3%	29.84	-49.4%	29.79	-49.5%	29.74	-49.6%
Daly City	3.57	0%	3.56	-43.4%	3.55	-49.3%	3.54	-49.4%	3.53	-49.5%	3.52	-49.6%
East Palo Alto	1.88	0%	1.89	-43.4%	1.91	-49.3%	1.92	-49.4%	1.93	-49.5%	1.95	-49.6%
Estero	4.07	0%	4.08	-43.4%	4.08	-49.3%	4.09	-49.4%	4.10	-49.5%	4.11	-49.6%
Hayward	17.86	0%	18.02	-43.4%	18.19	-49.3%	18.35	-49.4%	18.52	-49.5%	18.68	-49.6%
Hillsborough	3.26	0%	3.26	-43.4%	3.26	-49.3%	3.26	-49.4%	3.26	-49.5%	3.25	-49.6%
Menlo Park	3.55	0%	3.58	-43.4%	3.60	-49.3%	3.63	-49.4%	3.66	-49.5%	3.68	-49.6%
Mid-Peninsula	2.86	0%	2.85	-43.4%	2.85	-49.3%	2.85	-49.4%	2.84	-49.5%	2.84	-49.6%
Millbrae	2.29	0%	2.33	-43.4%	2.37	-49.3%	2.41	-49.4%	2.46	-49.5%	2.50	-49.6%
Milpitas	6.59	0%	6.62	-43.4%	6.65	-49.3%	6.68	-49.4%	6.72	-49.5%	6.75	-49.6%
Mountain View	8.60	0%	8.66	-43.4%	8.72	-49.3%	8.78	-49.4%	8.84	-49.5%	8.90	-49.6%
North Coast	2.34	0%	2.34	-43.4%	2.33	-49.3%	2.33	-49.4%	2.33	-49.5%	2.33	-49.6%
Palo Alto	10.06	0%	10.08	-43.4%	10.10	-49.3%	10.12	-49.4%	10.13	-49.5%	10.15	-49.6%
Purissima Hills	2.09	0%	2.09	-43.4%	2.09	-49.3%	2.09	-49.4%	2.09	-49.5%	2.09	-49.6%
Redwood City	8.46	0%	8.46	-43.4%	8.47	-49.3%	8.48	-49.4%	8.49	-49.5%	8.49	-49.6%
San Bruno	3.24	0%	3.23	-43.4%	3.23	-49.3%	3.22	-49.4%	3.22	-49.5%	3.22	-49.6%
San José	4.50	0%	4.50	-43.4%	4.50	-49.3%	4.50	-49.4%	4.50	-49.5%	4.50	-49.6%
Santa Clara	4.50	0%	4.50	-43.4%	4.50	-49.3%	4.50	-49.4%	4.50	-49.5%	4.50	-49.6%
Stanford	2.01	0%	2.04	-43.4%	2.08	-49.3%	2.11	-49.4%	2.15	-49.5%	2.18	-49.6%
Sunnyvale	9.16	0%	9.19	-43.4%	9.22	-49.3%	9.24	-49.4%	9.27	-49.5%	9.30	-49.6%
Westborough	0.86	0%	0.86	-43.4%	0.86	-49.3%	0.86	-49.4%	0.85	-49.5%	0.85	-49.6%
Wholesale Total	146.0	146.0†	146.4	82.8†	146.8	74.5†	147.1	74.5†	147.5	74.5†	147.9	74.5†

† Total supply available to the Wholesale Customers after drought cutback.

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table F: Scenario 2: Without Bay-Delta Plan - Projected Wholesale Customer RWS Demand and Percent Cutback for a Single Dry Year and Multiple Dry Years (Base Year 2025)

Agency	2025 (184 MGD)		2026 (157.5 MGD)		2027 (157.5 MGD)		2028 (157.5 MGD)		2029 (132.5 MGD)		2030 (132.5 MGD)	
	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback
ACWD	7.68	0.0%	7.68	0.0%	7.68	0.0%	7.68	0.0%	7.68	-10.2%	7.68	-10.4%
Brisbane/GVMID	0.89	0.0%	0.89	0.0%	0.89	0.0%	0.89	0.0%	0.89	-10.2%	0.89	-10.4%
Burlingame	4.33	0.0%	4.34	0.0%	4.35	0.0%	4.37	0.0%	4.38	-10.2%	4.40	-10.4%
Coastside	1.40	0.0%	1.40	0.0%	1.39	0.0%	1.39	0.0%	1.38	-10.2%	1.38	-10.4%
CalWater Total	29.99	0.0%	29.94	0.0%	29.89	0.0%	29.84	0.0%	29.79	-10.2%	29.74	-10.4%
Daly City	3.57	0.0%	3.56	0.0%	3.55	0.0%	3.54	0.0%	3.53	-10.2%	3.52	-10.4%
East Palo Alto	1.88	0.0%	1.89	0.0%	1.91	0.0%	1.92	0.0%	1.93	-10.2%	1.95	-10.4%
Estero	4.07	0.0%	4.08	0.0%	4.08	0.0%	4.09	0.0%	4.10	-10.2%	4.11	-10.4%
Hayward	17.86	0.0%	18.02	0.0%	18.19	0.0%	18.35	0.0%	18.52	-10.2%	18.68	-10.4%
Hillsborough	3.26	0.0%	3.26	0.0%	3.26	0.0%	3.26	0.0%	3.26	-10.2%	3.25	-10.4%
Menlo Park	3.55	0.0%	3.58	0.0%	3.60	0.0%	3.63	0.0%	3.66	-10.2%	3.68	-10.4%
Mid-Peninsula	2.86	0.0%	2.85	0.0%	2.85	0.0%	2.85	0.0%	2.84	-10.2%	2.84	-10.4%
Millbrae	2.29	0.0%	2.33	0.0%	2.37	0.0%	2.41	0.0%	2.46	-10.2%	2.50	-10.4%
Milpitas	6.59	0.0%	6.62	0.0%	6.65	0.0%	6.68	0.0%	6.72	-10.2%	6.75	-10.4%
Mountain View	8.60	0.0%	8.66	0.0%	8.72	0.0%	8.78	0.0%	8.84	-10.2%	8.90	-10.4%
North Coast	2.34	0.0%	2.34	0.0%	2.33	0.0%	2.33	0.0%	2.33	-10.2%	2.33	-10.4%
Palo Alto	10.06	0.0%	10.08	0.0%	10.10	0.0%	10.12	0.0%	10.13	-10.2%	10.15	-10.4%
Purissima Hills	2.09	0.0%	2.09	0.0%	2.09	0.0%	2.09	0.0%	2.09	-10.2%	2.09	-10.4%
Redwood City	8.46	0.0%	8.46	0.0%	8.47	0.0%	8.48	0.0%	8.49	-10.2%	8.49	-10.4%
San Bruno	3.24	0.0%	3.23	0.0%	3.23	0.0%	3.22	0.0%	3.22	-10.2%	3.22	-10.4%
San José	4.50	0.0%	4.50	0.0%	4.50	0.0%	4.50	0.0%	4.50	-10.2%	4.50	-10.4%
Santa Clara	4.50	0.0%	4.50	0.0%	4.50	0.0%	4.50	0.0%	4.50	-10.2%	4.50	-10.4%
Stanford	2.01	0.0%	2.04	0.0%	2.08	0.0%	2.11	0.0%	2.15	-10.2%	2.18	-10.4%
Sunnyvale	9.16	0.0%	9.19	0.0%	9.22	0.0%	9.24	0.0%	9.27	-10.2%	9.30	-10.4%
Westborough	0.86	0.0%	0.86	0.0%	0.86	0.0%	0.86	0.0%	0.85	-10.2%	0.85	-10.4%
Wholesale Total	146.0	146.0†	146.4	146.4†	146.8	146.8†	147.1	147.1†	147.5	132.5†	147.9	132.5†

† Total supply available to the Wholesale Customers after drought cutback.

Attachment B: Updated 2020 UWMP Drought Cutbacks

UWMP Table 7-4

Supply Reliability Letter Tables 7 and 8 will help your agency complete UWMP Table 7-4. Table G below provides a summary of the Member Agencies' RWS supply drought cutbacks under each of the four supply availability conditions and is intended to help you complete UWMP Table 7-4. The table assumes (1) the Tier 2 Plan will be used to allocate supplies available to the Wholesale Customers when average Wholesale Customers' RWS shortages are greater than 10 and up to 20 percent, and (2) an equal percent reduction will be shared across all Wholesale Customers when average Wholesale Customers' RWS shortages are 10 percent or less or greater than 20 percent.

Table G: Drought Cutbacks Based on Projected Demands Under All Water Supply Availability Conditions

	(a)	(b)	(c)	(d)	(e)	(f)
(1)	Projected SF RWS Wholesale Purchases	146.0 MGD	147.9 MGD	151.9 MGD	156.3 MGD	162.8 MGD
(2)	Supply Available to the Wholesale Customers	% Cutback on Wholesale RWS Purchases				
		2025	2030	2035	2040	2045
(3)	157.5 MGD	0.0%	0.0%	0.0%	0.0%	-3.2%
(4)	132.5 MGD	-9.3%	-10.4%	Tier 2 Avg. -14%*	Tier 2 Avg. -16%*	Tier 2 Avg. -19%*
(5)	82.8 MGD	-43.3%	-44.0%	-45.5%	-47.0%	-49.1%
(6)	74.5 MGD	-49.0%	-49.6%	-51.0%	-52.3%	-54.2%

* Calculated average. Individual agency cutbacks are calculated in Table H.

Table G, column (a) lists total RWS supplies available to the Wholesale Customers as provided in the Supply Reliability Letter tables. Row 1 provides cumulative projected wholesale RWS purchases for 2025, 2030, 2035, 2040, and 2045.

Tables H, I, J and K provide additional detail by agency for each of the four supply availability conditions listed in Table G. To complete UWMP Table 7-4, reference Table 7 or 8 (depending on which Bay-Delta Plan scenario you choose) in the Supply Reliability Letter to identify total RWS supplies available to the Wholesale Customers and apply the percent cutback in the corresponding year using Table G or input the volumetric drought allocation using Tables H, I, J and K below.

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table H: Drought Allocations when Total Supplies Available to the Wholesale Customers are Equal to 157.5 MGD

Projected SF RWS Wholesale Purchases	146.0 MGD	147.9 MGD	151.9 MGD	156.3 MGD	162.8 MGD
	Drought Allocation (MGD)				
Agency	2025	2030	2030	2040	2045
ACWD	7.68	7.68	7.68	7.68	8.82
Burlingame	0.89	0.89	0.88	0.89	0.87
Burlingame	4.33	4.40	4.47	4.58	4.54
Coastside	1.40	1.38	1.36	1.33	1.28
CalWater Total	29.99	29.74	29.81	30.27	29.71
Daly City	3.57	3.52	3.49	3.46	3.32
East Palo Alto	1.88	1.95	2.10	2.49	2.80
Estero	4.07	4.11	4.18	4.23	4.24
Hayward	17.86	18.68	19.75	20.82	21.43
Hillsborough	3.26	3.25	3.26	3.26	3.15
Menlo Park	3.55	3.68	3.87	4.06	4.15
Mid-Peninsula	2.86	2.84	2.88	2.89	2.83
Millbrae	2.29	2.50	2.45	2.82	3.10
Milpitas	6.59	6.75	7.03	7.27	7.29
Mountain View	8.60	8.90	9.20	9.51	9.61
North Coast	2.34	2.33	2.34	2.34	2.27
Palo Alto	10.06	10.15	10.28	10.51	10.44
Purissima Hills	2.09	2.09	2.12	2.13	2.08
Redwood City	8.46	8.49	8.64	8.74	8.62
San Bruno	3.24	3.22	3.20	3.20	3.11
San José	4.50	4.50	4.50	4.50	4.35
Santa Clara	4.50	4.50	4.50	4.50	4.35
Stanford	2.01	2.18	2.35	2.53	2.61
Sunnyvale	9.16	9.30	10.70	11.44	11.71
Westborough	0.86	0.85	0.85	0.84	0.82
Wholesale Total	146.0	147.9	151.9	156.3	157.5

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table I: Drought Allocations when Total Supplies Available to the Wholesale Customers are Equal to 132.5 MGD

Projected SF RWS Wholesale Purchases	146.0 MGD	147.9 MGD	151.9 MGD	156.3 MGD	162.8 MGD
	Drought Allocation (MGD)				
Agency	2025	2030	2030	2040	2045
ACWD	6.97	6.88	6.91	6.91	8.20
Burlingame	0.81	0.79	0.73	0.73	0.72
Burlingame	3.93	3.94	3.96	3.89	3.80
Coastside	1.27	1.24	1.22	1.20	1.19
CalWater Total	27.21	26.65	26.46	25.69	24.69
Daly City	3.24	3.15	3.04	3.01	2.98
East Palo Alto	1.70	1.75	1.97	2.30	2.62
Esteros	3.69	3.68	3.76	3.87	3.77
Hayward	16.20	16.74	17.32	17.69	18.07
Hillsborough	2.96	2.92	2.90	2.75	2.56
Menlo Park	3.22	3.30	3.37	3.33	3.26
Mid-Peninsula	2.59	2.54	2.59	2.62	2.54
Millbrae	2.07	2.24	2.16	2.32	2.45
Milpitas	5.98	6.05	6.25	6.31	6.35
Mountain View	7.80	7.97	8.28	8.49	8.34
North Coast	2.12	2.09	2.11	2.11	2.11
Palo Alto	9.13	9.09	9.26	9.46	9.71
Purissima Hills	1.89	1.87	1.42	1.38	1.32
Redwood City	7.67	7.61	7.89	7.70	7.49
San Bruno	2.94	2.88	2.56	2.51	2.45
San José	4.08	4.03	3.03	2.91	2.76
Santa Clara	4.08	4.03	3.03	2.91	2.76
Stanford	1.82	1.95	2.06	2.13	2.16
Sunnyvale	8.31	8.33	9.46	9.51	9.43
Westborough	0.78	0.76	0.76	0.76	0.76
Wholesale Total	132.5	132.5	132.5	132.5	132.5

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table J: Drought Allocations when Total Supplies Available to the Wholesale Customers are Equal to 82.8 MGD

Projected SF RWS Wholesale Purchases	146.0 MGD	147.9 MGD	151.9 MGD	156.3 MGD	162.8 MGD
	Drought Allocation (MGD)				
Agency	2025	2030	2030	2040	2045
ACWD	4.36	4.30	4.19	4.07	4.64
Burlingame	0.51	0.50	0.48	0.47	0.45
Burlingame	2.45	2.46	2.44	2.43	2.39
Coastside	0.79	0.77	0.74	0.71	0.68
CalWater Total	17.00	16.65	16.25	16.03	15.62
Daly City	2.02	1.97	1.90	1.83	1.75
East Palo Alto	1.06	1.09	1.14	1.32	1.47
Estero	2.31	2.30	2.28	2.24	2.23
Hayward	10.13	10.46	10.77	11.03	11.26
Hillsborough	1.85	1.82	1.78	1.73	1.66
Menlo Park	2.01	2.06	2.11	2.15	2.18
Mid-Peninsula	1.62	1.59	1.57	1.53	1.49
Millbrae	1.30	1.40	1.34	1.49	1.63
Milpitas	3.74	3.78	3.83	3.85	3.83
Mountain View	4.88	4.98	5.01	5.04	5.05
North Coast	1.33	1.30	1.28	1.24	1.19
Palo Alto	5.71	5.68	5.61	5.57	5.49
Purissima Hills	1.18	1.17	1.15	1.13	1.10
Redwood City	4.80	4.76	4.71	4.63	4.53
San Bruno	1.83	1.80	1.75	1.70	1.63
San José	2.55	2.52	2.45	2.38	2.29
Santa Clara	2.55	2.52	2.45	2.38	2.29
Stanford	1.14	1.22	1.28	1.34	1.37
Sunnyvale	5.19	5.21	5.83	6.06	6.16
Westborough	0.49	0.48	0.46	0.45	0.43
Wholesale Total	82.8	82.8	82.8	82.8	82.8

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table K: Drought Allocations when Total Supplies Available to the Wholesale Customers are Equal to 74.5 MGD

Projected SF RWS Wholesale Purchases	146.0 MGD	147.9 MGD	151.9 MGD	156.3 MGD	162.8 MGD
	Drought Allocation (MGD)				
Agency	2025	2030	2030	2040	2045
ACWD	3.92	3.87	3.77	3.66	4.17
Burlingame	0.46	0.45	0.43	0.42	0.41
Burlingame	2.21	2.21	2.19	2.18	2.15
Coastside	0.71	0.70	0.67	0.64	0.61
CalWater Total	15.30	14.98	14.62	14.43	14.05
Daly City	1.82	1.77	1.71	1.65	1.57
East Palo Alto	0.96	0.98	1.03	1.19	1.32
Esteros	2.08	2.07	2.05	2.02	2.00
Hayward	9.11	9.41	9.69	9.92	10.14
Hillsborough	1.66	1.64	1.60	1.55	1.49
Menlo Park	1.81	1.86	1.90	1.94	1.96
Mid-Peninsula	1.46	1.43	1.41	1.38	1.34
Millbrae	1.17	1.26	1.20	1.34	1.47
Milpitas	3.36	3.40	3.45	3.47	3.45
Mountain View	4.39	4.48	4.51	4.53	4.54
North Coast	1.19	1.17	1.15	1.12	1.07
Palo Alto	5.14	5.11	5.04	5.01	4.94
Purissima Hills	1.06	1.05	1.04	1.02	0.99
Redwood City	4.31	4.28	4.24	4.17	4.08
San Bruno	1.65	1.62	1.57	1.53	1.47
San José	2.30	2.27	2.21	2.14	2.06
Santa Clara	2.30	2.27	2.21	2.14	2.06
Stanford	1.03	1.10	1.15	1.21	1.24
Sunnyvale	4.67	4.69	5.25	5.45	5.54
Westborough	0.44	0.43	0.41	0.40	0.39
Wholesale Total	74.5	74.5	74.5	74.5	74.5



March 30, 2021

Danielle McPherson
 Senior Water Resources Specialist
 Bay Area Water Supply and Conservation Agency
 155 Bovet Road, Suite 650
 San Mateo, CA 94402

Dear Ms. McPherson,

Attached please find additional supply reliability modeling results conducted by the SFPUC. The SFPUC has conducted additional supply reliability modeling under the following planning scenarios:

- Projected supply reliability for years 2020 through 2045, assuming that demand is equivalent to the sum of the projected retail demands on the Regional Water System (RWS) and Wholesale Customer purchase request projections provided to SFPUC by BAWSCA on January 21st (see Table 1 below).
- Under the above demand conditions, projected supply reliability for scenarios both with and without implementation of the Bay-Delta Plan Amendment starting in 2023.

The SFPUC will be using this supply modeling in the text of its draft UWMP and moving the original modeling results into an appendix.

Table 1: Retail and Wholesale RWS Demand Assumptions Used for Additional Supply Reliability Modeling (mgd)

	2020	2025	2030	2035	2040	2045
Retail	66.5	67.2	67.5	68.6	70.5	73.7
Wholesale ^{1, 2}	132.1	146.0	147.9	151.9	156.3	162.8
Total	198.6	213.2	215.4	220.5	226.8	236.5

¹ Wholesale purchase request projections provided to the SFPUC by BAWSCA on January 21st, 2021

² Includes demands for Cities of San Jose and Santa Clara

Please note the following about the information presented in the attached tables:

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

London N. Breed
 Mayor
Sophie Maxwell
 President
Anson Moran
 Vice President
Tim Paulson
 Commissioner
Ed Harrington
 Commissioner
Michael Carlin
 Acting
 General Manager



- Assumptions about infrastructure conditions remain the same as what was provided in our January 22nd letter.
- The Tier 1 allocations were applied to the RWS supplies to determine the wholesale supply, as was also described in the January 22nd letter; for any system-wide shortage above 20%, the Tier 1 split for a 20% shortage was applied.
- The SFPUC water supply planning methodology, including simulation of an 8.5-year design drought, is used to develop these estimates of water supply available from the RWS for five dry years. In each demand scenario for 2020 through 2045, the RWS deliveries are estimated using the standard SFPUC procedure, which includes adding increased levels of rationing as needed to balance the demands on the RWS system with available water supply. Some simulations may have increased levels of rationing in the final years of the design drought sequence, which can influence the comparison of results in the first five years of the sequence.
- Tables 7 and 8 in the attached document provide RWS and wholesale supply availability for the five-year drought risk assessment from 2021 to 2025. SFPUC's modeling approach does not allow for varying demands over the course of a dry year sequence. Therefore, the supply projections for 2021 to 2025 are based on meeting 2020 levels of demand. However, in years when the Bay-Delta Plan Amendment is not in effect, sufficient RWS supplies will be available to meet the Wholesale Customers' purchase requests assuming that they are between the 2020 and 2025 projected levels. This is not reflected in Tables 7 and 8 because SFPUC did not want to make assumptions about the growth of purchase requests between 2020 and 2025.

In our draft UWMP, we acknowledge that we have a Level of Service objective of meeting average annual water demand of 265 mgd from the SFPUC watersheds for retail and Wholesale Customers during non-drought years, as well as a contractual obligation to supply 184 mgd to the Wholesale Customers. Therefore, we will still include the results of our modeling based on a demand of 265 mgd in order to facilitate planning that supports meeting this Level of Service objective and our contractual obligations. The results of this modeling will be in an appendix to the draft UWMP. As will be shown in this appendix, in a normal year the SFPUC can provide up to 265 mgd of supply from the RWS. The RWS supply projections shown in the attached tables are more accurately characterized as supplies that will be used to meet projected retail and Wholesale Customer demands.

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 Sarah Triolo, at striolo@sfgwater.org or (628) 230 0802.

Sincerely,

A handwritten signature in blue ink that reads "Paula Kehoe". The signature is fluid and cursive, with a long horizontal flourish extending to the right.

Paula Kehoe
Director of Water Resources

Table 2: Projected Total RWS Supply Utilized and Portion of RWS Supply Utilized by Wholesale Customers in Normal Years [For Table 6-9]:

Year	2020	2025	2030	2035	2040	2045
RWS Supply Utilized (mgd)	198.6	213.2	215.4	220.5	226.8	236.5
RWS Supply Utilized by Wholesale Customers ^a (mgd)	132.1	146.0	147.9	151.9	156.3	162.8

^a RWS supply utilized by Wholesale Customers is equivalent to purchase request projections provided to SFPUC by BAWSCA on January 21, 2021, and includes Cities of San Jose and Santa Clara.

Basis of Water Supply Data: With Bay-Delta Plan Amendment

Table 3a: Basis of Water Supply Data [For Table 7-1], Base Year 2020, With Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2020	198.6	100%	132.1	
Single dry year		198.6	100%	132.1	
Consecutive 1 st Dry year		198.6	100%	132.1	
Consecutive 2 nd Dry year		198.6	100%	132.1	
Consecutive 3 rd Dry year ¹		119.2	60%	74.5	• At shortages 20% or greater, wholesale allocation is assumed to be 62.5%
Consecutive 4 th Dry year		119.2	60%	74.5	• Same as above
Consecutive 5 th Dry year		119.2	60%	74.5	• Same as above

¹ Assuming this year represents 2023, when Bay Delta Plan Amendment would come into effect.

Table 3b: Basis of Water Supply Data [For Table 7-1], Base Year 2025, With Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2025	213.2	100%	146.0	
Single dry year		149.2	70%	93.3	• At shortages 20% or greater, wholesale allocation is assumed to be 62.5%
Consecutive 1 st Dry year		149.2	70%	93.3	• Same as above
Consecutive 2 nd Dry year		127.9	60%	80.0	• Same as above
Consecutive 3 rd Dry year		127.9	60%	80.0	• Same as above
Consecutive 4 th Dry year		127.9	60%	80.0	• Same as above
Consecutive 5 th Dry year		127.9	60%	80.0	• Same as above

Table 3c: Basis of Water Supply Data [For Table 7-1], Base Year 2030, With Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2030	215.4	100%	147.9	
Single dry year		150.8	70%	94.2	<ul style="list-style-type: none"> At shortages 20% or greater, wholesale allocation is assumed to be 62.5%
Consecutive 1 st Dry year		150.8	70%	94.2	<ul style="list-style-type: none"> Same as above
Consecutive 2 nd Dry year		129.2	60%	80.8	<ul style="list-style-type: none"> Same as above
Consecutive 3 rd Dry year		129.2	60%	80.8	<ul style="list-style-type: none"> Same as above
Consecutive 4 th Dry year		129.2	60%	80.8	<ul style="list-style-type: none"> Same as above
Consecutive 5 th Dry year		129.2	60%	80.8	<ul style="list-style-type: none"> Same as above

Table 3d: Basis of Water Supply Data [For Table 7-1], Base Year 2035, With Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2035	220.5	100%	151.9	
Single dry year		154.4	70%	96.5	<ul style="list-style-type: none"> At shortages 20% or greater, wholesale allocation is assumed to be 62.5%
Consecutive 1 st Dry year		154.4	70%	96.5	<ul style="list-style-type: none"> Same as above
Consecutive 2 nd Dry year		132.3	60%	82.7	<ul style="list-style-type: none"> Same as above
Consecutive 3 rd Dry year		132.3	60%	82.7	<ul style="list-style-type: none"> Same as above
Consecutive 4 th Dry year		132.3	60%	82.7	<ul style="list-style-type: none"> Same as above
Consecutive 5 th Dry year		121.3	55%	75.8	<ul style="list-style-type: none"> Same as above

Table 3e: Basis of Water Supply Data [For Table 7-1], Base Year 2040, With Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2040	226.8	100%	156.3	
Single dry year		158.8	70%	99.2	<ul style="list-style-type: none"> At shortages 20% or greater, wholesale allocation is assumed to be 62.5%
Consecutive 1 st Dry year		158.8	70%	99.2	<ul style="list-style-type: none"> Same as above
Consecutive 2 nd Dry year		136.1	60%	85.1	<ul style="list-style-type: none"> Same as above
Consecutive 3 rd Dry year		136.1	60%	85.1	<ul style="list-style-type: none"> Same as above
Consecutive 4 th Dry year		120.2	53%	75.1	<ul style="list-style-type: none"> Same as above
Consecutive 5 th Dry year		120.2	53%	75.1	<ul style="list-style-type: none"> Same as above

Table 3f: Basis of Water Supply Data [For Table 7-1], Base Year 2045, With Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2045	236.5	100%	162.8	
Single dry year		141.9	60%	88.7	<ul style="list-style-type: none"> At shortages 20% or greater, wholesale allocation is assumed to be 62.5%
Consecutive 1 st Dry year		141.9	60%	88.7	<ul style="list-style-type: none"> Same as above
Consecutive 2 nd Dry year		141.9	60%	88.7	<ul style="list-style-type: none"> Same as above
Consecutive 3 rd Dry year		141.9	60%	88.7	<ul style="list-style-type: none"> Same as above
Consecutive 4 th Dry year		120.6	51%	75.4	<ul style="list-style-type: none"> Same as above
Consecutive 5 th Dry year		120.6	51%	75.4	<ul style="list-style-type: none"> Same as above

Table 3g: Projected RWS Supply Availability [Alternative to Table 7-1], Years 2020-2045, With Bay-Delta Plan Amendment

Year	2020	2025	2030	2035	2040	2045
Average year	100%	100%	100%	100%	100%	100%
Single dry year	100%	70%	70%	70%	70%	60%
Consecutive 1 st Dry year	100%	70%	70%	70%	70%	60%
Consecutive 2 nd Dry year	100%	60%	60%	60%	60%	60%
Consecutive 3 rd Dry year ¹	60%	60%	60%	60%	60%	60%
Consecutive 4 th Dry year	60%	60%	60%	60%	53%	51%
Consecutive 5 th Dry year	60%	60%	60%	55%	53%	51%

¹ Assuming that at base year 2020, this year represents 2023, when Bay Delta Plan Amendment would come into effect.

Basis of Water Supply Data: Without Bay-Delta Plan Amendment

Table 4a: Basis of Water Supply Data [For Table 7-1], Base Year 2020, Without Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2020	198.6	100%	132.1	
Single dry year		198.6	100%	132.1	
Consecutive 1 st Dry year		198.6	100%	132.1	
Consecutive 2 nd Dry year		198.6	100%	132.1	
Consecutive 3 rd Dry year		198.6	100%	132.1	
Consecutive 4 th Dry year		198.6	100%	132.1	
Consecutive 5 th Dry year		198.6	100%	132.1	

Table 4b: Basis of Water Supply Data [For Table 7-1], Base Year 2025, Without Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2025	213.2	100%	146.0	
Single dry year		213.2	100%	146.0	
Consecutive 1 st Dry year		213.2	100%	146.0	
Consecutive 2 nd Dry year		213.2	100%	146.0	
Consecutive 3 rd Dry year		213.2	100%	146.0	
Consecutive 4 th Dry year		213.2	100%	146.0	
Consecutive 5 th Dry year		213.2	100%	146.0	

Table 4c: Basis of Water Supply Data [For Table 7-1], Base Year 2030, Without Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2030	215.4	100%	147.9	
Single dry year		215.4	100%	147.9	
Consecutive 1 st Dry year		215.4	100%	147.9	
Consecutive 2 nd Dry year		215.4	100%	147.9	
Consecutive 3 rd Dry year		215.4	100%	147.9	
Consecutive 4 th Dry year		215.4	100%	147.9	
Consecutive 5 th Dry year		215.4	100%	147.9	

Table 4d: Basis of Water Supply Data [For Table 7-1], Base Year 2035, Without Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2035	220.5	100%	151.9	
Single dry year		220.5	100%	151.9	
Consecutive 1 st Dry year		220.5	100%	151.9	
Consecutive 2 nd Dry year		220.5	100%	151.9	
Consecutive 3 rd Dry year		220.5	100%	151.9	
Consecutive 4 th Dry year		220.5	100%	151.9	
Consecutive 5 th Dry year		220.5	100%	151.9	

Table 4e: Basis of Water Supply Data [For Table 7-1], Base Year 2040, Without Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2040	226.8	100%	156.3	
Single dry year		226.8	100%	156.3	
Consecutive 1 st Dry year		226.8	100%	156.3	
Consecutive 2 nd Dry year		226.8	100%	156.3	
Consecutive 3 rd Dry year		226.8	100%	156.3	
Consecutive 4 th Dry year		226.8	100%	156.3	
Consecutive 5 th Dry year		226.8	100%	156.3	

Table 4f: Basis of Water Supply Data [For Table 7-1], Base Year 2045, Without Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2045	236.5	100%	162.8	
Single dry year		236.5	100%	162.8	
Consecutive 1 st Dry year		236.5	100%	162.8	
Consecutive 2 nd Dry year		236.5	100%	162.8	
Consecutive 3 rd Dry year		236.5	100%	162.8	
Consecutive 4 th Dry year		212.8	90%	139.1	<ul style="list-style-type: none"> At a 10% shortage level, the wholesale allocation is 64% of available supply The retail allocation is 36% of supply, which resulted in a positive allocation to retail of 2.9 mgd, which was re-allocated to the Wholesale Customers
Consecutive 5 th Dry year		212.8	90%	139.1	<ul style="list-style-type: none"> Same as above

Table 4g: Projected RWS Supply [Alternative to Table 7-1], Years 2020-2045, Without Bay-Delta Plan Amendment

Year	2020	2025	2030	2035	2040	2045
Average year	100%	100%	100%	100%	100%	100%
Single dry year	100%	100%	100%	100%	100%	100%
Consecutive 1 st Dry year	100%	100%	100%	100%	100%	100%
Consecutive 2 nd Dry year	100%	100%	100%	100%	100%	100%
Consecutive 3 rd Dry year	100%	100%	100%	100%	100%	100%
Consecutive 4 th Dry year	100%	100%	100%	100%	100%	90%
Consecutive 5 th Dry year	100%	100%	100%	100%	100%	90%

Supply Projections for Consecutive Five Dry Year Sequences

Table 5: Projected Multiple Dry Years Wholesale Supply from RWS [For Table 7-4], With Bay-Delta Plan Amendment

	2025	2030	2035	2040	2045
First year	93.3	94.2	96.5	99.2	88.7
Second year	80.0	80.8	82.7	85.1	88.7
Third year	80.0	80.8	82.7	85.1	88.7
Fourth year	80.0	80.8	82.7	75.1	75.4
Fifth year	80.0	80.8	75.8	75.1	75.4

Table 6: Projected Multiple Dry Years Wholesale Supply from RWS [For Table 7-4], Without Bay-Delta Plan Amendment

	2025	2030	2035	2040	2045
First year	146.0	147.9	151.9	156.3	162.8
Second year	146.0	147.9	151.9	156.3	162.8
Third year	146.0	147.9	151.9	156.3	162.8
Fourth year	146.0	147.9	151.9	156.3	139.1
Fifth year	146.0	147.9	151.9	156.3	139.1

Table 7: Projected Regional Water System Supply for 5-Year Drought Risk Assessment [For Table 7-5], With Bay-Delta Plan Amendment. This table assumes Bay Delta Plan comes into effect in 2023.

Year	2021	2022	2023	2024	2025
RWS Supply (mgd)	198.6	198.6	119.2	119.2	119.2
Wholesale Supply (mgd)	132.1	132.1	74.5	74.5	74.5

Table 8: Projected Regional Water System Supply for 5-Year Drought Risk Assessment [For Table 7-5], Without Bay Delta Plan

Year	2021	2022	2023	2024	2025
RWS Supply (mgd)	198.6	198.6	198.6	198.6	198.6
Wholesale Supply (mgd)	132.1	132.1	132.1	132.1	132.1

Section 1: Basis for Calculations. Projected Wholesale RWS Purchases Through 2045

Table A: Wholesale RWS Actual Purchases in 2020 and Projected Purchases for 2025, 2030, 2035, 2040, and 2045 (mgd)^a

Agency	2020	Projected Wholesale RWS Purchases				
	Actual	2025	2030	2035	2040	2045
ACWD	7.87	7.68	7.68	7.68	7.68	9.11
Brisbane/GVMID	0.64	0.89	0.89	0.88	0.89	0.89
Burlingame	3.48	4.33	4.40	4.47	4.58	4.69
Coastside	1.02	1.40	1.38	1.36	1.33	1.33
CalWater Total	29.00	29.99	29.74	29.81	30.27	30.70
Daly City	3.97	3.57	3.52	3.49	3.46	3.43
East Palo Alto	1.57	1.88	1.95	2.10	2.49	2.89
Estero	4.34	4.07	4.11	4.18	4.23	4.38
Hayward	13.92	17.86	18.68	19.75	20.82	22.14
Hillsborough	2.62	3.26	3.25	3.26	3.26	3.26
Menlo Park	2.96	3.55	3.68	3.87	4.06	4.29
Mid-Peninsula	2.66	2.86	2.84	2.88	2.89	2.93
Millbrae	1.90	2.29	2.50	2.45	2.82	3.20
Milpitas	5.92	6.59	6.75	7.03	7.27	7.53
Mountain View	7.67	8.60	8.90	9.20	9.51	9.93
North Coast	2.37	2.34	2.33	2.34	2.34	2.34
Palo Alto	9.75	10.06	10.15	10.28	10.51	10.79
Purissima Hills	1.75	2.09	2.09	2.12	2.13	2.15
Redwood City	8.76	8.46	8.49	8.64	8.74	8.90
San Bruno	0.95	3.24	3.22	3.20	3.20	3.21
San Jose	4.26	4.50	4.50	4.50	4.50	4.50
Santa Clara	3.27	4.50	4.50	4.50	4.50	4.50
Stanford	1.43	2.01	2.18	2.35	2.53	2.70
Sunnyvale	9.33	9.16	9.30	10.70	11.44	12.10
Westborough	0.82	0.86	0.85	0.85	0.84	0.84
Total	132.22	146.01	147.87	151.90	156.31	162.76

^a Wholesale RWS purchase projections for 2025, 2030, 2035, 2040, and 2045 were provided to BAWSCA between July 2020 and January 2021 by the Member Agencies following the completion of the June 2020 Demand Study.

