



City of Palo Alto

(ID # 12332)

Utilities Advisory Commission Staff Report

Report Type: New Business

Meeting Date: 7/7/2021

Summary Title: One Water Plan Scope

Title: Staff Recommends the Utilities Advisory Commission Discuss and Provide Feedback on the One Water Plan Objectives, Scope and Community Engagement

From: City Manager

Lead Department: Utilities

REQUEST

Staff requests the Utilities Advisory Commission (UAC) discuss and provide feedback on the One Water objectives, scope, and community engagement.

EXECUTIVE SUMMARY

The City of Palo Alto (City or Palo Alto) receives 100% of its potable water from the San Francisco Public Utilities Commission (SFPUC) through the Regional Water System (RWS). In accordance with the Sustainability and Climate Action Plan (S/CAP) Update, the Utilities Department will develop a plan for implementing a One Water portfolio. The One Water approach to integrated water resource planning will take a broad, comprehensive look at water supply options over a 20-year planning horizon including Green Stormwater Infrastructure (GSI), recycled water and other non-potable water sources to supplement and preserve the potable water supply. The One Water Plan will not replace capital planning work or other planning efforts related to flood management, Sea Level Rise Adaptation, or GSI, but will coordinate with those planning efforts, evaluate their effects on water supply planning, and identify gaps or opportunities that provide water supply benefits. One Water will draw on the analysis and findings of a number of critical pieces of a One Water portfolio that have been completed or are ongoing including the Northwest County Recycled Water Strategic Plan and Effluent Transfer Agreement with the Santa Clara Valley Water District (Valley Water) and the City of Mountain View.

The One Water goal is Council adoption of a water supply plan that is a 20-year roadmap for implementation of prioritized water supply portfolios. To achieve this goal, the staff plans to focus the One Water scope on the following:

- 1) Objective: address how the City can increase its water portfolio's resiliency to future uncertain conditions such as changes in climate, regulations, economics, political conditions and natural disasters;
- 2) Criteria for evaluating water supply portfolios: Planning level cost (capital and operations and maintenance), normal year reliability, drought resiliency, contribution to canopy health, quality, sustainability, equity, flexibility to adapt to changing conditions, complexity and alignment with other City initiatives including S/CAP, green stormwater program, sea level rise policy, and Comprehensive Plan;
- 3) Context: One Water should be consistent, avoid duplication, identify gaps and consider opportunities that provide water supply benefits from other City initiatives and regional planning efforts;
- 4) Reliability: include alternatives for consideration that provide Palo Alto with higher level of reliability than the SFPUC's Level of Service that SFPUC is obligated to provide (no more than 20 percent system-wide rationing during drought);

Key tenets of this process include the following, and these are illustrated in Figure 1 below:

1. The plan will take a broad, comprehensive look at water supply options over a 20-year planning horizon including GSI, recycled water and other non-potable water sources to supplement and preserve the potable water supply. The resulting roadmap for implementation of prioritized water supply portfolios is shown at the bottom of Figure 1 below.
2. The One Water planning process will draw on the analysis and findings of a number of critical pieces of a One Water Plan that have been completed or are ongoing, including the Northwest County Recycled Water Strategic Plan and the Effluent Transfer Agreement with Valley Water. Figure 1 illustrates these documents feeding into One Water integrated water supply planning.
3. The plan will identify and prioritize future water supply portfolios for the City of Palo Alto that serve the interests of Palo Alto residents and businesses and protect the tree canopy.
4. This planning process must engage staff across relevant City departments, key stakeholders, and the public.

Figure 1: One Water Role in Palo Alto Planning



Staff is seeking feedback from the UAC on the project objectives, scope, and community engagement plan prior to issuance of a Request for Proposals from qualified consulting firms.

