



City Council Staff Report

From: City Manager

Report Type: CONSENT CALENDAR

Lead Department: Public Works

Meeting Date: October 16, 2023

Report #:2308-1863

TITLE

Approval of Financing Plan for a Local Salt Removal Facility at the Regional Water Quality Control Plant and Direct Staff to Secure Financing and Solicit Bids for a Construction Contract and Construction Management Services Contract as Recommended by Finance Committee. CEQA status - Project analyzed in 2019 Addendum to the 2015 Environmental Impact Report for the Palo Alto Recycled Water Project (SCH 2011062037), approved November 18, 2019.

RECOMMENDATION

The Finance Committee and Staff recommend that the Council:

1. Approve the Financing Plan for the Local Salt Removal Facility to be constructed at the Regional Water Quality Control Plant and authorize staff to amend the Recycled Water Agreement with the City of Mountain View; and
2. Direct staff to issue an invitation for bids and secure financing for the project financing through the Clean Water State Revolving Fund (SRF).

EXECUTIVE SUMMARY

The City commenced design on a salt removal facility in 2017. This report provides an updated cost estimate and financing plan for the project. Total estimated project costs are \$56 million. Previously identified funding sources included \$16 million from Valley Water and \$12.9 million from a US Bureau of Reclamation grant. The City of Mountain View has agreed to pay for the remaining \$27 million in project costs. If approved, this action will continue staff work to construct a local salt removal facility including financial and contract adjustments to continue this project. On September 19, 2023, the Finance Committee reviewed the Preliminary Finance Plan for the Advanced Water Purification System and voted unanimously to recommend Council approval.

The Palo Alto Regional Water Quality Control Plant currently produces approximately 230 million gallons of recycled water per year for beneficial re-use. The majority of the recycled water customers are located in Mountain View, with some municipal uses within Palo Alto. The proposed Local Salt Removal Facility at the Regional Water Quality Control Plant will produce higher quality recycled water for existing and future customers in Mountain View and Palo Alto.

The existing customers have been requesting lower salinity water to reduce impacts to salt sensitive landscapes. For the past decade, Palo Alto and its partner cities have worked to reduce the amount of salt that enters the sewage treatment plant. Unfortunately, salt is extremely hard to remove at the source.

In the early 2000s, the City investigated the possibility of expanding recycled water use within the City. A 2015 environmental impact report (EIR) prepared in connection with that effort identified potentially significant impacts to salt-sensitive plant species resulting from recycled water irrigation and included a salt removal facility as a mitigation measure for future recycled water expansion projects.

Palo Alto's current recycled water use is limited to existing municipal facilities, however this project benefits Palo Alto by producing higher quality recycled water that would be suitable for broader uses in other areas within the city. The project supports Palo Alto's Sustainability Action Plan by improving a local supply of recycled water. The Local Salt Removal Facility could potentially serve as a step toward producing potable water. This alternative is being evaluated as part of the City's One Water planning process, which will be completed in 2024.

BACKGROUND

The RWQCP treats wastewater from a total of six communities: Palo Alto, Mountain View, Los Altos, Los Altos Hills, Stanford, and East Palo Alto Sanitary District (Partner Agencies). The RWQCP also produces approximately 230 million gallons per year¹ of tertiary-treated recycled water for beneficial reuse. Recycled water is non-potable and not used for drinking water. In the early 1990s, the recycled water program's original objective was to reduce the effluent discharge volume and metal mass loadings to the Lower South San Francisco Bay. As the City's potable water supply became scarcer and rates increased, the objective expanded to include reducing potable water consumption, mainly for City park irrigation. The RWQCP supplies tertiary-treated recycled water to the City of Mountain View, several City-owned facilities and parks (Greer Park and the Baylands Athletic Center), the Palo Alto Golf Course, Caltrans, and a commercial truck-fill standpipe at the RWQCP.

