



CITY OF HAYWARD

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Cover Memo

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DATE: March 1, 2016

TO: Mayor and City Council

FROM: Director of Utilities & Environmental Services

SUBJECT

Water Pollution Control Facility Digester Improvement Project: Approval of Plans and Specifications, and Call for Bids

RECOMMENDATION

That Council adopts the attached resolution approving the plans and specifications for the WPCF Digesters Improvement Project and calling for bids to be received on April 5, 2016.

BACKGROUND

The City's WPCF provides wastewater treatment for Hayward's residential and business communities. The facility treats an annual average of twelve million gallons per day (MGD) and meets current requirements for discharge of treated effluent to the deep waters of the San Francisco Bay. The treatment process includes three anaerobic digesters ranging in volume from 0.9 to 1.4 million gallons with one digester constructed in 1952, the second in 1958, and the third in 1976.

The City completed a comprehensive update of the WPCF's Master Plan in October 2014 that included, in part, recommendations to rehabilitate or replace old systems that have reached the end of their useful life. Other process enhancements were also recommended to improve the digester feed system that will result in improved digester gas production.

The first project implemented as a result of the updated Master Plan is to address both the needed improvements and process enhancements to the WPCF's digesters. In January 2013, staff selected and entered into a professional services agreement with West Yost Associates for design and construction management services for the Digester Improvement Project.

DISCUSSION

The 2014 Master Plan identified improvements to the existing digesters that address aged facilities in need of replacement, improvements for enhanced safety and reliability, as well as process enhancements. The Digester Improvement Project includes replacement of existing pressure relief valves, flame arrestors, and sediment traps on all three digesters, and replacement of aged brittle PVC gas piping on Digesters 1 and 2 with new piping. In addition, new gas flow meters are included to provide better

monitoring and control of each digester. Renovations to existing heating and mixing buildings adjacent to each digester include new doors and windows replacing old non-functional doors and windows, demolition and removal of old abandoned equipment to improve access for Operations and Maintenance staff, and improved lighting and ventilation systems. New valve actuators are provided for hard to reach and large diameter valves for improved operability. A new sludge blending tank is provided to serve as a standby for the existing fats, oils, and grease (FOG) tank to allow maintenance on the tank without stopping FOG deliveries to the plant, and to provide the ability to mix and convey uniform digester feed stock to each digester through a new automated feed valve system. The tank will also provide some buffer to allow more flexibility in FOG deliveries to the WPCF. The blending tank and automated digester feed system are expected to improve digester efficiency and gas production. Finally, a new waste gas burner is included to replace the old waste gas burner that has reached the end of its useful life.

These project elements improve safety, replace existing facilities in need of replacement, improve operability and access, provide redundancy to the existing FOG system, and improve digester efficiency. Improved digester efficiency is expected to improve gas production which will also benefit the new cogeneration system.

ECONOMIC IMPACT

Hayward has both a robust industrial area and a firm commitment to protection of the environment and to sustainability. If we allow our WPCF facilities to erode in quality and fail to handle our waste water appropriately, we could jeopardize our reputation as both a quality place to build and operate clean industry and as a place dedicated to and on the cutting edge of environmental protection and sustainability. Therefore, quality maintenance and operation of our WPCF are essential parts of our economic development strategy.

FISCAL IMPACT

The estimated project costs are as follows:

Total Project Cost	Design and Engineering Services	\$ 675,000
During Construction (Consultant)		
Design Administration - City Staff		50,000
Construction Contract (Estimated)		4,825,000
Inspection and Testing (Estimated)		50,000
Total		<u>\$5,600,000</u>

The Capital Improvement Program (CIP) includes \$3,335,000 for this project in both the sewer replacement and sewer improvement funds for FY 2015 and FY 2016. The estimate was based on separate projects as follows:

Fund	Project No.	Description	Budget
612	07564	Digester Gas Flare Project	\$ 425,000
612	07565	Digester Piping and Gas Metering Optimization	630,000
612	07566	Digester Sludge Mixing Tank	1,665,000
611	07643	Digester Feed Valve Automation	75,000

611	07658	Heating & Mixing Buildings Improvements	540,000
		Total	<u>\$3,335,000</u>

The current estimated cost is nearly 68% higher than the amount originally included in the CIP. The original CIP budget estimates were based on costs provided in the 2014 Master Plan and are typically order of magnitude type estimates when project definition level is at the planning or conceptual level. Expected accuracy for a planning level estimate typically ranges from 50% below or above the actual cost. The estimate in this case exceeded this range; however, this is not unusual for projects of the level of complexity as the Digester Improvement Project.

Some examples of project elements that were added during design development which were not included in the conceptual estimates include digester gas piping replacements, modifications to the exiting FOG tank to allow it to be used as a fully redundant tank to the new sludge blending tank, new foul air odor treatment systems, and valve automation to improve ability to rotate and cycle mixing pump suction and discharge piping for better mixing to name a few. The above defined cost of \$5,650,000 is based on the engineering consultant's "Estimated Opinion of Probable Cost" prepared at the 100% design completion level and is based on more complete information.

The extent of the funding shortfall will be determined after the construction bids have been received. Staff will request that Council appropriate additional funds from the Wastewater Improvement fund balance at the time of award. Adequate fund balance is available to cover the necessary appropriation.

PUBLIC CONTACT

All work will be within the WPCF plant boundary; therefore no public contact is necessary for this project.

NEXT STEPS

Following Council approval, staff will advertise the project for public bidding. Staff will return to the City Council for award of the construction contract after bids have been received and reviewed. The following schedule has been developed for this project:

Award Construction Contract	April 19, 2016
Notice to Proceed	May 13, 2016
Construction Completion	August, 2017

Prepared by: Suzan England, Senior Utilities Engineer

Recommended by: Alex Ameri, Director of Utilities & Environmental Services

Approved by:



Fran David, City Manager

Attachments:

Attachment I

Resolution