The UAC may consider the following questions in order to facilitate the discussion and feedback:

1. Is this the right goal for the One Water planning process: Council adoption of a water supply plan that is a 20-year roadmap for implementation of prioritized water supply portfolios?
2. Is this the right objective for the One Water Plan: Address how the City can increase its water portfolio's resiliency to future uncertain conditions such as changes in climate, regulations, economics, political conditions, and natural disasters?
3. Does the UAC have feedback regarding the evaluation criteria under consideration and described below?
4. Is this the right focus: Evaluate locally-controlled water supply and demand management projects and identify potential collaboration and regional project opportunities?
5. Should Palo Alto seek to identify portfolios that will result in increased reliability, exceeding SFPUC's level of service goal of no more than 20% system wide water supply shortages during drought conditions?

6. Is this the right approach: Consider stormwater as a potential water supply resource but do not explicitly address broader watershed impacts of those projects in this plan?¹
7. To what extent should the One Water Plan include City policies regarding green buildings, including onsite blackwater systems at private businesses?
8. Does the UAC have specific feedback on the methods for soliciting public input?

BACKGROUND

Palo Alto's Water Supply

The City receives 100% of its potable water from the SFPUC through the 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 City partners with Valley Water to offer a wide-range of water conservation programs to our residential and commercial customers.

One Water

One Water is an approach that many communities have begun to utilize in integrated water resource planning. One Water can be defined in many different ways. The US Water Alliance, a national nonprofit organization whose mission is to drive One Water breakthroughs that positively transform our environment, economy, and society, explains that a One Water approach can take many forms, but all share some unifying characteristics:

- *The mindset that all water has value—from the water resources in our ecosystems to our drinking water, wastewater, and stormwater.*
- *A focus on achieving multiple benefits, meaning that our water-related investments should provide economic, environmental, and societal returns.*
- *Approaching decisions with a systems mindset that encompasses the full water cycle and larger infrastructure systems.*
- *Utilizing watershed-scale thinking and action that respects and responds to the natural ecosystem, geology, and hydrology of an area.*
- *Relying heavily on partnerships and inclusion, recognizing that real progress will only be made when all stakeholders have a seat at the table.²*

The 2020 S/CAP update is underway, and a key action is to develop a plan for implementing a One Water portfolio. One Water will replace the more traditional WIRP and take a broader, more comprehensive look at water supply options including GSI, recycled water and other non-potable water sources to supplement and preserve the potable water supply. One Water will utilize the work from the completed Northwest County Recycled Water Strategic Plan and the Effluent Transfer Agreement that are described in more detail below.

¹ GSI planning considers broader watershed impacts such as reducing pollutants conveyed in stormwater to local creeks and the Bay.

² <http://uswateralliance.org/sites/uswateralliance.org/files/publications/Roadmap%20Executive%20Summary.pdf>

The UAC heard a presentation in August 2020 on One Water approaches from Professor Richard Luthy. Professor Luthy mentioned the Bay Area One Water Network³ and described decentralized non-potable water reuse, indirect and direct potable reuse, stormwater and other alternative water source opportunities and new technologies that can be used to supplement water supplies.

Water Supply Reliability and Climate Change

Since the City relies on the SFPUC's RWS for its potable water supplies, the City's current water supply reliability mirrors that of the RWS. During a water supply shortage, contractually agreed upon allocation methods apply in limited circumstances. 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). The SFPUC is contractually obligated to maintain a Level of Service (LOS) whereby water supply shortage will be limited to 20% system-wide. SFPUC's draft 2020 UWMP projects that if the Bay Delta Plan is not implemented, SFPUC has sufficient supplies to meet projected demands, however if the Bay Delta Plan is implemented, this would result in system-wide shortages of up to 54% for Wholesale Customers during multiple years of drought. Alternative water supply projects undertaken by the SFPUC to close this gap may take many years to implement and may be costly.

Climate change will also impact Palo Alto's water supply. The SFPUC's climate change study, the "Long Term Vulnerability Assessment and Adaptation Plan for the SFPUC Water Enterprise" completed in partnership with the Water Research Foundation, will be released in the summer of 2021 and can be used to help frame the issue of climate change impacts on the water supplies delivered via the RWS.