In the early 1990s, a more stringent mass loading limit for copper was placed on the RWQCP. To meet the copper limit and to assist with impacts of the drought in the late 1980s, the City developed a 1992 Water Reclamation Master Plan and a financial plan².

Council decided to have RWQCP partners build the first phase of the recycled water system and distribute recycled water to the Palo Alto Golf Course to reduce the amount of pollutants

¹ Throughout the report different units are referenced for measuring volumes of water; specifically, million gallons per day (MGD) or million gallons per year, 100 cubic feet (CCF), and acre-feet. 1 CCF is equal to 748 gallons, and 1 acre-foot is equivalent to 325,830 gallons.

² City Council, September 2, 1993; Agenda Item #N/A, SR #464:93

<https://portal.laserfiche.com/Portal/DocView.aspx?id=66040&repo=r-704298fc>

discharged to the Bay. The Recycled Water System expanded when Mountain View installed a new pipeline to the Shoreline area³.

Palo Alto investigated expanding recycled water to South Palo Alto and Stanford Research Park; however, two organizations, Canopy and Stanford Real Estate, voiced concerns regarding the irrigation of redwood trees and sensitive species with recycled water. The City then prepared an EIR focused on water quality issues and salinity impacts. On January 25, 2010, Council approved the Recycled Water Salinity Reduction Policy⁴, including a goal of reducing the recycled water salinity as measured by total dissolved solids (TDS) to under 600 parts per million (ppm). In the following years, the City and the other Partner Agencies completed several projects to reduce the infiltration of salty groundwater by repairing leaking sewer pipes. The repairs reduced the salts entering the RWQCP, but not by enough to reach the target. Palo Alto, Mountain View, and Valley Water wanted to increase the amount of recycled water used in the County and realized that reducing salts would help.

In 2017, Council approved the Preliminary Conceptual Design Report for a phased Local Salt Removal Facility. The Local Salt Removal Facility would improve the recycled water quality by reducing its average concentration of TDS from 800 ppm to 450 ± 50 ppm by blending reverse osmosis product water with the existing recycled water. The highly treated water would enable the City as well as Mountain View to expand non-potable recycled water use and/or provide a first step toward small-scale direct or indirect potable reuse in the City.

In December 2019, the City, Mountain View, and Valley Water signed an Agreement to Advance Resilient Water Reuse Programs in Santa Clara County⁵. The Agreement included funding of \$16 million from Valley Water that could be put towards finalizing the design and construction of the Local Salt Removal Facility. In March 2021, the City hired Black & Veatch to design the Local Salt Removal Facility, which included updating cost estimates at each stage of designs⁶.

An update on the Local Salt Removal Facility design including updated cost estimates and an update on the City's collaboration efforts on Valley Water's Regional Purified Water Project

³ City Council, June 18, 2007; Agenda Item #9, SR #243.07
<https://portal.laserfiche.com/Portal/DocView.aspx?id=46352&repo=r-704298fc>

⁴ City Council, January 25, 2010; Agenda Item #9, SR #111:10,
<https://www.cityofpaloalto.org/files/assets/public/agendas-minutes-reports/reports/city-manager-reports-cmrs/year-archive/2010/cmr-111->

⁵ City Council, November 18, 2019; Agenda Item #17, SR #10627,
<https://www.cityofpaloalto.org/files/assets/public/agendas-minutes-reports/reports/city-manager-reports-cmrs/year-archive/2019/id-10627-mini-packet-11182019.pdf?t=60382.02>

⁶ City Council, March 3, 2021; Agenda Item #3, SR #11782
<https://www.cityofpaloalto.org/files/assets/public/agendas-minutes-reports/reports/city-manager-reports-cmrs/year-archive/2021/id-11782.pdf>

were presented to Council at a September 12, 2022 study session⁷. Due to increases in construction prices as well as refinement of design elements, the cost estimate of the Local Salt Removal Facility at the detailed design (\$56 million) was significantly higher than that of the preliminary design in 2017 (\$22 million). Staff has worked to mitigate these increases by seeking out grant opportunities as well as considering alternative bidding options, pre-selection of equipment where possible, and optimization of permeate storage tank. Staff committed at the September 12, 2022 study session to prepare a Preliminary Finance Plan (Attachment A) to describe the costs associated with the Local Salt Removal Facility, the various funding sources available, and the fiscal impacts to the City.

