



Memorandum

TO: TRANSPORTATION AND
ENVIRONMENT COMMITTEE

FROM: Kerrie Romanow
Barry Ng

SUBJECT: SEE BELOW

DATE: September 13, 2017

Approved

Date

9/25/17

**SUBJECT: SAN JOSÉ-SANTA CLARA REGIONAL WASTEWATER FACILITY
CAPITAL IMPROVEMENT PROGRAM SEMIANNUAL STATUS
REPORT**

RECOMMENDATION

Accept the semiannual status report on the San José-Santa Clara Regional Wastewater Facility Capital Improvement Program for the period of January 2017 through June 2017.

OUTCOME

The purpose of this semiannual status report is to provide an update on the implementation of the Capital Improvement Program (CIP) at the San José-Santa Clara Regional Wastewater Facility¹ (RWF) by highlighting key accomplishments during the second half of fiscal year 2016-2017 to the Transportation and Environment Committee (T&E), the Treatment Plant Advisory Committee (TPAC), and Council.

BACKGROUND

The San José and Santa Clara City Councils adopted the Plant Master Plan (PMP) in November 2013 and December 2013, respectively. The PMP identified more than 100 capital improvement projects totaling over \$2.1 billion to be implemented at the RWF over the next 30 years. A validation process was completed in early 2014 to update and prioritize the recommended PMP projects and additional gap projects into 33 projects to be initiated over 10 years. Beginning in fiscal year 2014-2015, the validation process was used to inform the five-year CIP and ten-year funding strategy. The 2017-2021 adopted CIP included funding in the amount of \$971 million, of which approximately \$825 million was for construction. To provide visibility and accountability

¹ The legal, official name of the facility remains San José/Santa Clara Water Pollution Control Plant, but beginning in early 2013, the facility was approved to use a new common name, the San José-Santa Clara Regional Wastewater Facility.

for this significant CIP effort, staff began providing formal semiannual status reports to T&E, TPAC, and Council in spring 2013.

The first semiannual status report was published in April 2013 and it focused on progress and activities from July 2012 through December 2012. Three subsequent semiannual reports were published in October 2013, April 2014, and October 2014. With the establishment of the Stantec (formerly MWH Americas) and Carollo program management team, CIP staff created a new monthly CIP status report to provide more frequent and time-relevant updates. The first CIP monthly status report was issued in April 2014 and 39 monthly reports were issued through June 2017. This semiannual status report highlights key program and project accomplishments from January 2017 through June 2017, and serves to complement the monthly reports. Copies of the monthly reports are available at <http://www.sanjoseca.gov/Archive.aspx?AMID=190>.

ANALYSIS

Significant progress was made in several program areas from January 2017 through June 2017.

A. Owner-Controlled Insurance Program (OCIP)

In June, Council approved the purchase of insurance products needed to implement an OCIP for the RWF CIP to provide coverage for \$535 million of construction costs over the next five years. The insurance products purchased include commercial general/excess liability, workers' compensation, builder's risk, pollution liability, and owners' professional liability policies. With assistance from Alliant Insurance Services, who are providing administrative and claims services, staff anticipates OCIP coverage to begin in fiscal year 2017-2018.

B. Recruitments

Filling vacant entry and mid-level engineering and technical support positions to help deliver the CIP continued to be a high priority. Between January 2017 and June 2017 staff filled 13 positions—a senior engineer, four sanitary engineers, two engineers, three senior engineering technicians, two associate engineering technicians, and an office specialist. It has been more difficult to recruit seasoned professionals for senior and principal vacancies. In the next six months, staff will continue to focus on filling the remaining engineering and construction management positions that support the delivery of CIP projects.

C. Financing

In April, the City's Finance Department advertised for bank support of a commercial paper program or revolving line of credit for up to \$300 million to bridge the gap between cash funding and long-term financing in the form of bonds for the RWF CIP. Staff anticipates seeking Council approval of a short-term financing program for San José in fall 2017. In May, staff presented an update to T&E on the status of obtaining State Revolving Fund loans and establishing the short-term financing program. Staff has since

been informed by the State Water Resources Control Board that San José's loan applications will not be considered at this time, but may be considered in the future.

Other notable developments during this reporting period include the following.