Table B: Basis for the 5-Year Drought Risk Assessment Wholesale RWS Actual Purchases in 2020 and 2021-2025 Projected Purchases (mgd)

Agency	Projected and Estimated Wholesale RWS Purchases					
	2020 Actual	2021 ^b	2022 ^b	2023 ^c	2024 ^c	2025 ^c
ACWD	7.87	9.44	9.46	9.46	9.46	9.46
Brisbane/GVMID	0.64	0.62	0.65	0.65	0.65	0.65
Burlingame	3.48	3.34	3.35	3.35	3.35	3.35
Coastside	1.02	1.54	1.23	1.23	1.23	1.23
CalWater Total	29.00	29.66	29.81	29.81	29.81	29.81
Daly City	3.97	4.00	4.01	4.01	4.01	4.01
East Palo Alto	1.57	1.63	1.69	1.69	1.69	1.69
Estero	4.34	4.48	4.51	4.51	4.51	4.51
Hayward	13.92	14.47	15.12	15.12	15.12	15.12
Hillsborough	2.62	2.95	3.05	3.05	3.05	3.05
Menlo Park	2.96	2.92	2.93	2.93	2.93	2.93
Mid-Peninsula	2.66	2.65	2.80	2.80	2.80	2.80
Millbrae	1.90	1.95	2.15	2.15	2.15	2.15
Milpitas	5.92	5.88	5.34	5.34	5.34	5.34
Mountain View	7.67	7.80	8.05	8.05	8.05	8.05
North Coast	2.37	2.58	2.66	2.66	2.66	2.66
Palo Alto	9.75	9.44	9.66	9.66	9.66	9.66
Purissima Hills	1.75	1.97	2.02	2.02	2.02	2.02
Redwood City	8.76	8.72	9.07	9.07	9.07	9.07
San Bruno	0.95	3.39	3.40	3.40	3.40	3.40
San Jose	4.26	4.31	4.51	4.51	4.51	4.51
Santa Clara	3.27	3.29	3.50	3.50	3.50	3.50
Stanford	1.43	1.40	1.54	1.54	1.54	1.54
Sunnyvale	9.33	9.35	9.45	9.45	9.45	9.45
Westborough	0.82	0.84	0.81	0.81	0.81	0.81
Total	132.22	138.61	140.77	140.77	140.77	140.77

^b Wholesale RWS purchase projections for 2021 and 2022 were provided to Christina Tang, BAWSCA's Finance Manager, by the Member Agencies in January 2021.

^c The SFPUC's supply reliability tables assume the Bay-Delta Plan takes effect in 2023. In the event of a shortage, the Tier 2 Plan specifies that each agencies' Allocation Factor would be calculated once at the onset of a shortage based on the previous year's use and remains the same until the shortage condition is over. Therefore, for the purpose of drought allocations for the 5-year Drought Risk Assessment, wholesale RWS demand is assumed to remain static from 2022 through the drought sequence.

Section 2: Drought Allocations With Bay-Delta Plan

Table C: RWS Supply Available to the Wholesale Customers (Combined Tables 3a-3f from the SFPUC's March 30th letter) With Bay-Delta Plan (mgd)

	2020 ^e	2025	2030	2035	2040	2045
Projected Purchases ^d	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 1st Dry Year	138.6	93.3	94.2	96.5	99.2	88.7
Consecutive 2nd Dry Year	140.8	80.0	80.8	82.7	85.1	88.7
Consecutive 3rd Dry Year	74.5	80.0	80.8	82.7	85.1	88.7
Consecutive 4th Dry Year	74.5	80.0	80.8	82.7	75.1	75.4
Consecutive 5th Dry Year	74.5	80.0	80.8	75.8	75.1	75.4

^d Values for 2020 are actual purchases. This row aligns with what is labeled as an "Average Year" in Tables 3a-3f in the SFPUC's March 30th letter. However, these values do not represent an average year and instead are actual purchases for 2020 or projected purchases for 2025 through 2045.

^e In years when the Bay-Delta Plan is not in effect, sufficient RWS supplies will be available to meet the Wholesale Customers' purchase requests assuming that they are between the 2020 and 2025 projected levels. As such, RWS supply available to the Wholesale Customers in the 1st and 2nd consecutive dry years under base year 2020 is equal to the cumulative projected wholesale RWS purchases for 2021 and 2022, respectively.

Table D: Wholesale RWS Demand (Combined Totals from Tables A and B) (mgd)^f

	2020	2025	2030	2035	2040	2045
Projected Purchases ^d	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 1st Dry Year	138.6	146.0	147.9	151.9	156.3	162.8
Consecutive 2nd Dry Year	140.8	146.0	147.9	151.9	156.3	162.8
Consecutive 3rd Dry Year	140.8	146.0	147.9	151.9	156.3	162.8
Consecutive 4th Dry Year	140.8	146.0	147.9	151.9	156.3	162.8
Consecutive 5th Dry Year	140.8	146.0	147.9	151.9	156.3	162.8

^f The SFPUC's modeling approach does not allow for varying demands over the course of a dry year sequence. Additionally, the Tier 2 Plan calculates each agencies' Allocation Factor once at the onset of a drought and it remains the same until the shortage condition is over. When system-wide shortages are projected, wholesale RWS demand is assumed to be static for the remainder of the drought sequence.

Table E: Percent Cutback to the Wholesale Customers With Bay-Delta Plan^g

	2020	2025	2030	2035	2040	2045
Projected Purchases ^d	0%	0%	0%	0%	0%	0%
Consecutive 1st Dry Year	0%	36%	36%	36%	37%	46%
Consecutive 2nd Dry Year	0%	45%	45%	46%	46%	46%
Consecutive 3rd Dry Year	47%	45%	45%	46%	46%	46%
Consecutive 4th Dry Year	47%	45%	45%	46%	52%	54%
Consecutive 5th Dry Year	47%	45%	45%	50%	52%	54%

^g Agencies that wish to use new or different projected RWS purchases may use the percent cutbacks listed in this table to determine their drought allocation.

Table F1: Basis of Water Supply Data [For Tables 7-1 and 7-5], Base Year 2020, With Bay-Delta Plan (mgd)

Year Consecutive Dry Year	2020 Actual	2021 1st	2022 2nd	2023 3rd	2024 4th	2025 5th
Wholesale RWS Demand	132.2	138.6	140.8	140.8	140.8	140.8
Wholesale RWS Supply Available	132.2	138.6	140.8	74.5	74.5	74.5
Percent Cutback	0%	0%	0%	47%	47%	47%

Table F2: Individual Agency Drought Allocations [For Tables 7-1 and 7-5], Base Year 2020, With Bay-Delta Plan (mgd)

Agency	2020	Wholesale RWS Drought Allocations				
	Actual	2021	2022	2023	2024	2025
ACWD	7.87	9.44	9.46	5.01	5.01	5.01
Brisbane/GVMID	0.64	0.62	0.65	0.34	0.34	0.34
Burlingame	3.48	3.34	3.35	1.77	1.77	1.77
Coastside	1.02	1.54	1.23	0.65	0.65	0.65
CalWater Total	29.00	29.66	29.81	15.78	15.78	15.78
Daly City	3.97	4.00	4.01	2.12	2.12	2.12
East Palo Alto	1.57	1.63	1.69	0.89	0.89	0.89
Estero	4.34	4.48	4.51	2.39	2.39	2.39
Hayward	13.92	14.47	15.12	8.00	8.00	8.00
Hillsborough	2.62	2.95	3.05	1.61	1.61	1.61
Menlo Park	2.96	2.92	2.93	1.55	1.55	1.55
Mid-Peninsula	2.66	2.65	2.80	1.48	1.48	1.48
Millbrae	1.90	1.95	2.15	1.14	1.14	1.14
Milpitas	5.92	5.88	5.34	2.83	2.83	2.83
Mountain View	7.67	7.80	8.05	4.26	4.26	4.26
North Coast	2.37	2.58	2.66	1.41	1.41	1.41
Palo Alto	9.75	9.44	9.66	5.11	5.11	5.11
Purissima Hills	1.75	1.97	2.02	1.07	1.07	1.07
Redwood City	8.76	8.72	9.07	4.80	4.80	4.80
San Bruno	0.95	3.39	3.40	1.80	1.80	1.80
San Jose	4.26	4.31	4.51	2.39	2.39	2.39
Santa Clara	3.27	3.29	3.50	1.85	1.85	1.85
Stanford	1.43	1.40	1.54	0.82	0.82	0.82
Sunnyvale	9.33	9.35	9.45	5.00	5.00	5.00
Westborough	0.82	0.84	0.81	0.43	0.43	0.43
Total	132.2	138.6	140.8	74.5	74.5	74.5

Table G1: Basis of Water Supply Data [For Tables 7-1 and 7-4], Base Year 2025, With Bay-Delta Plan (mgd)

Consecutive Dry Year	1st	2nd	3rd	4th	5th
Wholesale RWS Demand	146.0	146.0	146.0	146.0	146.0
Wholesale RWS Supply Available	93.3	80.0	80.0	80.0	80.0
Percent Cutback	36%	45%	45%	45%	45%

Table G2: Individual Agency Drought Allocations [For Tables 7-1 and 7-4], Base Year 2025, With Bay-Delta Plan (mgd)

Consecutive Dry Year	Wholesale RWS Drought Allocations				
	1st	2nd	3rd	4th	5th
ACWD	4.91	4.21	4.21	4.21	4.21
Brisbane/GVMID	0.57	0.49	0.49	0.49	0.49
Burlingame	2.76	2.37	2.37	2.37	2.37
Coastside	0.89	0.77	0.77	0.77	0.77
CalWater Total	19.16	16.43	16.43	16.43	16.43
Daly City	2.28	1.96	1.96	1.96	1.96
East Palo Alto	1.20	1.03	1.03	1.03	1.03
Estero	2.60	2.23	2.23	2.23	2.23
Hayward	11.41	9.78	9.78	9.78	9.78
Hillsborough	2.08	1.79	1.79	1.79	1.79
Menlo Park	2.27	1.95	1.95	1.95	1.95
Mid-Peninsula	1.83	1.57	1.57	1.57	1.57
Millbrae	1.46	1.25	1.25	1.25	1.25
Milpitas	4.21	3.61	3.61	3.61	3.61
Mountain View	5.49	4.71	4.71	4.71	4.71
North Coast	1.49	1.28	1.28	1.28	1.28
Palo Alto	6.43	5.51	5.51	5.51	5.51
Purissima Hills	1.33	1.14	1.14	1.14	1.14
Redwood City	5.40	4.63	4.63	4.63	4.63
San Bruno	2.07	1.77	1.77	1.77	1.77
San Jose	2.88	2.47	2.47	2.47	2.47
Santa Clara	2.88	2.47	2.47	2.47	2.47
Stanford	1.28	1.10	1.10	1.10	1.10
Sunnyvale	5.85	5.02	5.02	5.02	5.02
Westborough	0.55	0.47	0.47	0.47	0.47
Total	93.3	80.0	80.0	80.0	80.0

Table H1: Basis of Water Supply Data [For Tables 7-1 and 7-4], Base Year 2030, With Bay-Delta Plan (mgd)

Consecutive Dry Year	1st	2nd	3rd	4th	5th
Wholesale RWS Demand	147.9	147.9	147.9	147.9	147.9
Wholesale RWS Supply Available	94.2	80.8	80.8	80.8	80.8
Percent Cutback	36%	45%	45%	45%	45%

Table H2: Individual Agency Drought Allocations [For Tables 7-1 and 7-4], Base Year 2030, With Bay-Delta Plan (mgd)

Consecutive Dry Year	Wholesale RWS Drought Allocations				
	1st	2nd	3rd	4th	5th
ACWD	4.89	4.20	4.20	4.20	4.20
Brisbane/GVMID	0.56	0.48	0.48	0.48	0.48
Burlingame	2.80	2.40	2.40	2.40	2.40
Coastside	0.88	0.75	0.75	0.75	0.75
CalWater Total	18.94	16.25	16.25	16.25	16.25
Daly City	2.24	1.92	1.92	1.92	1.92
East Palo Alto	1.24	1.07	1.07	1.07	1.07
Estero	2.62	2.24	2.24	2.24	2.24
Hayward	11.90	10.21	10.21	10.21	10.21
Hillsborough	2.07	1.78	1.78	1.78	1.78
Menlo Park	2.35	2.01	2.01	2.01	2.01
Mid-Peninsula	1.81	1.55	1.55	1.55	1.55
Millbrae	1.59	1.37	1.37	1.37	1.37
Milpitas	4.30	3.69	3.69	3.69	3.69
Mountain View	5.67	4.86	4.86	4.86	4.86
North Coast	1.48	1.27	1.27	1.27	1.27
Palo Alto	6.47	5.55	5.55	5.55	5.55
Purissima Hills	1.33	1.14	1.14	1.14	1.14
Redwood City	5.41	4.64	4.64	4.64	4.64
San Bruno	2.05	1.76	1.76	1.76	1.76
San Jose	2.87	2.46	2.46	2.46	2.46
Santa Clara	2.87	2.46	2.46	2.46	2.46
Stanford	1.39	1.19	1.19	1.19	1.19
Sunnyvale	5.92	5.08	5.08	5.08	5.08
Westborough	0.54	0.47	0.47	0.47	0.47
Total	94.2	80.8	80.8	80.8	80.8

Table I1: Basis of Water Supply Data [For Tables 7-1 and 7-4], Base Year 2035, With Bay-Delta Plan (mgd)

Consecutive Dry Year	1st	2nd	3rd	4th	5th
Wholesale RWS Demand	151.9	151.9	151.9	151.9	151.9
Wholesale RWS Supply Available	96.5	82.7	82.7	82.7	75.8
Percent Cutback	36%	46%	46%	46%	50%

Table I2: Individual Agency Drought Allocations [For Tables 7-1 and 7-4], Base Year 2035, With Bay-Delta Plan (mgd)

Consecutive Dry Year	Wholesale RWS Drought Allocations				
	1st	2nd	3rd	4th	5th
ACWD	4.88	4.18	4.18	4.18	3.83
Brisbane/GVMID	0.56	0.48	0.48	0.48	0.44
Burlingame	2.84	2.44	2.44	2.44	2.23
Coastside	0.86	0.74	0.74	0.74	0.68
CalWater Total	18.94	16.23	16.23	16.23	14.88
Daly City	2.22	1.90	1.90	1.90	1.74
East Palo Alto	1.33	1.14	1.14	1.14	1.05
Estero	2.66	2.28	2.28	2.28	2.09
Hayward	12.55	10.75	10.75	10.75	9.86
Hillsborough	2.07	1.78	1.78	1.78	1.63
Menlo Park	2.46	2.10	2.10	2.10	1.93
Mid-Peninsula	1.83	1.57	1.57	1.57	1.44
Millbrae	1.56	1.34	1.34	1.34	1.22
Milpitas	4.47	3.83	3.83	3.83	3.51
Mountain View	5.84	5.01	5.01	5.01	4.59
North Coast	1.49	1.27	1.27	1.27	1.17
Palo Alto	6.53	5.60	5.60	5.60	5.13
Purissima Hills	1.34	1.15	1.15	1.15	1.06
Redwood City	5.49	4.70	4.70	4.70	4.31
San Bruno	2.03	1.74	1.74	1.74	1.60
San Jose	2.86	2.45	2.45	2.45	2.25
Santa Clara	2.86	2.45	2.45	2.45	2.25
Stanford	1.49	1.28	1.28	1.28	1.17
Sunnyvale	6.80	5.83	5.83	5.83	5.34
Westborough	0.54	0.46	0.46	0.46	0.42
Total	96.5	82.7	82.7	82.7	75.8

Table J1: Basis of Water Supply Data [For Table 7-1 and 7-4], Base Year 2040, With Bay-Delta Plan (mgd)

Consecutive Dry Year	1st	2nd	3rd	4th	5th
Wholesale RWS Demand	156.3	156.3	156.3	156.3	156.3
Wholesale RWS Supply Available	99.2	85.1	85.1	75.1	75.1
Percent Cutback	37%	46%	46%	52%	52%

Table J2: Individual Agency Drought Allocations [For Tables 7-1 and 7-4], Base Year 2040, With Bay-Delta Plan (mgd)

Consecutive Dry Year	Wholesale RWS Drought Allocations				
	1st	2nd	3rd	4th	5th
ACWD	4.87	4.18	4.18	3.69	3.69
Brisbane/GVMID	0.56	0.48	0.48	0.43	0.43
Burlingame	2.91	2.49	2.49	2.20	2.20
Coastside	0.85	0.73	0.73	0.64	0.64
CalWater Total	19.21	16.48	16.48	14.54	14.54
Daly City	2.20	1.88	1.88	1.66	1.66
East Palo Alto	1.58	1.36	1.36	1.20	1.20
Estero	2.69	2.30	2.30	2.03	2.03
Hayward	13.21	11.34	11.34	10.00	10.00
Hillsborough	2.07	1.78	1.78	1.57	1.57
Menlo Park	2.58	2.21	2.21	1.95	1.95
Mid-Peninsula	1.84	1.58	1.58	1.39	1.39
Millbrae	1.79	1.53	1.53	1.35	1.35
Milpitas	4.62	3.96	3.96	3.49	3.49
Mountain View	6.03	5.18	5.18	4.57	4.57
North Coast	1.49	1.27	1.27	1.12	1.12
Palo Alto	6.67	5.72	5.72	5.05	5.05
Purissima Hills	1.35	1.16	1.16	1.03	1.03
Redwood City	5.55	4.76	4.76	4.20	4.20
San Bruno	2.03	1.74	1.74	1.54	1.54
San Jose	2.86	2.45	2.45	2.16	2.16
Santa Clara	2.86	2.45	2.45	2.16	2.16
Stanford	1.61	1.38	1.38	1.22	1.22
Sunnyvale	7.26	6.23	6.23	5.49	5.49
Westborough	0.54	0.46	0.46	0.41	0.41
Total	99.2	85.1	85.1	75.1	75.1

Table K1: Basis of Water Supply Data [For Tables 7-1 and 7-4], Base Year 2045, With Bay-Delta Plan (mgd)

Consecutive Dry Year	1st	2nd	3rd	4th	5th
Wholesale RWS Demand	162.8	162.8	162.8	162.8	162.8
Wholesale RWS Supply Available	88.7	88.7	88.7	75.4	75.4
Percent Cutback	46%	46%	46%	54%	54%

Table K2: Individual Agency Drought Allocations [For Tables 7-1 and 7-4], Base Year 2045, With Bay-Delta Plan (mgd)

Consecutive Dry Year	Wholesale RWS Drought Allocations				
	1st	2nd	3rd	4th	5th
ACWD	4.97	4.97	4.97	4.22	4.22
Brisbane/GVMID	0.49	0.49	0.49	0.41	0.41
Burlingame	2.56	2.56	2.56	2.17	2.17
Coastside	0.72	0.72	0.72	0.61	0.61
CalWater Total	16.73	16.73	16.73	14.22	14.22
Daly City	1.87	1.87	1.87	1.59	1.59
East Palo Alto	1.58	1.58	1.58	1.34	1.34
Estero	2.39	2.39	2.39	2.03	2.03
Hayward	12.07	12.07	12.07	10.26	10.26
Hillsborough	1.78	1.78	1.78	1.51	1.51
Menlo Park	2.34	2.34	2.34	1.99	1.99
Mid-Peninsula	1.59	1.59	1.59	1.36	1.36
Millbrae	1.74	1.74	1.74	1.48	1.48
Milpitas	4.11	4.11	4.11	3.49	3.49
Mountain View	5.41	5.41	5.41	4.60	4.60
North Coast	1.28	1.28	1.28	1.09	1.09
Palo Alto	5.88	5.88	5.88	5.00	5.00
Purissima Hills	1.17	1.17	1.17	1.00	1.00
Redwood City	4.85	4.85	4.85	4.12	4.12
San Bruno	1.75	1.75	1.75	1.49	1.49
San Jose	2.45	2.45	2.45	2.08	2.08
Santa Clara	2.45	2.45	2.45	2.08	2.08
Stanford	1.47	1.47	1.47	1.25	1.25
Sunnyvale	6.59	6.59	6.59	5.61	5.61
Westborough	0.46	0.46	0.46	0.39	0.39
Total	88.7	88.7	88.7	75.4	75.4

Section 3: Drought Allocations Without Bay-Delta Plan

Table L: RWS Supply Available to the Wholesale Customers (Combined Tables 4a-4f from the SFPUC's March 30th letter) Without Bay-Delta Plan (mgd)^h

	2020	2025	2030	2035	2040	2045
Projected Purchases ⁱ	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 1st Dry Year	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 2nd Dry Year	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 3rd Dry Year	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 4th Dry Year	132.2	146.0	147.9	151.9	156.3	139.1
Consecutive 5th Dry Year	132.2	146.0	147.9	151.9	156.3	139.1

^h The SFPUC's modeling approach does not allow for varying demands over the course of a dry year sequence. However, the SFPUC has indicated that sufficient supplies are available to meet wholesale RWS demand so long as they reasonably stay within 2020 and 2040 levels. The SFPUC's modeling does not indicate cutbacks will be required till the 4th and 5th consecutive dry year at 2045 levels.

ⁱ Values for 2020 are actual purchases. This row aligns with what is labeled as an "Average Year" in Tables 4a-4f in the SFPUC's March 30th letter. However, these values do not represent an average year and instead are actual purchases for 2020 or projected purchases for 2025 through 2045.

Table M: Wholesale RWS Demand (Combined Totals from Tables A and B) (mgd)

	2020	2025	2030	2035	2040	2045
Projected Purchases ⁱ	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 1st Dry Year	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 2nd Dry Year	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 3rd Dry Year	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 4th Dry Year	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 5th Dry Year	132.2	146.0	147.9	151.9	156.3	162.8

Table N: Percent Cutback to the Wholesale Customers Without Bay-Delta Plan

	2020	2025	2030	2035	2040	2045
Projected Purchases ⁱ	0%	0%	0%	0%	0%	0%
Consecutive 1st Dry Year	0%	0%	0%	0%	0%	0%
Consecutive 2nd Dry Year	0%	0%	0%	0%	0%	0%
Consecutive 3rd Dry Year	0%	0%	0%	0%	0%	0%
Consecutive 4th Dry Year	0%	0%	0%	0%	0%	15%
Consecutive 5th Dry Year	0%	0%	0%	0%	0%	15%

Table O1: Basis of Water Supply Data [For Tables 7-1 and 7-4], Base Year 2045, Without Bay-Delta Plan (mgd)

Consecutive Dry Year	1st	2nd	3rd	4th	5th
Wholesale RWS Demand	162.8	162.8	162.8	162.8	162.8
Wholesale RWS Supply Available	162.8	162.8	162.8	139.1	139.1
Percent Cutback	0%	0%	0%	Tier 2 Plan	Tier 2 Plan

Table O2: Individual Agency Drought Allocations [For Tables 7-1 and 7-4], Base Year 2045, Without Bay-Delta Plan (mgd)

Consecutive Dry Year	Wholesale RWS Drought Allocations					Tier 2 Drought Cutback
	1st	2nd	3rd	4th	5th	
ACWD	9.11	9.11	9.11	8.20	8.20	10.0%
Brisbane/GVMID	0.89	0.89	0.89	0.74	0.74	16.8%
Burlingame	4.69	4.69	4.69	4.02	4.02	14.3%
Coastside	1.33	1.33	1.33	1.19	1.19	10.0%
CalWater Total	30.70	30.70	30.70	26.73	26.73	12.9%
Daly City	3.43	3.43	3.43	3.01	3.01	12.4%
East Palo Alto	2.89	2.89	2.89	2.68	2.68	7.3%
Estero	4.38	4.38	4.38	3.94	3.94	10.0%
Hayward	22.14	22.14	22.14	18.67	18.67	15.7%
Hillsborough	3.26	3.26	3.26	2.93	2.93	10.2%
Menlo Park	4.29	4.29	4.29	3.58	3.58	16.5%
Mid-Peninsula	2.93	2.93	2.93	2.63	2.63	10.0%
Millbrae	3.20	3.20	3.20	2.54	2.54	20.7%
Milpitas	7.53	7.53	7.53	6.55	6.55	13.1%
Mountain View	9.93	9.93	9.93	8.91	8.91	10.3%
North Coast	2.34	2.34	2.34	2.11	2.11	10.0%
Palo Alto	10.79	10.79	10.79	9.71	9.71	10.0%
Purissima Hills	2.15	2.15	2.15	1.41	1.41	34.5%
Redwood City	8.90	8.90	8.90	7.92	7.92	11.1%
San Bruno	3.21	3.21	3.21	2.60	2.60	19.1%
San Jose	4.50	4.50	4.50	2.95	2.95	34.5%
Santa Clara	4.50	4.50	4.50	2.95	2.95	34.5%
Stanford	2.70	2.70	2.70	2.27	2.27	16.0%
Sunnyvale	12.10	12.10	12.10	10.11	10.11	16.5%
Westborough	0.84	0.84	0.84	0.76	0.76	10.0%
Total	162.8	162.8	162.8	139.1	139.1	

Attachment B: Updated 2020 UWMP Drought Cutbacks

The January 22, 2021, SFPUC Regional Water System (RWS) Supply Reliability Letter (Supply Reliability Letter) provides RWS supplies available to the Wholesale Customers under two scenarios: (1) With Bay-Delta Plan, and (2) Without Bay-Delta Plan. Your agency must choose which scenario to use for your agency's 2020 UWMP submittal tables. However, you may discuss both scenarios in the body of your agency's UWMP. The purpose of this attachment is to provide further detail about your agency's allocation of total RWS supplies available to the Wholesale Customers under both scenarios.

Data Sources for Projected RWS Purchases

Supply allocations are based on projected RWS purchases provided to BAWSCA by the Member Agencies. Following the completion of the Demand Study in June 2020, BAWSCA used the results to develop a table for each Member Agency listing possible supplies and total demand for 2025, 2030, 2035, 2040, and 2045. BAWSCA populated the tables with total demand after passive conservation and entered active conservation, as calculated in the agencies' DSS Model, as a source of supply. Multi-source agencies were asked to complete the table with supply projections, including from the RWS, to meet total demand. Single-source agencies were offered the opportunity to review the tables upon request. Because active conservation was treated as a source of supply, projected RWS purchases are after passive and active conservation.

Water Management Representatives (WMRs) received a draft copy of all projected wholesale RWS purchase requests as part of the January 7, 2021 WMR meeting agenda packet and meeting slides. Agencies were asked to notify BAWSCA if changes were necessary regarding their purchase requests prior to BAWSCA sending those purchase requests to the SFPUC. Purchase requests were transmitted to the SFPUC via a letter dated January 15, 2021 for use in their 2020 UWMP efforts.

Note that the projected RWS purchases used by BAWSCA for fiscal years 2020-21 and for 2021-22 were provided to Christina Tang, BAWSCA's Finance Manager, by each Member Agency in January 2021. This annual reporting is part of the SFPUC's wholesale rate setting process. Member Agencies have provided BAWSCA with these projected purchases annually for the past 10 years.

UWMP Tables 7-1 and 7-5

UWMP Table 7-1 requests supply reliability for a normal year, a single dry year, and multiple (five) dry years. Tables 3, 4, 5, and 6 provided in the Supply Reliability Letter will help your agency complete UWMP Table 7-1. The Drought Risk Assessment (DRA) in UWMP Table 7-5 also requests a five-year drought sequence but specifies years 2021 through 2025. Supply Reliability Letter Tables 9 and 10 will help your agency complete UWMP Table 7-5.

The Supply Reliability Letter provides four tables for completing UWMP Table 7-1. The Supply Reliability Letter Tables 3 (with Bay-Delta Plan) and 4 (without Bay-Delta Plan) use 2020 as the base year. Depending on which scenario you choose, these will be the basis for your agency's five-year DRA (UWMP Table 7-5). The Supply Reliability Letter Tables 5 (with Bay-Delta Plan) and 6 (without Bay-Delta Plan) use 2025 as the base year. Depending on which scenario you choose, these will be the basis for UWMP Tables 7-2 through 7-4. Your agency may submit multiple UWMP Tables 7-1 with different base years (see Figure 1 below).

Attachment B: Updated 2020 UWMP Drought Cutbacks

Figure 1: Footnote from Draft UWMP Table 7-1

Supplier 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 a Supplier 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.

Total RWS supplies available to the Wholesale Customers in the first through fifth consecutive dry years in Supply Reliability Letter Table 3 align with those in Table 9 of the same letter. Similarly, Supply Reliability Letter Table 4 aligns with Table 10 of the same letter.

Table A below provides a summary of the Member Agencies' RWS supply drought cutbacks under each of the four supply availability conditions and is intended to help you complete UWMP Tables 7-1 and 7-5.

Table A: Wholesale Customer Drought Cutbacks Based on a Single Dry Year and Multiple Dry Years (Base Year 2020)

	(a)	(b)	(c)	(d)	(e)	(f)	(g)
(1)	Projected SF RWS Wholesale Purchases	132.2 MGD	138.6 MGD	140.8 MGD	140.8 MGD	140.8 MGD	140.8 MGD
(2)	Supply Available to the Wholesale Customers	Percent Cutback on Wholesale RWS Purchases					
		2020	2021	2022	2023	2024	2025
(3)	157.5 MGD	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
(4)	132.5 MGD	0.0%	-4.4%	-5.9%	-5.9%	-5.9%	-5.9%
(5)	82.8 MGD	-37.4%	-40.3%	-41.2%	-41.2%	-41.2%	-41.2%
(6)	74.5 MGD	-43.7%	-46.3%	-47.1%	-47.1%	-47.1%	-47.1%

Table A, column (a), rows 3 through 6 lists total RWS supplies available to the Wholesale Customers as provided in the Supply Reliability Letter tables. Row 1 provides cumulative actual wholesale RWS purchases for 2020. In years when the Bay-Delta Plan is not in effect, sufficient RWS supplies will be available to meet the Wholesale Customers' purchase requests assuming that they are between the 2020 and 2025 projected levels. As such, RWS supply available to the Wholesale Customers in the 2021 and 2022 is equal to the cumulative projected wholesale RWS. Projected RWS purchases for years 2021 and 2022 were provided to Christina Tang, BAWSCA's Finance Manager, by the Member Agencies in January 2021. The SFPUC's modeling approach does not allow for varying demands over the course of a dry year sequence. Additionally, the Tier 2 Plan calculates each agencies' Allocation Factor once at the onset of a drought and it remains the same until the shortage condition is over. Therefore, wholesale RWS demand in 2023 through 2025 is assumed to be static based on the 2022 projected demand.

Table B below provides a summary of the Member Agencies' RWS supply drought cutbacks under each of the four supply availability conditions and is intended to help you complete UWMP Table 7-1.

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table B: Wholesale Customer Drought Cutbacks Based on a Single Dry Year and Multiple Dry Years (Base Year 2025)

	(a)	(b)	(c)	(d)	(e)	(f)
(1)	Projected SF RWS Wholesale Purchases	146.0 MGD	146.0 MGD	146.0 MGD	146.0 MGD	146.0 MGD
(2)	Supply Available to the Wholesale Customers	Percent Cutback on Wholesale RWS Purchases				
		2025	2026	2027	2028	2029
(3)	157.5 MGD	0.0%	0.0%	0.0%	0.0%	0.0%
(4)	132.5 MGD	-9.2%	-9.2%	-9.2%	-9.2%	-9.2%
(5)	82.8 MGD	-43.3%	-43.3%	-43.3%	-43.3%	-43.3%
(6)	74.5 MGD	-49.0%	-49.0%	-49.0%	-49.0%	-49.0%

Table B, column (a), rows 3 through 6 lists total RWS supplies available to the Wholesale Customers as provided in the Supply Reliability Letter tables. Row 1 provides cumulative projected wholesale RWS purchases for 2025 through 2029. The SFPUC's modeling approach does not allow for varying demands over the course of a dry year sequence. Additionally, the Tier 2 Plan calculates each agencies' Allocation Factor once at the onset of a drought and it remains the same until the shortage condition is over. Therefore, wholesale RWS demand is assumed to be static between 2025 and 2029 based on the 2025 projected demand.

To complete UWMP Tables 7-1 and 7-5, reference tables in the Supply Reliability Letter to identify total RWS supplies available to the Wholesale Customers and apply the percent cutback in the corresponding year of the drought sequence using Tables A and B. For example, in Supply Reliability Letter Table 3, in the 5th consecutive year of a drought, the volume available to the Wholesale Customers is 74.5 MGD. To calculate RWS supplies available to your agency in 2025 using table A, locate the row with 74.5 MGD on the table – row 6 – and the column for 2025 – column (g). Then apply the percent cutback to your agency's RWS demand in 2025.

A list of purchase projections by agency are provided in Tables C, D, E, and F. The table also indicates the percent cutback that should be applied based on total RWS supplies available to the Wholesale Customers. Tables C and E use Scenario 1: With Bay-Delta Plan. Tables D and F use Scenario 2: Without Bay-Delta Plan. Tables C and D use 2020 as the base year and Tables E and F use 2025 as the base year.

BAWSCA understands that agencies are updating projected demands for their 2020 UWMPs and that projected RWS purchases may change from what was previously provided. Additionally, BAWSCA recognizes that not all Member Agencies will choose the same scenario for their UWMP supply reliability tables. For both reasons, projected RWS purchases in each Member Agency's 2020 UWMP may not add up to total Wholesale demands in the SFPUC's 2020 UWMP. This is consistent with direction given by the Department of Water Resources, which encourages suppliers use the UWMP tables to represent what they believe to be the most likely supply reliability scenario and to characterize the five-consecutive year drought in a manner that is best suited for understanding and managing their water service reliability and individual agency level of risk tolerance.

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table C: Scenario 1: With Bay-Delta Plan - Projected Wholesale Customer RWS Demand and Percent Cutback for a Single Dry Year and Multiple Dry Years (Base Year 2020)

Agency	2020 (184 MGD)		2021 (157.5 MGD)		2022 (132.5 MGD)		2023 (74.5 MGD)		2024 (74.5 MGD)		2025 (74.5 MGD)	
	Actual Purchases	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback
ACWD	7.87	0.0%	9.44	0.0%	9.46	-5.9%	9.46	-47%	9.46	-47%	9.46	-47%
Brisbane/GVMID	0.64	0.0%	0.62	0.0%	0.65	-5.9%	0.65	-47%	0.65	-47%	0.65	-47%
Burlingame	3.48	0.0%	3.34	0.0%	3.35	-5.9%	3.35	-47%	3.35	-47%	3.35	-47%
Coastside	1.02	0.0%	1.54	0.0%	1.23	-5.9%	1.23	-47%	1.23	-47%	1.23	-47%
CalWater Total	29.00	0.0%	29.66	0.0%	29.81	-5.9%	29.81	-47%	29.81	-47%	29.81	-47%
Daly City	3.97	0.0%	4.00	0.0%	4.01	-5.9%	4.01	-47%	4.01	-47%	4.01	-47%
East Palo Alto	1.57	0.0%	1.63	0.0%	1.69	-5.9%	1.69	-47%	1.69	-47%	1.69	-47%
Estero	4.34	0.0%	4.48	0.0%	4.51	-5.9%	4.51	-47%	4.51	-47%	4.51	-47%
Hayward	13.92	0.0%	14.47	0.0%	15.12	-5.9%	15.12	-47%	15.12	-47%	15.12	-47%
Hillsborough	2.62	0.0%	2.95	0.0%	3.05	-5.9%	3.05	-47%	3.05	-47%	3.05	-47%
Menlo Park	2.96	0.0%	2.92	0.0%	2.93	-5.9%	2.93	-47%	2.93	-47%	2.93	-47%
Mid-Peninsula	2.66	0.0%	2.65	0.0%	2.80	-5.9%	2.80	-47%	2.80	-47%	2.80	-47%
Millbrae	1.90	0.0%	1.95	0.0%	2.15	-5.9%	2.15	-47%	2.15	-47%	2.15	-47%
Milpitas	5.92	0.0%	5.88	0.0%	5.34	-5.9%	5.34	-47%	5.34	-47%	5.34	-47%
Mountain View	7.67	0.0%	7.80	0.0%	8.05	-5.9%	8.05	-47%	8.05	-47%	8.05	-47%
North Coast	2.37	0.0%	2.58	0.0%	2.66	-5.9%	2.66	-47%	2.66	-47%	2.66	-47%
Palo Alto	9.75	0.0%	9.44	0.0%	9.66	-5.9%	9.66	-47%	9.66	-47%	9.66	-47%
Purissima Hills	1.75	0.0%	1.97	0.0%	2.02	-5.9%	2.02	-47%	2.02	-47%	2.02	-47%
Redwood City	8.76	0.0%	8.72	0.0%	9.07	-5.9%	9.07	-47%	9.07	-47%	9.07	-47%
San Bruno	0.95	0.0%	3.39	0.0%	3.40	-5.9%	3.40	-47%	3.40	-47%	3.40	-47%
San José	4.26	0.0%	4.31	0.0%	4.51	-5.9%	4.51	-47%	4.51	-47%	4.51	-47%
Santa Clara	3.27	0.0%	3.29	0.0%	3.50	-5.9%	3.50	-47%	3.50	-47%	3.50	-47%
Stanford	1.43	0.0%	1.40	0.0%	1.54	-5.9%	1.54	-47%	1.54	-47%	1.54	-47%
Sunnyvale	9.33	0.0%	9.35	0.0%	9.45	-5.9%	9.45	-47%	9.45	-47%	9.45	-47%
Westborough	0.82	0.0%	0.84	0.0%	0.81	-5.9%	0.81	-47%	0.81	-47%	0.81	-47%
Wholesale Total	132.2	132.2†	138.6	138.6†	140.8	132.5†	140.8	74.5†	140.8	74.5†	140.8	74.5†

† Total supply available to the Wholesale Customers after drought cutback.

