



City of Palo Alto

City Council Staff Report

(ID # 12025)

Report Type: Action Items

Meeting Date: 6/7/2021

Summary Title: Urban Water Management Plan

Title: PUBLIC HEARING: Adoption of Resolutions Adopting the 2020 Urban Water Management Plan and Water Shortage Contingency Plan

From: City Manager

Lead Department: Utilities

RECOMMENDATION

Staff and the Utilities Advisory Commission (UAC) recommend the City Council adopt a resolution ([Attachment A Linked Document](#)) adopting the 2020 Urban Water Management Plan and a resolution ([Attachment B Linked Document](#)) adopting the Water Shortage Contingency Plan.

EXECUTIVE SUMMARY

Every urban water agency in California is required to submit an Urban Water Management Plan (UWMP), which includes a Water Shortage Contingency Plan (WSCP) ([Linked Document](#)) every five years. UWMPs must include information about water demand, water supply, demand management activities, alternative water supplies, anticipated shortages during dry periods, and contingency plans for addressing those shortages. The actions recommended in this report, if approved, would satisfy this requirement for the City of Palo Alto.

The City of Palo Alto's ('City' or 'Palo Alto') demand for water is expected to increase over the next 25 years based on projected population increases, although per capita water use is expected to decrease due to water conservation and efficiency gains. Potable water supply from the City's supplier, the San Francisco Public Utilities Commission (SFPUC), is projected to be adequate during normal years, but significant shortfalls are expected during droughts.

The UWMP provides information regarding the alternative water supplies under consideration by both Palo Alto and the SFPUC. Some of these include expanded uses for recycled water and storage. Palo Alto, in collaboration with its partners, continues to seek to maximize water conservation to reduce the impact of dry years. When water supply shortage do occur, Palo Alto's WSCP provides for increasingly aggressive steps to reduce use including public outreach and education, rebate programs, water use restrictions, and water allocation processes.

BACKGROUND

The California Urban Water Management Planning Act ('Act') requires every California water agency supplying more than 3,000 acre-feet (AF) of water per year or providing service to more than 3,000 connections to prepare an UWMP. The UWMP is prepared every five years by urban water suppliers to assess the reliability of water sources over a 20-year planning horizon under both normal and dry hydrologic conditions and to ensure adequate water supplies are available to meet existing and future water demands. Urban water agencies are also required to adopt a Water Shortage Contingency Plan which lays out the action that will be taken by the agency in the event of a water supply shortage.

The City must adopt the 2020 UWMP, including the WSCP, by July 1, 2021 and submit it to the California Department of Water Resources within 30 days of adoption.

DISCUSSION

The key elements of the UWMP are summarized below.

1. Water Demand
2. Water Supply Adequacy
3. Water Conservation
4. Alternative Water Supplies
5. Water Supply Reliability
6. Water Shortage Contingency Plans