Northwest County Recycled Water Strategic Plan & Related

The City Council accepted the Northwest County Recycled Water Strategic Plan in 2020 (Council Report [#10913](#)). The [Northwest County Recycled Water Strategic Plan](#) is a collaboration between the City of Palo Alto and the Valley Water that presents the feasibility of various potable and non-potable opportunities to reuse water from the RWQCP within the plant's service territory (Palo Alto, Mountain View, Los Altos, Los Altos Hills, Stanford University and East Palo Alto Sanitary District). The report summarizes and ranks water reuse alternatives based on cost and non-cost criteria; it does not recommend specific projects. The study also includes a robust evaluation of the groundwater aquifer in Northwest Santa Clara County.

The Northwest County Recycled Water Strategic Plan evaluated a potential expansion of the recycled water pipeline for non-potable reuse called "Phase 3 Pipeline." Phase 3 would expand

³ Bay Area One Water Network is a collaborative effort of the Engineering Research Center for Re-Inventing the Nation's Urban Water Infrastructure (ReNUWit), the Berkeley Water Center, the Environmental Protection Agency, and numerous Bay Area water utilities, cities, and counties.

the recycled water system to South Palo Alto to serve landscape irrigation demands and potential dual-plumbed systems mainly within the Stanford Research Park area. An EIR, business plan and preliminary design report for this pipeline are also complete for the Phase 3 Pipeline. For more information, see this [website](#).

The Northwest County Recycled Water Strategic Plan also examined a variety of indirect and direct potable reuse options, and the same work effort developed three technical memorandums examining other possible water sources including:

1. The possible use of groundwater from temporary dewatering systems for irrigation.
2. The possible use of groundwater to irrigate city parks.
3. Increasing flow to RWQCP by redirecting existing permanent dewatering systems at Oregon Expressway and City Hall to increase flows at the RWQCP for a future potable reuse project.

More information about these technical memorandums and findings are available on the [website](#).

Effluent Transfer Agreement

In 2019, Council approved an Effluent Transfer Agreement with Valley Water and the City of Mountain View (Council Report [#10627](#)). The 76-year agreement enables an effluent transfer from the RWQCP to Valley Water to be reused in Santa Clara County. Under the agreement, Valley Water has approximately 20 years to take delivery of the treated effluent which would likely be used in the county south of Mountain View. The agreement also provides funding from Valley Water for a salt removal facility in Palo Alto to improve the quality of recycled water used in Palo Alto and the City of Mountain View and an at-cost water supply option for Palo Alto. Palo Alto is now moving forward with the detailed design of this facility and construction is expected to be completed in 2025.⁴

DISCUSSION

The plan for implementing a One Water portfolio is consistent with the following guiding documents and actions:

Sustainability and Climate Action Plan

“Water” is one of seven chapters in the City’s S/CAP. In November 2016 Council adopted the S/CAP Framework (Staff Report [#7304](#)) including four water-specific goals:

1. Utilize the right water supply for the right use;
2. Ensure sufficient water quantity and quality;
3. Protect the Bay, other surface waters, and groundwater; and
4. Lead in sustainable water management.

⁴ In March 2021, Council approved this project’s design services contract with Black & Veatch (Council Report [#11782](#)).

The 2020 S/CAP update is underway, and a key action is to develop a plan for implementing a One Water portfolio.⁵ The One Water approach to integrated water resource planning will take a broader, more comprehensive look at water supply options including green stormwater infrastructure, recycled water and other non-potable water sources to supplement and preserve the potable water supply. One Water will draw on the analysis and findings of a number of critical pieces of a One Water portfolio that have been completed or are ongoing including the Northwest County Recycled Water Strategic Plan and Effluent Transfer agreement with Valley Water that are described in more detail below.