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table D: Scenario 2: Without Bay-Delta Plan - Projected Wholesale Customer RWS Demand and Percent Cutback for a Single Dry Year and Multiple Dry Years (Base Year 2020)

Agency	2020 (184 MGD)		2021 (157.5 MGD)		2022 (132.5 MGD)		2023 (132.5 MGD)		2024 (132.5 MGD)		2025 (132.5 MGD)	
	Actual Purchases	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback
ACWD	7.87	0.0%	9.44	0.0%	9.46	-5.9%	9.46	-5.9%	9.46	-5.9%	9.46	-5.9%
Brisbane/GVMID	0.64	0.0%	0.62	0.0%	0.65	-5.9%	0.65	-5.9%	0.65	-5.9%	0.65	-5.9%
Burlingame	3.48	0.0%	3.34	0.0%	3.35	-5.9%	3.35	-5.9%	3.35	-5.9%	3.35	-5.9%
Coastside	1.02	0.0%	1.54	0.0%	1.23	-5.9%	1.23	-5.9%	1.23	-5.9%	1.23	-5.9%
CalWater Total	29.00	0.0%	29.66	0.0%	29.81	-5.9%	29.81	-5.9%	29.81	-5.9%	29.81	-5.9%
Daly City	3.97	0.0%	4.00	0.0%	4.01	-5.9%	4.01	-5.9%	4.01	-5.9%	4.01	-5.9%
East Palo Alto	1.57	0.0%	1.63	0.0%	1.69	-5.9%	1.69	-5.9%	1.69	-5.9%	1.69	-5.9%
Estero	4.34	0.0%	4.48	0.0%	4.51	-5.9%	4.51	-5.9%	4.51	-5.9%	4.51	-5.9%
Hayward	13.92	0.0%	14.47	0.0%	15.12	-5.9%	15.12	-5.9%	15.12	-5.9%	15.12	-5.9%
Hillsborough	2.62	0.0%	2.95	0.0%	3.05	-5.9%	3.05	-5.9%	3.05	-5.9%	3.05	-5.9%
Menlo Park	2.96	0.0%	2.92	0.0%	2.93	-5.9%	2.93	-5.9%	2.93	-5.9%	2.93	-5.9%
Mid-Peninsula	2.66	0.0%	2.65	0.0%	2.80	-5.9%	2.80	-5.9%	2.80	-5.9%	2.80	-5.9%
Millbrae	1.90	0.0%	1.95	0.0%	2.15	-5.9%	2.15	-5.9%	2.15	-5.9%	2.15	-5.9%
Milpitas	5.92	0.0%	5.88	0.0%	5.34	-5.9%	5.34	-5.9%	5.34	-5.9%	5.34	-5.9%
Mountain View	7.67	0.0%	7.80	0.0%	8.05	-5.9%	8.05	-5.9%	8.05	-5.9%	8.05	-5.9%
North Coast	2.37	0.0%	2.58	0.0%	2.66	-5.9%	2.66	-5.9%	2.66	-5.9%	2.66	-5.9%
Palo Alto	9.75	0.0%	9.44	0.0%	9.66	-5.9%	9.66	-5.9%	9.66	-5.9%	9.66	-5.9%
Purissima Hills	1.75	0.0%	1.97	0.0%	2.02	-5.9%	2.02	-5.9%	2.02	-5.9%	2.02	-5.9%
Redwood City	8.76	0.0%	8.72	0.0%	9.07	-5.9%	9.07	-5.9%	9.07	-5.9%	9.07	-5.9%
San Bruno	0.95	0.0%	3.39	0.0%	3.40	-5.9%	3.40	-5.9%	3.40	-5.9%	3.40	-5.9%
San José	4.26	0.0%	4.31	0.0%	4.51	-5.9%	4.51	-5.9%	4.51	-5.9%	4.51	-5.9%
Santa Clara	3.27	0.0%	3.29	0.0%	3.50	-5.9%	3.50	-5.9%	3.50	-5.9%	3.50	-5.9%
Stanford	1.43	0.0%	1.40	0.0%	1.54	-5.9%	1.54	-5.9%	1.54	-5.9%	1.54	-5.9%
Sunnyvale	9.33	0.0%	9.35	0.0%	9.45	-5.9%	9.45	-5.9%	9.45	-5.9%	9.45	-5.9%
Westborough	0.82	0.0%	0.84	0.0%	0.81	-5.9%	0.81	-5.9%	0.81	-5.9%	0.81	-5.9%
Wholesale Total	132.2	132.2[†]	138.6	138.6[†]	140.8	132.5[†]	140.8	132.5[†]	140.8	132.5[†]	140.8	132.5[†]

[†] Total supply available to the Wholesale Customers after drought cutback.

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table E: Scenario 1: With Bay-Delta Plan - Projected Wholesale Customer RWS Demand and Percent Cutback for a Single Dry Year and Multiple Dry Years (Base Year 2025)

Agency	2025 (184 MGD)		2026 (82.8 MGD)		2027 (74.5 MGD)		2028 (74.5 MGD)		2029 (74.5 MGD)	
	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback
ACWD	7.68	0%	7.68	-43.3%	7.68	-49%	7.68	-49%	7.68	-49%
Brisbane/GVMID	0.89	0%	0.89	-43.3%	0.89	-49%	0.89	-49%	0.89	-49%
Burlingame	4.33	0%	4.33	-43.3%	4.33	-49%	4.33	-49%	4.33	-49%
Coastside	1.40	0%	1.40	-43.3%	1.40	-49%	1.40	-49%	1.40	-49%
CalWater Total	29.99	0%	29.99	-43.3%	29.99	-49%	29.99	-49%	29.99	-49%
Daly City	3.57	0%	3.57	-43.3%	3.57	-49%	3.57	-49%	3.57	-49%
East Palo Alto	1.88	0%	1.88	-43.3%	1.88	-49%	1.88	-49%	1.88	-49%
Estero	4.07	0%	4.07	-43.3%	4.07	-49%	4.07	-49%	4.07	-49%
Hayward	17.86	0%	17.86	-43.3%	17.86	-49%	17.86	-49%	17.86	-49%
Hillsborough	3.26	0%	3.26	-43.3%	3.26	-49%	3.26	-49%	3.26	-49%
Menlo Park	3.55	0%	3.55	-43.3%	3.55	-49%	3.55	-49%	3.55	-49%
Mid-Peninsula	2.86	0%	2.86	-43.3%	2.86	-49%	2.86	-49%	2.86	-49%
Millbrae	2.29	0%	2.29	-43.3%	2.29	-49%	2.29	-49%	2.29	-49%
Milpitas	6.59	0%	6.59	-43.3%	6.59	-49%	6.59	-49%	6.59	-49%
Mountain View	8.60	0%	8.60	-43.3%	8.60	-49%	8.60	-49%	8.60	-49%
North Coast	2.34	0%	2.34	-43.3%	2.34	-49%	2.34	-49%	2.34	-49%
Palo Alto	10.06	0%	10.06	-43.3%	10.06	-49%	10.06	-49%	10.06	-49%
Purissima Hills	2.09	0%	2.09	-43.3%	2.09	-49%	2.09	-49%	2.09	-49%
Redwood City	8.46	0%	8.46	-43.3%	8.46	-49%	8.46	-49%	8.46	-49%
San Bruno	3.24	0%	3.24	-43.3%	3.24	-49%	3.24	-49%	3.24	-49%
San José	4.50	0%	4.50	-43.3%	4.50	-49%	4.50	-49%	4.50	-49%
Santa Clara	4.50	0%	4.50	-43.3%	4.50	-49%	4.50	-49%	4.50	-49%
Stanford	2.01	0%	2.01	-43.3%	2.01	-49%	2.01	-49%	2.01	-49%
Sunnyvale	9.16	0%	9.16	-43.3%	9.16	-49%	9.16	-49%	9.16	-49%
Westborough	0.86	0%	0.86	-43.3%	0.86	-49%	0.86	-49%	0.86	-49%
Wholesale Total	146.0	146.0†	146.0	82.8†	146.0	74.5†	146.0	74.5†	146.0	74.5†

† Total supply available to the Wholesale Customers after drought cutback.

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table F: Scenario 2: Without Bay-Delta Plan - Projected Wholesale Customer RWS Demand and Percent Cutback for a Single Dry Year and Multiple Dry Years (Base Year 2025)

Agency	2025 (184 MGD)		2026 (157.5 MGD)		2027 (157.5 MGD)		2028 (157.5 MGD)		2029 (132.5 MGD)	
	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback
ACWD	7.68	0.0%	7.68	0.0%	7.68	0.0%	7.68	0.0%	7.68	-9.2%
Brisbane/GVMID	0.89	0.0%	0.89	0.0%	0.89	0.0%	0.89	0.0%	0.89	-9.2%
Burlingame	4.33	0.0%	4.33	0.0%	4.33	0.0%	4.33	0.0%	4.33	-9.2%
Coastside	1.40	0.0%	1.40	0.0%	1.40	0.0%	1.40	0.0%	1.40	-9.2%
CalWater Total	29.99	0.0%	29.99	0.0%	29.99	0.0%	29.99	0.0%	29.99	-9.2%
Daly City	3.57	0.0%	3.57	0.0%	3.57	0.0%	3.57	0.0%	3.57	-9.2%
East Palo Alto	1.88	0.0%	1.88	0.0%	1.88	0.0%	1.88	0.0%	1.88	-9.2%
Estero	4.07	0.0%	4.07	0.0%	4.07	0.0%	4.07	0.0%	4.07	-9.2%
Hayward	17.86	0.0%	17.86	0.0%	17.86	0.0%	17.86	0.0%	17.86	-9.2%
Hillsborough	3.26	0.0%	3.26	0.0%	3.26	0.0%	3.26	0.0%	3.26	-9.2%
Menlo Park	3.55	0.0%	3.55	0.0%	3.55	0.0%	3.55	0.0%	3.55	-9.2%
Mid-Peninsula	2.86	0.0%	2.86	0.0%	2.86	0.0%	2.86	0.0%	2.86	-9.2%
Millbrae	2.29	0.0%	2.29	0.0%	2.29	0.0%	2.29	0.0%	2.29	-9.2%
Milpitas	6.59	0.0%	6.59	0.0%	6.59	0.0%	6.59	0.0%	6.59	-9.2%
Mountain View	8.60	0.0%	8.60	0.0%	8.60	0.0%	8.60	0.0%	8.60	-9.2%
North Coast	2.34	0.0%	2.34	0.0%	2.34	0.0%	2.34	0.0%	2.34	-9.2%
Palo Alto	10.06	0.0%	10.06	0.0%	10.06	0.0%	10.06	0.0%	10.06	-9.2%
Purissima Hills	2.09	0.0%	2.09	0.0%	2.09	0.0%	2.09	0.0%	2.09	-9.2%
Redwood City	8.46	0.0%	8.46	0.0%	8.46	0.0%	8.46	0.0%	8.46	-9.2%
San Bruno	3.24	0.0%	3.24	0.0%	3.24	0.0%	3.24	0.0%	3.24	-9.2%
San José	4.50	0.0%	4.50	0.0%	4.50	0.0%	4.50	0.0%	4.50	-9.2%
Santa Clara	4.50	0.0%	4.50	0.0%	4.50	0.0%	4.50	0.0%	4.50	-9.2%
Stanford	2.01	0.0%	2.01	0.0%	2.01	0.0%	2.01	0.0%	2.01	-9.2%
Sunnyvale	9.16	0.0%	9.16	0.0%	9.16	0.0%	9.16	0.0%	9.16	-9.2%
Westborough	0.86	0.0%	0.86	0.0%	0.86	0.0%	0.86	0.0%	0.86	-9.2%
Wholesale Total	146.0	146.0†	146.0	146.4†	146.0	146.8†	146.0	147.1†	146.0	132.5†

† Total supply available to the Wholesale Customers after drought cutback.

Attachment B: Updated 2020 UWMP Drought Cutbacks

UWMP Table 7-4

Supply Reliability Letter Tables 7 and 8 will help your agency complete UWMP Table 7-4. Table G below provides a summary of the Member Agencies’ RWS supply drought cutbacks under each of the four supply availability conditions and is intended to help you complete UWMP Table 7-4. The table assumes (1) the Tier 2 Plan will be used to allocate supplies available to the Wholesale Customers when average Wholesale Customers’ RWS shortages are greater than 10 and up to 20 percent, and (2) an equal percent reduction will be shared across all Wholesale Customers when average Wholesale Customers’ RWS shortages are 10 percent or less or greater than 20 percent.

Table G: Drought Cutbacks Based on Projected Demands Under All Water Supply Availability Conditions

	(a)	(b)	(c)	(d)	(e)	(f)
(1)	Projected SF RWS Wholesale Purchases	146.0 MGD	147.9 MGD	151.9 MGD	156.3 MGD	162.8 MGD
(2)	Supply Available to the Wholesale Customers	% Cutback on Wholesale RWS Purchases				
		2025	2030	2035	2040	2045
(3)	157.5 MGD	0.0%	0.0%	0.0%	0.0%	-3.2%
(4)	132.5 MGD	-9.3%	-10.4%	Tier 2 Avg. -14%*	Tier 2 Avg. -16%*	Tier 2 Avg. -19%*
(5)	82.8 MGD	-43.3%	-44.0%	-45.5%	-47.0%	-49.1%
(6)	74.5 MGD	-49.0%	-49.6%	-51.0%	-52.3%	-54.2%

* Calculated average. Individual agency cutbacks are calculated in Table H.

Table G, column (a) lists total RWS supplies available to the Wholesale Customers as provided in the Supply Reliability Letter tables. Row 1 provides cumulative projected wholesale RWS purchases for 2025, 2030, 2035, 2040, and 2045.

Tables H, I, J and K provide additional detail by agency for each of the four supply availability conditions listed in Table G. To complete UWMP Table 7-4, reference Table 7 or 8 (depending on which Bay-Delta Plan scenario you choose) in the Supply Reliability Letter to identify total RWS supplies available to the Wholesale Customers and apply the percent cutback in the corresponding year using Table G or input the volumetric drought allocation using Tables H, I, J and K below.

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table H: Drought Allocations when Total Supplies Available to the Wholesale Customers are Equal to 157.5 MGD

Projected SF RWS Wholesale Purchases	146.0 MGD	147.9 MGD	151.9 MGD	156.3 MGD	162.8 MGD
	Drought Allocation (MGD)				
Agency	2025	2030	2035	2040	2045
ACWD	7.68	7.68	7.68	7.68	8.82
Brisbane/GVMID	0.89	0.89	0.88	0.89	0.87
Burlingame	4.33	4.40	4.47	4.58	4.54
Coastside	1.40	1.38	1.36	1.33	1.28
CalWater Total	29.99	29.74	29.81	30.27	29.71
Daly City	3.57	3.52	3.49	3.46	3.32
East Palo Alto	1.88	1.95	2.10	2.49	2.80
Estero	4.07	4.11	4.18	4.23	4.24
Hayward	17.86	18.68	19.75	20.82	21.43
Hillsborough	3.26	3.25	3.26	3.26	3.15
Menlo Park	3.55	3.68	3.87	4.06	4.15
Mid-Peninsula	2.86	2.84	2.88	2.89	2.83
Millbrae	2.29	2.50	2.45	2.82	3.10
Milpitas	6.59	6.75	7.03	7.27	7.29
Mountain View	8.60	8.90	9.20	9.51	9.61
North Coast	2.34	2.33	2.34	2.34	2.27
Palo Alto	10.06	10.15	10.28	10.51	10.44
Purissima Hills	2.09	2.09	2.12	2.13	2.08
Redwood City	8.46	8.49	8.64	8.74	8.62
San Bruno	3.24	3.22	3.20	3.20	3.11
San José	4.50	4.50	4.50	4.50	4.35
Santa Clara	4.50	4.50	4.50	4.50	4.35
Stanford	2.01	2.18	2.35	2.53	2.61
Sunnyvale	9.16	9.30	10.70	11.44	11.71
Westborough	0.86	0.85	0.85	0.84	0.82
Wholesale Total	146.0	147.9	151.9	156.3	157.5

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table I: Drought Allocations when Total Supplies Available to the Wholesale Customers are Equal to 132.5 MGD

Projected SF RWS Wholesale Purchases	146.0 MGD	147.9 MGD	151.9 MGD	156.3 MGD	162.8 MGD
	Drought Allocation (MGD)				
Agency	2025	2030	2035	2040	2045
ACWD	6.97	6.88	6.91	6.91	8.20
Brisbane/GVMID	0.81	0.79	0.73	0.73	0.72
Burlingame	3.93	3.94	3.96	3.89	3.80
Coastside	1.27	1.24	1.22	1.20	1.19
CalWater Total	27.21	26.65	26.46	25.69	24.69
Daly City	3.24	3.15	3.04	3.01	2.98
East Palo Alto	1.70	1.75	1.97	2.30	2.62
Esteros	3.69	3.68	3.76	3.87	3.77
Hayward	16.20	16.74	17.32	17.69	18.07
Hillsborough	2.96	2.92	2.90	2.75	2.56
Menlo Park	3.22	3.30	3.37	3.33	3.26
Mid-Peninsula	2.59	2.54	2.59	2.62	2.54
Millbrae	2.07	2.24	2.16	2.32	2.45
Milpitas	5.98	6.05	6.25	6.31	6.35
Mountain View	7.80	7.97	8.28	8.49	8.34
North Coast	2.12	2.09	2.11	2.11	2.11
Palo Alto	9.13	9.09	9.26	9.46	9.71
Purissima Hills	1.89	1.87	1.42	1.38	1.32
Redwood City	7.67	7.61	7.89	7.70	7.49
San Bruno	2.94	2.88	2.56	2.51	2.45
San José	4.08	4.03	3.03	2.91	2.76
Santa Clara	4.08	4.03	3.03	2.91	2.76
Stanford	1.82	1.95	2.06	2.13	2.16
Sunnyvale	8.31	8.33	9.46	9.51	9.43
Westborough	0.78	0.76	0.76	0.76	0.76
Wholesale Total	132.5	132.5	132.5	132.5	132.5

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table J: Drought Allocations when Total Supplies Available to the Wholesale Customers are Equal to 82.8 MGD

Projected SF RWS Wholesale Purchases	146.0 MGD	147.9 MGD	151.9 MGD	156.3 MGD	162.8 MGD
	Drought Allocation (MGD)				
Agency	2025	2030	2035	2040	2045
ACWD	4.36	4.30	4.19	4.07	4.64
Brisbane/GVMID	0.51	0.50	0.48	0.47	0.45
Burlingame	2.45	2.46	2.44	2.43	2.39
Coastside	0.79	0.77	0.74	0.71	0.68
CalWater Total	17.00	16.65	16.25	16.03	15.62
Daly City	2.02	1.97	1.90	1.83	1.75
East Palo Alto	1.06	1.09	1.14	1.32	1.47
Estero	2.31	2.30	2.28	2.24	2.23
Hayward	10.13	10.46	10.77	11.03	11.26
Hillsborough	1.85	1.82	1.78	1.73	1.66
Menlo Park	2.01	2.06	2.11	2.15	2.18
Mid-Peninsula	1.62	1.59	1.57	1.53	1.49
Millbrae	1.30	1.40	1.34	1.49	1.63
Milpitas	3.74	3.78	3.83	3.85	3.83
Mountain View	4.88	4.98	5.01	5.04	5.05
North Coast	1.33	1.30	1.28	1.24	1.19
Palo Alto	5.71	5.68	5.61	5.57	5.49
Purissima Hills	1.18	1.17	1.15	1.13	1.10
Redwood City	4.80	4.76	4.71	4.63	4.53
San Bruno	1.83	1.80	1.75	1.70	1.63
San José	2.55	2.52	2.45	2.38	2.29
Santa Clara	2.55	2.52	2.45	2.38	2.29
Stanford	1.14	1.22	1.28	1.34	1.37
Sunnyvale	5.19	5.21	5.83	6.06	6.16
Westborough	0.49	0.48	0.46	0.45	0.43
Wholesale Total	82.8	82.8	82.8	82.8	82.8

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table K: Drought Allocations when Total Supplies Available to the Wholesale Customers are Equal to 74.5 MGD

Projected SF RWS Wholesale Purchases	146.0 MGD	147.9 MGD	151.9 MGD	156.3 MGD	162.8 MGD
	Drought Allocation (MGD)				
Agency	2025	2030	2035	2040	2045
ACWD	3.92	3.87	3.77	3.66	4.17
Brisbane/GVMID	0.46	0.45	0.43	0.42	0.41
Burlingame	2.21	2.21	2.19	2.18	2.15
Coastside	0.71	0.70	0.67	0.64	0.61
CalWater Total	15.30	14.98	14.62	14.43	14.05
Daly City	1.82	1.77	1.71	1.65	1.57
East Palo Alto	0.96	0.98	1.03	1.19	1.32
Esteros	2.08	2.07	2.05	2.02	2.00
Hayward	9.11	9.41	9.69	9.92	10.14
Hillsborough	1.66	1.64	1.60	1.55	1.49
Menlo Park	1.81	1.86	1.90	1.94	1.96
Mid-Peninsula	1.46	1.43	1.41	1.38	1.34
Millbrae	1.17	1.26	1.20	1.34	1.47
Milpitas	3.36	3.40	3.45	3.47	3.45
Mountain View	4.39	4.48	4.51	4.53	4.54
North Coast	1.19	1.17	1.15	1.12	1.07
Palo Alto	5.14	5.11	5.04	5.01	4.94
Purissima Hills	1.06	1.05	1.04	1.02	0.99
Redwood City	4.31	4.28	4.24	4.17	4.08
San Bruno	1.65	1.62	1.57	1.53	1.47
San José	2.30	2.27	2.21	2.14	2.06
Santa Clara	2.30	2.27	2.21	2.14	2.06
Stanford	1.03	1.10	1.15	1.21	1.24
Sunnyvale	4.67	4.69	5.25	5.45	5.54
Westborough	0.44	0.43	0.41	0.40	0.39
Wholesale Total	74.5	74.5	74.5	74.5	74.5



Appendix H

Consumer Confidence Report (2019)



2019 Annual

Water Quality Report

City of East Palo Alto

PWS ID: CA4110024



AMERICAN WATER

This report contains important information about your drinking water. If you do not understand it, please have someone explain or translate it for you.

Este informe contiene información muy importante sobre su agua potable. Si no lo comprende, favor acudir a alguien que se lo pueda traducir o explicar.

The City of East Palo Alto and American Water Message

The City of East Palo Alto's water system is under a 25-year agreement with American Water. In this agreement with the City of East Palo Alto, American Water provides all operations and maintenance works for the system. American Water reads all meters, provides customer service and billing, and payment collection. With a history dating back to 1886, American Water is the largest and most geographically diverse U.S. publicly traded water and wastewater utility company. The company employs more than 7,100 dedicated professionals who provide regulated and market-based drinking water, wastewater and other related services to more than 14 million people in 46 states. More information can be found by visiting www.amwater.com.

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

The customers of the City of East Palo Alto and American Water 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.

Please review this Consumer Confidence Report, which outlines information applicable to your local water system for testing completed between January 2019 through December 2019.

The web sites of United States Environmental Protection Agency's (USEPA) Office of Water, the Centers for Disease Control and Prevention (CDC), and California State Water Resources Control Board (SWRCB) provide a substantial amount of information on many issues relating to water resources, water conservation and public health.

How to Contact Us

For more information about the contents of this report, please contact the American Water Project Manager at (650) 322-2083 or visit us online at <http://www.ci.east-palo-alto.ca.us/>.

Water quality policies are decided at public hearings held at the East Palo Alto Government Center 2415 University Ave- First Floor- City Council Chamber. For more information, visit <http://www.ci.east-palo-alto.ca.us/>. 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 USEPA and SWRCB's Division of Drinking Water (DDW) 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.

Special Health Information

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/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the USEPA's Safe Drinking Water Hotline 800-426-4791 or at www.epa.gov/safewater.

Water Information Sources

The City of East Palo Alto is supplied water by the San Francisco Regional Water System (SFRWS), which is owned and operated by the San Francisco Public Utilities Commission (SFPUC). Its major water source originates from spring snowmelt flowing down the Tuolumne River to storage in Hetch Hetchy Reservoir. The well protected Sierra water source is exempt from filtration requirements by the USEPA and SWRCB-DDW. Water from the Hetch Hetchy reservoir receives the following treatment to meet appropriate drinking water standards: disinfection by ultraviolet light and chlorine, corrosion control by adjustment of the water pH value, fluoridation for dental health protection, and chloramination for maintaining disinfectant residual and minimizing disinfection byproduct formation.

Hetch Hetchy water is supplemented with surface water from two local watersheds. Rainfall and runoff from the 35,000-acre Alameda Watershed in Alameda and Santa Clara counties are collected in the Calaveras and San Antonio reservoirs and delivered to the Sunol Valley Water Treatment Plant (SVWTP). Rainfall and runoff from the 23,000-acre Peninsula Watershed in San Mateo County are stored in the Crystal Springs, San Andreas and Pilarcitos reservoirs, and are delivered to the Harry Tracy Water Treatment Plant. In addition to these local sources, the SWRCB-DDW approved the SFPUC to use the surface water in Lake Eleanor, Lake Cherry and the associated creeks all conveyed via the Lower Cherry Aqueduct, Early Intake Reservoir and Tuolumne River (collectively known as Upcountry Non-Hetch Hetchy Sources, or UNHHS) as additional drinking water sources to the SFRWS. The UNHHS water, if used, will be treated at the SVWTP prior to service to customers. In 2016, the SFRWS did not use UNHHS. Water at the two local treatment plants is subject to filtration, disinfection, fluoridation, and pH adjustment for corrosion control optimization.

Protecting Our Watersheds

The SFPUC conducts watershed sanitary surveys for the Hetch Hetchy source annually and local water sources every five years. The last local sanitary survey was done in 2016. The SFPUC conducted a special watershed sanitary survey for UNHHS in 2015 as part of its drought response plan efforts. These surveys evaluate the sanitary condition, water quality, potential contamination sources and the results of watershed management activities and were completed with support from partner agencies including National Park Service and US Forest Service.

These surveys identified wildlife, stock, and human activities as potential contamination sources. You may contact the San Francisco District office of SWRCB-DDW at 510-620-3474 to review these reports.

What is a Water Quality Report?

To comply with SWRCB and USEPA regulations, American Water issues a report annually describing the quality of your drinking water. The purpose of this report is to provide you an overview of last year's (2016) drinking water quality. It includes details about where your water comes from and what it contains. We hope the report will raise your understanding of drinking water issues and awareness of the need to protect your drinking water sources. For more information, please contact the Project Manager at (650) 322-2083

You may visit these sites as well as American Water's website at the following addresses:

Centers for Disease Control and Prevention

www.cdc.gov

California State Water Resource Control Board

http://www.waterboards.ca.gov/drinking_water/programs/index.shtml

United States Environmental Protection Agency
www.epa.gov/safewater

American Water
www.amwater.com

American Water Works Association
www.awwa.org

Safe Drinking Water Hotline: (800) 426-4791

How is Your Water Treated?

Your water receives the following treatment to meet appropriate drinking water standards: disinfection by ultraviolet light and chlorine, filtration, corrosion control by adjustment of the water pH value, fluoridation for dental health protection, and chloramination for maintaining disinfectant residual and minimizing disinfection byproduct formation.

Share This Report

Landlords, businesses, schools, hospitals and other groups are encouraged to share this important information with water users at their location who are not billed customers of the City of East Palo Alto and therefore do not receive this report directly.

Fluoridation and Dental Fluorosis

Mandated by State law, water fluoridation is a widely accepted practice proven to be safe and effective for preventing and controlling tooth decay. The SFPUC's fluoride target level in the water is 0.7 milligram per liter, consistent with the May 2015 State regulatory guidance on optimal fluoride level. Infants fed formula mixed with water containing fluoride at this level may still have a chance of developing tiny white lines or streaks in their teeth. These marks are referred to as mild to very mild fluorosis and are often only visible under a microscope. Even in cases where the marks are visible, they do not pose any health risk. The 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-DDW if you have concerns about dental fluorosis. For additional information about fluoridation or oral health, visit the CDC website www.cdc.gov/fluoridation or SWRCB-DDW website www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Fluoridation.shtml

Water Conservation Alert & Tips

Following another historically dry winter, we continue to ask all customers to voluntarily reduce water usage. Also in accordance with the State of California emergency water restrictions, voluntary reductions in outdoor irrigation of ornamental landscape and turf are still in place.

Conservation measures you can use inside your home include:

- Fix leaking faucets, pipes, toilets, etc.
- Replace old fixtures; install water-saving devices in faucets, toilets and appliances.
- Wash only full loads of laundry.
- Do not use the toilet for trash disposal.
- Take shorter showers.
- Do not let the water run while shaving or brushing teeth.
- Soak dishes before washing.
- Run the dishwasher only when full.

You can conserve outdoors as well:

- Water the lawn and garden in the early morning or evening.
- Use mulch around plants and shrubs.
- Repair leaks in faucets and hoses.
- Use water-saving nozzles.
- Use water from a bucket to wash your car, and save the hose for rinsing

Cryptosporidium

Cryptosporidium is a single cell microbial organism found in surface water throughout the US. During its life cycle it matures into resistant cells called oocysts that can be shed in feces. The disease caused by *Cryptosporidium* is called Cryptosporidiosis and is caused by infection with oocysts. People can be exposed to oocysts from other people, animals, water, swimming pools, fresh food, soils, and any surface that has not been sanitized after exposure to feces. Symptoms range from a mild to incapacitating diarrhea, cramps, loss of appetite, weight loss, nausea, and low-grade fever.

Cryptosporidium can be removed through commonly used filtration methods; US EPA issued a new rule in January 2006 that requires systems with higher *Cryptosporidium* levels in their source water to provide additional treatment. The EPA created this rule (Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) to provide for increased protection against microbial pathogens, such as *Cryptosporidium*, in public water systems that use surface water sources.

Substances Expected to be in Drinking Water

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

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

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

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

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

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

More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline 800-426-4791, or at www.epa.gov/safewater.

Information about Lead

Is there lead in my water?

Although we regularly test lead levels in your drinking water, it is possible that lead and/or copper levels at your home are higher because of materials used in your plumbing. If present, elevated levels of lead can cause serious problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of East Palo Alto is responsible for providing high quality drinking water but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead and copper exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. You can also use cold water for cooking, drinking, or making baby formula; use low lead containing faucets; and when replacing or working on pipes, use lead-free solder. If you are concerned about lead in your drinking water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the National Lead Information Center (800-LEAD-FYI) or the EPA Safe Drinking Water Hotline at 1-800-426-4791 or at <http://www.epa.gov/safewater/lead>.

How to Read the Data Tables

The City of East Palo Alto conducts extensive monitoring to ensure that your water meets all water quality standards. The results of our monitoring are reported in the following tables. While most monitoring was conducted in 2016, certain substances are required to be monitored less than once per year and represent the most current results available. For help with interpreting this table, see the "Table Definitions" section.

Starting with **Detected Contaminants**, please read across:

Year Sampled is usually in 2016 or year prior

MCL shows the highest level of substance (contaminant) allowed.

MCLG is the goal level for that substance (this may be lower than what is allowed).

Average Amount Detected represents the measured amount (less is better).

Range tells the highest and lowest amounts measured.

A **Yes** under **Compliance Achieved** means the amount of the substance met government requirements.

Typical Source tells where the substance usually originates.

Unregulated substances are measured, but maximum allowed contaminant levels have not been established by the government.

Table Definitions and Abbreviations

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

BPQL (Below Practical Quantitative Limit): Below the minimum concentration of a substance can be measured and reported with 99 percent confidence that the true value is greater than zero.

MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MCLG (Maximum Contaminant Level Goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MRDL (Maximum Residual Disinfectant Level): The highest level of disinfectant routinely allowed in drinking water. Addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG (Maximum Residual Disinfectant Level Goal): The level of 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 contamination.

mrem/year: Millirems per year (a measure of radiation absorbed by the body).

NA: Not applicable.

ND: Not detected.

NTU - Nephelometric Turbidity Units: Measurement of the clarity, or turbidity, of water.

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

pCi/L (picocuries per liter): Measurement of the natural rate of disintegration of radioactive contaminants in water (also beta particles).

pH: A measurement of acidity, 7.0 being neutral.

PHG: the level of a chemical contaminant in drinking water that does not pose a significant risk to health. PHGs are not regulatory standards.

ppm (parts per million): One-part substance per million parts water, or milligrams per liter.

ppb (parts per billion): One-part substance per billion parts water, or micrograms per liter.

ppt (parts per trillion): One-part substance per trillion parts water, or nanograms per liter.

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

Water Quality Statement

The City of East Palo Alto is required to sample for many different contaminants in your drinking water annually. The tables below only contain sample results for contaminants that were detected in your drinking water. Some contaminants are required to be sampled for less than annually and in these cases, the most recent sample results are provided below and the year they were collected.