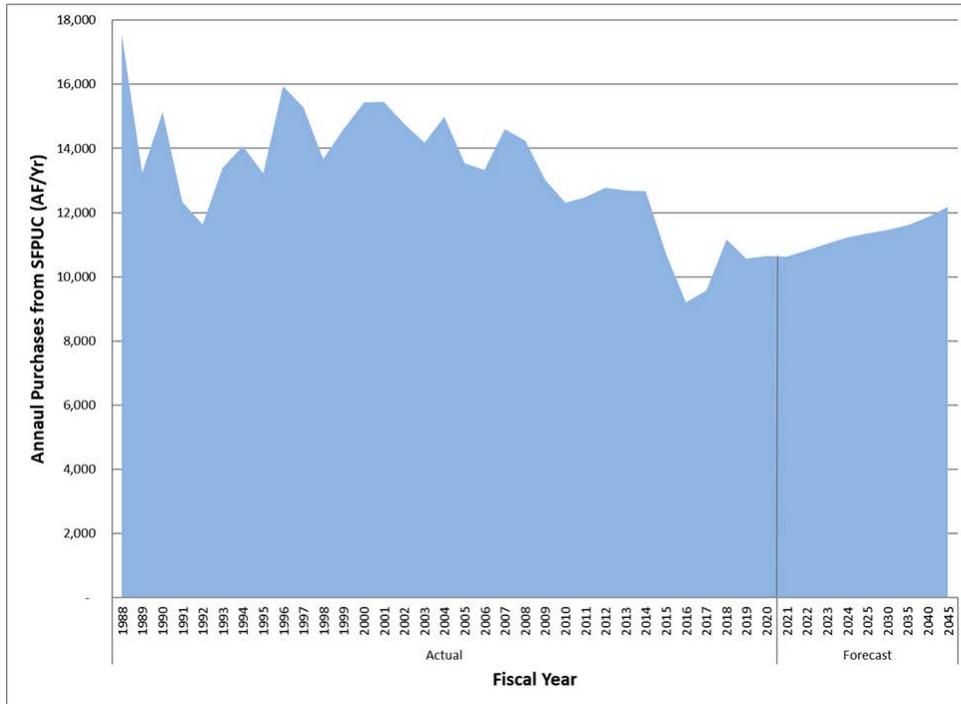
1. Water Demand

Although the City has experienced several drought periods since 1975, the recent drought of 2014 to 2016 has had a particularly profound effect on City and customer attitudes regarding water. The state-mandated water use reductions in the recent drought resulted in large numbers of landscape conversion projects as well as a dramatic shift in customer behavior regarding water use. In addition, new construction in every sector is subject to increasingly stringent regulations regarding water-using appliances and fixtures.

The City relied on an end-use model and an econometric model to determine demand projections. The econometric model projected short-term demands through 2025 based upon historical water use patterns through 2019 and the projected future rebound in water demand associated with forecasts for drought recovery. The end-use model projected long-term demand for each end-use customer class (through 2045) based upon expected service area growth for both population and employment. The end-use model considers unemployment rates and projects demand assuming a normal economy. Age of buildings is also considered with regard to end uses as a result of plumbing code changes and assumed fixture replacement rates.

Figure 1 below shows the City’s potable water use since 1988 and a projection of water supplies through 2045. Water consumption in the recent drought reached its lowest level in more than 25-years. The reduction in water consumption was the result of state mandated water reductions combined with permanent water conservation measures.

Figure 1: SFPUC Purchases - Actual and Forecast



In developing these projections the City relied on ABAG population and employment projections for the 2010 and 2015 UWMPs and models developed by a consultant. According to these projections shown in **Error! Reference source not found.**, expected 2020-2045 population growth is about 0.8% per year with expected growth in employment 0.5% per year. These projections do not consider potential impacts of COVID-19. To date, the pandemic appears to have had little impact on Palo Alto’s water use, but long-term trends such, as a shift to more telework, are not yet known. Staff will continue to monitor and update water demand projections during annual supply planning, financial planning, and in the 2025 UWMP.

Table 1: Population - Current and Projected

	2020	2025	2030	2035	2040	2045
Service Area Population	68,819	71,667	74,815	77,963	81,111	84,259
Five Year Percent Increase		4.1%	4.4%	4.2%	4.0%	3.9%
Total Employment	97,654	100,095	102,535	104,975	107,416	109,856
Five Year Percent Increase		2.5%	2.4%	2.4%	2.3%	2.3%

2. Water Supply Adequacy

The City receives 100% of its potable water from the SFPUC through the Regional Water System (RWS). The City also uses some recycled water produced at the Palo Alto-operated Regional Water Quality Control Plant (RWQCP) for irrigation of the municipal golf course, a park, and some other minor applications. A system of local groundwater wells and storage provide emergency water supply service.

