



Memorandum

TO: TRANSPORTATION AND
ENVIRONMENT COMMITTEE

FROM: Kerrie Romanow
Matt Cano

SUBJECT: SEE BELOW

DATE: October 13, 2021

Approved

Date

10/19/21

**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 through September 2021.

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 January through September 2021 to the Transportation and Environment Committee (T&E), the Treatment Plant Advisory Committee (TPAC), and City Council (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 ten years. Beginning in fiscal year 2014-2015, the validation process was used to inform the five-year CIP and ten-year funding strategy. The 2022-2026 Adopted CIP includes approximately \$1.2 billion in funding, of which approximately \$0.8 billion is for construction. To provide visibility and accountability for

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.

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 focused on progress and activities from July 2012 through December 2012. This report is the eighteenth in the report series and highlights key program and project accomplishments from January through September 2021. This report also compliments monthly CIP status reports which staff began issuing in April 2014 and the quarterly CIP reports which staff began issuing in May 2021, to provide more frequent and time-relevant updates. Through September 2021, 84 monthly and quarterly reports have been issued. Copies of these reports are available at: <https://www.sanjoseca.gov/your-government/departments-offices/environmental-services/water-utilities/regional-wastewater-facility/capital-improvement-program/cip-document-library/>

ANALYSIS

During this reporting period, dedicated staff and contractors continued to make progress on critical CIP projects, even as the COVID-19 pandemic continued to significantly impact the City, our state, and the rest of the nation.

As the City slowly returns to a more normal operating environment, safety remains a top priority. At the RWF, staff and contractors are continuing to undergo brief health screenings before entering the premises, as well as wearing masks while working indoors, maintaining physical distance, and frequently washing their hands.

Environmental Services and Public Works staff continue to work with the City Attorney's Office to address pandemic-related impacts to construction schedules and costs to ensure a consistent approach to resolving COVID-19 related claims across the City.

Significant progress was made in key program areas from January through September 2021.

A. Biosolids Disposition Market Assessment and Procurement Strategy

From January through September 2021, staff primarily focused on finalizing the dewatered biosolids management strategy. The strategy consists of executing off-site disposition contracts first, then implementing an on-site fertilizer partner facility, and eventually expanding land application of biosolids on local natural working lands. The strategy was approved by TPAC on May 20, 2021, and by Council on June 8, 2021.

Concurrently, staff also completed several documents needed prior to the execution of the off-site disposition contracts, including procurement and environmental review documents. The scope and exemplar agreement for a Request for Proposals (RFP) was developed, with advertisement anticipated in late 2021 and Council approval to award in Spring 2022. An environmental consultant analyzed potential air quality, greenhouse gas

emission, and transportation impacts, and prepared a focused initial study that will be an addendum to the PMP's Environmental Impact Report.

B. Program-wide Safety Review

In late 2020, staff initiated a CIP-wide safety review effort to identify and document existing construction health and safety practices at the RWF and to provide recommendations for strengthening the program including application of lessons-learned and industry best practices. As part of this safety review, CIP's program management consultant (Stantec) conducted several CIP, operations and maintenance (O&M), and contractor staff interviews and completed many site visits.

Overall findings indicate that the RWF construction safety program is working well, as evidenced in the CIP achieving more than 1 million hours of safe work with no reportable incidents to the Occupational Safety and Health Administration (OSHA). Key strengths of the RWF construction safety program include routine workplace inspections, effective administration of the owner-controlled insurance program (OCIP), motivated staff and leadership who are eager to learn and apply safety principles in the field, and the strong relationships and collaboration between CIP, O&M, and key contractor staff.

Stantec identified opportunities for improvement in a few areas such as a need for clearer communication of safety requirements to on-site personnel, visitors, and prospective bidders; increased staffing resources for safety enforcement; and improved infrastructure to enhance pedestrian safety. In taking steps to enhance construction safety, staff have hired a full-time consultant Health and Safety Assistant to provide support to the consultant Health and Safety Manager during CIP's peak construction period; installed new safety banners at the construction entrance and around the site, and improved pedestrian corridors and crossings in construction areas. Staff will continue to work towards other improvements such as aligning the OCIP and RWF safety requirements for consistency, enforcing contract specifications related to safety, formalizing the periodic review of programmatic health and safety documents, and formally documenting and sharing lessons-learned throughout the CIP.