REGULATED CONTAMINANTS FROM SAN FRANCISCO PUBLIC UTILITIES COMMISSION (PURCHASED WATER)

Detected Contaminants	YEAR	UNIT	MCL	PHG OR (MCLG)	Range or Level Found	Average OR [Max]	Major Sources in Drinking Water
TURBIDITY							
Unfiltered Hetch Hetchy Water	2019	NTU	5	N/A	0.3- 0.7 ⁽²⁾	[2.1]	Soil Runoff

Filtered Water from Sunol Valley Water Treatment Plant (SVWTP)	2019	NTU	1 ⁽²⁾ Min 95% of samples ≤ 0.3 NTU ⁽²⁾	N/A	- 99.89% - 100%	[1] -	Soil Runoff
Filtered Water from Harry Tracy Water Treatment Plant (HTWTP)	2019	NTU	1 ⁽²⁾ Min 95% of samples ≤ 0.3 NTU ⁽²⁾	N/A	- 100%	[0.1] -	Soil Runoff
DISINFECTANT BYPRODUCTS AND PRECURSOR							
Total Organic Carbon ⁽³⁾	2019	ppm	TT	N/A	1.6 - 2.6	2.2	Various natural and man-made sources
Total Trihalomethanes	2019	ppb	80	N/A	18.4 - 57.1	42.9	Byproduct of drinking water disinfection
Chloramines	2019	ppm	MRDL = 4.0	MRDLG = 4.0	2.78 - 3.07	2.84	Byproduct of drinking water disinfection
MICROBIOLOGICAL							
Giardia lamblia	2019	cyst/L	TT	(0)	0 - 0.09	0.02	Naturally present in the environment
INORGANICS							
Fluoride (source water) ⁽⁴⁾	2019	ppm	2.0	1	ND - 0.09	0.3 ⁽⁵⁾	Erosion of natural deposits; water additive to promote strong teeth
<p>1. These are monthly average turbidity values measured every 4 hours daily</p> <p>2. There is no turbidity MCL for filtered water. The limits are based on the TT requirements for filtration systems.</p> <p>3. Total organic carbon is a precursor for disinfection byproduct formation. The TT requirement applies to the filtered water from the SVWTP only.</p> <p>4. In May 2015, the SWRCB recommended an optimal fluoride level of 0.7 ppm be maintained in the treated water. In 2016, the range and average of the fluoride levels were 0.5 ppm - 0.8 ppm and 0.6 ppm, respectively.</p> <p>5. The natural fluoride level in the Hetch Hetchy supply was ND. Elevated fluoride levels in the SVWTP and HTWTP raw water are attributed to the transfer of fluoridated Hetch Hetchy water into the local reservoirs.</p>							

CONSTITUENTS WITH SECONDARY STANDARDS							
	YEAR	UNIT	SMCL	PHG	Range	Average	Major Sources of Contaminant
Chloride	2019	ppm	500	N/A	<3 - 17	8.7	Runoff / leaching from natural deposits
Color	2019	unit	15	N/A	<5 -10	<5	Naturally occurring organic materials
Specific Conductance	2019	µS/cm	1600	N/A	32 - 234	158	Substances that form ions when in water
Sulfate	2019	ppm	500	N/A	1 - 2.9	15	Runoff / leaching from natural deposits
Total Dissolved Solids	2019	ppm	1000	N/A	<20 - 119	76	Runoff / leaching from natural deposits
Turbidity	2019	NTU	5	N/A	ND - 0.5	0.2	Soil runoff

OTHER WATER QUALITY PARAMETERS						
	YEAR	UNIT	ORL	Range	Average	
Alkalinity (as CaCO ₃)	2019	ppm	N/A	3.5-97	46	
Boron	2019	ppb	1000 (NL)	ND - 107	ND	
Bromide	2016	ppb	N/A	<5 - 27	7	
Calcium (as Ca)	2019	ppm	N/A	3.3 - 20	12	
Chlorate ⁽⁷⁾	2019	ppb	800 (NL)	40 - 220	84	
Chromium VI	2019	ppb	-	0.04 - 0.19	0.12	
Hardness (as CaCO ₃)	2019	ppm	N/A	8.9 - 77	47	
Magnesium	2019	ppm	N/A	0.2 - 6.6	4.2	
pH	2019	-	N/A	8.8 - 10.1	9.3	
Phosphate (Ortho)	2016	ppm	N/A	<0.03 - 0.11	0.04	
Potassium	2019	ppm	N/A	0.3 - 1.2	0.8	
Silica	2019	ppm	N/A	4.9 - 8	6.1	
Sodium	2019	ppm	N/A	2.8 - 21	14	
Strontium	2019	ppb	N/A	12 - 230	107	

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

REGULATED CONTAMINANTS FROM THE CITY OF EAST PALO ALTO DISTRIBUTION SYSTEM

Substance (units)	Year Sampled	UNIT	MCL	PHG OR (MCLG)	Range OR Level Found	Average OR Max	Major Sources of Contaminant
DISINFECTANT AND DISINFECTION BY-PRODUCTS							
Total Trihalomethanes	2019	ppb	80	<40	18.4 - 57.1	45.3 avg	Byproduct of drinking water disinfection
Haloacetic Acids	2019	ppb	60	N/A	7.7 - 37	27 avg	Byproduct of drinking water disinfection
Chloramines	2019	ppm	MRDL = 4.0	MRDLG = 4.0	2.78 - 3.07	2.84 avg	Drinking water disinfectant added for treatment
MICROBIOLOGICAL CONTAMINANTS							
Substance (units)	Year Sampled	UNIT	MCL	MCLG	Tested Positive	Typical Source	
Coliform, Total	2019	-	No more than 1 positive monthly sample.	0	0	Naturally present in the environment	
LEAD AND COPPER							
Substance (units)	Year Sampled	UNIT	AL	PHG	90th Percentile	Sites Above AL	Typical Source
Lead	2017	ppb	.015	0.2	0	0	Corrosion of household plumbing; Erosion of natural deposits
Copper	2017	ppm	1.3	0.3	0.041	0	Corrosion of household plumbing; Erosion of natural deposits

REGULATED SECONDARY CONTAMINANTS FROM THE CITY OF EAST PALO ALTO TREATED GROUNDWATER

Substance (units)	Year Sampled	UNIT	MCL	PHG OR (MCLG)	Range OR Level Found	Average OR Max	Major Sources of Contaminant
Total Dissolved Solids	2019	ppm	1000	N/A	270 - 380	380 max	Runoff / leaching from natural deposits
Chloride	2019	ppm	500	N/A	110 - 120	120 max	Runoff / leaching from natural deposits
Iron	2019	ppm	0.3	0.15	ND - 0.014	0.014 max	Erosion of natural deposits
Manganese	2019	ppm	0.05	0.0025	ND - 0.002	0.002 max	Erosion of natural deposits
Color	2019	CU	15	N/A	ND - <5	<5 max	Erosion of manmade/natural deposits
Odor	2019	TON	3	N/A	<1	<1 max	Erosion of manmade/natural deposits
Turbidity	2019	NTU	5	N/A	<0.10 - .28	0.28 max	Erosion of manmade/natural deposits

UNREGULATED CONTAMINANTS MONITORING RULE (UCMR4) FROM THE CITY OF EAST PALO ALTO

Substance (units)	Year Sampled	UNIT	Highest Level Detected	PHG OR (MCLG)	Range OR Level Found	Average OR Max	Typical Sources of Contaminant
Dichloroacetic Acid	2019	ug/L	8.5	N/A	.2 - 8.5	8.225 avg	By-product / drinking water disinfection
Trichloroacetic Acid	2019	ug/L	10	N/A	.5 - 10	9.875 avg	By-product / drinking water disinfection
Total Haloacetic Acid	2019	ug/L	19	N/A	.2 - 19	18.5 avg	By-product / drinking water disinfection
Total Haloacetic Acid UCMR4	2019	ug/L	19	N/A	.2 - 19	18.5 avg	By-product / drinking water disinfection
Total Haloacetic Acid Br	2019	ug/L	.34	N/A	.2 - .34	.34 max	By-product / drinking water disinfection
Bromochloroacetic Acid	2019	ug/L	.34	N/A	.3 - .34	.34 max	By-product / drinking water disinfection

KEY					
</≤	= Less than / Less than or equal to	AL	= Action Level	Max	= Maximum
Min	= Minimum	N/A	= Not Applicable	ND	= Non - Detect
NL	= Notification Level	NoP	= Number of Coliform Positive Samples	NTU's	= Nephelometric Turbidity Units
ORL	= Other regulatory Level	ppb	= parts per billion	ppm	= parts per million



Appendix I

26 March 2021 SFPUC Commission Special Meeting – Water Workshop Number 3 Water Supply Planning Scenarios SFPUC Staff Presentation Materials

Water Workshop Number 3 Water Supply Planning Scenarios

March 26, 2021

Introduction

- Ten water supply planning scenarios were run using our HHLSM system modeling tool and the Regional Water System Supply and Demand Worksheet.
- For each scenario the ultimate result is either a surplus or deficit of supply, and each scenario produces different results, demonstrating the effect of the choices that are made.
- The assumptions and results for each scenario will be displayed in this presentation.
- The presentation concludes with a summary table of the bottom-line results for all the scenarios.

The Ten Scenarios

- I. Previous Demand Estimates
- II. Current Conditions
- III. Tuolumne River Voluntary Agreement
- IV. Bay-Delta Plan
- V. Bay-Delta Plan with Alternative Water Supply Projects
- VI. Bay-Delta Plan with Alternative Water Supply Projects and Modified Rationing Policy
- VII. Bay-Delta Plan with Alternative Water Supply Projects, Modified Rationing Policy and Modified Design Drought
- VIII. Water Quality Certification (401) with Alternative Water Supply Projects, Modified Rationing Policy and Modified Design Drought
- IX. NGO scenario 1: Current system, 198 mgd constant demand, Bay-Delta Plan flows
- X. NGO Scenario 2: Current system, 223 mgd constant demand, 7 ½ year design drought, Bay-Delta Plan flows

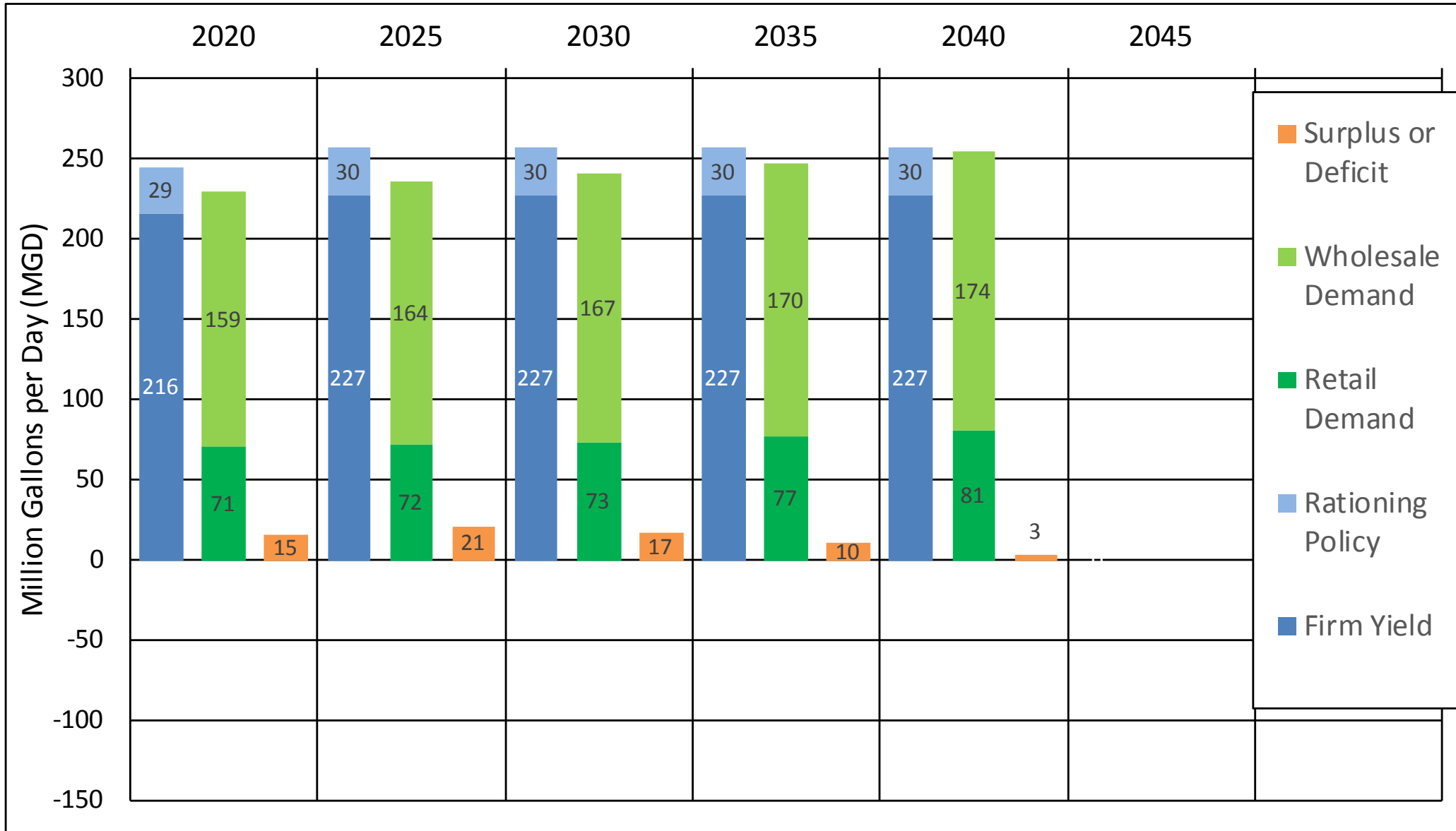
I. Prior Demand Estimates

- Includes retail demand projections from the 2015 Urban Water Management Plan
- Includes 2015 purchase projections from wholesale customers
- Includes current side agreement on flows in the lower Tuolumne River
- Yield values are based on the 8.5-year design drought and the adopted WSIP rationing policy

SFPUC Water Supply and Demand Worksheet Results
All values are in million gallons per day (MGD)

	2020	2025	2030	2035	2040	2045
Total Yield:	245	257	257	257	257	NA
RWS Demand:	230	236	241	247	255	NA
Lower Tuolumne Contribution:	NA	NA	NA	NA	NA	NA
Surplus or Deficit:	15	21	17	10	3	NA

I. Prior Demand Estimates



II. Current Conditions

- Includes updated demand projections for anticipated development in retail service area*
- Includes most recent purchase projections from wholesale customers*
- Includes a total of 9 MGD for San Jose and Santa Clara*
- Includes the 1995 side agreement on flows in the lower Tuolumne River
- Yield values are based on the 8.5-year design drought and the adopted WSIP rationing policy

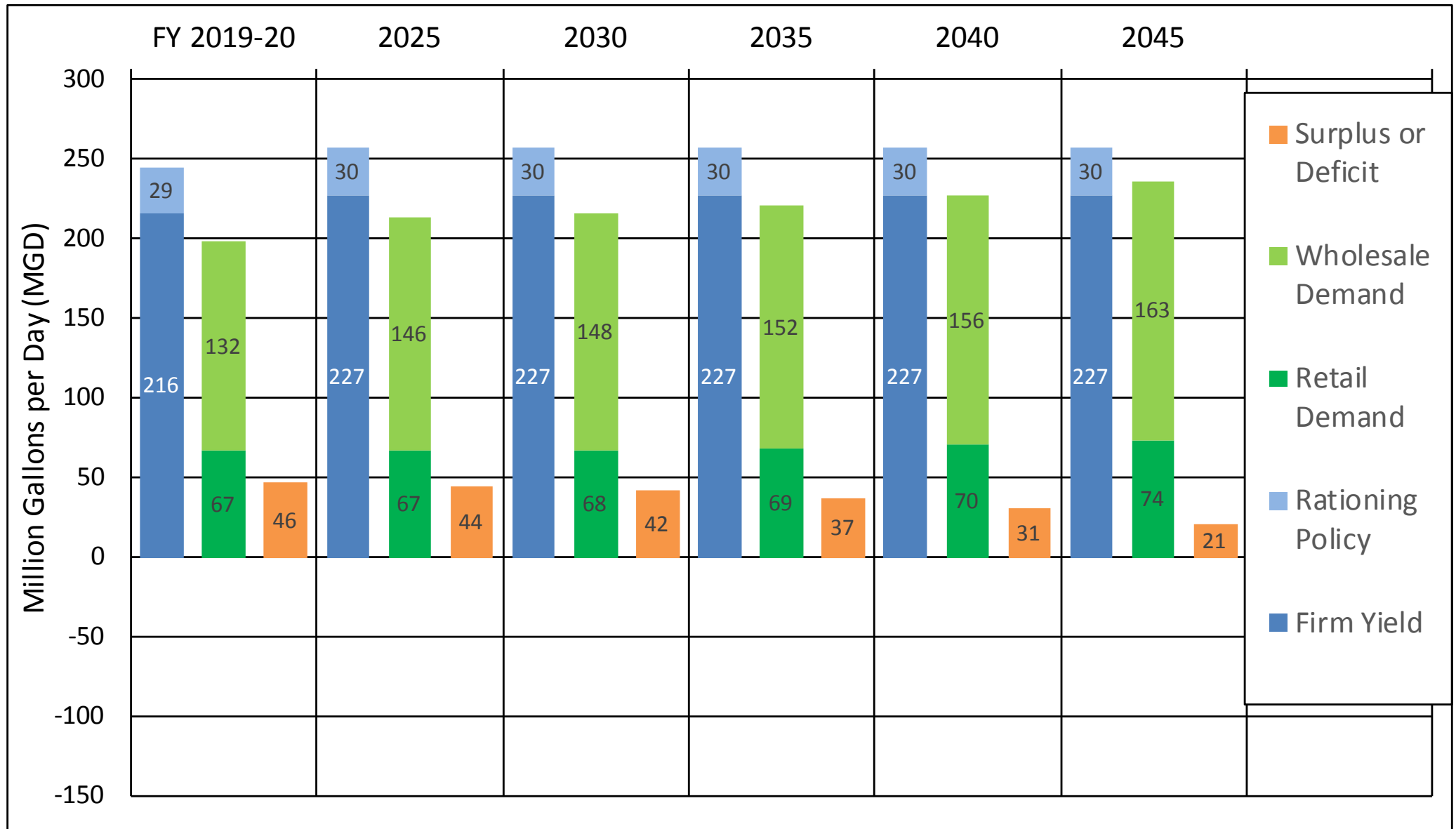
SFPUC Water Supply and Demand Worksheet Results

All values are in million gallons per day (MGD)

	FY 2019-20	2025	2030	2035	2040	2045
Total Yield:	245	257	257	257	257	257
RWS Demand:	198	213	215	220	227	236
Lower Tuolumne Contribution:	NA	NA	NA	NA	NA	NA
Surplus or Deficit:	46	44	42	37	31	21

* Base Conditions in later slides

II. Current Conditions



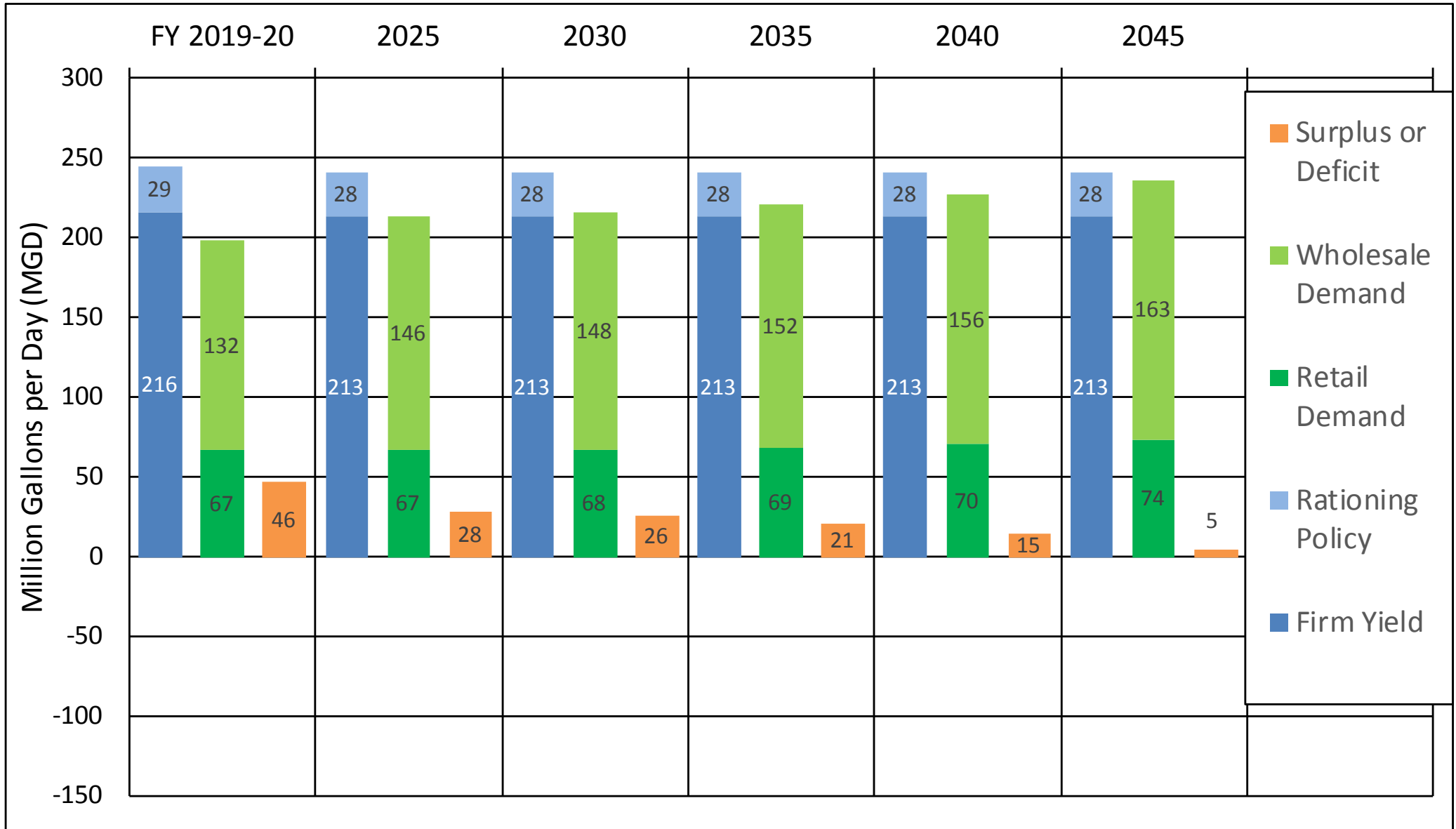
III. Tuolumne River Voluntary Agreement

- Base Conditions
- Yield values are based on the 8.5-year design drought and the adopted WSIP rationing policy
- Includes SFPUC contribution to the TRVA, displayed in the graph as a reduction in Firm Yield
- SFPUC contributions are calculated according to the 4th Agreement and assumes continuation of the 1995 side agreement.

SFPUC Water Supply and Demand Worksheet Results
All values are in million gallons per day (MGD)

	FY 2019-20	2025	2030	2035	2040	2045
Total Yield:	245	241	241	241	241	241
RWS Demand:	198	213	215	220	227	236
Lower Tuolumne Contribution:	NA	14	14	14	14	14
Surplus or Deficit:	46	28	26	21	15	5

III. Tuolumne River Voluntary Agreement



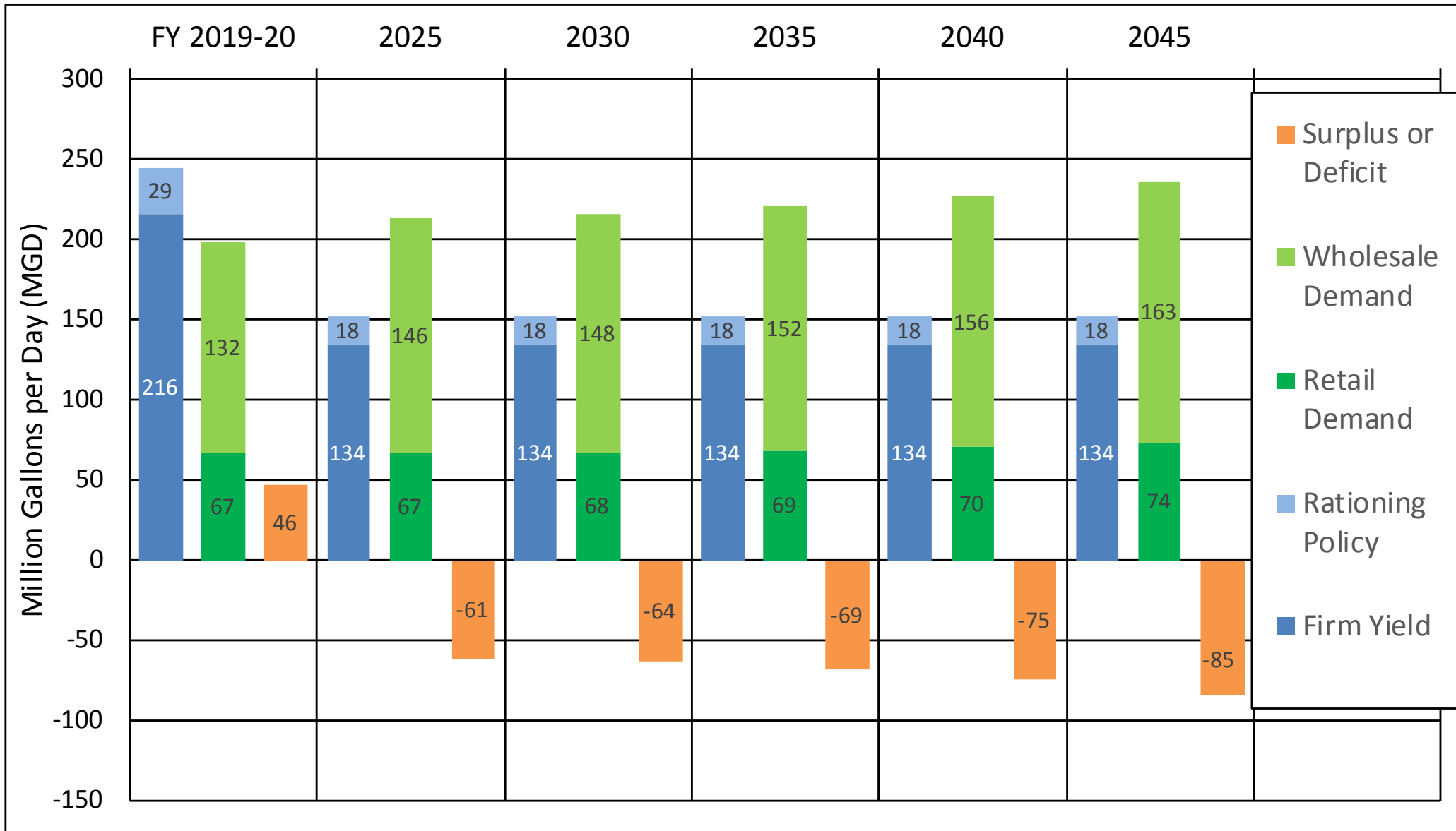
IV. Bay-Delta Plan

- Base Conditions
- Yield values are based on the 8.5-year design drought and the adopted WSIP rationing policy
- Includes SFPUC contribution to the Bay-Delta Plan displayed in the graph as a reduction in Firm Yield, assuming the flow requirement is 40% of unimpaired flow at La Grange from February through June. Current FERC flow requirements are assumed for the rest of the year.
- SFPUC contributions are calculated according to the 4th Agreement and assuming continuation of the 1995 side agreement.

SFPUC Water Supply and Demand Worksheet Results
All values are in million gallons per day (MGD)

	FY 2019-20	2025	2030	2035	2040	2045
Total Yield:	245	152	152	152	152	152
RWS Demand:	198	213	215	220	227	236
Lower Tuolumne Contribution:	NA	93	93	93	93	93
Surplus or Deficit:	46	-61	-64	-69	-75	-85

IV. Bay-Delta Plan



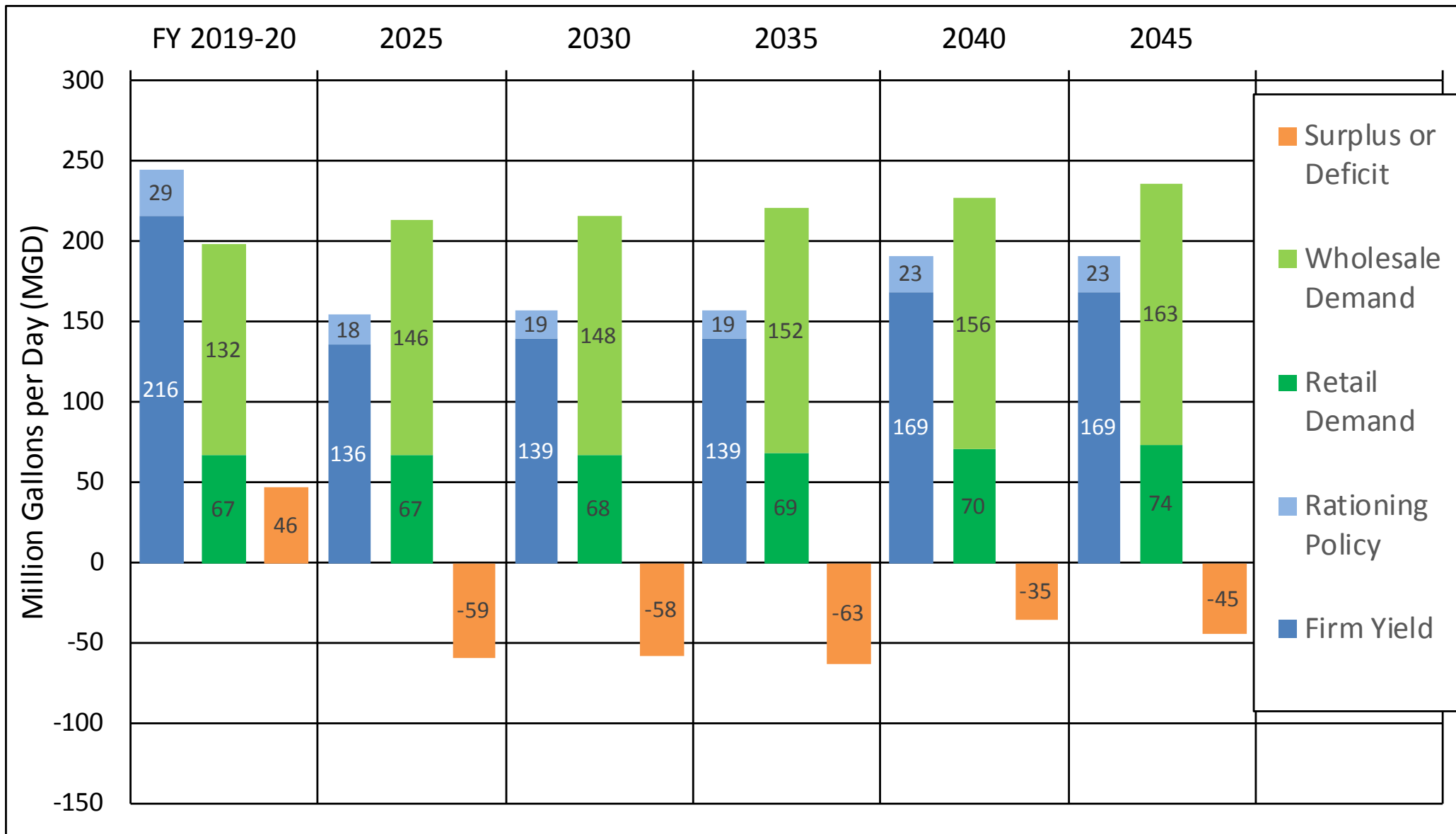
V. Bay-Delta Plan with Alternative Water Supply Projects

- Base Conditions
- Yield values are based on the 8.5-year design drought and the adopted WSIP rationing policy
- Includes SFPUC contribution to the Bay-Delta Plan displayed in the graph as a reduction in Firm Yield, assuming the flow requirement is 40% of unimpaired flow at La Grange from February through June. Current FERC flow requirements are assumed for the rest of the year.
- SFPUC contributions are calculated according to the 4th Agreement and continuation of the 1995 side agreement.
- Includes a total of 35 MGD of new water supply projects, which are assumed to be added between 2025 and 2040. The firm yield from the new projects is shown separately in the table to demonstrate the estimated development of the projects over time. The new project yield is also included in the Total Yield shown in the table.