The SFPUC has a perpetual commitment (Supply Assurance) to deliver 184 MGD to the 24 permanent Wholesale Customers collectively. Palo Alto's allocation, or Individual Supply Guarantee, is 16.575 MGD, or approximately 18,579 acre feet per year. The City's allocation was reduced to this level in May 2018 upon a permanent ISG transfer of 0.5 MGD to the City of East Palo Alto¹.

In normal years, the Palo Alto's potable water demand is not expected to exceed supply as shown in Table 2.

Table 2: Palo Alto Potable Water Supply and Demand Balance - normal years

	2020	2025	2030	2035	2040	2045
Palo Alto Demand for SFPUC Water	10,921	11,287	11,394	11,546	11,801	12,113
Individual Supply Guarantee	18,579	18,579	18,579	18,579	18,579	18,579
<i>Difference</i>	<i>7,658</i>	<i>7,292</i>	<i>7,185</i>	<i>7,033</i>	<i>6,778</i>	<i>6,466</i>

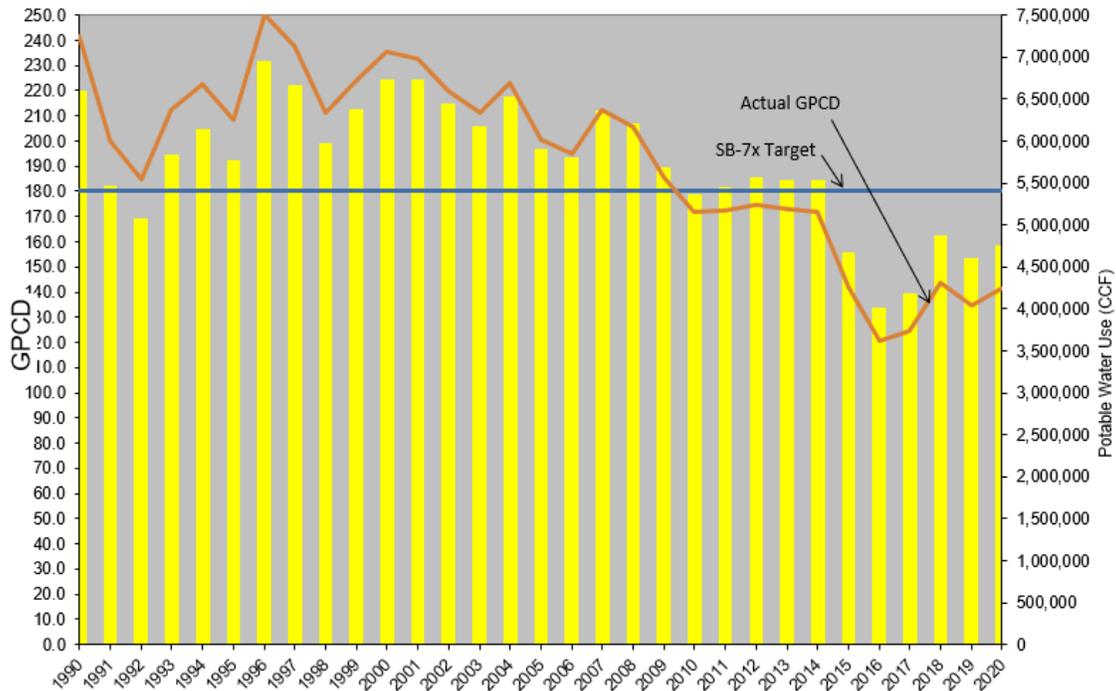
3. Water Conservation

Water conservation plays an important role in the City's water supply planning. The City partners with the Santa Clara Valley Water District (Valley Water) to offer a wide range of water conservation programs to our residential and commercial customers. Through rebates, education and outreach, the City has been able to reduce per capita water use by about 15% over the past decade.