Utilities Strategic Plan

The Utilities Strategic Plan provides guidance in the area of water supply planning through Priority 4 “Financial Efficiency and Resource Optimization,” Strategy 4 “Achieve a sustainable and resilient energy and water supply to meet community needs,” and Action 3 “Evaluate recycled water, groundwater, and other non-potable water sources and integrate the results and outcomes with water supply plans.” By pursuing One Water, staff aims to carry out this strategic priority action.

2017 Water Integrated Resource Plan

In 2017, the WIRP provided Council with a comparison of potable water supply alternatives and demand-side management measures as well as guidelines for the City’s water resource planning activities ([Staff Report #7634](#)). The Council-adopted guidelines are listed below with a commentary for each describing progress made:

1. Pursue all cost-effective water efficiency and conservation;
The City continues to partner with Valley Water to offer a wide-range of water conservation programs to our residential and commercial customers.
2. Continue to investigate the technical feasibility and financial impact of increasing the use of non-traditional, non-potable sources such as black water, storm water, and water incidentally produced in an excavating project;

The following S/CAP update draft goals and actions support this guideline:

- a. Goal: achieve 10% of total water demand met by water reuse (recycled or stormwater capture);
- b. Goal: increase pervious surfaces within the City 10% by 2030 compared to 2020 baseline, to manage stormwater by improving water quality to protect the SF Bay and increase beneficial use of captured stormwater;
- c. Action: Create streamlined design guidelines and permitting process with minimal fees for onsite potable and non-potable water reuse on private (residential and commercial) property.

⁵ <https://www.cityofpaloalto.org/files/assets/public/sustainability/2020-sustainability-and-climate-action-plan-updated-potential-goals-and-key-actions-draft.pdf>

3. Proceed with the *Recycled Water Strategic Plan* to determine how to reduce the demand for imported water; and

The *Recycled Water Strategic Plan* was completed in 2020.

4. Survey potentially impacted customers about their preference for SFPUC water versus blended water.

Staff has not yet conducted a survey since the adoption of this guideline in 2017. The most recent survey was in 2004 when staff surveyed residential customers and found that respondents generally preferred no groundwater or treated groundwater, however blended groundwater was not soundly rejected (June 2004 UAC meeting). Since that time, SFPUC changed its treatment of imported water to include chloramine treatment. Investments would need to be approved by Council and then implemented in order to address water quality issues associated with blending SFPUC imported water with groundwater. Additionally, during a drought, there would likely be restrictions on groundwater at the same time as any cutbacks from SFPUC water and it is unclear if any groundwater would be available to Palo Alto. The survey is not currently in the work plan but may be resurrected depending on the findings from the One Water planning process.

At the time of the 2017 WIRP, staff planned to update these guidelines after the completion of the *Recycled Water Strategic Plan*. The assumption now is that the One Water Plan will replace the WIRP.

One Water Proposed Scope

The One Water goal is Council adoption of a water supply plan that is a 20-year roadmap for implementation of prioritized water supply portfolios. To achieve this goal, staff plans to focus the One Water scope on the key areas of analysis discussed below. Staff seeks UAC input on all areas of the proposed scope and approach for One Water.

The objective of One Water is to address how the City can increase its water portfolio's resiliency to future uncertain conditions such as changes in climate, regulations, economics, political conditions and natural disasters. The One Water scope will be refined using input from the UAC and public. Staff will then issue a request for proposals and negotiate a contract with a selected consultant.

Palo Alto obtains all of its potable water from SFPUC which is why the City's water supply reliability mirrors that of the RWS. SFPUC is obligated to provide a level of service of no more than 20 percent system-wide rationing during drought. However, if the Bay Delta Plan is implemented, this would result in system-wide shortages of up to 54% for Wholesale Customers during multi-year droughts.

The SFPUC is implementing an Alternative Water Supply Planning (AWSP) process that is designed to investigate and plan for new water supplies to address future long-term water supply reliability challenges and vulnerabilities on the RWS. The SFPUC has budgeted \$264 million over the next ten years to fund alternative water supply projects (see Palo Alto's 2020 UWMP for more discussion). Palo Alto water customers will pay Palo Alto's portion of this work through wholesale water rates. It is uncertain how much upward pressure this supply planning will place on wholesale water rates in the long-term and how long AWSP will take to implement new supplies.