SFPUC Water Supply and Demand Worksheet Results
All values are in million gallons per day (MGD)

	FY 2019-20	2025	2030	2035	2040	2045
Total Yield:	245	154	158	158	192	192
RWS Demand:	198	213	215	220	227	236
Lower Tuolumne Contribution:	NA	93	93	93	93	93
Alternative Water Supply Projects:	NA	2	5	5	35	35
Surplus or Deficit:	46	-59	-58	-63	-35	-45

V. Bay-Delta Plan with Alternative Water Supply Projects





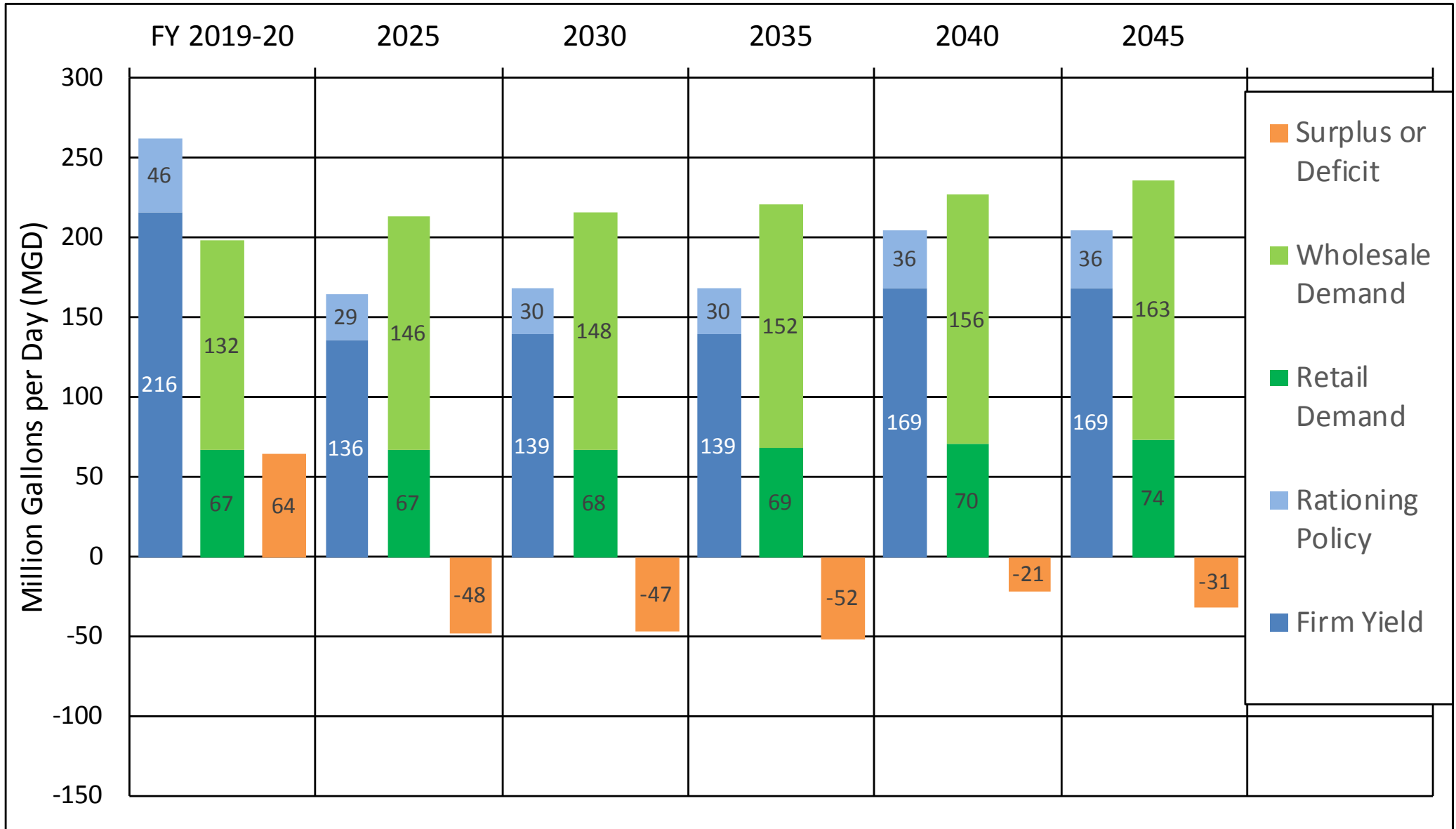
VI. Bay-Delta Plan with Alternative Water Supply Projects and Modified Rationing Policy

- Base Conditions
- Yield values are based on the 8.5-year design drought
- Includes SFPUC contribution to the Bay-Delta Plan displayed in the graph as a reduction in Firm Yield, assuming the flow requirement is 40% of unimpaired flow at La Grange from February through June. Current FERC flow requirements are assumed for the rest of the year.
- SFPUC contributions are calculated according to the 4th Agreement and assuming continuation of the 1995 side agreement.
- Includes a total of 35 MGD of new water supply projects, as described on slide 12 for scenario V
- Includes 7.5 years of rationing at 20% in the 8.5-year design drought sequence

SFPUC Water Supply and Demand Worksheet Results
All values are in million gallons per day (MGD)

	FY 2019-20	2025	2030	2035	2040	2045
Total Yield:	262	165	169	169	205	205
RWS Demand:	198	213	215	220	227	236
Lower Tuolumne Contribution:	NA	93	93	93	93	93
Surplus or Deficit:	64	-48	-47	-52	-21	-31

VI. Bay-Delta Plan with Alternative Water Supply Projects and Modified Rationing Policy





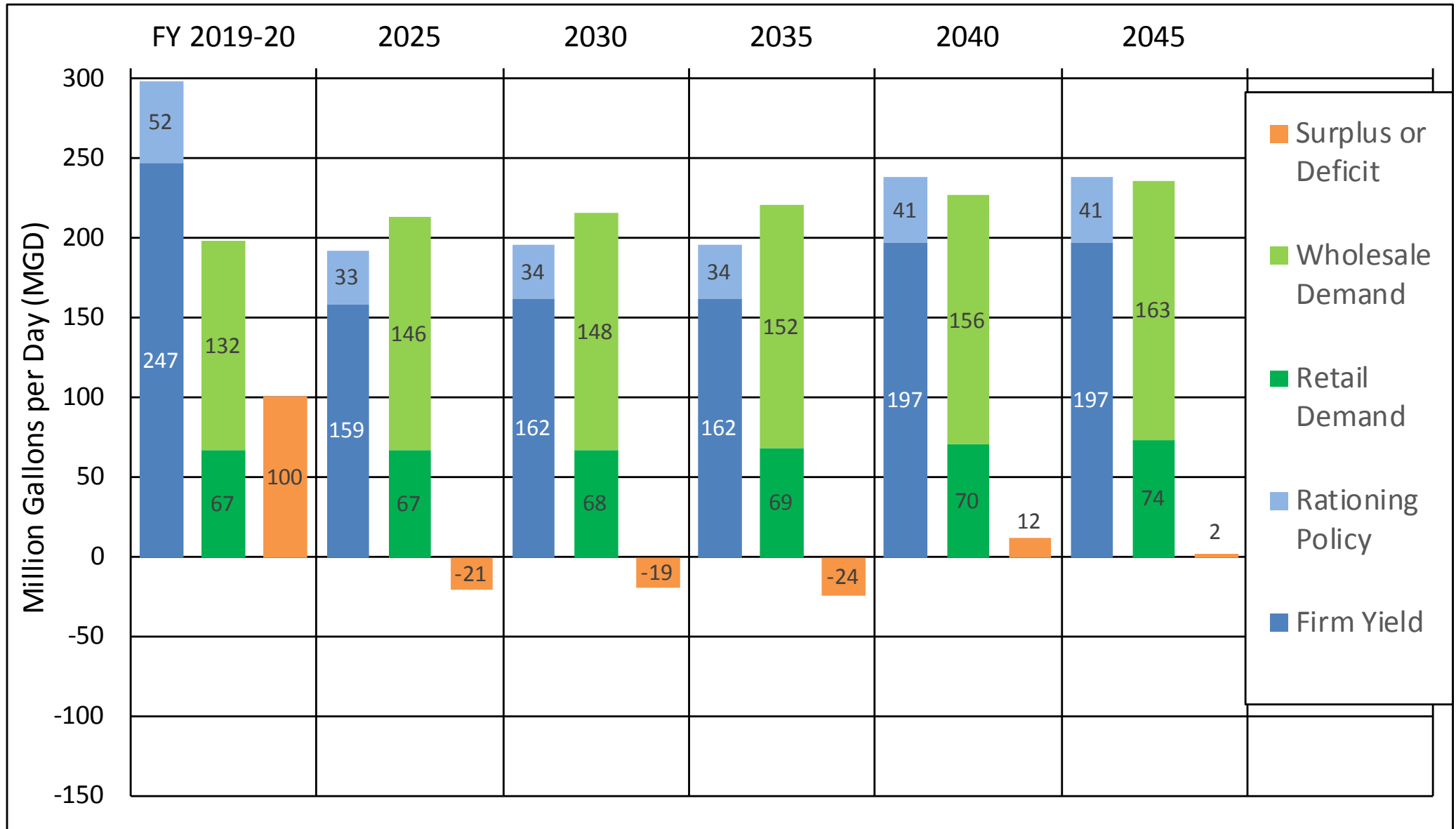
VII. Bay-Delta Plan with Alternative Water Supply Projects, Modified Rationing Policy and Modified Design Drought

- Base Conditions
- Includes SFPUC contribution to the Bay-Delta Plan displayed in the graph as a reduction in Firm Yield, assuming the flow requirement is 40% of unimpaired flow at La Grange from February through June. Current FERC flow requirements are assumed for the rest of the year.
- SFPUC contributions are calculated according to the 4th Agreement and assuming continuation of the 1995 side agreement.
- Includes a total of 35 MGD of new water supply projects, as described on slide 12 for scenario V
- Yield values are estimated using a 7.5-year design drought
- Includes 6.5 years of rationing at 20% in the 7.5-year design drought sequence.

SFPUC Water Supply and Demand Worksheet Results
All values are in million gallons per day (MGD)

	FY 2019-20	2025	2030	2035	2040	2045
Total Yield:	299	192	196	196	238	238
RWS Demand:	198	213	215	220	227	236
Lower Tuolumne Contribution:	NA	101	101	101	101	101
Surplus or Deficit:	100	-21	-19	-24	12	2

VII. Bay-Delta Plan with Alternative Water Supply Projects, Modified Rationing Policy and Modified Design Drought





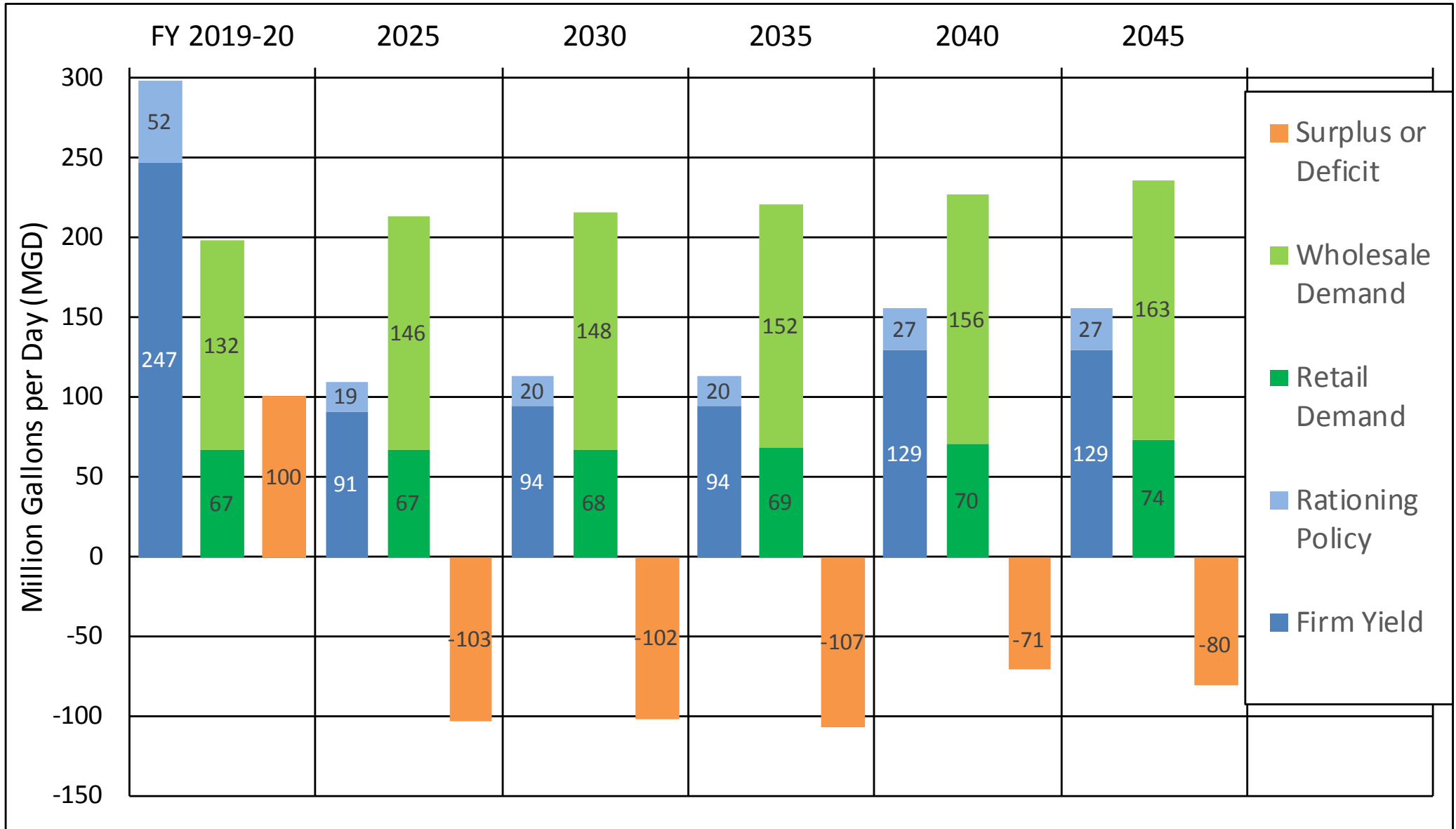
VIII. Water Quality Certification (401) with Alternative Water Supply Projects, Modified Rationing Policy and Modified Design Drought

- Base Conditions
- Includes SFPUC contribution to the Section 401 water quality certification on the FERC license displayed in the graph as a reduction in Firm Yield.
- SFPUC contributions are calculated according to the 4th Agreement and assuming continuation of the 1995 side agreement.
- Includes a total of 35 MGD of new water supply projects, as described on slide 12 for scenario V
- Yield values are estimated using a 7.5-year design drought
- Includes 6.5 years of rationing at 20% in the 7.5-year design drought sequence.

SFPUC Water Supply and Demand Worksheet Results
All values are in million gallons per day (MGD)

	FY 2019-20	2025	2030	2035	2040	2045
Total Yield:	299	110	114	114	156	156
RWS Demand:	198	213	215	220	227	236
Lower Tuolumne Contribution:	NA	169	169	169	169	169
Surplus or Deficit:	100	-103	-102	-107	-71	-80

VIII. Water Quality Certification (401) with Alternative Water Supply Projects, Modified Rationing Policy and Modified Design Drought





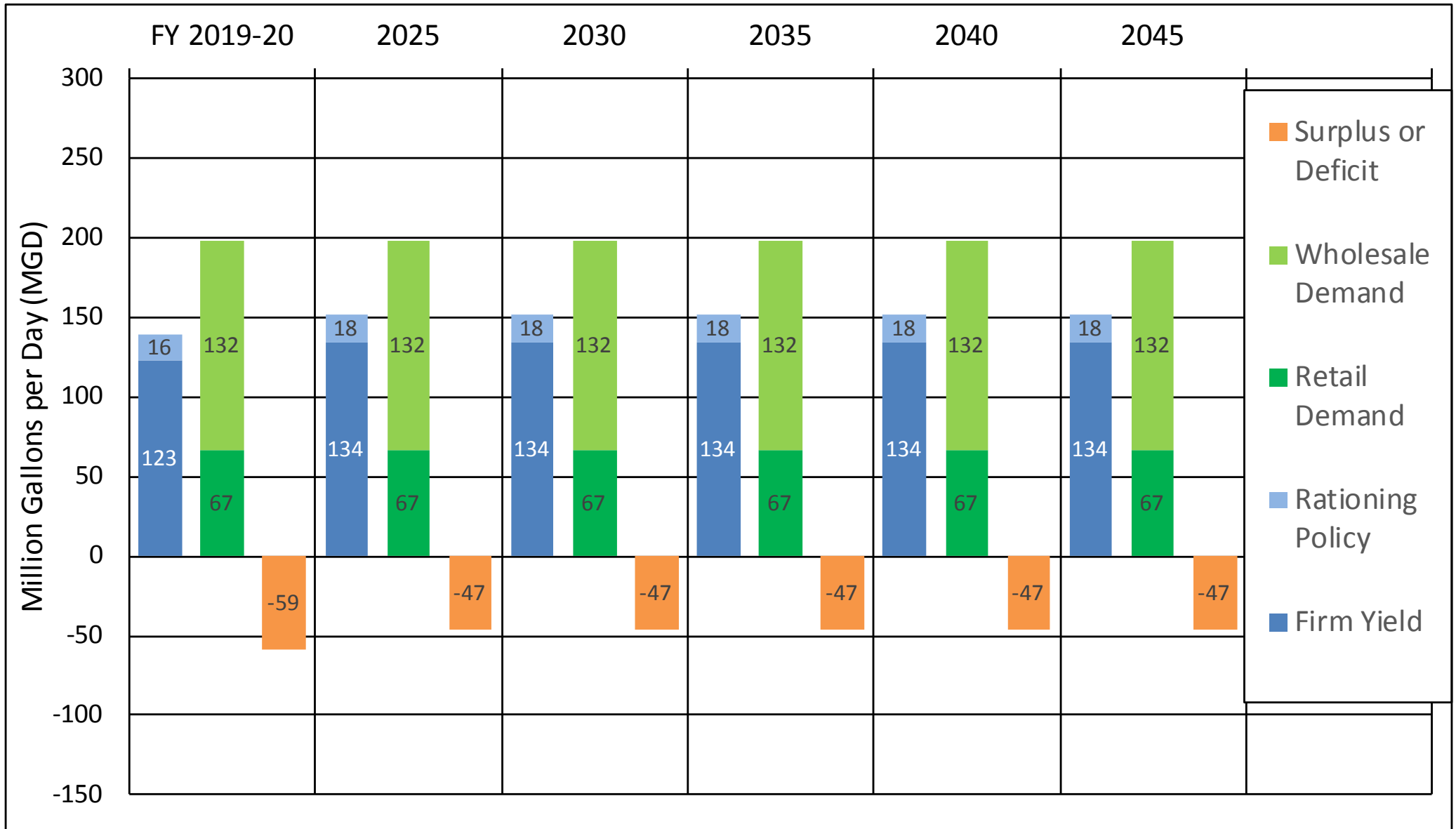
IX. NGO scenario 1: Current system, 198 mgd constant demand, Bay-Delta Plan flows

- Assumes that retail and wholesale demand on the RWS remain at the current level of approximately 198 MGD, and that SFPUC contributions to the Bay-Delta Plan are being made now
- Yield values are based on the 8.5-year design drought and the adopted WSIP rationing policy
- Includes SFPUC contribution to the Bay-Delta Plan, assuming the flow requirement is 40% of unimpaired flow at La Grange from February through June. Current FERC flow requirements are assumed for the rest of the year.
- SFPUC contributions are calculated according to the 4th Agreement and assuming continuation of the 1995 side agreement.

SFPUC Water Supply and Demand Worksheet Results
All values are in million gallons per day (MGD)

	FY 2019-20	2025	2030	2035	2040	2045
Total Yield:	139	152	152	152	152	152
RWS Demand:	198	198	198	198	198	198
Lower Tuolumne Contribution:	93	93	93	93	93	93
Surplus or Deficit:	-59	-47	-47	-47	-47	-47

IX. NGO scenario 1: Current system, 198 mgd constant demand, Bay-Delta Plan flows





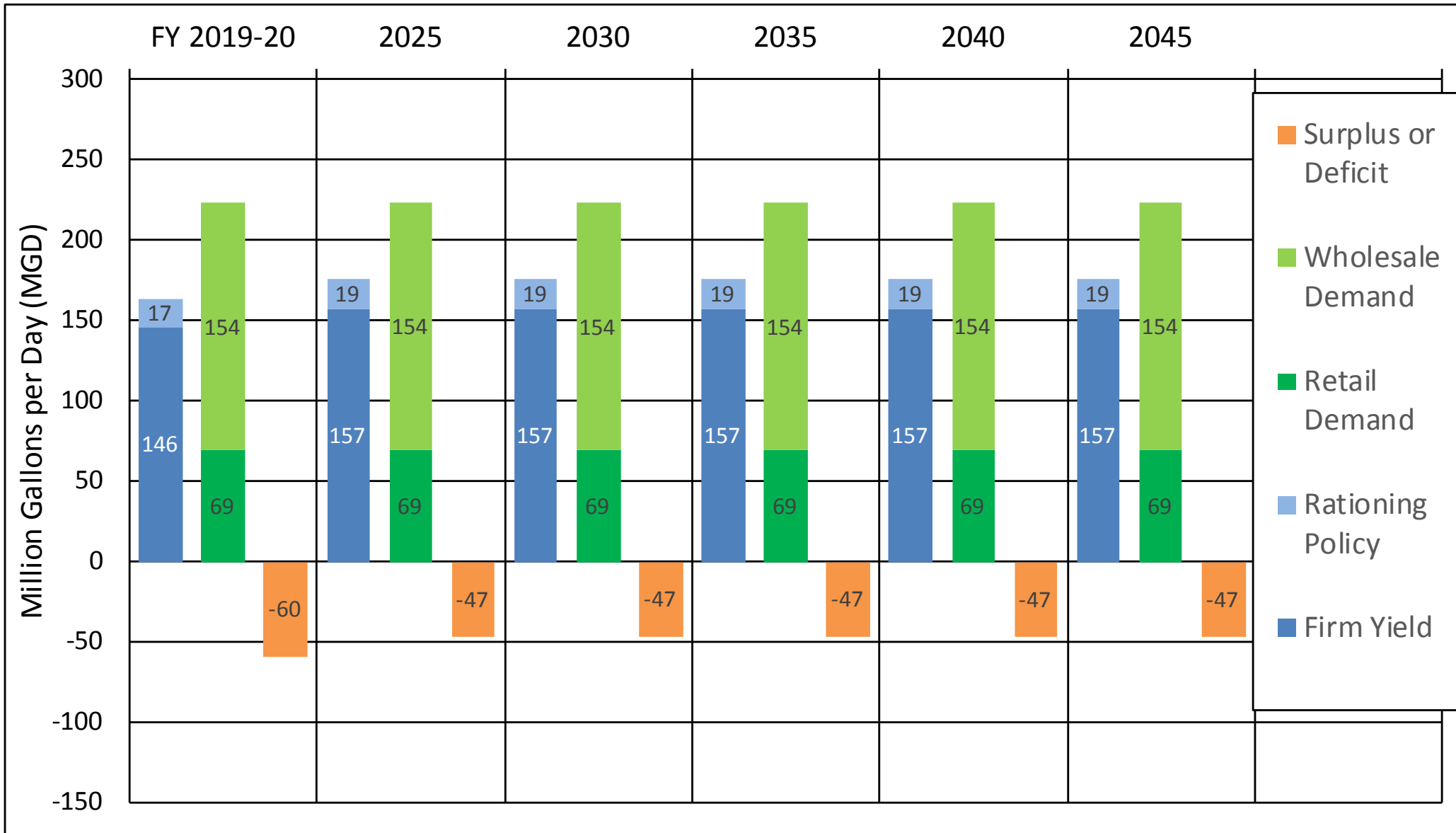
X. NGO scenario 2: Current system, 223 mgd constant demand, 7½ year design drought, Bay-Delta Plan flows

- Includes an assumed demand of 223 MGD for the SFPUC service area in all years
- Includes a total of 9 MGD for San Jose and Santa Clara
- Includes SFPUC contribution to the Bay-Delta Plan, assuming the flow requirement is 40% of unimpaired flow at La Grange from February through June. Current FERC flow requirements are assumed for the rest of the year. Assumes this contribution begins now.
- SFPUC contributions are calculated according to the 4th Agreement and assuming continuation of the 1995 side agreement.
- Yield values are estimated using a 7.5-year design drought and a truncated version of the adopted WSIP rationing policy

SFPUC Water Supply and Demand Worksheet Results
All values are in million gallons per day (MGD)

	FY 2019-20	2025	2030	2035	2040	2045
Total Yield:	163	176	176	176	176	176
RWS Demand:	223	223	223	223	223	223
Lower Tuolumne Contribution:	101	101	101	101	101	101
Surplus or Deficit:	-59	-47	-47	-47	-47	-47

X. NGO scenario 2: Current system, 223 mgd constant demand, 7½ year design drought, Bay-Delta Plan flows



SCENARIO SURPLUSES OR DEFICITS

SCENARIOS	FY19-20	2025	2030	2035	2040	2045
I. Previous Demand Estimates	15	21	17	10	3	NA
II. Current Conditions	46	44	42	37	31	21
III. Tuolumne River Voluntary Agreement	46	28	26	21	15	5
IV. Bay-Delta Plan	46	-61	-64	-69	-75	-85
V. Bay-Delta Plan with Alternative Water Supply Projects	46	-59	-58	-63	-35	-45
VI. Bay-Delta Plan with Alternative Water Supply Projects and Modified Rationing Policy	64	-48	-47	-52	-21	-31
VII. Bay-Delta Plan with Alternative Water Supply Projects, Modified Rationing Policy and Modified Design	100	-21	-19	-24	12	2
VIII. Water Quality Certification (401) with Alternative Water Supply Projects, Modified Rationing Policy and Modified Design Drought	100	-103	-102	-107	-71	-80
IX. NGO scenario 1: Current system and 198 mgd constant demand and Bay-Delta Plan flows	-59	-47	-47	-47	-47	-47
X. NGO Scenario 2: Current system, 223 mgd constant demand, 7 ½ year design drought and Bay-Delta Plan	-60	-47	-47	-47	-47	-47



Appendix J

Water Shortage Contingency Plan



Water Shortage Contingency Plan 2020 Update

City of East Palo Alto

June 2021

Water Shortage Contingency Plan
2020 Update
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TABLES

Table 5-1. Comparison Between 2015 WSCP Shortage Stages and the 2020 WSCP Shortage Levels

Table 5-2. Water Shortage Contingency Plan Levels (DWR Table 8-1)

Table 6-1. Demand Reduction Actions (DWR Table 8-2)

Table 6-2. Supply Augmentation and Other Actions (DWR Table 8-3)

Table 6-3. Baseline Residential Per Capita Water Demand

Table 6-4. Baseline Water Use Profile

ATTACHMENTS

Attachment 1. City of East Palo Alto's Municipal Code 13.24, Article VI

Attachment 2. Annual Water Supply and Demand Assessment Procedures

Attachment 3. Drought Response Tool Quantitative Assessment

Attachment 4. Water Shortage Contingency Plan Resolutions



1. INTRODUCTION

CWC § 10640

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

(b) Every urban water supplier required to prepare a water shortage contingency plan shall prepare a water shortage contingency plan pursuant to Section 10632. The supplier shall likewise periodically review the water shortage contingency plan as required by paragraph (10) of subdivision (a) of Section 10632 and any amendments or changes required as a result of that review shall be adopted pursuant to this article.

The City of East Palo Alto's (City's or East Palo Alto's) Water Shortage Contingency Plan (WSCP) is developed to serve as a flexible framework of planned response measures to mitigate future water supply shortages. This WSCP builds upon and supersedes the WSCP that was presented in the 2015 Urban Water Management Plan (UWMP).

The WSCP includes the stages of response to a water shortage caused by drought or by supply interruptions caused by infrastructure failure, regulatory mandate, or catastrophic human-caused or natural events. The primary objective of the WSCP is to ensure that East Palo Alto has in place the necessary resources and management responses needed to protect health and human safety, minimize economic disruption, and preserve environmental and community assets during water supply shortages and interruptions. The WSCP also includes procedures to conduct an annual assessment of water supply and demand in order to determine whether water shortage conditions are likely to exist in the forthcoming year, and to proactively begin the process of implementing WSCP stages of action, as appropriate.

This WSCP has been prepared in accordance with California Water Code (CWC) § 10640 and CWC § 10632 of the UWMP Act. Text from the UWMP Act has been included in grey text boxes with italicized font at beginning of relevant sections of this WSCP. The information presented in the respective WSCP sections and the associated text and tables are collectively intended to fulfill the requirements of that sub-section of the UWMP Act.

The City has authority within the City of East Palo Alto's Municipal Code 13.24, Article VI to require water rationing and conservation and to enforce penalties. East Palo Alto Municipal Code 13.24, Article VI is included as Attachment 1 of this WSCP.

East Palo Alto 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 East Palo Alto to ask for a shared contribution from all of its customers towards meeting water reduction goals during periods of water shortage. It further directs East Palo Alto

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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.



2. WATER SUPPLY RELIABILITY ANALYSIS

CWC § 10632 (a) (1) *The analysis of water supply reliability conducted pursuant to Section 10635.*

This section provides a summary of East Palo Alto’s water supply reliability analysis in Chapter 7 of the City’s 2020 UWMP, recognizing that the WSCP is intended to be a standalone document that can be adopted and amended independently.

East Palo Alto primarily relies on the San Francisco Public Utilities Commission (SFPUC) Regional Water System (RWS) for its potable water supply, with small amounts of supply projected to come from groundwater. In accordance with the SFPUC’s perpetual obligation to East Palo Alto’s Supply Assurance, East Palo Alto has an Individual Supply Guarantee (ISG) of 3.46 million gallons per day (MGD), or 1,264 million gallons (MG) per year. The City also owns and operates one groundwater well, which is projected to supply approximately 7 MG per year.

East Palo Alto’s supply reliability relies largely on the reliability of the SFPUC RWS. The SFPUC has committed to, among other things, meeting the retail and wholesale customers’ average annual water demand during non-drought years and meeting dry-year delivery needs while limiting rationing to a maximum 20% system-wide reduction in water service during extended droughts. However, several potential constraints have been identified on the future supply availability of the SFPUC RWS. One of the key factors is the adoption of the 2018 Bay-Delta Plan Amendment. If the Bay-Delta Plan Amendment is implemented, the SFPUC is anticipated to have sufficient supplies to meet the projected water demands in normal years but would experience significant supply shortages in single dry years or multiple dry years.

Based on the current allocation methodology¹ and SFPUC dry year cutbacks, East Palo Alto is anticipated to experience up to 495 MG (46%) supply shortfall in single dry years by 2045 and up to 582 MG (54%) supply shortfall in the second through fifth year multiple dry years by 2045.

However, numerous uncertainties remain in the implementation of the Bay-Delta Plan Amendment and the allocation of the available supply between the wholesale customers. The resultant actual supply reliability and the frequency of supply shortfalls for East Palo Alto cannot be known currently. East Palo Alto has placed high priority on working with SFPUC and the Bay Area Water Supply and Conservation Agency (BAWSCA) to better refine the estimates of RWS supply reliability and may revise its UWMP accordingly. The SFPUC and BAWSCA have also been taking various actions to improve the reliability of

¹ The SFPUC and the wholesale customers have negotiated and adopted a plan to allocate the RWS supply during system-wide shortages of 20% or less. To address the instances where the supply shortfalls are projected to be greater than 20%, BAWSCA has developed a revised methodology to allocate the RWS supply. This allocation method is intended to serve as the preliminary basis for the 2020 UWMP supply reliability analysis and does not in any way imply an agreement by BAWSCA member agencies as to the exact allocation methodology. Details on the SFPUC RWS supply reliability are provided by the SFPUC and the BAWSCA and are documented in Sections 7.1 through 7.3 as well as Appendix F of the 2020 UWMP.

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the RWS supply, including implementing a number of dry year water supply projects, exploring alternative water supplies, and implementing Long-Term Reliable Water Supply Strategy recommendations.

As part of the supply reliability analysis, East Palo Alto has conducted a Drought Risk Assessment (DRA), which evaluates the effects on available water supply sources of an assumed five-year drought commencing the year after the assessment is completed (i.e., from 2021 through 2025). East Palo Alto's supply is expected to be sufficient to meet demands in the first two years of the assumed drought (i.e., 2021 and 2022). However, based on the current allocation methodology and SFPUC dry year cutbacks, East Palo Alto is expected to experience significant shortfalls in subsequent years of the assumed drought through 2025. The largest shortfall is estimated to be 351 MG in 2025.

East Palo Alto has developed this WSCP to address water shortage conditions resulting from any cause (e.g., droughts, impacted distribution system infrastructure, regulatory-imposed shortage restrictions, etc.). The WSCP identifies a variety of actions that East Palo Alto will implement to reduce demands and further ensure supply reliability at various levels of water shortage.



3. ANNUAL WATER SUPPLY AND DEMAND ASSESSMENT PROCEDURES

CWC § 10632 (a) (2)

The procedures used in conducting an annual water supply and demand assessment that include, at a minimum, both of the following:

(A) The written decision-making process that an urban water supplier will use each year to determine its water supply reliability.

(B) The key data inputs and assessment methodology used to evaluate the urban water supplier's water supply reliability for the current year and one dry year, including all of the following:

(i) Current year unconstrained demand, considering weather, growth, and other influencing factors, such as policies to manage current supplies to meet demand objectives in future years, as applicable.

(ii) Current year available supply, considering hydrological and regulatory conditions in the current year and one dry year. The annual supply and demand assessment may consider more than one dry year solely at the discretion of the urban water supplier.

(iii) Existing infrastructure capabilities and plausible constraints.

(iv) A defined set of locally applicable evaluation criteria that are consistently relied upon for each annual water supply and demand assessment.

(v) A description and quantification of each source of water supply.

CWC § 10632.1

An urban water supplier shall conduct an annual water supply and demand assessment pursuant to subdivision (a) of Section 10632 and, on or before July 1 of each year, submit an annual water shortage assessment report to the department with information for anticipated shortage, triggered shortage response actions, compliance and enforcement actions, and communication actions consistent with the supplier's water shortage contingency plan. An urban water supplier that relies on imported water from the State Water Project or the Bureau of Reclamation shall submit its annual water supply and demand assessment within 14 days of receiving its final allocations, or by July 1 of each year, whichever is later.

CWC § 10632.2

An urban water supplier shall follow, where feasible and appropriate, the prescribed procedures and implement determined shortage response actions in its water shortage contingency plan, as identified in subdivision (a) of Section 10632, or reasonable alternative actions, provided that descriptions of the alternative actions are submitted with the annual water shortage assessment report pursuant to Section 10632.1. Nothing in this section prohibits an urban water supplier from taking actions not specified in its water shortage contingency plan, if needed, without having to formally amend its urban water management plan or water shortage contingency plan.

Beginning by July 1, 2022, East Palo Alto will conduct an Annual Supply-Demand Assessment (Annual Assessment) to identify whether there is likely to be a water shortage condition in the following year. Because East Palo Alto's primary source of potable water supply is from the SFPUC RWS, the evaluation of City supplies for a particular year will be based on information provided by the SFPUC or BAWSCA. East Palo Alto will conduct the Annual Assessment as part of a coordinated effort lead by BAWSCA. The procedure used by BAWSCA in conducting an Annual Assessment is outlined in Attachment 2 of this WSCP.

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Use of the City's Gloria Way Well is assumed to be 100% reliable, since the well operates at a duration and flow rate that is significantly less than its design capacity and within projected volumes that were estimated could be pumped without impacts to the local groundwater basin.



4. WATER SHORTAGE LEVELS

CWC § 10632 (a) (3)

(A) Six standard water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than 50 percent shortage. Urban water suppliers shall define these shortage levels based on the suppliers’ water supply conditions, including percentage reductions in water supply, changes in groundwater levels, changes in surface elevation or level of subsidence, or other changes in hydrological or other local conditions indicative of the water supply available for use. Shortage levels shall also apply to catastrophic interruption of water supplies, including, but not limited to, a regional power outage, an earthquake, and other potential emergency events.

(B) An urban water supplier with an existing water shortage contingency plan that uses different water shortage levels may comply with the requirement in subparagraph (A) by developing and including a cross-reference relating its existing categories to the six standard water shortage levels.

Consistent with the requirements of CWC § 10632(a)(3), this WSCP is based on the six water shortage levels (previously referred to as “stages”) shown in Table 4-1. These shortage levels are intended to address shortage caused by any condition, including the catastrophic interruption of water supplies. Table 4-1 summarizes how the City has adapted its 2015 WSCP stages to meet the 2020 WSCP mandated shortage levels.

Table 4-1. Comparison Between 2015 WSCP Shortage Stages and the 2020 WSCP Shortage Levels

2015 WSCP Stage	Percent Supply Reduction	2020 WSCP Level	Shortage Level
1	N/A	1	≤10%
2	Up to 5% Reduction	2	10-20%
3	Up to 15% Reduction	3	20-30%
4	Up to 30% Reduction	4	30-40%
5	Up to 50% Reduction	5	40-50%
		6	>50%

Table 4-2 describes the customer’s water use restrictions and the City’s consumption reduction methods (i.e., the actions to be taken by City staff) associated with each shortage level.



Table 4-2. Water Shortage Contingency Plan Levels (DWR Table 8-1)

Shortage Level	Percent Shortage Range	Shortage Response Actions
1	Up to 10%	<ul style="list-style-type: none"> In addition to mandatory prohibitions in force at all times, declaration by the Public Works Director or designee, as affirmed by the City Council in the form of a resolution, upon the determination that one of the following conditions exist: (1) SFPUC or another governing authority (e.g., the State Water Resources Control Board [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%. Includes implementation of mandatory restrictions on end uses (see Table 5-1) as well as agency actions (see Table 5-2).
2	Up to 20%	<ul style="list-style-type: none"> Declaration by the Public Works Director or 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%. Includes implementation of mandatory restrictions on end uses (see Table 5-1) as well as agency actions (see Table 5-2).
3	Up to 30%	<ul style="list-style-type: none"> Declaration by the Public Works Director or 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 30% 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 30%. Includes implementation of mandatory restrictions on end uses (see Table 5-1) as well as agency actions (see Table 5-2).
4	Up to 40%	<ul style="list-style-type: none"> Declaration by the Public Works Director or 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



Shortage Level	Percent Shortage Range	Shortage Response Actions
		<p>SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use of up to 40% 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 40%.</p> <ul style="list-style-type: none"> Includes implementation of mandatory restrictions on end uses (see Table 5-1) as well as agency actions (see Table 5-2).
5	Up to 50%	<ul style="list-style-type: none"> Declaration by the Public Works Director or 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%. Includes implementation of mandatory restrictions on end uses (see Table 5-1) as well as agency actions (see Table 5-2).
6	>50%	<ul style="list-style-type: none"> Declaration by the Public Works Director or 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 greater than 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 greater than 50%. Includes implementation of mandatory restrictions on end uses (see Table 5-1) as well as agency actions (see Table 5-2).



5. SHORTAGE RESPONSE ACTIONS

CWC § 10632 (a) (4)

Shortage response actions that align with the defined shortage levels and include, at a minimum, all of the following:

(A) Locally appropriate supply augmentation actions.

(B) Locally appropriate demand reduction actions to adequately respond to shortages.

(C) Locally appropriate operational changes.

(D) Additional, mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions and appropriate to the local conditions.

(E) For each action, an estimate of the extent to which the gap between supplies and demand will be reduced by implementation of the action.

CWC § 10632 (b)

For purposes of developing the water shortage contingency plan pursuant to subdivision (a), an 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.

This section describes the response actions the City will take to deal with the shortages associated with each of the six stages enumerated in Section 4.

5.1 Demand Reduction Methods

As discussed above and shown in Table 5-1, the WSCP lists the demand reduction methods that East Palo Alto will implement during each stage of action to reduce East Palo Alto's water consumption and encourage reduction in water use by its customers. The monthly and cumulative annual water savings impacts associated with each restriction, prohibition and consumption reduction method were quantitatively estimated using the Drought Response Tool (DRT), an Excel spreadsheet model developed by EKI Environment and Water, Inc., for the DRT model for each shortage level, see Attachment 3.

A main focus of East Palo Alto's planned demand reduction measures is to increase public outreach and keep customers informed of the water shortage emergency and actions they can take to reduce consumption. The public outreach efforts that East Palo Alto will implement to respond to a water shortage are described in Section 6.