C. Process Optimization Study

In early 2020, staff initiated the Process Optimization Study (Study), a periodic review performed by the CIP to evaluate the RWF liquids treatment process (preliminary through tertiary) in a holistic manner and determine potential changes required to treatment processes and technologies in order to meet anticipated future permit requirements.

The study team developed basic assumptions for flows and loads and regulatory boundary conditions, identified viable technologies and screened them against set criteria (i.e., technology maturity, footprint, O&M complexity, impact on existing treatment processes, and life cycle costs), and combined those technologies that met the screening criteria into 14 holistic alternatives to address primary, secondary and tertiary RWF

treatment processes. In the final step, the study team conducted a more detailed analysis of each alternative, including a triple bottom line evaluation to identify the preferred alternative.

The study was concluded in July 2021, with the key finding being that proposed and existing technologies for most of the RWF liquids treatment areas were adequate, except for the secondary treatment process. Because the San Francisco Bay Area Regional Water Quality Control Board has proposed a 2024 load cap on total inorganic nitrogen (TIN) of 6,100 kg/d (kilograms per day), the study recommended implementation of the simultaneous nitrification and denitrification (SND)/inDENSE technology in the RWF secondary treatment process. SND/inDENSE was identified as the most effective technology for meeting current and future permit limits, with advantages such as enhanced nitrogen removal over a smaller footprint and lower energy consumption.

As a result of the findings of this study, staff initiated the Aeration Basin Modifications Phase 1 project, which will consist of a feasibility study and initial implementation of SND/inDENSE technology as well as rehabilitation of a limited number of aeration tanks. The findings from this project will be used by RWF process engineering and O&M staff to determine the best method/parameters for implementing SND/inDENSE technology in a phased manner in order to meet the upcoming TIN 2024 load cap, taking into consideration future Plant flows and loads.

On the project delivery front, there were 23 active projects at various stages of the project delivery model during the reporting period.

A. Feasibility/Development Highlights

Seven projects were in the feasibility/development phase at the end of the September 2021. Key activities completed during this period include the following:

- **Flood Protection:** The project team completed alternative analysis and is proceeding with conceptual design development of a proposed berm along the western and southern boundaries of the RWF to protect it from riverine flooding. Given the uncertain status of the Shoreline Project, staff will be evaluating alternatives for additional improvements to protect the RWF from the risk of tidal flooding.
- **Yard Piping Improvements Phase 2** – Since project initiation in January 2021, the design consultant has completed the field condition assessment of several critical pipe segments including the 120-inch, 84-inch, and 96-inch raw sewage pipes; a 42-inch mixed liquor pipe; and a 24-inch return activated sludge (RAS) pipe. The design consultant continues to develop conditional assessment plans for additional pipes to inform the project's final scope of work.

B. Design /Bid and Award Highlights

Six projects were in the design or bid/award phase at the end of September 2021. Key activities completed during this period include the following:

- **Digested Sludge Dewatering Facility:** During the reporting period, the design-builder finalized the 30 percent design, developed the 60 design documents, and submitted a Request for Qualifications (RFQ) for centrifuges for City review. The project team and design-builder also held several workshops with stakeholders to review the 60 percent design; cost model, schedule and risk matrix; and electrical, instrumentation and control components of the project. The project team also completed design for an early work package, which enabled the design-builder to start site preparation activities and final design in August. Negotiations of the final guaranteed maximum price are expected to be completed by December 2021.
- **Facility-wide Water Systems Improvements:** In February and March, Westland Contractors, Inc. performed field trenching to locate underground utilities to inform the project design. The 30 percent design was completed in August. Also, in this reporting period, the project team completed value engineering workshops.
- **HVAC Improvements:** In August, the design consultant submitted the 60 percent design documents for City review. The final 100 percent design is anticipated to be completed by April 2022.
- **Outfall Channel and Instrumentation Improvements:** In April, the design consultant completed the final 100 percent design documents. In June, the City advertised the construction contract. Three bids were received in August. Council award of the construction contract is expected in October 2021.
- **Storm Drain System Improvements:** The design consultant completed the final 100 percent design documents in August. In September, the City advertised the construction contract for bid, and Council award is anticipated in January 2022.