Considering the uncertainty of state regulations and the SFPUC's AWSP cost and implementation, it is prudent for Palo Alto to plan for its water supply needs and local reliability targets. On August 7, 2019 the UAC discussed Palo Alto's water supply reliability. Some UAC members encouraged staff to look for more local or other options for water supply reliability and rank the cost-effectiveness of projects, and expressed a need to protect the tree canopy and landscaping infrastructure. Water supply alternatives that yield reliability in Palo Alto over and above the SFPUC's LOS target may be consistent with local values, such as protection of the tree canopy, and may be attractive even at increased cost to the community.

In addition to examining potable and non-potable water sources at the utility scale, the One Water planning process will examine demand side management measures including gray water reuse and other water conserving measures that customers and the private sector can implement. Palo Alto offers water rebates for a variety of water efficient and conserving products through its partnership with Valley Water. Past planning efforts concluded that DSM is the best, most cost-effective resource, but potable water supplies are still needed (2017 WIRP).

One Water will include distributed water reuse projects such as black water treatment as an offset to water demand and will continue to investigate the technical feasibility, financial and water supply impact of increasing the use of non-traditional, non-potable water sources. Development of policies for on-site reuse at commercial facilities and expanded green building requirements or mandates are not contemplated in the scope of work. Inclusion of such policies would increase the time and cost of the One Water Plan. However, One Water results related to water supply portfolio development may result in recommendations that would feed into the development/refinement of these green building policies, requirements or mandates.

One Water will look for opportunities to utilize GSI to offset water demand in Palo Alto. GSI is infrastructure built into our urban environment to collect, slow, and clean stormwater runoff through the use of natural processes. Palo Alto's Green Stormwater Infrastructure Plan outlines how Palo Alto envisions gradually integrating GSI into its urban landscape while building on and learning from existing installed measures. Palo Alto aims to transform its storm drain infrastructure over time to slow the flow of stormwater runoff, increase infiltration into pervious surfaces, recharge groundwater (where feasible), increase irrigation and other uses of captured stormwater, and treat and remove pollutants. There are multiple benefits of GSI and some of these can benefit Palo Alto's water supply, groundwater, and surface water. The One Water Plan will identify and prioritize GSI projects with water supply benefits. Including a

comprehensive analysis of the co-benefits will overlap with GSI work underway at the City, would require close coordination with Valley Water, and would expand the scope and cost of the One Water Plan.

One Water will develop alternative water supply portfolios depending on future uncertain conditions. One Water will focus on and include locally-controlled water supply projects while identifying potential collaboration and regional project opportunities.

One Water will compare and prioritize the water supply portfolios based upon a series of criteria including at a minimum:

- Planning level cost, capital, and O&M
- Normal year reliability
- Drought resiliency
- Contribution to canopy health
- Quality
- Sustainability
- Equity
- Flexibility to adapt to changing conditions including SFPUC activities, state actions regarding environmental flows or water reuse regulations, Valley Water activities, and climate change
- Complexity
- Alignment with other City initiatives including S/CAP, green stormwater program, sea level rise policy, and Comprehensive Plan
- Other criteria

One Water plans differ greatly across communities. For example, some One Water plans are used as the water capital improvement program, flood management master plans or stream stewardship plans for their communities. Palo Alto's One Water will examine options for infrastructure in specific areas that may increase resiliency at an appropriate level of detail. However, One Water will not replace ongoing capital planning work or existing capital master plans for replacement or rehabilitation of aging infrastructure. One Water will not replace any ongoing planning efforts such as flood management, Sea Level Rise and Green Stormwater Infrastructure. One Water will coordinate with those planning efforts, seek to find any gaps that could improve water supply planning and consider opportunities that provide water supply benefits from these other planning efforts.