5.2 Supply Augmentation

As shown in Table 5-2, the City will utilize its emergency supply well as supply augmentation during Stages 5 and 6. The City is planning to construct one emergency groundwater well (Pad D Well) which can produce up to 500 gallons per minute (gpm) of supply. Water supply from the emergency supply well is currently not considered in the City's planning for normal or dry year supply. The well will provide

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augmented supply for the City in the event of significant water shortage due to severe drought conditions, an earthquake, or other emergency.

Table 5-2 also includes other actions that the City will take, including coordination with other agencies, implementing drought surcharge, increasing water waste patrols, etc.



Table 5-1. Demand Reduction Actions (DWR Table 8-2)

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
1	Other	5%	<ol style="list-style-type: none"> 1. Hoses must be equipped with a shut-off valve for washing vehicles, sidewalks, walkways, or buildings. 2. Broken or defective plumbing and irrigation systems must be repaired or replaced within 48 hours. 3. Recreational water features, including pools, spas, and jacuzzis, shall be covered when not in use. 4. Ornamental fountains shall use only re-circulated or recycled water. 5. Single-pass cooling systems on new construction shall not be allowed. 6. 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. 7. 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. 8. Potable water cannot be applied to outdoor landscapes during and up to 48 hours after measurable rainfall. 9. Potable water shall not be used to irrigate ornamental turf on public street medians. 10. 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. 11. Removing, replacing, altering, or damaging any water meter is prohibited. 12. Other measures as may be approved by Resolution of the City Council. 	Yes



Table 5-1. Demand Reduction Actions (DWR Table 8-2)

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
2	Other	15%	<ol style="list-style-type: none"> 1. Continue with actions and measures from Stage 1 except where superseded by more stringent requirements. 2. 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. 3. 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. 4. Restaurants and other food service operations shall serve water to customers only upon request. 5. Other measures as may be approved by resolution of the City Council. 	Yes
3	Other	25%	<ol style="list-style-type: none"> 1. Continue with actions and measures from Stage 2 except where superseded by more stringent requirements. 2. 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. 3. 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. 4. Other measures as may be approved by resolution of the City Council. 	Yes



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Table 5-1. Demand Reduction Actions (DWR Table 8-2)

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
4	Other	35%	<ol style="list-style-type: none"> 1. Continue with actions and measures from Stage 3 except where superseded by more stringent requirements. 2. The Public Works Director may prohibit water uses not required for public health and safety and fire protection. 3. 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. 4. The Public Works Director may prohibit all recreational water uses. 5. Water use shall not exceed the water budget established for each customer. 6. Other measures as may be approved by resolution of the City Council. 	Yes
5	Other	45%	<ol style="list-style-type: none"> 1. Continue with actions and measures from Stage 4 except where superseded by more stringent requirements. 2. Water use shall not exceed established water budget for each customer. 3. Other measures as may be approved by resolution of the City Council. 	Yes
6	Other	55%	<ol style="list-style-type: none"> 1. Continue with actions and measures from Stage 5 except where superseded by more stringent requirements. 2. Other measures as may be approved by resolution of the City Council. 	Yes
<p>NOTES: (a) The percentages listed in this table are the cumulative savings for each shortage level with implementation of corresponding supply augmentation and other agency actions in Table 5-2. Detailed saving estimates based on end use, response action, and implementation rates can be found in Attachment 3.</p>				



Table 5-2. Supply Augmentation and Other Actions (DWR Table 8-3)

Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference
1	Other	5%	<ol style="list-style-type: none"> 1. Increase public outreach, including publishing water conservation information on the City website and promoting conservation through social media. 2. Expand outreach for existing water conservation programs.
2	Other	15%	<ol style="list-style-type: none"> 1. Continue with actions and measures from Stage 1. 2. Increase public outreach, including information regarding fines or penalties for non-compliance and distributing water bill inserts regarding landscape irrigation restrictions. 3. Expand outreach for existing water conservation programs. 4. Increase water waste patrols.
3	Other	25%	<ol style="list-style-type: none"> 1. Continue with actions and measures from Stage 2. 2. Increase public outreach. 3. Consider implementation of a drought rate structure and/or rate surcharge. 4. No new potable water service shall be provided by the City, except under the following circumstances. <ol style="list-style-type: none"> a. A valid, unexpired building permit has been issued for the project; or b. The project is necessary to protect the public's health, safety, and welfare; or c. 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 d. To provide continuation of water service or to restore service that has been interrupted for a period of one year or less.



Table 5-2. Supply Augmentation and Other Actions (DWR Table 8-3)

Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference
4	Other	35%	<ol style="list-style-type: none"> 1. Continue with actions and measures from Stage 3. 2. 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. 3. 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.
5	Other	45%	<ol style="list-style-type: none"> 1. Continue with actions and measures from Stage 4. 2. Increase water budget reduction requirements. 3. Use emergency groundwater well.
6	Other	55%	<ol style="list-style-type: none"> 1. Continue with actions and measures from Stage 5. 2. Implement other short-term emergency actions.
<p>NOTES: (a) The percentages listed in this table are the cumulative savings for each shortage level with implementation of corresponding demand reduction actions in Table 5-1. Detailed saving estimates based on end use, response action, and implementation rates can be found in Attachment 3.</p>			



5.3 Operational Changes

The WSCP lists the operational changes that East Palo Alto will implement during each stage of action including measures to: (1) reduce system losses through a reduction in line flushing and fire training exercises; (2) increase enforcement and patrols; (3) develop water budgets; and in certain conditions, (4) implement a moratorium on new services.

5.4 Additional Mandatory Restrictions

East Palo Alto has the authority to restrict or prohibit specific water use practices during water shortages (City of East Palo Alto Municipal Code 13.24, Article VI). Restrictions and prohibitions associated with each stage of action are presented in Table 5-1. As discussed above, these responses focus on the reduction of non-essential water uses such as ornamental landscape irrigation, and preserve water uses that are essential to the health, safety, welfare, and economic vitality of East Palo Alto's customers.

In addition, several mandatory prohibitions are enforced at all times to eliminate water waste within the City (see Chapter 17.04 of the City's Municipal Code). Together, the prohibitions listed in Chapter 17.04 of the City's Municipal Code and Shortage Levels 1 and 2 include each of the prohibitions on end uses mandated by the SWRCB in Executive Order B-37-16. Prohibitions in subsequent stages go beyond the SWRCB requirements and become increasingly restrictive.

5.5 Emergency Response Plan

Catastrophic supply interruptions may be caused by a regional power outage, an earthquake, or other disaster. East Palo Alto 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 East Palo Alto would follow are described in:

- SFPUC Emergency Operations Plan (EOP);
- San Mateo County's Operational Area EOP Potable Water Procurement and Distribution Annex;
- East Palo Alto's Emergency Action Plan, Fire Protection & Prevention and Critical Operations Plan (EAP), prepared by Veolia North America (City's water system contract operator); and
- East Palo Alto's Emergency Response Plan (ERP), prepared by Veolia North America (City's water system contract operator).

Actions described in the SFPUC EOP focus on maintaining flow within, and from, the RWS pipelines. The County of San Mateo's Operational Area EOP Potable Water Procurement and Distribution Annex (County of San Mateo, 2004) 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 ensuring the preparation and maintenance of appropriate and current Standard Operating Procedures, Emergency Operating Procedures, and alert lists that will support the EOP.



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East Palo Alto's Emergency Action Plan, Fire Protection & Prevention and Critical Operations Plan, guides Veolia North America's (Veolia) emergency management in an organized response to general emergencies within the City. Veolia conducts training periodically to help assure that personnel are up to date regarding the emergency response procedures. Detailed information on personnel roles, responsibilities, emergency services, communication, recovery, and reporting procedures are provided in the EAP.

East Palo Alto's Emergency Response Plan works in coordination with the EAP and includes plans and procedures that can be implemented in the event of an emergency involving the water system to lessen the impact of on the safety and supply of drinking water. The ERP details threat evaluations, site characterizations, planned public health and operational responses, public notification strategies, and remediation and recovery actions. The most recent ERP is dated 2020 and is currently being updated as required per Section 2013 of America's Water Infrastructure Act of 2018.

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.

5.6 Seismic Risk Assessment

CWC § 10632.5

(a) In addition to the requirements of paragraph (3) of subdivision (a) of Section 10632, beginning January 1, 2020, the plan shall include a seismic risk assessment and mitigation plan to assess the vulnerability of each of the various facilities of a water system and mitigate those vulnerabilities.

(b) An urban water supplier shall update the seismic risk assessment and mitigation plan when updating its urban water management plan as required by Section 10621.

(c) An urban water supplier may comply with this section by submitting, pursuant to Section 10644, a copy of the most recent adopted local hazard mitigation plan or multihazard mitigation plan under the federal Disaster Mitigation Act of 2000 (Public Law 106-390) if the local hazard mitigation plan or multihazard mitigation plan addresses seismic risk.

On behalf of the City, American Water Enterprise (prior contract operator) conducted a Risk Based Vulnerability Assessment of the City's water system in 2002, which included seismic risk. 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.

The City does not currently have any storage within its system, however is working with towards installing storage facilities. Therefore, the main seismic threat to the City are impacts to the City's distribution system and main supply source from the SFPUC RWS.

Impacts associated with earthquakes and liquefaction are discussed in the 2016 San Mateo County Hazard Mitigation Plan (County HMP; County of San Mateo, 2016). The County HMP includes a discussion of the probability of a seismic event affecting San Mateo County, citing a United States Geological Survey (USGS)

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estimate of a 63% probability of at least one 6.7 or greater magnitude earthquake before 2036 affecting the greater San Francisco Bay area. The County LHMP also includes an assessment of the County's vulnerability in the event of a major seismic event and estimates that an earthquake on the Northern San Andreas Fault of magnitude 7.8 would result in a total building damage of approximately \$39.7 billion, or 12.4% of the total assessed value for the planning area.

5.7 Shortage Response Action Effectiveness

In order to evaluate and ensure that effective actions will be implemented with the proper level of intensity, East Palo Alto employed the DRT to calculate monthly savings anticipated by implementing each stage of action as detailed below.

5.7.1 Baseline Water Use Profile

Using the DRT, East Palo Alto developed a baseline water use profile that reflected usage patterns within the City's service area by major water use sector during 2018 and was used to guide development of the WSCP. A baseline year of 2018 was selected to be consistent with the baseline year used for developing water demand projections in Chapter 4 of the UWMP. Key findings from this analysis are presented below.

Residential Per Capita Demand

As shown in Table 5-3 and associated chart, East Palo Alto's baseline residential gallons per capita per day (R-GPCD) demand in 2018 was approximately 40 R-GPCD. This R-GPCD is much lower than the BAWSCA-wide average of 61 R-GPCD and is significantly less than the statewide average of 85 R-GPCD.

Estimated Proportion of Outdoor Water Use

As shown in Table 5-4 and the associated charts, outdoor water use, which can generally be considered as a "discretionary water use", was estimated to be approximately 14% of East Palo Alto's total consumption during this baseline time period (2018).

The DRT estimates indoor water use to be equivalent to the lowest monthly water use for each sector, accounting for the number of days in each month. Outdoor water use for each sector was estimated to be the difference between the total water use and the estimated indoor water use. If East Palo Alto customers tend to irrigate more heavily during winter months, an underestimation of the proportion of outdoor water use would occur.

The proportion of outdoor water use within residential and commercial sectors is estimated to be 14%. This indicates that there is the potential to achieve moderate water savings across these sectors (e.g., nearly up to WSCP Level 2), simply by focusing on outdoor uses. If the proportion of outdoor water use is being underestimated by the DRT method, then even more substantial savings may be achieved through targeting outdoor water use. As further shown in Table 5-4 and the associated charts, the seasonal variation in baseline water use reflects increased irrigation demands during the summer and fall months. Therefore, the greatest potential for reductions in non-essential water use is expected during these months.

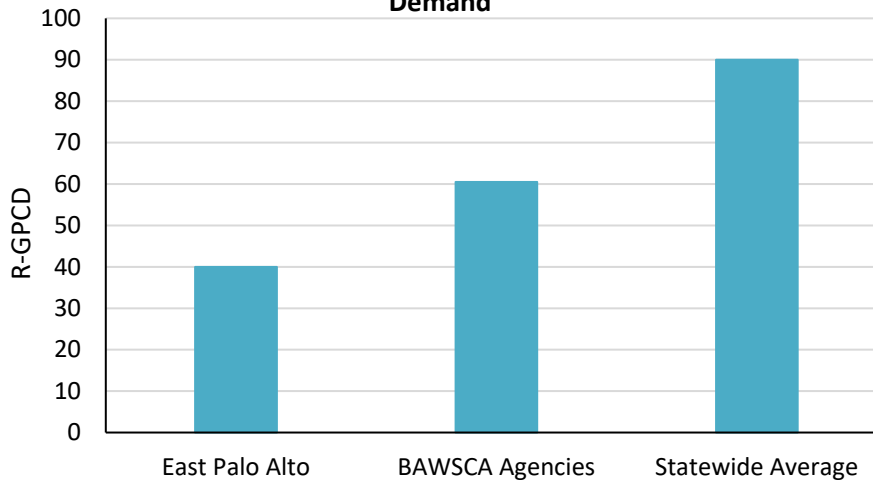


Table 5-3. Baseline Residential Per Capita Water Demand

	Baseline Residential Per Capita Water Demand (R-GPCD)
East Palo Alto (a)	40
BAWSCA Agencies (b)	61
Statewide Average (c)	85

NOTES:
 (a) East Palo Alto R-GPCD calculated using 2018 metering data.
 (b) Average BAWSCA R-GPCD calculated from data provided in BAWSCA Annual Survey FY 2018-19 (BAWSCA, 2020).
 (c) State-wide R-GPCD for 2019 obtained from data provided at California State Water Resources Control Board Water Conservation Portal - Conservation Reporting, http://www.waterboards.ca.gov/water_issues/programs/conservation_portal/conservation_reporting.shtml, accessed March 2021.

Chart 5-3 Baseline Residential Per Capita Water Demand





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Table 5-4. Baseline Water Use Profile

Sector	End-Use	Baseline (2018) Water Use													Annual % of Total by Sector	
		January	February	March	April	May	June	July	August	September	October	November	December	Annual		
Residential	Indoor (c)	27	25	27	27	27	27	27	27	27	27	27	27	27	324	87%
	Outdoor (c)	2	4	0	0	2	7	8	8	8	5	4	1	49	13%	
	<i>Subtotal Residential</i>	29	28	27	27	30	34	35	35	35	32	31	28	373	-	
CII	Indoor (c)	7	6	7	6	7	6	7	7	6	7	6	7	79	70%	
	Outdoor (c)	1	1	0	1	2	4	4	6	6	4	3	1	33	30%	
	<i>Subtotal CII</i>	8	7	7	8	9	10	11	13	13	10	10	7	112	-	
Dedicated Irrigation	Outdoor	0	0	0	0	0	0	0	0	0	0	0	0	0	100%	
Non-Revenue	Non-Revenue	6	4	9	9	13	10	12	7	2	9	5	5	89	100%	
Total	Indoor	34	31	34	33	34	33	34	34	33	34	33	34	402	70%	
	Outdoor	3	4	0	2	5	11	12	14	15	8	7	1	82	14%	
	Non-Revenue	6	4	9	9	13	10	12	7	2	9	5	5	89	15.6%	
	Total	42	39	43	43	52	54	57	55	50	51	46	40	574	-	

NOTES:

- (a) Volumes are in units of MG.
- (b) Baseline water use from City's monthly metering data for each sector.
- (c) Indoor water use was estimated to be the lowest monthly water use for each sector, accounting for the number of days in each month. Outdoor water use for each sector was estimated to be the difference between the total water use and the estimated indoor water use.



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Chart 5-4A Baseline Year Annual Water Use by Sector and End Use

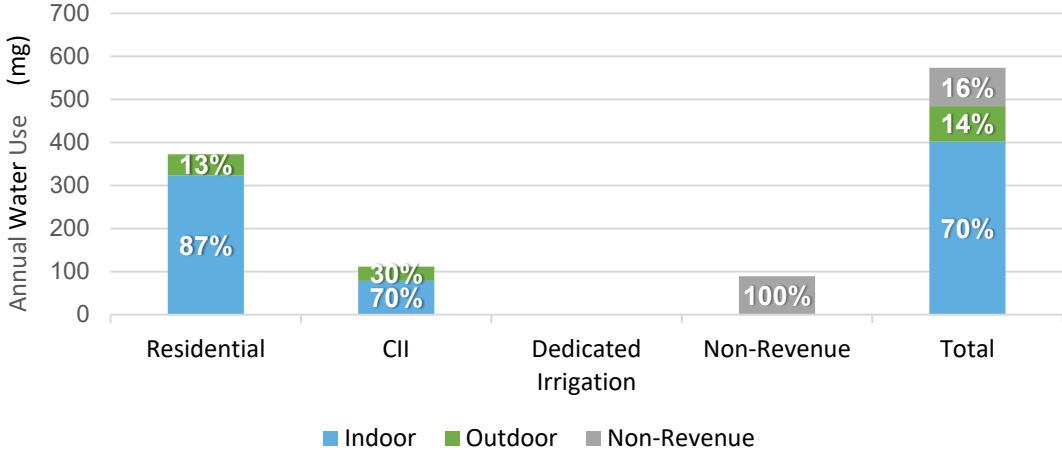
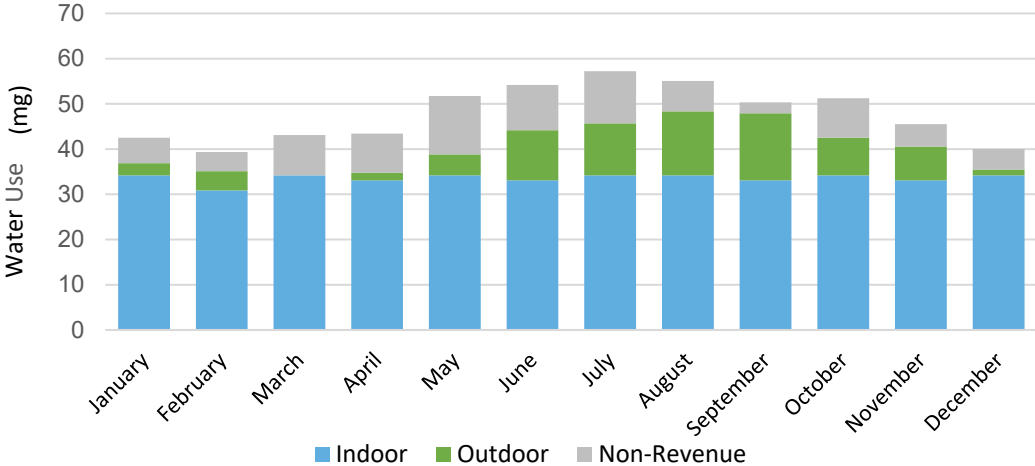


Chart 5-4B Baseline Year Monthly Indoor vs. Outdoor Water Use





5.7.2 Shortage Response Action Effectiveness

The DRT provides a quantitative framework that allows East Palo Alto to systematically estimate the monthly and cumulative annual demand reductions expected to result from particular combinations of drought response actions and associated implementation rates. Data inputs to the DRT include total production, class-specific water use, population, and assumptions regarding the split between indoor and outdoor water use for each customer class.

For each drought response action, the user specifies:

- The customer class(es) and end use(s) that are affected;
- The percent savings for that end use for each account that implements the action. These are based on evaluations reported in the literature; and
- The percentage of accounts assumed to implement the action, which is presumed to be the result of the intensity level of East Palo Alto's program implementation, including but not limited to, marketing and enforcement activities.

An additional critical DRT user input is a set of constraints on demand reductions to ensure that usage levels do not endanger health and safety or result in unacceptable economic impacts. The DRT will not permit estimated usage reductions to violate these constraints, regardless of the demand reduction actions selected. The constraints are:

- A minimum residential indoor per capita daily usage of 25 gallons,
- A maximum residential outdoor usage reduction of 100%,
- A maximum CII indoor usage reduction of 30%,
- A maximum CII outdoor usage reduction of 100%,
- A maximum dedicated irrigation usage reduction of 100%, and
- A maximum non-revenue water usage reduction of 50%.

Based on the foregoing data, the DRT model calculates the resulting monthly savings. East Palo Alto adjusted the combination of actions and implementation levels to achieve the targeted savings levels at each of the six stages of action.

For each of the stages of action, the modeling targeted the mid-range of the required demand reduction range, ergo:

- 5% for Stage 1,
- 15% for Stage 2,
- 25% for Stage 3,
- 35% for Stage 4,
- 45% for Stage 5, and
- 55% for Stage 6.

East Palo Alto's shortage response actions are summarized in Table 5-1 and Table 5-2. Key DRT inputs and outputs for each of the stages of action are reproduced in Attachment 3, including the water shortage reduction actions, savings assumptions, and implementation rates that are required for East Palo Alto to

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achieve the required annual demand reductions for each of the six stages of action. At each stage, there are two types of demand-reduction actions identified:

- Restrictions on customer water usage; and
- Consumption reduction actions by East Palo Alto to encourage decreased water usage.

Many actions are implemented across a number of stages, some at increasing implementation levels. Therefore, the actions in Table 5-1 and Table 5-2 are listed as a row under the first stage at which they are implemented. The percentages shown in the tables represent savings of the end uses.



6. COMMUNICATION PROTOCOLS

CWC § 10632 (a) (5)

Communication protocols and procedures to inform customers, the public, interested parties, and local, regional, and state governments, regarding, at a minimum, all of the following:

(A) Any current or predicted shortages as determined by the annual water supply and demand assessment described pursuant to Section 10632.1.

(B) Any shortage response actions triggered or anticipated to be triggered by the annual water supply and demand assessment described pursuant to Section 10632.1.

(C) Any other relevant communications.

Each stage of the WSCP is implemented with a formal declaration by the East Palo Alto City Council upon the determination that either: (1) the SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use due to a water supply shortage or emergency, or (2) local conditions impacting the quantity or quality of the City's water supply warrant the need for a reduction in water use. Procedures for water shortage declaration and termination are detailed below in Section 6.1.1.

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, East Palo Alto customers will be provided with notice of water shortage rules and regulations via a variety of media and communications methods (e.g., citywide electronic newsletter, City Council meetings, social media, etc.).

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. Communication and public outreach actions to be taken by the City under each shortage level are detailed in Table 5-2.

6.1.1 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%.

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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. COMPLIANCE AND ENFORCEMENT

CWC § 10632 (a) (6) For an urban retail water supplier, customer compliance, enforcement, appeal, and exemption procedures for triggered shortage response actions as determined pursuant to Section 10632.2.

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 7-1.

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.

Table 7-1 Enforcement of Water Use Restrictions and Prohibitions

Violation	Enforcement Action or Penalty
1 st	Courtesy notice
2 nd	\$50 fine
3 rd	\$100 fine
4 th	\$200 fine and installation of flow restriction device
5 th	Termination of water service, which includes a one hundred dollars (\$100.00) charge.



8. LEGAL AUTHORITIES

CWC § 10632 (a) (7)

(A) A description of the legal authorities that empower the urban water supplier to implement and enforce its shortage response actions specified in paragraph (4) that may include, but are not limited to, statutory authorities, ordinances, resolutions, and contract provisions.

(B) A statement that an urban water supplier shall declare a water shortage emergency in accordance with Chapter 3 (commencing with Section 350) of Division 1.

(C) A statement that an urban water supplier shall coordinate with any city or county within which it provides water supply services for the possible proclamation of a local emergency, as defined in Section 8558 of the Government Code.

CWC § 10632.3

It is the intent of the Legislature that, upon proclamation by the Governor of a state of emergency under the California Emergency Services Act (Chapter 7 (commencing with Section 8550) of Division 1 of Title 2 of the Government Code) based on drought conditions, the board defer to implementation of locally adopted water shortage contingency plans to the extent practicable.

As discussed above, the City Council has the authority per Municipal Code 13.24, Article VI to order implementation of water conservation measures in addition to those included in the WSCP. Municipal Code 13.24, Article VI are included as Attachment 1 of this WSCP.

In the event of a local water shortage emergency, the City shall coordinate with San Mateo County within which it provides water supply services for the possible proclamation of a local emergency under California Government Code, California Emergency Services Act (Article 2, Section 8558).

Contact Information: County of San Mateo
Address: 400 County Center, Redwood City, CA 94063
Phone: (650) 363-4000

East Palo Alto is a member of BAWSCA and anticipate coordinating with other Member Agencies via BAWSCA during a water shortage or emergency on the SFPUC RWS.



9. FINANCIAL CONSEQUENCES OF WSCP

CWC § 10632 (a) (8)

A description of the financial consequences of, and responses for, drought conditions, including, but not limited to, all of the following:

(A) A description of potential revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).

(B) A description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).

(C) A description of the cost of compliance with Chapter 3.3 (commencing with Section 365) of Division 1.

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 and other variable system fees and payments, 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.

Specifically, the City's water rate components were designed to collect 80% of operating revenues through variable rate charges while approximately 65% of system expenses are considered variable. For each 10% reduction in annual consumption billed, the water system experiences an estimated 1.5% shortfall or approximately \$110,000. The City does not maintain specific rate stabilization reserves under a current service concession lease arrangement described below; however, the City Water Enterprise does maintain approximately \$2.0M in emergency and other operational reserves.

System rate increases of 1.5% rate are scheduled each July 1st through July 1, 2023 and a rate pass-through is approved in the event SFPUC increases wholesale rates due to drought or other conditions. The City will pass-through a commodity rate increase upon an increase in supplier wholesale water rates.

The City is in a service concession arrangement whereby the City leases the water system to a third-party operator (Veolia). The terms of the lease are currently under an amendment period; however, under current lease terms, Veolia is responsible for operating, maintaining, and managing the water system. Veolia may request increased water rates in order to recover necessary and reasonable costs related to performing water system services, including earning an operational rate of return. As such, Veolia may request drought surcharge or other rate increases under all Shortage Level conditions.

Upon a formal rate increase request by Veolia, the City will implement a Proposition 218 rate process to implement a drought surcharge rate and/or other system rate increase. Additionally, the City may consider the following:

- Shortage Level 1 conditions: Utilize City system reserves for a period up to twelve months prior to implementing drought surcharge or other system rates, and also coordinate with Veolia to defer and reduce system expenses during the drought period to the extent practicable.



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- Shortage Level 2 conditions: Utilize City system reserves for a period up to six months prior to implementing drought surcharge or other system rates and also coordinate with Veolia to defer and reduce system expenses during the drought period to the extent practicable.
- Shortage Level 3-6 conditions: Implement drought surcharge rates and/or adjust fixed readiness to serve charges and also coordinate with Veolia to defer and reduce system expenses during the drought period to the extent practicable.

Under each Shortage Level condition, Veolia will provide operational funding necessary until drought surcharge or other rates are implemented, unless City approves a drawdown of system reserves as described above. The City's capital expenditures are funded through separate, non-leveraged, capital surcharges and federal grant programs. The City will adjust capital implementation plans accordingly, or under Shortage Levels 2-6, will consider adjusting capital surcharge rates to ensure cash flow stability in capital program funding. In the event the City leverages the capital surcharges to fund capital improvements, the City will implement rates necessary to ensure adequate debt requirements are met.



10. MONITORING AND REPORTING

CWC § 10632 (a) (9) For an urban retail water supplier, monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance and to meet state reporting requirements.

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, 5, and 6 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.



11. WSCP REFINEMENT PROCEDURES

CWC § 10632 (a) (10) *Reevaluation and improvement procedures for systematically monitoring and evaluating the functionality of the water shortage contingency plan in order to ensure shortage risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented as needed.*

The City will monitor its water consumption and apply the necessary demand reduction actions to achieve its reduction goals. If the results indicate that these goals are not being attained, then the City will implement additional demand reduction actions. However, if significant additional demand reduction actions are required that are outside of the current shortage level or if new actions (i.e. actions not listed in Table 5-2) becomes necessary, the City will revise this WSCP. The City will consider new demand reduction actions proposed by other city staff, water customers, and/or other interested parties. These actions will go through the same evaluation process as the actions listed in Table 5-2, including usage of the Drought Response Tool to quantify the estimated water savings. New actions that demonstrate to be highly effective in achieving the desired water reduction goals will be prioritized.

Minor updates to the WSCP will be approved by the Public Works Director and significant updates (e.g. new water waste restrictions) will be approved by the City Council. This is to ensure that new minor actions can be implemented quickly at the appropriate water shortage level and avoid delays while recognizing that additional citywide water waste restrictions should be discussed publicly and approved by the City Council.

Below are the steps that the City will take if it determines that the WSCP should be revised:

1. Develop a document that outlines the proposed changes to the WSCP for management review.
2. Public Works Director will review document and provide comments and/or direction for City staff. Public Works Director will also determine if the revised WSCP should be presented to the City Council as an update or if it requires their approval through a resolution. Staff will incorporate the edits and will prepare a revised WSCP including the date of revision. If City Council approval is needed, staff will also prepare a staff report and resolution.
3. City staff will keep a record of all current and previous versions of the WSCP. Staff will also update the City website with the most recent version of the WSCP and at any other location where the WSCP is posted.



12. SPECIAL WATER FEATURE DISTINCTION

CWC § 10632 (b)

For purposes of developing the water shortage contingency plan pursuant to subdivision (a), an 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.

For purposes of the Water Shortage Contingency Plan, the City defines special water features as objects that are artificially supplied with water, such as ponds, lakes, waterfalls, and fountains. Special water features do not include recreational water features, such as swimming pools and spas as defined in subdivision (a) of Section 115921 of the Health and Safety Code. Prohibitions on water use for special water features are listed separately from those that are recreational water features (Table 5-1).



13. PLAN ADOPTION, SUBMITTAL, AND AVAILABILITY

CWC § 10632 (c) *The urban water supplier shall make available the water shortage contingency plan prepared pursuant to this article to its customers and any city or county within which it provides water supplies no later than 30 days after adoption of the water shortage contingency plan.*

East Palo Alto has informed the public and the appropriate agencies of: (1) its intent to prepare a WSCP, (2) where the WSCP was available for public review, and (3) when the public hearing regarding the WSCP would be held. All notifications were completed in compliance with the stipulations of Section 6066 of the Government Code.

A copy of the adopted 2020 WSCP including any amendments will be provided to the Department of Water Resources (DWR), the California State Library, San Mateo County, and SFPUC within 30 days of the adoption (Attachment 4). An electronic copy of the adopted 2020 WSCP will be submitted to the DWR using the DWR online submittal tool.

A copy of the adopted 2020 WSCP will be available for public review in City Hall during normal business hours and on the East Palo Alto website within 30 days after filing the plan with DWR.

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14. REFERENCES

BAWSCA, 2020. *Bay Area Water Supply and Conservation Agency Annual Survey FY 2018-19*, March 2020.

County of San Mateo, 2004. *San Mateo County/Operational Area Emergency Operations Plan, Potable Water Procurement and Distribution Annex, 3rd Edition*, July 2004.

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ATTACHMENT 1
CITY OF EAST PALO ALTO'S MUNICIPAL CODE 13.24, ARTICLE VI

Article VI. - Conservation Plan

13.24.220 - Definitions.

The following words, terms and phrases, when used in this chapter, shall have the meaning ascribed to them in this section, except where the context clearly indicates a different meaning:

"Excess runoff" means water accumulation on streets, gutters, neighboring properties or other surfaces in an amount to cause flow.

"New development" means any addition, extension, conversion or enlargement of an existing structure or any new construction requiring a building permit.

"Water user" means any person, customer or property served within the incorporated boundaries of the city and the area outside the city boundary served by the city water department.

(Ord. 253 § 6.1, 2001)

13.24.230 - Application.

This chapter shall apply to all water users.

(Ord. 253 § 6.2, 2001)

13.24.240 - Water user responsibility.

Water users are deemed to have under control at all times their water distribution facilities and to know the manner and extent of their water use and excess runoff. In multiple dwellings, the owner is the water user in control of the premises and is in control and responsible for water usage.

(Ord. 253 § 6.3, 2001)

13.24.250 - Phase I shortages.

A phase I shortage is declared and conservation measures listed in this section are implemented when the city engineer declares a drought condition or the city of San Francisco formally notifies the city the supply from the Hetch Hetchy watershed has been reduced by at least twenty percent (20%). No water user within the city and the service area of the city water department shall knowingly make, cause use or permit the use of water for residential, commercial, industrial, agricultural or any other purpose in a manner contrary to this chapter or in any amount in excess of that use permitted by the conservation stages designated in this chapter. The conservation methods are as follows:

- A. No water user shall cause or permit any water furnished to any property within the city and the city water department service area to run or to escape from any hose, pipe, valve, faucet, sprinkler or irrigation device onto any sidewalk, street or gutter or to otherwise escape from the property if such running or escaping can reasonably be prevented. If a break or leak occurs within the customer's plumbing or private distribution system, it shall be presumed that a period of forty-eight (48) hours after the consumer discovers such a break or leak or receives notice from the city water department of such a break or leak, whichever occurs first, is a reasonable time within which to correct such a break or leak. If such a break or leak is not corrected after forty-eight (48) hours, it will be a violation of this chapter.
- B. Commercial and noncommercial watering of grass, lawns groundcover, open ground, shrubbery, crops, gardens and trees, including agricultural irrigation, in a manner or to an extent which allows substantial amounts of excess water to run off the area being watered is not permitted. A minimum amount of runoff that is a natural consequence of

conservation watering, either by hand or mechanical sprinkling facilities is permitted so long as such runoff is not excess as defined.

- C. Lawn watering, landscape irrigation and watering of public and private recreation facilities are to be done only between six p.m. and eight a.m. If a hand-held hose or drip irrigation system is used, watering may be done at any time.
- D. Agricultural water users and commercial nurseries shall conduct watering between six p.m. and eleven a.m. If a hand-held hose or drip irrigation system is used, watering may be done at any time. Watering of livestock is permitted at any time.
- E. There shall be no washing down of sidewalks, walkways, driveways, parking lots and other paved surfaces, except to alleviate immediate health, fire or sanitary hazards.
- F. Restaurants may not serve water to their customers, except on specific request of the customer.
- G. It is unlawful to remove, replace, alter or damage any water meter or any components thereof, including, but not limited to, the meter face, its dials or other water usage indicators and any flow-restricting devices installed.
- H. Water from fire hydrants is not used for any purpose other than to fight fires or for other activities where such use is immediately necessary to maintain the health, safety and welfare of the residents of the city and customers of the city water system.
- I. Schools, golf courses, governmental agencies, city parks and cemeteries, public or private, may be required to submit a copy of a water conservation plan and landscape irrigation schedules.
- J. Washing of motor vehicles, trailers, boats and other equipment is done only with a hand-held bucket, or hose equipped with a positive shut-off nozzle for quick rinse, except that washing may be done with reclaimed wastewater or by a commercial car wash using recycled water.
- K. No water is used to clean, fill or maintain levels in decorative fountains, ponds, lakes or other similar aesthetic structures, unless such water is part of a recycling system.
- L. The filling or replenishment of swimming pools is permitted, but the property owner will be liable for any use of allotted water in excess of the phase II or phase III requirements.
- M. The owner and operator of every hotel, motel, inn, guesthouse and short-term commercial lodging shall post a notice of water shortage and any necessary compliance measures.

(Ord. 253 § 6.4, 2001)

13.24.260 - Phase II shortages.

- A. A phase II shortage is declared by the city engineer and the following conservation measures are implemented when the city of San Francisco notifies the city the Hetch Hetchy watershed has been reduced by at least forty percent (40%):
 - 1. Conservation measures listed for a phase I shortage are in effect, except that the restrictions on watering lawns, landscapes and other turf area are modified to limit the watering only once every third day between the hours of six p.m. and six a.m.
 - 2. Agricultural and commercial nurseries and golf courses are prohibited from watering lawns, landscapes, or commercial stocks more often than every other day and between the hours of ten a.m. and six p.m., except that there is no restriction of watering utilizing reclaimed wastewater.
- B. No customer whose water is supplied by the city shall make, cause, use or permit the use of water for any purpose in an amount in excess of ninety percent (90%) of the amount of use on the customer's premises during the corresponding billing period during the prior calendar year.
- C. Single-family residential customers supplied water by the city are not required to reduce consumption below fifteen (15) billing units per month during phase II.