Senate Bill x7-7 (SBx7-7), adopted in November 2009, mandates a statewide per capita potable water use reduction of 20% by the year 2020. Urban water suppliers are required to identify a baseline usage (expressed in gallons per capita per day, or GPCD) for their service area, calculate a target to meet the 20% reduction, and report on compliance in the 2020 UWMP. The City's 2020 UWMP confirms the City met the conservation target by more than 20%, resulting in the per capita water use reduction cited above.

¹ See Staff Report #9041 <https://www.cityofpaloalto.org/civicax/filebank/documents/64801>

Figure 2: SBx7-7 Targets and Compliance



4. Alternative Water Supplies

In anticipation of extended periods of drought and possible regulatory changes by the State, the City is evaluating a wide range of alternative water supplies. The Northwest County Recycled Water Strategic Plan, completed in collaboration with Valley Water, identified and evaluated a number of potable and non-potable water reuse concept options using effluent from the RWQCP in Palo Alto. Concept options that are compatible with the effluent transfer agreement with Valley Water will be considered along with traditional potable supply sources, demand management, green stormwater infrastructure, and graywater in a holistic 2021 “One Water” Plan. The One Water Plan will take into consideration long-term reliability and dry year needs as well as cost, quality, and public acceptance. The City, through the Bay Area Water Supply and Conservation Agency (BAWSCA), has additional water supply management opportunities. Each is discussed in more detail in the 2020 UWMP.

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 key 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.

5. Water Supply Reliability

Since the City relies on the SFPUC RWS for its potable water supplies, the City’s water supply reliability mirrors that of the RWS. During a water supply shortage, contractually agreed upon allocation methods apply in limited circumstances. Assumptions regarding how water will be allocated in critical, severe, and emergency water shortage scenarios were made. The amount of water available to San Francisco’s Retail Customers (the residential and commercial customers in the City of San Francisco) and Wholesale Customers (the 26 agencies, including Palo Alto, that purchase water from the SFPUC) will be impacted by the outcome of the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan Amendment or Bay Delta Plan). This 2020 UWMP assumes the Bay Delta Plan and associated unimpaired flow requirements for the Tuolumne River will be implemented in 2023 as adopted by the state. In August 2018, City Council voted to support the Bay Delta Plan².

SFPUC’s water supply availability projections assumed current Wholesale Customer demand forecasts. The SFPUC will provide an appendix to their UWMP with water supply availability projections using a Wholesale Customer demand of 184 MGD, the amount the SFPUC is contractually obligated to provide. Projected supply shortfalls are slightly greater using contractual demands.

Given the City’s forecasted water demand and projections of water supply availability provided by the SFPUC, the City anticipates the need to implement water use reductions of nearly 50% in the first dry year post Bay Delta Plan implementation. Table 3 shows the projected necessary water use reductions for a five-year drought beginning in 2021.

Table 3: Five-year Drought Assessment

Year	2021	2022	2023	2024	2025
Palo Alto Demand	10,565	10,776	10,982	11,182	11,287
Cutback	0.0%	0.0%	43.6%	43.6%	49.0%
Available Supply	10,565	10,776	6,194	6,306	5,759

Similar levels of water use reductions are anticipated for future droughts lasting multiple years. Table 4 shows the needed anticipated reduction levels.

² See Council meeting minutes: <https://www.cityofpaloalto.org/civicax/filebank/documents/66831>

Table 4: Cutbacks in Future Multiple Dry Years

AFY	2025	2030	2035	2040	2045
First Year	36.1%	36.3%	36.5%	36.5%	45.5%
Second Year	45.2%	45.4%	45.6%	45.6%	45.5%
Third Year	45.2%	45.4%	45.6%	45.6%	45.5%
Fourth Year	45.2%	45.4%	45.6%	52.0%	53.7%
Fifth Year	45.2%	45.4%	50.1%	52.0%	53.7%

6. Water Shortage Contingency Planning

During the most recent drought, the City was able to reduce water use by 31% by restricting landscape irrigation to two times per week as well as a number of other measures. The City’s proposed Water Shortage Contingency Plan (WSCP) includes actions to achieve water use reductions above 40% and above 50%, but the City does not have actual experience in implementing such drastic measures. With each progressive stage, enforcement, rate strategies, and water use restrictions will be increased while putting in place mitigation measures to maintain the health of the City’s tree canopy.