This project benefits Palo Alto in a number of ways. It will provide higher quality recycled water for the Golf Course and Greer Park, reduce conversion of marsh near the RWQCP outfall, and reduce discharge to the Bay. The project also furthers our collaborative efforts with treatment plant partner agencies and sets up potential for future recycled water customers within Palo Alto.

ANALYSIS

Staff worked with an engineering consultant, Woodard & Curran, to produce the Preliminary Finance Plan summarized herein (Attachment A). The incorporated assumptions regarding estimated construction costs, construction schedules, and facility operations are based on the Black & Veatch 90 percent design contract documents from October 2022. The most recent estimated Local Salt Removal Facility capital cost is \$56,302,667 and includes Phase 1 design, construction, change order contingency, construction cost escalation, program management, and construction management. Total project cost for Phase 1 assumes a facility capacity of 1.125 million gallons per day of total reverse osmosis permeate with equipment sized, spaced, and configured for a potential Phase 2 expansion to 2.25 million gallons per day of total reverse osmosis permeate. Once the Finance Committee and City Council provide direction regarding this project, staff will work to prepare an updated cost estimate based on the 100% design documents and amend the 2005 agreement between Palo Alto and Mountain View for Recycled Water to reflect the parties' respective obligations regarding the new facility.

Funding for the Local Salt Removal Facility is projected to come from several sources. Prior to allocation of the \$56 million total project cost for the Preliminary Finance Plan, external funding sources were subtracted from the total to reduce the overall cost to each agency. External funding sources include the \$16 million from the 2019 Agreement with Valley Water and a \$12,867,875 US Bureau of Reclamation grant, leaving a remaining funding requirement of \$27,434,792 (Table 1) which will be covered by Mountain View. Palo Alto currently has no plans to expand its existing recycled water system and current customers are mainly municipal users,

⁷ City Council, September 12, 2022; Agenda Item #3, SR #14650

<https://portal.laserfiche.com/Portal/DocView.aspx?id=59240&repo=r-704298fc&searchid=1fc7f635-8174-45b3-b0b1-cd496145aa8f>

therefore, Palo Alto does not have a customer base requesting this higher quality water. Palo Alto and Mountain View staff agreed that Mountain View would pay the remainder of the capital costs associated with this project. Mountain View staff recommended this project and Mountain View's City Council approved it on June 27, 2023⁸.

If approved for construction by Palo Alto, an amendment to the existing Agreement⁹ with Mountain View will be brought to Council at a later date to memorialize the capital cost contributions for the project.

Table 1: Summary of Project Capital Costs and Available External Funding (based on 90% design contract documents)

	Amount
Capital Cost Estimate for Local Salt Removal Facility	\$56,302,667
Valley Water Funding	-\$16,000,000
US Bureau of Reclamation Grant	-\$12,867,875
Remaining Capital Cost to Be Paid By Mountain View	\$27,434,792

Estimated Debt Service Costs

The remaining capital costs allocated to Mountain View (\$27 million) will be partially debt financed through the SRF program. Financing terms for this loan assume a 30-year repayment term at an estimated interest rate of 3.0%. Under these terms, the annual debt service payment is \$1,436,000 and is to be allocated to Mountain View. Based on Council recommendation, staff will move forward with formalizing this loan in Fiscal Year 2024. Interest rates are subject to change; any delay in formalizing the loan with the state could potentially increase the total cost of the loan. Mountain View may elect to pay a portion of the capital cost initially rather than using the SRF for the full remaining capital cost. These details will be finalized in an amendment to the Recycled Water Agreement between Palo Alto and Mountain View.