(Ord. 253 § 6.5, 2001)

13.24.270 - Phase III shortages.

- A. A phase III shortage is declared by the city engineer and the following conservation measures are implemented when the city of San Francisco notifies the city the Hetch Hetchy watershed has been reduced by at least sixty percent (60%):
1. Conservation measures listed for a phases I and II shortages are in effect, except that there is no watering of residential lawns, landscaping and other turf areas at any time except by bucket
 2. Agricultural, commercial nurseries, golf courses, parks and other public open spaces and commercial landscaped areas are prohibited from watering more often than every third day and between the hours of ten a.m. and six p.m., except that there is no restriction on watering using reclaimed wastewater.
- B. No customer whose water is supplied by the city shall make, cause, use or permit the use of water for any purpose in an amount in excess of eighty percent (80%) of the amount of use on the customer's premises during the corresponding billing period during the prior calendar year.
- C. Single-family residential customers supplied water by the city are not required to reduce consumption below ten billing units per month during phase III.

(Ord. 253 § 6.6, 2001)

13.24.280 - Exceptions and relief from compliance.

- A. A water user may file an application for relief from this chapter. The city engineer shall develop such procedures as he/she considers necessary to resolve such applications in accordance with the terms of this section and shall, upon the filing by a water user of an application for relief, take such steps as he/she deems reasonable to resolve the application for relief. The city engineer may delegate his/her duties and responsibilities under this section as appropriate.
- B. The application for relief may include a request that the water user be relieved, in whole or in part, from the water use curtailment of this chapter.
- C. In determining whether to grant relief and the nature of any relief, the city engineer shall take into consideration the following:
1. Whether any additional reduction in water consumption will result in unemployment;
 2. Whether additional members have been added to the household;
 3. Whether any additional landscaped property has been added to the property since the corresponding billing period of the prior calendar year;
 4. Changes in vacancy factors for multi-family housing;
 5. Increased numbers of employees in commercial, industrial and governmental offices;
 6. Increased production requiring increased process water;
 7. Water uses during construction;
 8. Adjustments to water use caused by emergency health and safety hazards;
 9. First filling of a permit-constructed swimming pool; and
 10. Water use necessary for reasons related to family illness or health.
- D. In order to be considered, an application for relief must be in writing, filed with the city engineer within twenty (20) days from the date the provision from which relief is sought becomes applicable to the applicant. No relief is granted unless the water user shows that he/she has achieved the maximum practical reduction in water consumption other than in the specific areas in which relief is being sought. No relief is granted to any water user who, when requested by the city engineer, fails to provide any information necessary for resolution of the water user's application for relief. The decision is issued within fifteen (15) days and provided to the water user.

(Ord. 253 § 6.7, 2001)

13.24.290 - Notices and penalties.

The city will impose the following penalties to consumers in violation of this chapter:

- A. The city water department shall give violators of this chapter a courtesy notice of the violation. Upon second and subsequent violations, the violator shall receive a citation and fine, respectfully.
- B. The first citation shall specify the nature of the violation, the date on which it occurred and the corrective action taken. Upon a second citation, the water user is charged with an infraction and is subject to the following fines:
 1. For the first violation, fifty dollars (\$50.00);
 2. For the second violation, one hundred dollars (\$100.00);
 3. For the third violation, two hundred dollars (\$200.00), along with the installation of a flow restrictor at the customer's expense. A third violation constitutes a misdemeanor;
 4. For a fourth violation, termination of water service. The charge for water service termination and restoration is one hundred dollars (\$100.00).
- C. For each violation by any water user of the water use curtailment provisions of this section, a surcharge is imposed in an amount equal to twenty-five percent (25%) of the portions of the water bill that exceed the respective percentages. This surcharge is paid to the city and is deposited in the water revenue fund as partial payment for the water department's conservation plan for that user.

(Ord. 253 § 6.8, 2001)

13.24.300 - Hearing regarding violations.

- A. Any water user receiving notice of a second or subsequent violation of this chapter shall have a right to a hearing by the city engineer.
- B. The water user's written request for a hearing must be received within ten days of the issuance of the notice of violation. This request shall stay installation of a flow-restricting device on the water user's premises and the imposition of any surcharge until the city engineer renders his/her decision. His/her decision is issued within fifteen (15) days after the hearing, and a copy is provided to the water user.
- C. The decision of the city engineer may be appealed to the city manager by the water user filing with the city manager a written request within fifteen (15) days of receipt of the decision from the city engineer. Filing of such a request stays the implementation of any surcharge or installation of a flow-restrictor.
- D. The appeal hearing will be scheduled to occur within a reasonable period of time following the filing of the appeal. No formal rules of evidence apply. All evidence customarily relied upon by reasonable persons in the conduct of serious business affairs will be allowed, and the water user may present any such evidence which shows the alleged wasteful water use has not occurred. The decision of the city manager will be given in writing to the water user within fifteen (15) days after the appeal hearing, and that decision is final.

(Ord. 253 § 6.9, 2001)

13.24.310 - Additional measures.

The city council may order implementation of water conservation measures in addition to those set forth in this chapter. Such additional measures are implemented by resolution published one time in a daily newspaper of general circulation covering the service area of the city water department. Any prohibitions on the use of water shall become effective immediately upon publication. The application of surcharges shall commence one month after the date the curtailment becomes effective.

(Ord. 253 § 6.10, 2001)

13.24.320 - Effect on public health and safety.

Nothing in this chapter is construed to require the city engineer to curtail water to any user when such water is required by that customer to maintain an adequate level of public health and safety. The rights of the city under this chapter are in addition to any other rights of the city under any other applicable laws.

(Ord. 253 § 6.11, 2001)



ATTACHMENT 2
ANNUAL WATER SUPPLY AND DEMAND ASSESSMENT PROCEDURES

ANNUAL WATER SUPPLY AND DEMAND ASSESSMENT PROCEDURES

Each year the SFPUC evaluates the amount of total water storage expected to occur throughout the RWS and compares it to expected demands. This annual Water Supply and Demand Assessment (WSDA) is described in the subsections below, which are organized by the sequential steps the SFPUC takes to conduct the assessment each year and reference the relevant California Water Code requirements for a WSDA.¹

The SFPUC's annual WSDA is a robust planning system that considers a range of input factors unique to the SFPUC's water supplies and system configuration while also providing the flexibility to consider new factors. Traditional surface water supplies from the SFPUC's up country, East Bay, and Peninsula reservoirs are the backbone of the water supply, but the SFPUC extends and protects those supplies in many additional ways by: (1) partnering with the community to help save water through robust conservation programs; (2) minimizing the need for additional water to serve new developments through an onsite water reuse program; (3) recycling wastewater resources to deliver water for large non-potable uses; (4) utilizing local groundwater supplies to supplement surface water supplies; (5) investigating new, alternative water supply options such as purified water and desalination; and (6) investing in innovations that allow for creative solutions to meet diverse needs. These efforts help the SFPUC conserve water and diversify supplies to reduce likelihood of a water shortage condition.

1.1 DEMAND ASSESSMENT [WATER CODE SECTION 10632(A)(2)(B)(I)]

To calculate unconstrained customer demand for the purpose of an annual WSDA, the SFPUC collects information on both the retail and wholesale system demands. Retail customer demand is estimated based on the best available information to date, and typically includes the previous year's demands as well as consideration of current demand use patterns or other conditions impacting demands, such as weather and growth. Each year, in February, the SFPUC receives from BAWSCA a report of estimated Wholesale Customer demand for the upcoming year. BAWSCA typically estimates unconstrained demands for the Wholesale Customers by using total water purchased by those customers in the prior year along with other relevant information. Relatively small demands from the two additional wholesale customers not part of the WSA are estimated based on the best available information to date, and typically includes the previous year's demands as well as consideration of current demand use patterns or other conditions impacting demands, such as weather and growth.

1.2 SUPPLY ASSESSMENT [WATER CODE SECTIONS 10632(A)(2)(B)(II) AND 10632(A)(2)(B)(V)]

The RWS collects water from the Tuolumne River watershed in the Sierra Nevada and from local reservoirs in the Alameda and Peninsula watersheds. The RWS draws an average of 85 percent of its supply from the Tuolumne River watershed. This water feeds into an aqueduct system delivering water 167 miles by gravity to Bay Area reservoirs and customers. The remaining RWS supply is drawn from local surface waters in the Alameda and Peninsula watersheds. The split between these resources varies from year to year depending on the water year hydrology and operational circumstances.

To project and evaluate water supply conditions, the SFPUC uses measurements of precipitation and snowpack in the watersheds above Hetch Hetchy, Cherry, and Eleanor Reservoirs. Snowpack conditions are evaluated regularly by the Cooperative Snow Survey (conducted by the SFPUC in partnership with state and federal agencies) beginning in late January of each year. The SFPUC also estimates snowpack conditions using information from airborne snow observatory (ASO) and other sources. The SFPUC maintains a hydrologic model

¹ California Water Code section 10632(a)(1) requires "the analysis of water supply reliability conducted pursuant to Section 10635." Additional information about the SFPUC's water supply reliability analysis can be found in Chapter 7 of the SFPUC's 2020 UWMP.

8. SFPUC DRAFT Water Supply and Demand Assessment Procedures

of the watersheds that uses this information to project expected runoff for the coming year. This process also includes a statistical analysis of additional expected precipitation. In addition to projected runoff, the determination of projected available water supply also takes into account stored water throughout the RWS, water acquired by the SFPUC from non-SFPUC sources, inactive storage, reservoir losses, and allowances for carryover storage.

Additionally, the SFPUC accounts for groundwater provided by the San Francisco Groundwater Supply Project for the in-City retail system and recycled water provided for irrigation at Harding Park, Fleming and Sharp Park Golf Courses.

The RWS relies on precipitation and snowmelt captured and stored in its reservoirs. During droughts, water supply deliveries can exceed inflows, such that water stored in previous years is relied upon to meet demands. Because of the importance of carry-over storage, the SFPUC constantly monitors and evaluates water supply conditions in the RWS. Look-ahead forecasts are updated as a year's hydrology and operations change. Generally, in early winter of any year, SFPUC staff can begin providing a forecast of water supply conditions for the upcoming year based on known and anticipated winter and spring precipitation and snowpack. The predictive power of this forecast improves greatly through the spring. The annual precipitation, snowmelt, and carry-over storage together constitute the SFPUC's reservoir storage condition. Using data for each of these factors, the SFPUC can determine whether the reservoir system will be capable of serving full deliveries to its customers. Section 1.3 describes the system modeling SFPUC conducts

Table 0-1 shows the availability of RWS supplies for retail customers and Wholesale Customers in normal years. Table 0-2 shows the current and projected RWS supply needs to meet retail and wholesale demands based on information and projections presented in the SFPUC's 2020 UWMP.

The SFPUC sells water to 26 of its 28 wholesale customers under the terms of the 25-year contract known as the Water Supply Agreement between the City and County of San Francisco and Wholesale Customers in Alameda County, San Mateo County, and Santa Clara County (WSA) and associated individual water sales contracts with each Wholesale Customer. The WSA carries forward the SFPUC's "Supply Assurance" of 184 million gallons per day (mgd) to the Wholesale Customers. The SFPUC has agreed to deliver water to the Wholesale Customers up to the amount of the Supply Assurance, and this agreement is perpetual and survives the expiration of the WSA. The Supply Assurance is, however, subject to reduction due to water shortage, drought, scheduled RWS maintenance activities, and emergencies. The WSA also describes the temporary limitation on water sales established by the Phased Water System Improvement Plan (WSIP) in 2008. This "Interim Supply Limitation" (ISL) limits water sales from the RWS to an average annual amount of 265 mgd. The WSA allocations the ISL between the SFPUC's retail customers and Wholesale Customers as follows:

- Wholesale supply allocation: 184 mgd
- Retail supply allocation: 81 mgd²

Table 0-1. Regional Water System Supply Availability in Normal Years (mgd)

RWS Supply Allocation	Actual	Projected				
	2020	2025	2030	2035	2040	2045
Retail Customers ^{a, b}	81	81	81	81	81	81
Wholesale Customers ^{c, d}	184	184	184	184	184	184

² Groveland CSD is considered a retail customer of the SFPUC. Thus, RWS supplies to Groveland CSD are accounted for in the retail supply allocation of 81 mgd.

8. SFPUC DRAFT Water Supply and Demand Assessment Procedures

Total RWS Supplies	265	265	265	265	265	265
a	Groundwater and recycled water are assumed to be used before RWS supplies to meet retail demand. However, if these alternative supplies are not available, up to 81 mgd of RWS supply could be used in normal years.					
b	Groveland CSD is reported as a wholesale customer for the purposes of this 2020 UWMP, but it is considered a retail customer of the SFPUC solely for purposes of allocating RWS supplies between retail and Wholesale Customers. Its demands would be met by the retail supply allocation of 81 mgd.					
c	Projected Wholesale Customer deliveries are limited to 184 mgd, including the demands of the Cities of San Jose and Santa Clara, which are supplied on a temporary and interruptible basis, with their total supply not exceeding 9 mgd assuming supply is available (decision to be made by end of 2028).					
d	Cordilleras MWC is not a party to the WSA, and it is not included in the wholesale supply allocation of 184 mgd. The demands of Cordilleras MWC are minor (projected to be less than 0.01 mgd) and are anticipated to be met with RWS supplies through 2045.					

Table 0-2. Regional Water System Supply Utilized in Normal Years (mgd)

RWS Supply Allocation	Actual	Projected				
	2020	2025	2030	2035	2040	2045
Retail Customers ^{a, b}	66.5	67.2	67.5	68.6	70.5	73.7
Wholesale Customers ^{c, d}	132.1	146.0	147.9	151.9	156.3	162.8
Total RWS Supplies	198.6	213.2	215.4	220.5	226.8	236.5
a	Groundwater and recycled water are assumed to be used before RWS supplies to meet retail demand. However, if these alternative supplies are not available, up to 81 mgd of RWS supply could be used in normal years.					
b	Groveland CSD is reported as a wholesale customer for the purposes of this 2020 UWMP, but it is considered a retail customer of the SFPUC solely for purposes of allocating RWS supplies between retail and Wholesale Customers. Its demands would be met by the retail supply allocation of 81 mgd.					
c	Projected Wholesale Customer deliveries are limited to 184 mgd, including the demands of the Cities of San Jose and Santa Clara, which are supplied on a temporary and interruptible basis, with their total supply not exceeding 9 mgd assuming supply is available (decision to be made by end of 2028).					
d	Cordilleras MWC is not a party to the WSA, and it is not included in the wholesale supply allocation of 184 mgd. The demands of Cordilleras MWC are minor (projected to be less than 0.01 mgd) and are anticipated to be met with RWS supplies through 2045.					

1.3 INFRASTRUCTURE CONSIDERATIONS [WATER CODE SECTION 10632(A)(2)(B)(III)]

On an ongoing basis, the SFPUC's Hetch Hetchy Water and Power, Water Supply and Treatment Division, and Hydrology and Water Systems group conduct analyses of the RWS that incorporate planned facility outages and multiple levels of projected system demands to evaluate and plan for potential water delivery constraints. These groups meet quarterly to share plans and coordinate how facility outages, changes in service area demand, wet or dry weather, and other variables shape the operating plans each year. Facility outages due to maintenance or upgrades are coordinated in an adaptive manner to respond to changes as they occur. For new water supplies or new capital projects related to supply distribution, impacts on the system are evaluated extensively prior to initiation of any changes. Results from these modeling efforts are considered in the annual WSDA.

1.4 SYSTEM MODELING [WATER CODE SECTION 10632(A)(2)(B)(IV)]

To proactively plan for conditions that would result in a shortage of water supplies, the SFPUC models conditions using a hypothetical drought that is more severe than what the RWS has historically experienced. This drought sequence is referred to as the "design drought" and serves as the basis for planning and modeling of future scenarios. The design drought consists of an 8.5-year sequence of dry conditions.

8. SFPUC DRAFT Water Supply and Demand Assessment Procedures

In applying its water supply planning methodology, the SFPUC performs an initial model simulation of the system for the design drought sequence and then reviews the ability of the system to deliver water to the service area through the entire design drought sequence. If the projected water supply runs out before the end of the design drought sequence in the initial model run, system-wide water supply rationing is added and the scenario is re-run. This process continues iteratively until a model simulation of the system is achieved in which the water supply in storage at the end of the design drought sequence is brought to the system “dead pool,” where no additional storage is available for delivery (currently simulated as 96,775 acre-feet). Drawing system storage down to the dead pool without going below it indicates that water supply delivery, including the adjusted amount of rationing, is maintained through the design drought sequence.

Estimated rationing levels and corresponding storage threshold values can then be used to simulate the operation of the system through the historical record of hydrology, or to evaluate system water supply conditions during an ongoing drought. While the design drought sequence does not occur in the historical hydrology, the rationing and storage threshold values that are adjusted to allow a system configuration to maintain water delivery through the design drought sequence can be used to evaluate system performance in the historical record, or as a comparison for real-time system conditions. Through use of this planning method, the SFPUC can simulate a response to declining water supply in storage that is appropriate for the system conditions being evaluated.

The SFPUC plans its water deliveries using indicators for water supply rationing that are developed through analysis with the design drought sequence. As a result, the SFPUC system operations are designed to provide sufficient carry-over water in SFPUC reservoirs to continue delivering water, although at reduced levels, during multiple-year droughts.

1.5 DECISION-MAKING PROCESS [WATER CODE SECTION 10632(A)(2)(A)]

Regardless of the expectation of shortage conditions, as part of the normal course of business, the SFPUC provides a water supply condition update to its executive team every two weeks throughout the year. The SFPUC also provides water supply estimates to its Wholesale Customers on a monthly basis beginning February 1. A Wholesale Customer Annual Meeting is held in the last week of February at which the SFPUC makes a presentation on current water supply conditions and forecasts. The last snow survey of the season typically occurs within the first week of April, followed by a runoff forecast to determine total system storage expected as of July 1. By the middle of April, the SFPUC sends a formal letter to the Wholesale Customers summarizing the water supply availability for the coming year.

If the RWS appears incapable of meeting system-wide demand due to drought, the SFPUC is expected to declare a water shortage by March 31 of that drought year. The General Manager, or designee, is responsible for declaring such a shortage. A presentation would be made to the Commission as part of the General Manager’s report, showing conditions of precipitation to date, snowpack, and storage levels with more information as necessary depending on the particulars of the supply forecast. Depending on the level of shortage, the Commission may adopt a resolution declaring a water shortage emergency under the California Water Code, or lesser actions such as a call for voluntary conservation efforts.

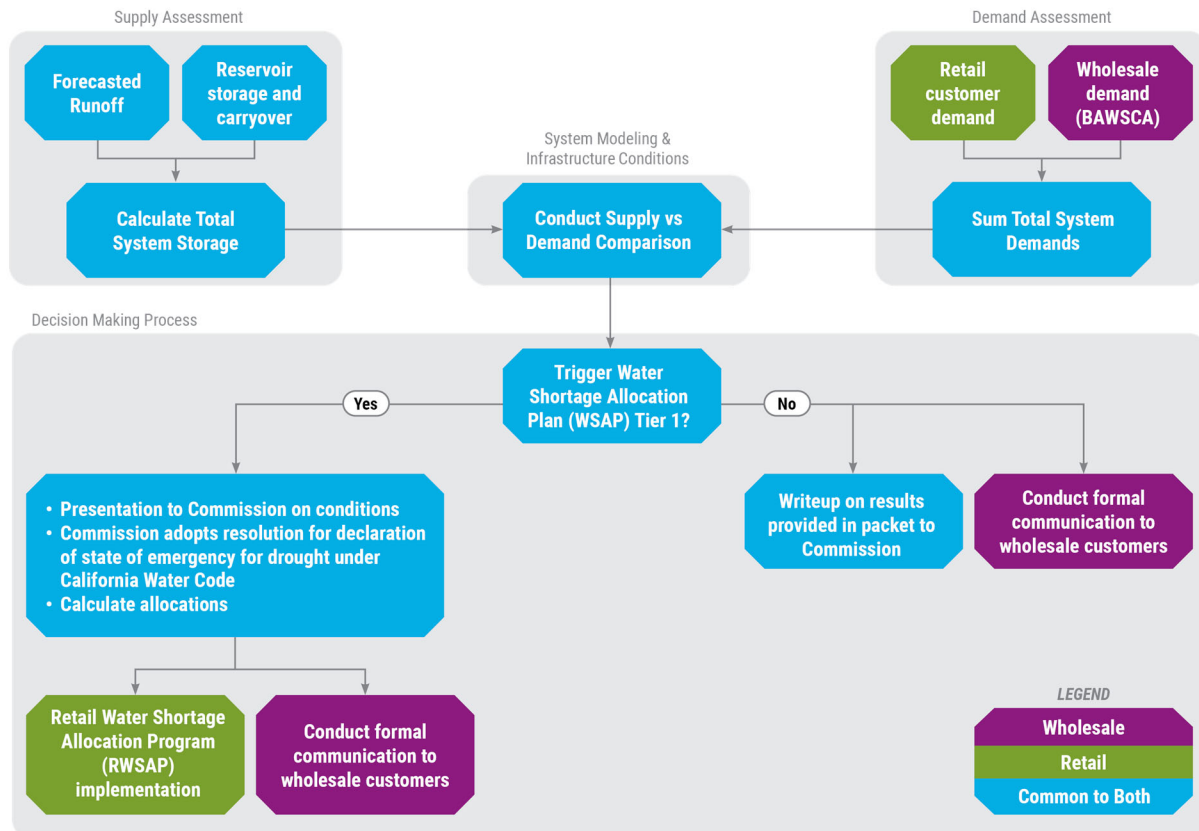
Prior to the initiation of any water delivery reductions to its retail customers, whether it be initial implementation of delivery reductions or implementing a different water shortage level, the SFPUC will outline a drought response plan to address the following: the water supply situation; proposed water use reduction objectives; alternatives to water use reductions; methods to calculate water use allocations and adjustments; compliance methodology and enforcement measures; and budget considerations. Details on the expected allocation program are described further in Section **Error! Reference source not found.** This drought response plan will be presented

8. SFPUC DRAFT Water Supply and Demand Assessment Procedures

at a regularly scheduled SFPUC Commission meeting and advertised in accordance with the requirements of Section 6066 of the California Government Code.

The overall WSDA process is described visually in the flowchart presented in Figure 0-1.

Figure 0-1: Water Supply and Demand Assessment Process





ATTACHMENT 3
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	25,331
Number of Residential Accounts	3,542
Number of Commercial, Industrial, and Institutional (CII) Accounts	205
Number of Dedicated Irrigation Accounts	0
Baseline Year(s)	2018
Percentage of Residential Indoor Use During Minimum Month (%)	100%
Percentage of CII Indoor Use During Minimum Month (%)	100%
Comments	

Navigation	
USER'S GUIDE	Download and read the guide before using this Tool
1 - HOME	Enter agency information
2 - INPUT BASELINE YEAR WATER USE	Enter Baseline Year production and use
3 - BASELINE YEAR WATER USE	Review and confirm entered information
4 - DROUGHT RESPONSE ACTIONS	Select Drought Response Actions and input estimated water savings and implementation rates.
5 - ESTIMATED WATER SAVINGS	Review estimated water production and compare estimated savings to conservation target.
6 - DROUGHT RESPONSE TRACKING	Track production and water savings against the conservation target.



Drought Response Tool

Home

Input Baseline
Year Water Use

Baseline Year
Water Use
Profile

Drought
Response
Actions

Estimated
Water Savings

Drought
Response
Tracking

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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2 - Input Baseline Year (2018) Water Use

City of East Palo Alto

Input Baseline Year (2018) Production and Water Use

Units:

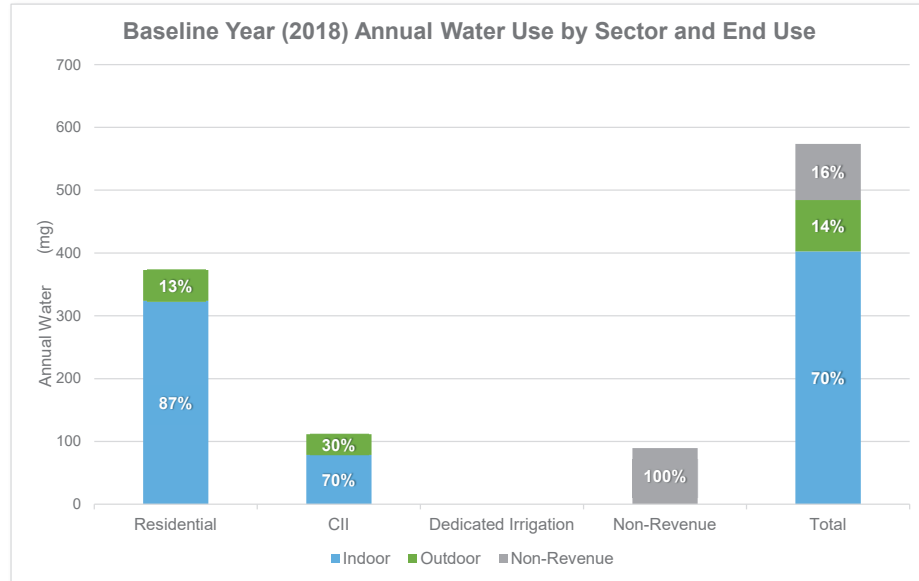
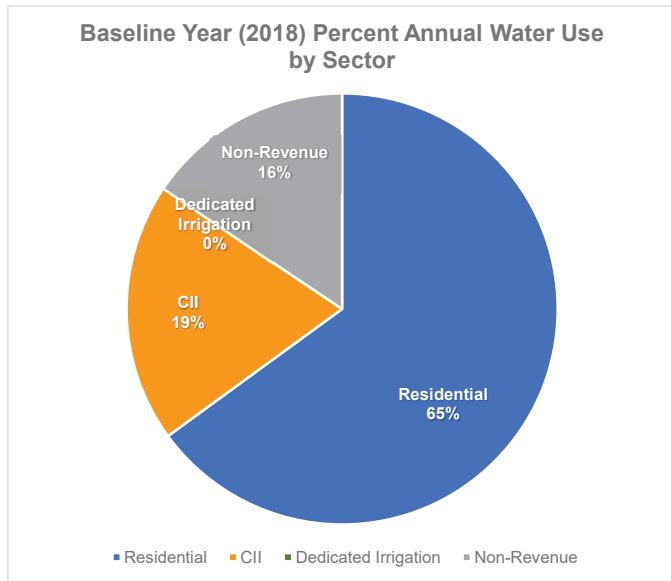


Select the units to input monthly production and use data. Enter the total monthly potable water production for the Baseline Year. Next, enter monthly water use data by sector for the Baseline Year. If you bill on a bi-monthly basis, divide your billing data between the months that the billing cycle includes. If your single-family and multi-family accounts are tracked separately, enter the combined water use for both sectors in the Residential Water Use column. If your commercial, industrial, and institutional (CII) accounts are tracked separately, enter the combined water use for each sector in the CII Water Use column. Your non-revenue water use is calculated by subtracting your monthly residential, CII, and dedicated irrigation water uses from your monthly production. Your monthly residential gallons per capita per day (R-GPCD) is calculated by dividing your monthly residential water use by your population entered in Worksheet 1 - Home.

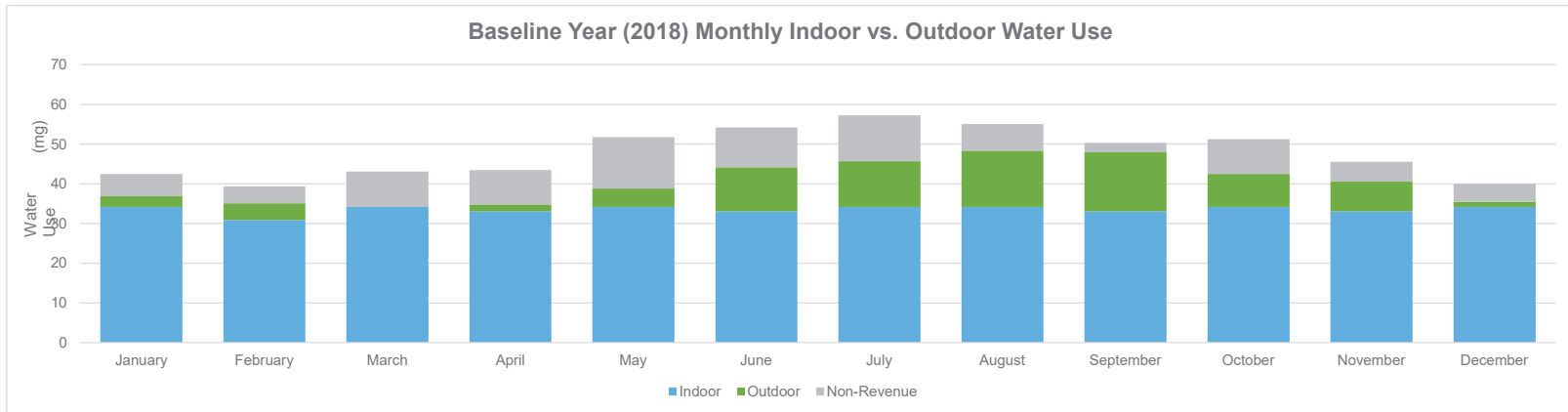
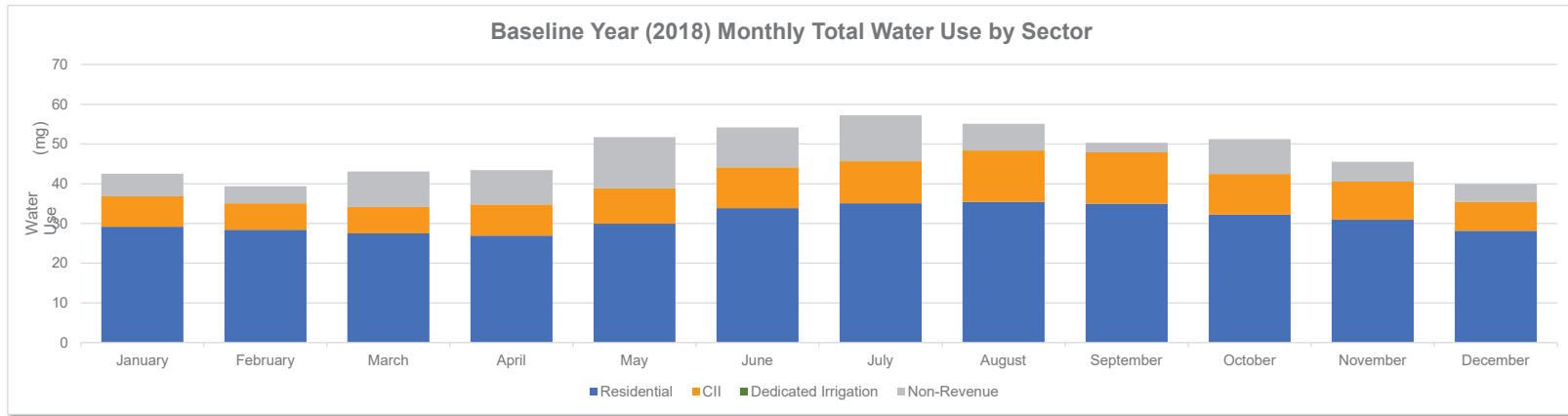
Date	Total Production (mg)	Residential Water Use (mg)	CII Water Use (mg)	Dedicated Irrigation Water Use (mg)	Non-Revenue Water Use (mg)	Total R-GPCD	Comments
January	42	29	8	0	6	37	
February	39	28	7	0	4	40	
March	43	27	7	0	9	35	
April	43	27	8	0	9	35	
May	52	30	9	0	13	38	
June	54	34	10	0	10	45	
July	57	35	11	0	12	45	
August	55	35	13	0	7	45	
September	50	35	13	0	2	46	
October	51	32	10	0	9	41	
November	46	31	10	0	5	41	
December	40	28	7	0	5	36	

3 - Baseline Year (2018) Water Use Profile City of East Palo Alto

Baseline Year (2018) Annual Water Use Summary						
Units: <input type="text" value="(mg)"/>						
A summary of your Baseline Year water use by sector and major end use category is shown below. Select the units in which your production and use data are displayed.						
Water Use	Total Production (mg)	Water Use (mg)				Comments
		Residential	CII	Dedicated Irrigation	Non-Revenue	
Total	574	373	112	0	89	
Total Indoor	402	324	79	--	--	
Total Outdoor	82	49	33	0	--	
Total Non-Revenue	89	--	--	--	89	
Total Indoor %	70%	87%	70%	0%	--	
Total Outdoor %	14%	13%	30%	100%	--	
Total Non-Revenue %	16%	--	--	--	100%	

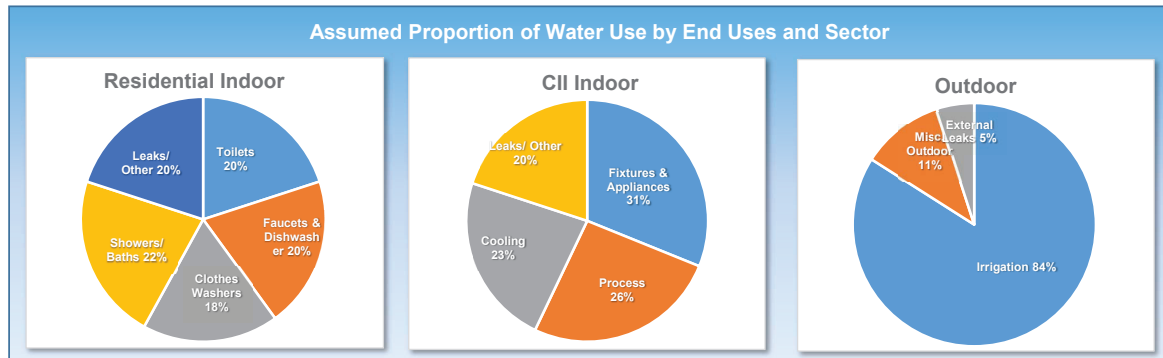


3 - Baseline Year (2018) Water Use Profile
City of East Palo Alto



4 - Drought Response Actions - Stage 1 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	25	R-GPCD
Maximum Residential Outdoor Savings	100%	of Baseline Residential Outdoor Water Use
Maximum CII Indoor Savings	30%	of Baseline CII Indoor Water Use
Maximum CII Outdoor Savings	100%	of Baseline CII Outdoor Water Use
Maximum Dedicated Irrigation Account Savings	100%	of Baseline Dedicated Irrigation Water Use
Maximum Non-Revenue Water Savings	50%	of Baseline Non-Revenue Water Use
Resulting Total Maximum Annual Savings Potential	42%	of Total Baseline Production



4 - Drought Response Actions - Stage 1

City of East Palo Alto

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	All Outdoor	<input type="checkbox"/>	14%	90%	--	--
Prohibit Irrigation with Potable Water Outside of Newly Constructed Homes and Buildings that is not Delivered by Drip or Microspray Systems	Irrigation	<input checked="" type="checkbox"/>			--	--
Require Shut-Off Nozzles on Hoses for Vehicle Washing	Misc. Outdoor	<input checked="" type="checkbox"/>	17%	40%	See Appendix D of the DRP	--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	<input checked="" type="checkbox"/>	17%	40%		--
Prohibit the Use of Potable Water for Street Washing	Misc. Outdoor	<input checked="" type="checkbox"/>	17%	40%		--
Prohibit Irrigation with Potable Water in a Manner that causes Runoff	Irrigation	<input checked="" type="checkbox"/>	3%	40%	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%	40%	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	--