Community engagement will be critical to the success of the One Water planning effort. This process must engage across relevant City departments, key stakeholders and the public. A range of techniques are at our disposal to gather community input including public meetings such as UAC and Council meetings, posting information on the City's website, community

meetings, surveys, bill inserts and social media. Thoughts from UAC commissioners regarding community engagement are welcomed.

As the UAC considers feedback regarding the proposed One Water planning approach, the following questions may be used as guidance:

1. Is this the right goal for the One Water planning process: Council adoption of a water supply plan that is a 20-year roadmap for implementation of prioritized water supply portfolios?
2. Is this the right objective for the One Water Plan: Address how the City can increase its water portfolio's resiliency to future uncertain conditions such as climate, regulations, economic, political, and natural disasters?
3. Does the UAC have feedback on the evaluation criteria under consideration?
4. Is this the right focus: Evaluate locally-controlled water supply and demand management projects and identify potential collaboration and regional project opportunities?
5. Should Palo Alto seek to identify portfolios that will result in increased reliability, exceeding SFPUC's level of service goal of no more than 20% system wide water supply shortages during drought conditions?
6. Is this the right approach: Consider stormwater as a potential water supply resource but do not explicitly address broader watershed impacts of those projects in this plan?
7. To what extent should the One Water Plan include City policies regarding Green Buildings including onsite blackwater systems at private businesses?

8. Does the UAC have specific feedback on the methods for soliciting public input?

COMMUNITY ENGAGEMENT

One Water must engage across relevant City departments, key stakeholders and the public. Community engagement will be a key part of One Water development. This report offers the UAC and the public the first opportunity to contribute to the discussion.

NEXT STEPS

Staff will incorporate feedback from UAC members and plans to draft and issue a request for proposals to work with an outside consultant to develop the One Water Plan.

RESOURCE IMPACTS

The Utilities Department plans to issue a request for proposals which will require additional staff time and consultant expenditure that will be absorbed within existing budgets.

POLICY IMPLICATIONS

This report is part of the implementation of a key action in the 2020 S/CAP Update to develop a plan for implementing a One Water portfolio. Additionally, it is consistent with the Utilities

Strategic Plan specifically, Priority 4 “Financial Efficiency and Resource Optimization,” Strategy 4 “Achieve a sustainable and resilient energy and water supply to meet community needs,” and Action 3 “Evaluate recycled water, groundwater, and other non-potable water sources and integrate the results and outcomes with water supply plans.”

ENVIRONMENTAL IMPACT

The UAC’s recommendation providing feedback on the One Water objectives, scope and community engagement is not a project requiring California Environmental Quality Act review, because it is an administrative governmental activity which will not cause a direct or indirect physical change in the environment.

Attachments:

- Attachment A: Presentation



One Water Plan Scope Utilities Advisory Commission

July 7, 2021

www.cityofpaloalto.org

Goal:

Council adoption of a water supply plan that is a 20-year roadmap for implementation of prioritized water supply portfolios

Objective:

Address how the City can increase its water portfolio's resiliency to future uncertain conditions such as climate, regulations, economic, political and natural disasters

One Water Role in Palo Alto Planning



Criteria

- Planning level cost (capital and operations and maintenance)
- Normal year reliability
- Drought resiliency
- Contribution to canopy health
- Quality
- Sustainability
- Equity
- Flexibility to adapt to changing conditions
- Complexity
- Alignment with other City initiatives including S/CAP, green stormwater program, sea level rise policy, and Comprehensive Plan

Discussion

- Goal, Objective, Criteria
- Focus on locally-controlled water supply and DSM; identify potential collaboration and regional project opportunities?
- Identify projects that increase reliability in Palo Alto (Exceed SFPUC's level of service goal of no more than 20% system wide water supply shortages during drought conditions)
- Stormwater as a potential resource (Do not include watershed management)
- Consider but do not propose policies re: green buildings, onsite blackwater systems at private businesses
- Specific feedback on the methods for soliciting public input