COUNCIL REPORT

CITY OF MOUNTAIN VIEW

DATE: February 23, 2016

CATEGORY: Consent

DEPT.: Public Works

TITLE: **Approve Midyear Capital Improvement Project—Recycled Water System Improvements Planning**

RECOMMENDATION

Approve a midyear capital improvement project, Recycled Water System Improvements Planning, and transfer $151,000 from the Water Fund to the new project. (Five votes required)

BACKGROUND

The Palo Alto Regional Water Quality Control Plant (RWQCP) provides wastewater service to Mountain View, Palo Alto, East Palo Alto, Stanford University, Los Altos, and Los Altos Hills. In 2009, the cities of Mountain View and Palo Alto completed construction of a recycled water distribution system from the RWQCP to the North Bayshore Area of Mountain View (north of U.S. 101). The system supplies recycled water for irrigation to 40 customers, providing an average of 402,000 gallons per day for landscape irrigation (2015 use).

Several initiatives have been recently completed or are under way to increase recycled water use, including a recycled water system expansion feasibility study, reviewing strategies to improve water quality, and construction of new distribution infrastructure.

Recycled Water Feasibility Study

In 2014, the City completed a study of opportunities to extend the existing distribution system to provide recycled water to commercial, industrial, irrigation, and multi-family customers throughout the City. The study identified five alternatives for expansion.

Staff presented the study findings at an April 1, 2014 Study Session, including a recommendation to pursue implementation of Alternative 1 to expand the system to the east side of Stevens Creek and through the Moffett Field/NASA Ames property. Alternative 1 would also facilitate the future expansion of the distribution system to

users in the Middlefield-Ellis-Whisman area, as well as a potential connection with the City of Sunnyvale's recycled water system. A portion of the Alternative 1 infrastructure is scheduled to be constructed through a planned Fiscal Year 2017-18 capital improvement project, which will add recycled water distribution lines on Shorebird Way and Charleston Way. A portion of Alternative 1 is on the Moffett Field property and is currently being constructed by Google pursuant to the Bay View lease.

Water Quality

The primary obstacle to using recycled water is the high level of salinity, typically expressed in parts per million (PPM) of total dissolved solids (TDS). Based on detailed analysis and long-term studies, TDS levels of approximately 600 PPM are adequate for use on all types of landscaping, including redwood trees. Between 2009 and 2015, the TDS of the City's recycled water ranged from 775 to 1,100 PPM.

In the last several years, Mountain View, Palo Alto, and East Palo Alto completed numerous sewer system repairs to rehabilitate and improve the reliability of their wastewater collection systems. In 2012, the City rehabilitated 4,000' of sewer lines in Shoreline park to extend the life of the lines and reduce the infiltration of saline groundwater. In 2014, the City received approval to discharge saline groundwater extracted from within the boundaries of the Shoreline Landfill to Stevens Creek, further reducing salt discharges to the wastewater stream sent to the RWQCP. Palo Alto and the East Palo Alto Sanitary District also completed smaller repairs that reduced infiltration.

These efforts reduced recycled water salinity, which briefly decreased to approximately 700 PPM in late 2013. TDS levels have since increased due to the drought, as lower consumption of potable water decreased the flow of wastewater to the RWQCP, resulting in a higher concentration of TDS (due to reduced dilution). Additionally, the TDS of potable water sources has increased, resulting in additional salinity in the wastewater stream. In 2015, TDS levels averaged 890 PPM, and staff from Mountain View and Palo Alto concur it is very unlikely the goal of 600 PPM will be met without treatment of the recycled water.

Recycled Water Distribution System Expansion

As part of the Bay View lease with NASA, Google is required to extend a recycled water pipeline from a connection with Mountain View's system to the Moffett Boulevard gate. Construction of the pipeline began in late 2015, with an anticipated completion date of late 2017. The new pipeline will provide service to an estimated 14 connections at Bay

View and NASA with projected consumption of 0.32 million gallons per day (MGD) for irrigation and indoor nonpotable uses (toilet and urinal flushing, cooling towers, etc.). The anticipated location of recycled water pipelines is illustrated below.

The 2014 feasibility study identified the Middlefield-Ellis-Whisman area as the next priority for expansion of the City's recycled water system (Alternative 2 on Attachment 1). This area can be served by extending the Google-installed system to the edge of Federal property, and then across U.S. 101. The City of Sunnyvale has also expressed interest in connecting to Mountain View's system, which can be accomplished through this expansion.

Santa Clara Valley Water District Recycled Water Master Plan

In 2012, the Santa Clara Valley Water District (SCVWD) adopted a Water Supply Master Plan which included objectives of using at least 22,000 acre-feet of recycled water annually and reusing at least 45,000 acre-feet of potable water annually by 2025. The SCVWD is pursuing development of agreements to support the implementation of recycled and purified water expansion efforts, including indirect potable reuse and direct potable reuse.