Table 5: Summary of Proposed Water Shortage Contingency Plan

	Stage I	Stage II	Stage III	Stage IV	Stage V	Stage VI
Target Water Savings	Up to 10%	10% -20%	20% -30%	30% - 40%	40%- 50%	Above 50%
Information Outreach and Audit Program	Low level outreach	Increase advertising, social media campaigns and direct communication with customers targeting highest users and increasing water use auditing			Escalate outreach efforts and media campaign with focus on water use prioritization	Highest outreach effort level with focus on health and safety
Demand-Side Management Programs	Continuation of existing programs, evaluation of new programs	Augment programs and incentive levels as necessary to achieve reduction targets				
Rate Structures	Standard rates already encourage conservation	Drought rate structures may be implemented to secure needed revenue			Water allocations or allotments may be implemented	

	Stage I	Stage II	Stage III	Stage IV	Stage V	Stage VI
Water Use Restrictions	Only permanent water use ordinance – no new restrictions apply	Water use restrictions become more severe with each stage and enforcement is enacted more strongly with each stage. With each stage, efforts made to ensure tree canopy is protected as much as possible.				
Recycled Water Use	Business as usual use	Water use restrictions require use of recycled water for specific purposes, advertise availability of recycled water for trucked delivery, use recycled water for City facilities and street trees as much as possible.				

Short-term emergency water needs will be met with the City’s groundwater wells and storage system which was recently renovated. The system was designed to provide adequate fire protection following a disaster such as a major earthquake. Groundwater may also be available during drought periods although pumping restrictions may be in place, and the City’s wells are currently restricted to 1,500 AFY, 5 consecutive days of pumping, and 15 days of pumping per year. Expanded groundwater utilization as a drought supply and as a long-term supply will be considered as part of the One Water Plan.

RESOURCE IMPACT

Adoption of the 2020 UWMP does not have an associated resource impact. Actions to execute this plan will require allocation of resources, especially should implementation of contingency planning be necessary.

COMMUNITY ENGAGEMENT

An UWMP webpage (www.cityofpaloalto.org/UWMP) was created to educate the public about the UWMP process, provide outreach for public meetings and opportunities to participate, as well as to make available background materials on the City’s urban water management planning activities. Public participation notices were sent by the City in compliance with Water Code 10621(b), 10620(d)(2), and 10642.

COMMISSION REVIEW

The 2020 UWMP was presented to the UAC at its May 12, 2021 meeting. The Commissioners asked questions about and discussed projected water demands and the supply reliability projections under drought scenarios. The UAC voted unanimously (7-0) to recommend Council adopt the draft UWMP and WSCP.

ENVIRONMENTAL IMPACT

Adoption of the 2020 Urban Water Management Plan and the Water Shortage Contingency Plan does not constitute a project under the California Environmental Quality Act's (CEQA) under Water Code Section 10652, and no environmental assessment is necessary.

Attachments:

- Attachment A: Resolution Adopting the 2020 Urban Water Management Plan
- Attachment B: Resolution Adopting the Water Shortage Contingency Plan

Resolution No. XXXX
Resolution of the Council of the City of Palo Alto Adopting the 2020
Urban Water Management Plan to be Submitted to the California Department
of Water Resources

RECITALS

A. The California Legislature has enacted the Urban Water Management Planning Act, California Water Code Sections 10610 -10656 and 10608, as amended, which requires every urban water supplier providing water to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually to prepare an urban water management plan ("Plan") that has as its primary objective the conservation and efficient use of water.

B. The City of Palo Alto ("City"), a municipal utility and chartered city, is an urban water supplier providing water to a population over 60,000.