- In February, CIP staff hosted the program's fourth open house to increase vendor awareness of CIP projects and upcoming procurements. The event focused on three design-build projects and their associated procurements. Nearly 70 consultants, contractors, material and equipment suppliers attended the event.
- In May, Council awarded a master consultant agreement for industrial hygienist services. The consultant will provide hazardous materials investigating, testing, and reporting.

On the project delivery front, 25 active projects progressed through various stages of the project delivery model.

A. *Feasibility/Development Highlights*

Fourteen projects were in the feasibility/development phase during the second half of fiscal year 2016-2017. Key activities completed during this period include the following.

- The **Aeration Tanks Rehabilitation, Digested Sludge Dewatering Facility, and Filter Rehabilitation, and Nitrification Clarifiers Rehabilitation** project teams analyzed alternatives.
- **Facility-Wide Water Systems Improvements:** The consultant began conducting condition assessments of the RWF's four water systems and hydraulic modeling.
- **Headworks Improvements and New Headworks** (progressive design-build): The project team advanced the basis of design report. In May, the City advertised an RFQ to procure a design-builder.
- **Lagoons and Drying Beds Retirement:** After assessing the project's scope and schedule, staff recommended a modified, lower cost solution that will utilize operations and maintenance (O&M) resources to empty the lagoons. The project was dropped from the CIP.
- **Outfall Bridge and Levee Improvements:** Staff completed scoping the project in February. The project will replace the pedestrian bridge at the RWF's outfall weir, reinforce the RWF's outfall weir, and replace an electrical transformer.
- **Support Building Improvements:** Council awarded a master consultant agreement in January. The consultant will first focus on the improvements to the fire life safety and heating, ventilation and air conditioning systems due to their criticality. Condition assessments of these systems are anticipated to start in summer 2017.
- **Tunnel Rehabilitation:** Staff completed scoping the project in March and advertised a RFQ to procure a design consultant in June.
- **Yard Piping and Road Improvements** (progressive design-build): Staff issued an information memo to Council on the decision to use progressive design-build as the project delivery method in March. Staff advertised a RFQ for owner's advisor services in April and began evaluation of the statements of qualification

submitted in response to the RFQ in June. The selected consultant will develop a basis of design report and prepare the design-builder procurement documents after conducting condition assessments of the various RWF process pipes and roads.

B. Design Highlights

Three projects were in the design phase during the second half of fiscal year 2016-2017. Key activities completed during this period include the following.

- **Advanced Facility Control & Meter Replacement:** The design consultant completed the 10 percent design in April and submitted the 50 percent design for review in June.
- **Blower Improvements:** The design consultant completed the 30 percent design in May and began incorporating value engineering recommendations in June.
- **Cogeneration Facility** (progressive design-build): The design-builder finalized the basis of design report and 30 percent design, and submitted proposals for two early work packages. In May 2017, the City Manager approved the first early work package, valued at \$24.4 million, to procure four engine generators and gas treatment equipment, which require significant time to manufacture and deliver. The second early work package, consisting of site preparations and foundation construction work, was submitted for staff review in June 2017 and is anticipated to be approved in fall 2017.

C. Construction Highlights

Eight projects totaling more than \$147 million were in construction during the second half of fiscal year 2016-2017 (see Attachment A). Two of the eight projects are being delivered using the low-bid design-build method, with the remaining six projects being delivered using the design-bid-build delivery method. Two projects reached beneficial use during this period. The remaining projects all progressed well, although some encountered delays due to unforeseen conditions and complex shutdowns. In particular, numerous unforeseen conditions and operational interfaces have been encountered on the largest RWF CIP project; the Digester and Thickener Facilities Upgrade.

Key activities completed during this period include the following.

- **Fiber Optic Connection:** The project reached beneficial use in mid-January, one month ahead of schedule. This project extended the City's fiber optic network from Zanker Road and Highway 237 to the RWF, enabling the RWF to switch to a more reliable connection. Project acceptance is expected in summer 2017.
- **Digester Gas Compressor Upgrade** (low bid design-build): After starting functional testing of the automation controls in January, the project reached beneficial use in late April. The contractor began resolving punch list items in May. Project acceptance is expected in fall 2017.
- **Emergency Diesel Generators** (low bid design-build): During this period, the contractor performed several tests to verify that the new generators operated automatically correctly. In March, the contractor successfully completed an eight-hour load test for all four new generators. This test is also referred to as a "black

start” as a power loss event was simulated. The new generators successfully started up and re-energized the RWF in 41 seconds. This test was followed by “island mode” tests in which the new generators supplied the RWF with electrical power without power from PG&E. Through June, construction was 86 percent complete. The project is expected to reach beneficial use in summer 2017.