4 - Drought Response Actions - Stage 1

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%	30%	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 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%	See Appendix D of the DRP	Reduced flushing by 50%.
Audit and Reduce System Water Loss	Non Revenue Water	<input type="checkbox"/>	45%	50%	DWR, 2015	Target 50% of leakage.
Implement Drought Rate Structure / Water Budgets	All	<input type="checkbox"/>	5%	100%	CUWCC, 2015	--
Establish Retrofit on Resale Ordinance	All Residential Indoor	<input type="checkbox"/>	21%	6%	SFPUC, 2004	First Tuesday, 2015
Require Net Zero Demand Increase on New Connections	All	<input type="checkbox"/>			--	--
Moratorium on New Connections	All	<input type="checkbox"/>			--	--
Move to Monthly Metering / Billing	All	<input type="checkbox"/>	5%	10%	See Appendix D of the DRP	--
Increase Water Waste Patrols / Enforcement	All	<input type="checkbox"/>			--	--
Establish Drought Hotline	All	<input type="checkbox"/>			--	--
Reduce Distribution System Pressures	Non Revenue Water	<input type="checkbox"/>	4.5%	100%	CUWCC, 2010; DWR, 2015	--
► Dedicated Irrigation						
Conduct Irrigation Account Surveys	Irrigation	<input type="checkbox"/>	30%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	<input type="checkbox"/>	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	<input 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 type="checkbox"/>	100%	5%	--	--
Customer Water Budgets						
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%	--	--

4 - Drought Response Actions - Stage 1 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 3 Days/Week, 15 Minutes/Day, Between 10PM and 8AM	Irrigation	<input type="checkbox"/>	7%	85%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, 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	--
Customer Water Budgets						
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 3 Days/Week, 15 Minutes/Day, Between 10PM and 8AM	Irrigation	<input type="checkbox"/>	7%	85%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, 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	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	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All CII uses	<input type="checkbox"/>	10%	50%	--	--
Establish Water Budget - 20% Reduction	All CII uses	<input type="checkbox"/>	20%	50%	--	--
Establish Water Budget - 30% Reduction	All CII uses	<input type="checkbox"/>	30%	50%	--	--



Drought Response Tool

Home

Input Baseline Year Water Use

Baseline Year Water Use Profile

Drought Response Actions

Estimated Water Savings

Drought Response Tracking

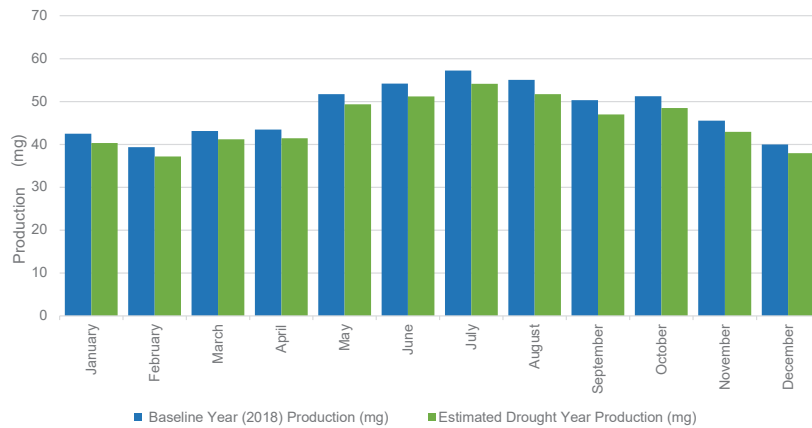
4 - Drought Response Actions - Stage 1 City of East Palo Alto

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"/>			--	--

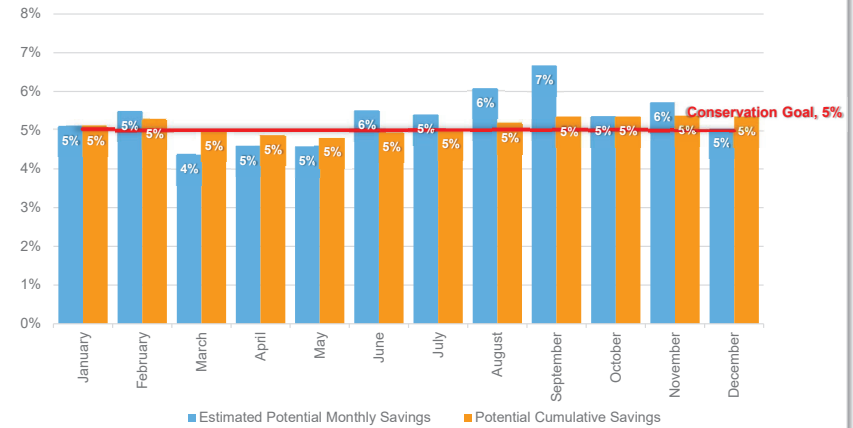
5 - Estimated Water Savings - Stage 1 City of East Palo Alto

Estimated Monthly Water Use and Savings Summary						
Month	Baseline Year (2018) Production (mg)	Estimated Drought Year Production (mg)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
January	42	40	5%	5%	5%	
February	39	37	5%	5%	5%	
March	43	41	4%	5%	5%	
April	43	41	5%	5%	5%	
May	52	49	5%	5%	5%	
June	54	51	6%	5%	5%	
July	57	54	5%	5%	5%	
August	55	52	6%	5%	5%	
September	50	47	7%	5%	5%	
October	51	48	5%	5%	5%	
November	46	43	6%	5%	5%	
December	40	38	5%	5%	5%	

Baseline Year(s) Production vs. Estimated Production



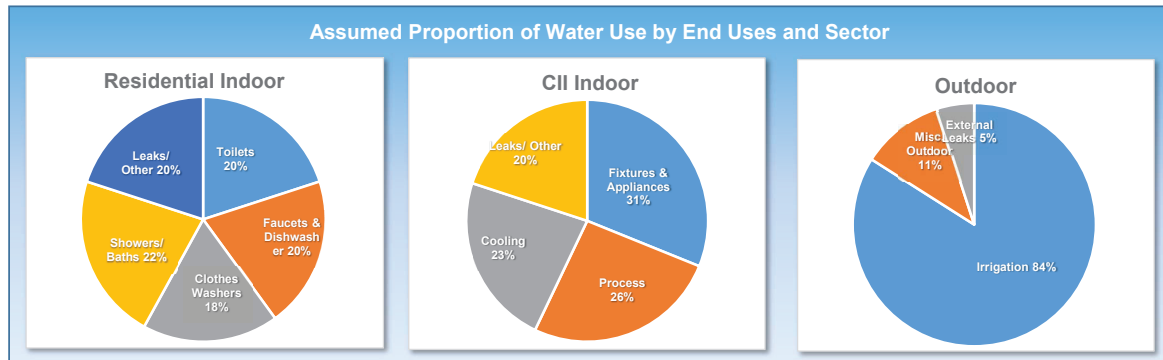
Estimated Potential Monthly Water Savings



4 - Drought Response Actions - Stage 2

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	25	R-GPCD
Maximum Residential Outdoor Savings	100%	of Baseline Residential Outdoor Water Use
Maximum CII Indoor Savings	30%	of Baseline CII Indoor Water Use
Maximum CII Outdoor Savings	100%	of Baseline CII Outdoor Water Use
Maximum Dedicated Irrigation Account Savings	100%	of Baseline Dedicated Irrigation Water Use
Maximum Non-Revenue Water Savings	50%	of Baseline Non-Revenue Water Use
Resulting Total Maximum Annual Savings Potential	42%	of Total Baseline Production



4 - Drought Response Actions - Stage 2 City of East Palo Alto

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	All Outdoor	<input checked="" type="checkbox"/>	14%	65%	--	--
Prohibit Irrigation with Potable Water Outside of Newly Constructed Homes and Buildings that is not Delivered by Drip or Microspray Systems	Irrigation	<input checked="" type="checkbox"/>			--	--
Require Shut-Off Nozzles on Hoses for Vehicle Washing	Misc. Outdoor	<input checked="" type="checkbox"/>	17%	40%	See Appendix D of the DRP	--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	<input checked="" type="checkbox"/>	17%	40%		--
Prohibit the Use of Potable Water for Street Washing	Misc. Outdoor	<input checked="" type="checkbox"/>	17%	40%		--
Prohibit Irrigation with Potable Water in a Manner that causes Runoff	Irrigation	<input checked="" type="checkbox"/>	3%	40%	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 type="checkbox"/>	50%	40%	EBMUD, 2008	--
Provide Linen Service Opt Out Options	Fixtures & Appliances	<input checked="" type="checkbox"/>	0.5%	50%	EBMUD, 2011	--
Prohibit Serving Drinking Water other than upon Request in Eating or Drinking Establishments	Fixtures & Appliances	<input checked="" type="checkbox"/>	0.5%	50%	EBMUD, 2011	--



Drought Response Tool

Home

Input Baseline Year
Water Use

Baseline Year
Water Use Profile

Drought Response
Actions

Estimated Water
Savings

Drought Response
Tracking

4 - Drought Response Actions - Stage 2 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%	45%	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%	See Appendix D of the DRP	Reduced flushing by 50%.
Audit and Reduce System Water Loss	Non Revenue Water	<input type="checkbox"/>	45%	50%	DWR, 2015	Target 50% of leakage.
Implement Drought Rate Structure / Water Budgets	All	<input type="checkbox"/>	5%	100%	CUWCC, 2015	--
Establish Retrofit on Resale Ordinance	All Residential Indoor	<input type="checkbox"/>	21%	6%	SFPUC, 2004	First Tuesday, 2015
Require Net Zero Demand Increase on New Connections	All	<input type="checkbox"/>			--	--
Moratorium on New Connections	All	<input type="checkbox"/>			--	--
Move to Monthly Metering / Billing	All	<input type="checkbox"/>	5%	10%	See Appendix D of the DRP	--
Increase Water Waste Patrols / Enforcement	All	<input checked="" type="checkbox"/>			--	--
Establish Drought Hotline	All	<input type="checkbox"/>			--	--
Reduce Distribution System Pressures	Non Revenue Water	<input type="checkbox"/>	4.5%	100%	CUWCC, 2010; DWR, 2015	--
► Dedicated Irrigation						
Conduct Irrigation Account Surveys	Irrigation	<input type="checkbox"/>	30%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 10PM and 8AM	Irrigation	<input type="checkbox"/>	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, 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 type="checkbox"/>	100%	5%	--	--
Customer Water Budgets						
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%	--	--

4 - Drought Response Actions - Stage 2 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, 15 Minutes/Day, Between 10PM and 8AM	Irrigation	<input checked="" type="checkbox"/>	38%	65%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, 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	--
Customer Water Budgets						
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, 15 Minutes/Day, Between 10PM and 8AM	Irrigation	<input checked="" type="checkbox"/>	38%	65%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, 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	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	--
Customer Water Budgets						
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%	--	--

4 - Drought Response Actions - Stage 2

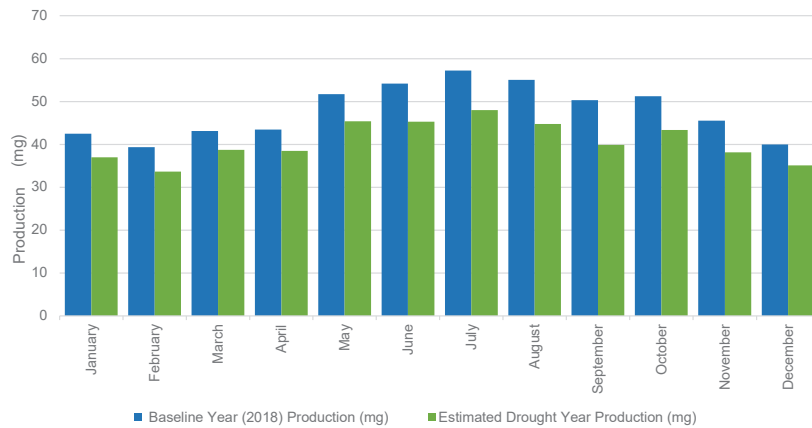
City of East Palo Alto

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"/>			--	--

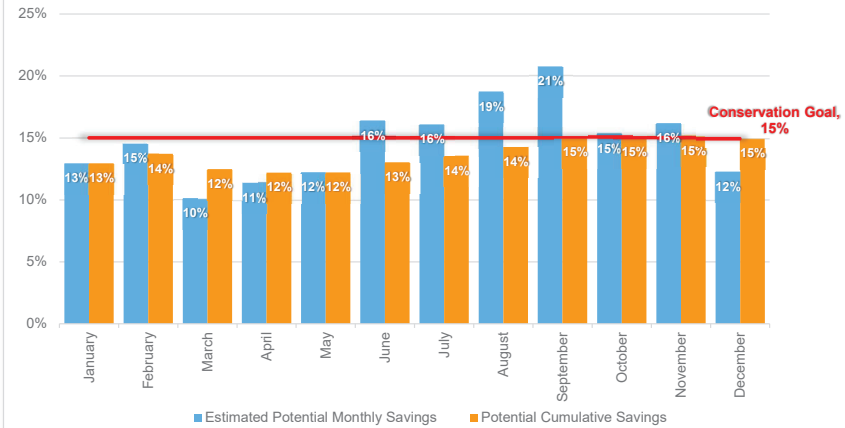
5 - Estimated Water Savings - Stage 2 City of East Palo Alto

Estimated Monthly Water Use and Savings Summary						
Month	Baseline Year (2018) Production (mg)	Estimated Drought Year Production (mg)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
January	42	37	13%	13%	15%	
February	39	34	15%	14%	15%	
March	43	39	10%	12%	15%	
April	43	38	11%	12%	15%	
May	52	45	12%	12%	15%	
June	54	45	16%	13%	15%	
July	57	48	16%	14%	15%	
August	55	45	19%	14%	15%	
September	50	40	21%	15%	15%	
October	51	43	15%	15%	15%	
November	46	38	16%	15%	15%	
December	40	35	12%	15%	15%	

Baseline Year(s) Production vs. Estimated Production

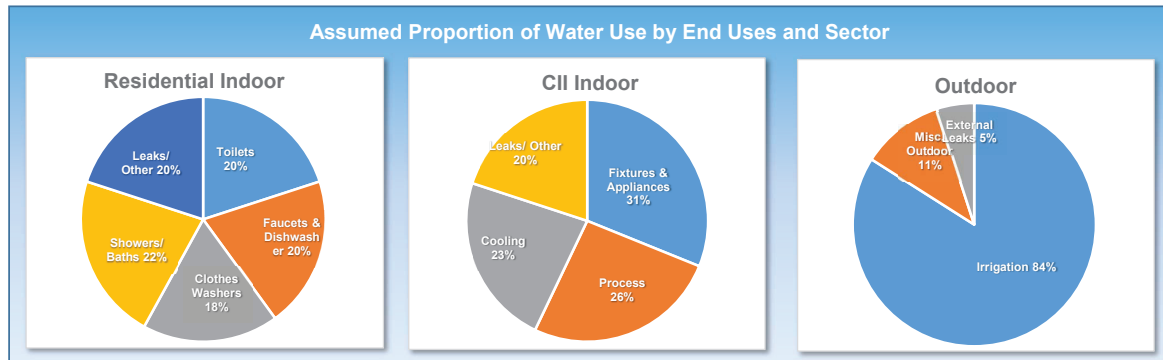


Estimated Potential Monthly Water Savings



4 - Drought Response Actions - Stage 3 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	25	R-GPCD
Maximum Residential Outdoor Savings	100%	of Baseline Residential Outdoor Water Use
Maximum CII Indoor Savings	30%	of Baseline CII Indoor Water Use
Maximum CII Outdoor Savings	100%	of Baseline CII Outdoor Water Use
Maximum Dedicated Irrigation Account Savings	100%	of Baseline Dedicated Irrigation Water Use
Maximum Non-Revenue Water Savings	50%	of Baseline Non-Revenue Water Use
Resulting Total Maximum Annual Savings Potential	42%	of Total Baseline Production



4 - Drought Response Actions - Stage 3 City of East Palo Alto

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	All Outdoor	<input checked="" type="checkbox"/>	14%	75%	--	--
Prohibit Irrigation with Potable Water Outside of Newly Constructed Homes and Buildings that is not Delivered by Drip or Microspray Systems	Irrigation	<input checked="" type="checkbox"/>			--	--
Require Shut-Off Nozzles on Hoses for Vehicle Washing	Misc. Outdoor	<input checked="" type="checkbox"/>	17%	40%	See Appendix D of the DRP	--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	<input checked="" type="checkbox"/>	17%	40%		--
Prohibit the Use of Potable Water for Street Washing	Misc. Outdoor	<input checked="" type="checkbox"/>	17%	40%		--
Prohibit Irrigation with Potable Water in a Manner that causes Runoff	Irrigation	<input checked="" type="checkbox"/>	3%	40%	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 type="checkbox"/>	50%	40%	EBMUD, 2008	--
Provide Linen Service Opt Out Options	Fixtures & Appliances	<input checked="" type="checkbox"/>	0.5%	50%	EBMUD, 2011	--
Prohibit Serving Drinking Water other than upon Request in Eating or Drinking Establishments	Fixtures & Appliances	<input checked="" type="checkbox"/>	0.5%	50%	EBMUD, 2011	--



Drought Response Tool

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Input Baseline Year Water Use

Baseline Year Water Use Profile

Drought Response Actions

Estimated Water Savings

Drought Response Tracking

4 - Drought Response Actions - Stage 3 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%	60%	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%	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 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, 15 Minutes/Day, Between 10PM and 8AM	Irrigation	<input type="checkbox"/>	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, 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 type="checkbox"/>	100%	5%	--	--
Customer Water Budgets						
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%	--	--

4 - Drought Response Actions - Stage 3 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, 15 Minutes/Day, Between 10PM and 8AM	Irrigation	<input type="checkbox"/>	38%	65%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, 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	--
Customer Water Budgets						
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, 15 Minutes/Day, Between 10PM and 8AM	Irrigation	<input type="checkbox"/>	38%	65%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, 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	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	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All CII uses	<input type="checkbox"/>	10%	50%	--	--
Establish Water Budget - 20% Reduction	All CII uses	<input type="checkbox"/>	20%	50%	--	--
Establish Water Budget - 30% Reduction	All CII uses	<input type="checkbox"/>	30%	50%	--	--



Drought Response Tool

Home

Input Baseline Year Water Use

Baseline Year Water Use Profile

Drought Response Actions

Estimated Water Savings

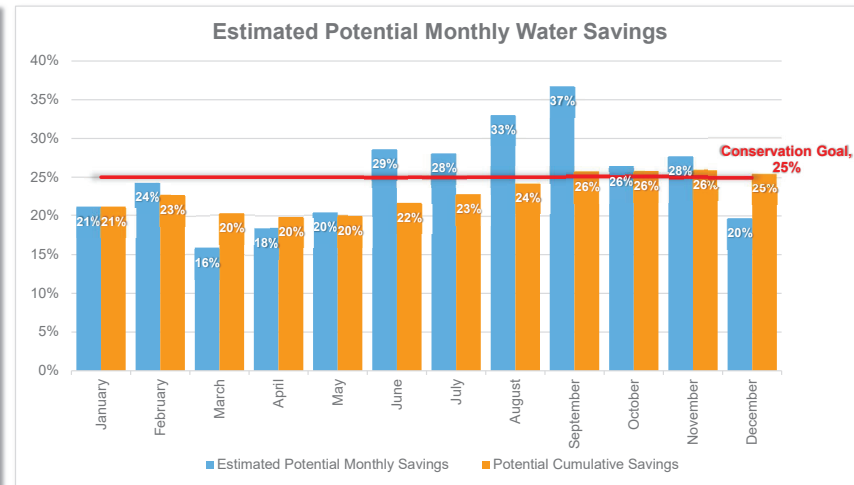
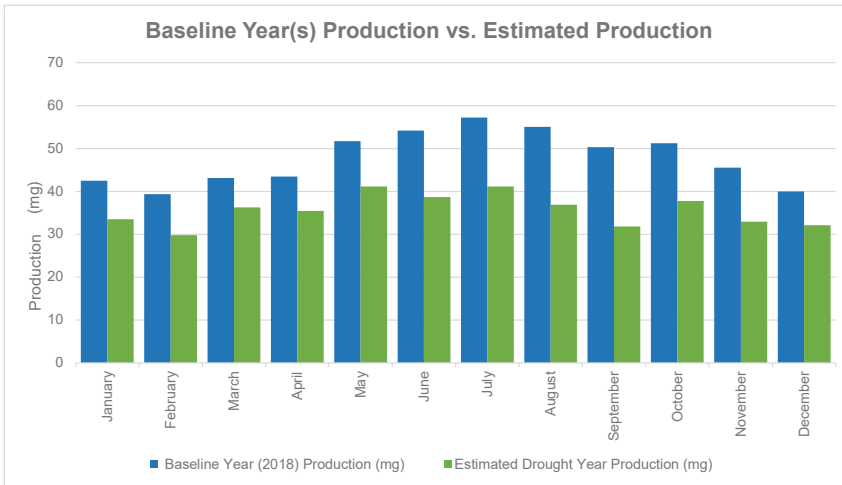
Drought Response Tracking

4 - Drought Response Actions - Stage 3 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"/>			--	--

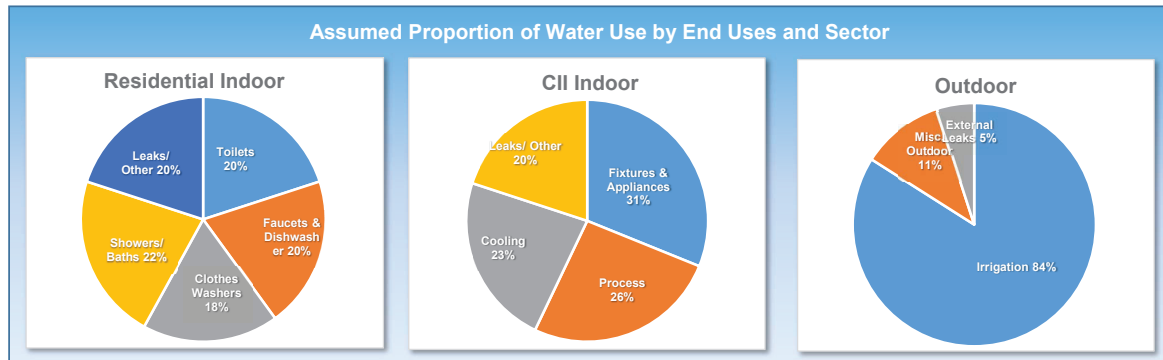
5 - Estimated Water Savings - Stage 3
City of East Palo Alto

Estimated Monthly Water Use and Savings Summary						
Units: (mg)						
ⓘ 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 (2018) Production (mg)	Estimated Drought Year Production (mg)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
January	42	33	21%	21%	25%	
February	39	30	24%	23%	25%	
March	43	36	16%	20%	25%	
April	43	35	18%	20%	25%	
May	52	41	20%	20%	25%	
June	54	39	29%	22%	25%	
July	57	41	28%	23%	25%	
August	55	37	33%	24%	25%	
September	50	32	37%	26%	25%	
October	51	38	26%	26%	25%	
November	46	33	28%	26%	25%	
December	40	32	20%	25%	25%	



4 - Drought Response Actions - Stage 4 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	25	R-GPCD
Maximum Residential Outdoor Savings	100%	of Baseline Residential Outdoor Water Use
Maximum CII Indoor Savings	30%	of Baseline CII Indoor Water Use
Maximum CII Outdoor Savings	100%	of Baseline CII Outdoor Water Use
Maximum Dedicated Irrigation Account Savings	100%	of Baseline Dedicated Irrigation Water Use
Maximum Non-Revenue Water Savings	50%	of Baseline Non-Revenue Water Use
Resulting Total Maximum Annual Savings Potential	42%	of Total Baseline Production



4 - Drought Response Actions - Stage 4 City of East Palo Alto

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	All Outdoor	<input checked="" type="checkbox"/>	14%	90%	--	--
Prohibit Irrigation with Potable Water Outside of Newly Constructed Homes and Buildings that is not Delivered by Drip or Microspray Systems	Irrigation	<input checked="" type="checkbox"/>			--	--
Require Shut-Off Nozzles on Hoses for Vehicle Washing	Misc. Outdoor	<input checked="" type="checkbox"/>	17%	40%	See Appendix D of the DRP	--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	<input checked="" type="checkbox"/>	17%	40%		--
Prohibit the Use of Potable Water for Street Washing	Misc. Outdoor	<input checked="" type="checkbox"/>	17%	40%		--
Prohibit Irrigation with Potable Water in a Manner that causes Runoff	Irrigation	<input checked="" type="checkbox"/>	3%	40%	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 type="checkbox"/>	50%	40%	EBMUD, 2008	--
Provide Linen Service Opt Out Options	Fixtures & Appliances	<input checked="" type="checkbox"/>	0.5%	50%	EBMUD, 2011	--
Prohibit Serving Drinking Water other than upon Request in Eating or Drinking Establishments	Fixtures & Appliances	<input checked="" type="checkbox"/>	0.5%	50%	EBMUD, 2011	--



Drought Response Tool

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Input Baseline Year
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Tracking

4 - Drought Response Actions - Stage 4 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%	80%	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 checked="" type="checkbox"/>	25%	50%	See Appendix D of the DRP	Reduced flushing by 50%.
Audit and Reduce System Water Loss	Non Revenue Water	<input type="checkbox"/>	45%	50%	DWR, 2015	Target 50% of leakage.
Implement Drought Rate Structure / Water Budgets	All	<input 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 checked="" type="checkbox"/>	4.5%	100%	CUWCC, 2010; DWR, 2015	--
► Dedicated Irrigation						
Conduct Irrigation Account Surveys	Irrigation	<input type="checkbox"/>	30%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 10PM and 8AM	Irrigation	<input type="checkbox"/>	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, 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 type="checkbox"/>	100%	5%	--	--
Customer Water Budgets						
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%	--	--

4 - Drought Response Actions - Stage 4 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, 15 Minutes/Day, Between 10PM and 8AM	Irrigation	<input type="checkbox"/>	38%	65%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 10PM and 8AM	Irrigation	<input type="checkbox"/>	79%	75%		
Prohibit use of Potable Water for Irrigation	Irrigation	<input checked="" type="checkbox"/>	100%	80%		
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	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All Residential Uses	<input checked="" 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, 15 Minutes/Day, Between 10PM and 8AM	Irrigation	<input type="checkbox"/>	38%	65%	UC IPM, 2014	--
Prohibit use of Potable Water for Irrigation	Irrigation	<input checked="" type="checkbox"/>	100%	80%		
Prohibit Use of Potable Water for Construction and Dust Control	Misc. Outdoor	<input type="checkbox"/>		100%	--	--
Prohibit Single-Pass Cooling Systems	Cooling	<input checked="" type="checkbox"/>	80%	1%	Vickers, 2001	--
Require Repair of all Leaks within 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	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All CII uses	<input checked="" type="checkbox"/>	10%	50%	--	--
Establish Water Budget - 20% Reduction	All CII uses	<input type="checkbox"/>	20%	50%	--	--
Establish Water Budget - 30% Reduction	All CII uses	<input type="checkbox"/>	30%	50%	--	--



Drought Response Tool

Home

Input Baseline Year
Water Use

Baseline Year
Water Use Profile

Drought Response
Actions

Estimated Water
Savings

Drought Response
Tracking

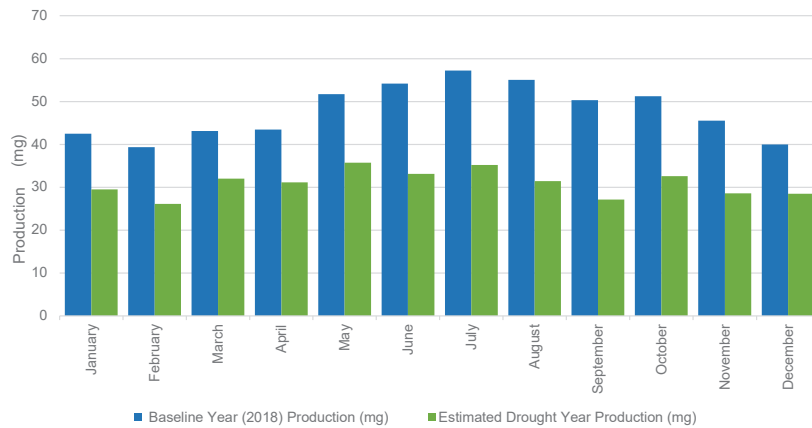
4 - Drought Response Actions - Stage 4 City of East Palo Alto

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"/>			--	--

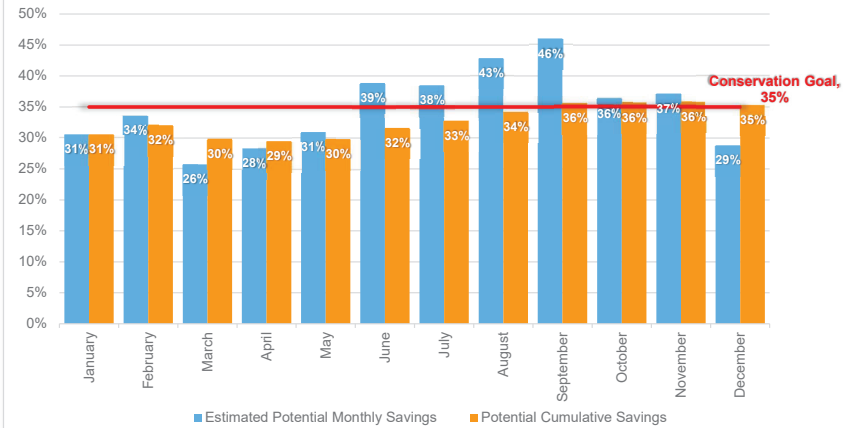
5 - Estimated Water Savings - Stage 4
City of East Palo Alto

Estimated Monthly Water Use and Savings Summary						
Month	Baseline Year (2018) Production (mg)	Estimated Drought Year Production (mg)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
January	42	30	31%	31%	35%	
February	39	26	34%	32%	35%	
March	43	32	26%	30%	35%	
April	43	31	28%	29%	35%	
May	52	36	31%	30%	35%	
June	54	33	39%	32%	35%	
July	57	35	38%	33%	35%	
August	55	31	43%	34%	35%	
September	50	27	46%	36%	35%	
October	51	33	36%	36%	35%	
November	46	29	37%	36%	35%	
December	40	28	29%	35%	35%	

Baseline Year(s) Production vs. Estimated Production



Estimated Potential Monthly Water Savings





ATTACHMENT 4
WATER SHORTAGE CONTINGENCY PLAN RESOLUTION

RESOLUTION NO. 88 – 2021

**A RESOLUTION OF THE CITY COUNCIL
OF THE CITY OF EAST PALO ALTO**

**ADOPTING THE 2020 WATER SHORTAGE CONTINGENCY PLAN AND DIRECTING THE CITY
MANAGER TO FILE THE 2020 WATER SHORTAGE CONTINGENCY PLAN BY JULY 1, 2021**

WHEREAS, the California Urban Water Management Planning Act (“Act”), codified at 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 2020 Water Shortage Contingency Plan (“WSCP”) as part of its 2020 Urban Water Management Plan; and

WHEREAS, the City of East Palo Alto last updated its WSCP in 2015 and the Act requires review of the WSCP at least once every five years; and

WHEREAS, the deadline for submitting the 2020 WSCP is July 1st, 2021; and

WHEREAS, the City has prepared and circulated for public review a final draft of the 2020 WSCP; and

WHEREAS, the City Council of the City of East Palo Alto held a duly noticed public hearing on June 15th, 2021, to review and consider adoption of the 2020 WSCP.

**NOW THEREFORE, BE IT HEREBY RESOLVED THAT THE CITY COUNCIL OF THE CITY OF
EAST PALO ALTO HEREBY:**

1. Adopt the 2020 WSCP; and
2. Directs the City Manager to file the 2020 WSCP with the California Department of Water Resources no later than July 1st, 2021.

PASSED AND ADOPTED this 15th day of June 2021, by the following vote:

AYES: Abrica, Gauthier, López, Wallace-Jones, and Romero

NOES:

ABSENT:

ABSTAIN:

Carlos Romero, Mayor

ATTEST:

APPROVED AS TO FORM:

Walfred Solorzano, City Clerk

Rafael E. Alvarado Jr., City Attorney



Appendix K

Chapter 17.04 of the East Palo Alto Municipal Code

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 - Water efficient landscaping.

Landscaping shall be installed and maintained in accordance with Section 17.06.010 et seq. of the East Palo Alto Municipal Code, entitled "Water Conservation in Landscaping Ordinance."

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

(Ord. No. 393, § 4, 1-19-2016)

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 L

Resolution No. 87-2021 and Resolution No. 88-2021, Approving an Urban Water Management Plan and the Associated Water Shortage Contingency Plan for the City of East Palo Alto

RESOLUTION NO. 87 – 2021

**A RESOLUTION OF THE CITY COUNCIL
OF THE CITY OF EAST PALO ALTO**

**ADOPTING THE 2020 URBAN WATER MANAGEMENT PLAN AND DIRECTING THE CITY
MANAGER TO FILE THE 2020 URBAN WATER MANAGEMENT PLAN BY JULY 1, 2021**

WHEREAS, the California Urban Water Management Planning Act (“Act”), codified at 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 2020 Urban Water Management Plan (“UWMP”); and

WHEREAS, the City of East Palo Alto last updated its UWMP in 2015 and the Act requires review of the UWMP at least once every five years; and

WHEREAS, the deadline for submitting the 2020 UWMP is July 1st, 2021; and

WHEREAS, the City has prepared and circulated for public review a final draft of the 2020 UWMP; and

WHEREAS, the City Council of the City of East Palo Alto held a duly noticed public hearing on June 15th, 2021, to review and consider adoption of the 2020 UWMP.

**NOW THEREFORE, BE IT HEREBY RESOLVED THAT THE CITY COUNCIL OF THE CITY OF
EAST PALO ALTO HEREBY:**

1. Adopt the 2020 UWMP; and
2. Directs the City Manager to file the 2020 UWMP with the California Department of Water Resources no later than July 1st, 2021.

PASSED AND ADOPTED this 15th day of June 2021, by the following vote:

AYES: Abrica, Gauthier, López, Wallace-Jones, and Romero

NOES:

ABSENT:

ABSTAIN:

Carlos Romero, Mayor

ATTEST:

APPROVED AS TO FORM:

Walfred Solorzano, City Clerk

Rafael E. Alvarado Jr., City Attorney

RESOLUTION NO. 88 – 2021

**A RESOLUTION OF THE CITY COUNCIL
OF THE CITY OF EAST PALO ALTO**

**ADOPTING THE 2020 WATER SHORTAGE CONTINGENCY PLAN AND DIRECTING THE CITY
MANAGER TO FILE THE 2020 WATER SHORTAGE CONTINGENCY PLAN BY JULY 1, 2021**

WHEREAS, the California Urban Water Management Planning Act (“Act”), codified at 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 2020 Water Shortage Contingency Plan (“WSCP”) as part of its 2020 Urban Water Management Plan; and

WHEREAS, the City of East Palo Alto last updated its WSCP in 2015 and the Act requires review of the WSCP at least once every five years; and

WHEREAS, the deadline for submitting the 2020 WSCP is July 1st, 2021; and

WHEREAS, the City has prepared and circulated for public review a final draft of the 2020 WSCP; and

WHEREAS, the City Council of the City of East Palo Alto held a duly noticed public hearing on June 15th, 2021, to review and consider adoption of the 2020 WSCP.

NOW THEREFORE, BE IT HEREBY RESOLVED THAT THE CITY COUNCIL OF THE CITY OF EAST PALO ALTO HEREBY:

1. Adopt the 2020 WSCP; and
2. Directs the City Manager to file the 2020 WSCP with the California Department of Water Resources no later than July 1st, 2021.

PASSED AND ADOPTED this 15th day of June 2021, by the following vote:

AYES: Abrica, Gauthier, López, Wallace-Jones, and Romero

NOES:

ABSENT:

ABSTAIN:

Carlos Romero, Mayor

ATTEST:

APPROVED AS TO FORM:

Walfred Solorzano, City Clerk

Rafael E. Alvarado Jr., City Attorney