C. The Plan must be reviewed at least once every five years by the City, which must amend the Plan, as necessary, after it has conducted a review.

D. The preparation of the updated Plan has been coordinated with other public agencies to the extent practicable, and staff has encouraged the active involvement of diverse social, cultural and economic sectors of the population within the City's retail water service area during preparation of the Plan.

E. The Plan must be adopted by July 1, 2021, after it is first made available for public inspection and a public hearing is noticed and held, and it must be filed with the California Department of Water Resources within thirty days of adoption.

F. After reviewing a draft Plan at their May 12, 2021 meeting, the Utilities Advisory Commission recommended that the Council adopt the Plan as presented; and

G. A noticed public hearing on the draft Plan was held by the City Council on June 7, 2021, at which time public comments were heard and considered.

NOW, THEREFORE, the Council of the City of Palo Alto RESOLVES as follows:

SECTION 1. The Council hereby adopts the 2020 Urban Water Management Plan of the City of Palo Alto, which shall be filed with the City Clerk. The City Manager is hereby authorized and directed to file the 2020 Urban Water Management Plan of the City of Palo Alto with the California Department of Water Resources and the State Library.

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SECTION 2. The Council finds and determines that, under the California Water Code Section 10652, the adoption of the Plan and the WSCP and this resolution does not constitute a project under the California Environmental Quality Act, and no environmental assessment is required.

INTRODUCED AND PASSED: June X, 2021

AYES:

NOES:

ABSENT:

ABSTENTIONS:

ATTEST:

City Clerk

Mayor

APPROVED AS TO FORM:

APPROVED:

City Attorney or designee

City Manager

Director of Utilities

Director of Administrative Services

Resolution No. XXXX

Resolution of the Council of the City of Palo Alto Adopting the 2020 Water Shortage Contingency Plan Included in the Urban Water Management Plan to be Submitted to the California Department of Water Resources

RECITALS

A. The California Legislature has enacted the Urban Water Management Planning Act, California Water Code Sections 10610 -10656 and 10608, as amended, which requires every urban water supplier providing water to more than 3,000 customers or supplying more than 3,000 acre -feet of water annually to prepare an urban water management plan ("UWMP") that has as its primary objective the conservation and efficient use of water.

B. The California Water Code requires urban water suppliers to prepare a Water Shortage Contingency Plan (WSCP) to be included in its UWMP.

C. The WSCP must be adopted, along with the UWMP, by July 1, 2021, after it is first made available for public inspection and a public hearing is noticed and held, and it must be filed with the California Department of Water Resources within thirty days of adoption.

D. After reviewing a draft WSCP, which is included in the UWMP, at their May 12, 2021 meeting, the Utilities Advisory Commission recommended that the Council adopt the WSCP as presented; and

E. A noticed public hearing on the WSCP, included in the UWMP, was held by the City Council on June 7, 2021, at which time public comments were heard and considered.

NOW, THEREFORE, the Council of the City of Palo Alto RESOLVES as follows:

SECTION 1. The Council hereby adopts the 2020 Water Shortage Contingency Plan of the City of Palo Alto, included in its UWMP, which shall be filed with the City Clerk. The City Manager is hereby authorized and directed to file the 2020 Water Shortage Contingency Plan of the City of Palo Alto, included in the UWMP, with the California Department of Water Resources and the State Library.

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SECTION 2. The Council finds and determines that, under the California Water Code Section 10652, the adoption of the Plan and the WSCP and this resolution does not constitute a project under the California Environmental Quality Act, and no environmental assessment is required.

INTRODUCED AND PASSED: June X, 2021

AYES:

NOES:

ABSENT:

ABSTENTIONS:

ATTEST:

City Clerk

Mayor

APPROVED AS TO FORM:

APPROVED:

City Attorney or designee

City Manager

Director of Utilities

Director of Administrative Services