- **Construction-Enabling Improvements:** The rainy winter season limited the amount of work that could be done and resulted in some delays. Between March and June, the contractor paved and striped the portion of Zanker Road that was widened to improve access for future construction traffic entering the RWF. The contractor has taken longer than expected to construct and deliver the construction management trailers. The trailers are expected to be installed and furnished by fall 2017. Through June, construction was 56 percent complete. The project is expected to reach beneficial use in fall 2017.
- **Iron Salt Feed Station:** The contractor completed the concrete footings, slabs, and walls for the polymer station in April. In May, the contractor installed the polymer and ferric chloride tanks and mechanical equipment, including pumps and piping. Through June, construction was 55 percent complete. The project is expected to reach beneficial use in fall 2017.
- **Plant Instrument Air System Upgrade:** Between January and February, the contractor potholed the site as part of a subsurface investigation program to identify any conflicting underground utilities not previously identified that needed to be relocated. The relocation and installation of underground utilities was completed in May. In June, the contractor completed pouring the concrete foundation for the new building’s walls and installed rebar for the new building’s floor. Through June, construction was 28 percent complete. The project is expected to reach beneficial use in spring 2018.
- **Digester and Thickener Facilities Upgrade:** The contractor made significant progress during this period. In March, the contractor poured the concrete floors for two of the four digesters in the project scope, prepared the foundation of the new sludge screening building, and continued relocating utilities. In May, the contractor also continued the structural rehabilitation of the digesters and began foundation work for the elevated pipe rack that will carry digester gas to the Cogeneration Facility. In June, the contractor completed most of the concrete work inside the digesters and began working on the sludge storage tank for the new sludge screening building.

This is one of the most complex projects in the CIP, with a large footprint that affects multiple areas of the RWF, with the bulk of construction activity occurring in the center of the RWF. Since construction started in June 2016, the project team has coordinated more than 90 process shutdown requests with O&M staff, who play an important role in planning, scheduling, and implementing the shutdowns. These requests have had a major impact on O&M staff who have to maintain the RWF operations while implementing the shutdowns.

In February, the project team completed a detailed inspection of the primary effluent pipelines near a previously identified, heavily corroded 78-inch concrete pipeline. This effort required a major shutdown that involved stopping all flow through the RWF for up to four hours, to allow inspections to proceed. Staff confirmed significant hydrogen sulfide corrosion of the pipe crowns and wye junction structure far greater than had been anticipated. Repair of the 78-inch line and wye structure is needed to allow project's construction to continue. Since the inspection was completed, staff has evaluated options to repair the pipes and wye structure during the 2018 dry weather season as a change order. The repairs will require temporary bypass pumping and piping for the extended shutdown.

Extensive staff efforts also continued to address and minimize the impacts from many other unforeseen conditions encountered. These other unforeseen conditions include multiple utility conflicts resulting in relocations, removal, and abandonment of pipelines as well as design changes for the foundation of the new sludge screening building and pipe rack. Once excavation started, it became apparent that existing record drawings and information regarding buried utilities did not fully reflect actual site conditions. Despite creating over a hundred potholes while the project was being designed and performing condition assessments of utilities where possible, the project team has encountered far more conflicts than anticipated. Staff does not expect the utility conflicts to be limited to this project. To mitigate it, project teams are conducting earlier and more extensive subsurface investigations and condition assessments. Project teams are also coordinating with the RWF's geographic information system (GIS) group to ensure new information is accurately captured for future projects.

Additionally, unanticipated hazardous materials, including asbestos, lead, and polychlorinated biphenyls (PCBs), have been identified and are being mitigated. The contractor began the safe removal of PCBs discovered in the caulking of the four digesters as well as the expansion joints of the walls and floors of six dissolved air flotation thickener tanks in May. Similar to the lead discovered in the first half of fiscal year 2016-2017, staff could not have identified the presence of these hazardous materials prior to construction without causing significant disruptions to the RWF's operations.