The SCVWD is updating the north County portion of the plan in conjunction with the cities of Sunnyvale, Palo Alto, and Mountain View, and the San Jose South Bay Water Recycling Program. The City of Sunnyvale completed a feasibility study for recycled water expansion in June 2013, and is developing a water pollution control plant upgrade plan, including treatment alternatives for recycled and purified water.

In July 2015, the City of Palo Alto and the SCVWD formed a Joint Recycled Water Advisory Committee to identify water reuse projects. The Committee was recently expanded to include Mountain View and East Palo Alto, and all three agencies will be developing local recycled water strategies which will be incorporated into the SCVWD's Master Plan.

ANALYSIS

The recommended project will fund three activities:

1. The City's cost share of an advanced treatment feasibility study.

2. An update to the 2014 recycled water system expansion feasibility study.

3. Incidental costs of participating in the SCVWD's Master Plan effort.

Advanced Treatment Feasibility Study

In January, the City of Palo Alto issued a Request for Proposals (RFP) to evaluate the feasibility of siting an advanced treatment facility at the RWQCP. The study will provide an analysis of the cost and potential schedule of developing an advanced treatment facility (microfiltration/reverse osmosis) capable of producing recycled water with a TDS of 25 to 50 PPM. The treated recycled water would be blended with untreated recycled water to yield a final product of 450 (+/- 50) PPM. Staff believes advanced treatment will alleviate all concerns regarding using recycled water on landscaping, as well as producing water acceptable for indoor nonpotable uses in dual-plumbed buildings. The maximum cost of the study is $500,000, to be funded jointly by the SCVWD ($400,000), Mountain View ($50,000), and Palo Alto ($50,000). The study is anticipated to be complete in late 2016.

2014 Recycled Water System Expansion Feasibility Study Update

As described in the 2014 recycled water system expansion feasibility study, the expansion to the Middlefield-Ellis-Whisman area would include 39,000' of new pipeline, a 1.9 million gallon (MG) reservoir, and a booster pump station, adding demand of 0.17 MGD. Since the 2014 study was completed, Sunnyvale has expressed interest in receiving recycled water from Mountain View. The recommended project would update the study to ensure future system expansions have the necessary capacity, infrastructure, and storage to meet the needs of City customers and support potential distribution to the City of Sunnyvale.

SCVWD Master Plan

In collaboration with Palo Alto, Sunnyvale, and the SCVWD, staff will be developing a recycled water strategic plan for incorporation in the SCVWD's Master Plan. Mountain View's plan will include potential projects for expanding the system, incorporating advanced treatment (as noted above), and adding connections to existing and potentially new systems in neighboring jurisdictions. The recommended project would provide funding for consultant assistance for developing the City's recycled water strategy.

Project Schedules

The preliminary project schedules are shown below:

Advanced Treatment Feasibility Study

Select Study Consultant	February 2016
Award Contract/Initiate Study	March 2016
Complete Study	November 2016

2014 Recycled Water System Expansion Feasibility Study Update

Revise Design Contract	April 2016
Initiate Design Revisions	May 2016
Complete Design Revisions	October 2016

SCVWD Master Plan

Develop Mountain View Strategic Plan	March 2016
Present Strategic Plan to Council	April 2016
Submit Plan to SCVWD for Incorporation into Master Plan	October 2016
Complete SCVWD Master Plan	December 2017

FISCAL IMPACT

Staff recommends funding the project cost of $151,000 from the Water Fund, which has a projected available balance of $6,082,000 by the end of the fiscal year. A detail of project costs is shown below.

	Advanced Treatment Feasibility Study	Recycled Water Feasibility Study Update	Santa Clara Valley Water District Master Plan
Consultant Costs	$50,000	$50,000	$10,000
Contingency (20%)	10,000	10,000	-0-
City Staff Costs	5,000	5,000	2,000
Task Costs	65,000	65,000	12,000
Administrative Costs	4,000	4,000	1,000
Total Costs	$69,000	$69,000	$13,000

CONCLUSION

Staff is recommending approval of a midyear capital improvement project to fund efforts to expand local and regional recycled water use, including the City's participation in a feasibility study for advanced treatment of recycled water, an update of the recycled water system expansion feasibility study, and the City's cost of participating in the SCVWD recycled water Master Plan.

ALTERNATIVES

1. Do not approve the capital improvement project request.

2. Provide other direction.

PUBLIC NOTICING – Agenda posting.

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GAH/3/CAM
761-02-23-16CR-E

Attachment: 1. Recycled Water System Expansion Options