Operation & Maintenance Cost Allocation

There will be new O&M expenses following the Local Salt Removal Facility construction completion. Black & Veatch prepared O&M cost estimates based on the projected operating expenses for several production rates. O&M cost will vary year by year depending on the actual demand by the users. Under the lowest cost O&M estimate, Palo Alto would be responsible for

⁸ City of Mountain View Council, June 27, 2023: Agenda Item #4.11, SR # EF-LA/LL/1/CAM 703-06-27-23CR 202873 <https://mountainview.legistar.com/LegislationDetail.aspx?ID=6269443&GUID=FC0B7945-2797-4CE8-A439-135187236514&Options=&Search=>

⁹ City Council, August 28, 2017; Agenda Item #4, SR #8312 <https://portal.laserfiche.com/Portal/DocView.aspx?id=50741&repo=r-704298fc&searchid=790798d8-ffbc-4bb6-998b-faa57f8a8bbe>

annual operating costs proportional to its use of the water, ranging from \$188,000 for the first full year of operation up to \$230,400 at year 10¹⁰.

FISCAL/RESOURCE IMPACT

Current and future use of recycled water in the City of Palo Alto

One of the City's Climate Action-Protection and Adaptation goals is to develop a water supply portfolio which is resilient to droughts, changes in climate, and water demand and regulations, and that supports our urban canopy. Currently the City is developing the One Water Plan, a key action within the City's Sustainability and Climate Action Plan (S/CAP)¹¹. The development of a water plan will evaluate alternative water supplies, define existing and future uncertainties and supply risks, and identify community needs and priorities. The One Water Plan will serve as a long-term guide to better prepare for future uncertainties like multi-year drought and climate change. The Local Salt Removal Facility could be a component of several of the supply options being evaluated.

One alternative considered in the One Water Plan is the Phase III recycled water system expansion to the Stanford Research Park. The Local Salt Removal Facility is critical to that project as only enhanced recycled water will be acceptable to Stanford. This project is, however, unlikely to be included in a final recommendation due to the cost compared to other alternatives and the direction the State is headed toward restricting irrigation of non-functional turf at commercial sites.

If the City's non-potable reuse system is not expanded (i.e., Phase III expansion screened out from One Water Plan), there is a small demand for enhanced recycled water in the City to use on the Golf Course's fairways and other landscaped areas.

With the City's future recycled water demand and objectives largely uncertain, staff decided to focus the Preliminary Finance Plan on the scenario that assumes no change in current recycled water demand in Palo Alto, except a small increase for the Palo Alto Golf Course.

STAKEHOLDER ENGAGEMENT

Palo Alto hosted a community meeting on October 23, 2019 to inform the community and answer questions about the components of the funding Agreement between Palo Alto, Valley Water, and Mountain View, including partial funding for the Local Salt Removal Facility. Members of the public approached staff during break-out sessions to get direct answers to questions. Most comments were focused on the 2019 Agreement to Advance Resilient Water Reuse Programs in Santa Clara County terms and were overall supportive of the Local Salt

¹⁰ Prior to the first year of operation there is a 6-month period with half the annual cost referenced in Table 5 in Attachment A: Preliminary Finance Plan for the Advanced Water Purification System – Phase 1.

¹¹ City Council, September 27, 2022; Agenda Item #10, SR #14606

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Removal Facility. Previous public meetings related to options to reduce salinity in recycled water were also held.

ENVIRONMENTAL REVIEW

Finance Committee and eventual Council action on this item is a project subject to review under the California Environmental Quality Act (CEQA). CEQA analysis for the project is contained in the 2019 Addendum to the 2015 Environmental Impact Report for the Palo Alto Recycled Water Project (SCH 2011062037), approved by the City Council on November 18, 2019.

ATTACHMENTS

Attachment A: Preliminary Finance Plan for the Advanced Water Purification System – Phase I

APPROVED BY:

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