Another unforeseen delay encountered during this period impacted the digester gas bypass construction. Initially, the bypass connection was planned to be constructed with minimal temporary gas bypass piping and carried out with controlled atmospheric venting; however, during final negotiations with the Bay Area Air Quality Management District (BAAQMD), BAAQMD instructed the City to change the planned system and implement a system that passed all gas through the existing permitted abatement devices.

These unforeseen conditions will result in some delays and additional costs. The

current delay to the beneficial use date is forecasted to be four months. Staff will continue to evaluate the impacts and will provide additional updates as more information becomes available. Through June, construction was 23 percent complete. The project is expected to reach beneficial use in summer 2020.

- **Headworks Critical Improvements:** After rejecting all bids received in December 2016 and rebidding the project in March, Council awarded the construction contract for the project in May. In June, staff held a pre-construction meeting with the contractor and issued the notice to proceed. Through June, construction was 13 percent complete. The project is expected to reach beneficial use in summer 2018.

There were no reportable incidents to the State's Division of Occupational Safety and Health (Cal/OSHA) during the second half of fiscal year 2016-2017.

Staff expects to achieve the following during the first half of fiscal year 2017-2018.

- Obtain Council approval to implement short-term financing.
- Issue a Notice of Determination whether additional system integrators are prequalified.
- Advertise a request for proposals (RFP) to the shortlisted prospective design-builders for the Headworks Improvements and New Headworks project.
- Advertise a RFQ to procure a design-builder for the Digested Sludge Dewatering Facility project.
- Obtain Council approval to award a master consultant agreement for the Yard Piping and Road Improvements project.
- Continue design on three projects: Cogeneration Facility, Advanced Facility Control and Meter Replacement, and Blower Improvements.
- Initiate two projects: RWF Flood Protection and RWF Stormwater Improvements.
- Complete a flow management study of the RWF.
- Start construction for the Cogeneration Facility project's second early work package.
- Negotiate the definitive contract amendment for the Cogeneration Facility project, which will set the base guaranteed maximum price and schedule for the design-build work.
- Reach beneficial use on three projects: Emergency Diesel Generators, Construction-Enabling Improvements, and Iron Salt Feed Station.
- Host a ribbon cutting ceremony marking the completion of the Digester Gas Compressor Upgrade project and Emergency Diesel Generators project.
- Seek Council approval to increase the construction contingency for Digester and Thickener Facilities Upgrade to cover the multiple unforeseen conditions encountered.
- Amend a master consultant agreement with Signet Testing Labs for special inspection and material testing services for the Digester and Thickener Facilities Upgrade project.
- Amend the master consultant agreement with Stantec (formerly MWH Americas) for program management services.
- Continue to develop resource and staffing plans, particularly for the RWF's construction management group.

- Continue recruitment activities to fill CIP vacancies, particularly senior and principal positions.

EVALUATION AND FOLLOW-UP

No follow-up action is required at this time. Staff will continue to provide regular updates to inform T&E, TPAC, and Council of significant changes or issues (particularly as related to rate impacts) as implementation of the CIP progresses. In addition to semiannual presentations, staff will continue to share monthly progress reports with TPAC.

PUBLIC OUTREACH

This memorandum will be posted on the City's website for the October 2, 2017, T&E agenda.

COORDINATION

This report has been coordinated with the City Manager's Budget Office.

COMMISSION RECOMMENDATION/INPUT

This item is scheduled to be heard at the October 12, 2017, TPAC meeting. A supplemental memo with the committee's recommendation will be included in the amended October 24, 2017, City Council meeting agenda.

CEQA

Not a Project, File No. PP17-009, Staff Reports, Assessments, Annual Reports, and Information Memos that involve no approvals of any City action.

/s/Ashwini Kantak for
KERRIE ROMANOW
Director, Environmental Services

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BARRY NG
Director, Public Works

For questions, please contact Ashwini Kantak, Assistant Director, Environmental Services Department at (408) 975-2553.

Attachment A – Projects in Construction: January 2017 – June 2017