C. Construction Highlights

Nine projects, totaling approximately \$345 million, were in construction during the period ending September 2021 (see Attachment A). One of the nine projects is being delivered using the progressive design-build method, with the remaining eight projects being delivered using the more traditional design-bid-build approach. Key activities completed during this period include the following:

- **Advanced Facility Control & Meter Replacement – Phase 1:** The contractor completed operational testing of equipment in the Secondary Battery B, and continued to install pipe supports, dissolved oxygen (DO) probes and perform loop checks in the Nitrification Battery B. Through September 2021, construction was approximately 79 percent complete.
- **Advanced Facility Control & Meter Replacement – Phase 2:** In January, the contractor started installing equipment in the Filtration area. Functional testing of the new equipment was completed in June, and a 28-day operational testing was completed in August. In June, the contractor also completed demolition of electrical, mechanical, and piping components in the Nitrification Battery A, and started work on corrosion repair, pipe installations, and installation of instruments including air diffusers, DO probes, valve actuators and flow meters. The contractor also started pre-operational testing of components installed in the Nitrification Battery A. Through September 2021, construction was approximately 47 percent complete.

- **Blower Improvements:** In Building 40, the contractor completed rehabilitation, and pre-operational and functional testing on one blower. In the Tertiary Blower Building, the contractor completed rehabilitation of one blower, completed demolition work on two additional blowers, and replaced the discharge valve on a third blower. Additionally, the contractor continued to install conduits from the Secondary Blower Building (SBB) to the M5 Switchgear. Through September 2021, construction was approximately 66 percent complete.
- **Digester and Thickener Facilities Upgrade:** Contractor completed upgrades to the dissolved air flotation thickener tanks, and performed the speed test, tank stress tests, and a 28-day operational test. In digesters 5-8, the contractor completed the power conduits and wiring, and the electrical and instruments at digester covers, replacement of interior corroded pipes, and the digester overflow tie-in to the 66-inch raw sewage line. Crack repair was also completed for digester 8, and the contractor started hydrostatic testing in digesters 7 and 8. In the sludge screening building, the contractor installed instrumentation, conduits, and handrails in the thickened sludge equalization tanks; and completed pre-operational and functional testing of the thickened sludge tanks, feed loop pumps and screens. The hot water supply and return pipe installation from racks to pumps was completed and hydrotesting performed. The contractor also completed grading and curb and gutter installation on several streets within the RWF. Through September 2021, construction was approximately 98 percent complete.
- **Filter Rehabilitation:** During this period, staff reviewed critical submittals for the filter bypass valves, filter media and submersible pumps; and several design change memos. Staff also reviewed the contractor's baseline schedule and started tracking factory acceptance test dates. The contractor started potholing for utilities location in September 2021.
- **Headworks:** The design-builder continued installation of various piping including the 96-inch raw sewage pipe from Headworks 3 to Headworks 2, the 120-inch raw sewage pipe from the influent screening structure to the raw sewage pump station, and the 108-inch pipe to the upstream raw sewage junction box. In the influent structure, grit basin, raw sewage pump station, and emergency overflow basin, the design-builder installed concrete walls and hydrotested the structures. The design-builder also installed gate actuators and electrical duct banks in the grit basin; and pump anchors and stop plates in the raw sewage pump station. For the electrical building, the cable room foundation slab was completed, electrical conduits were installed in walls and to the transformer area, concrete masonry walls and roof beams were constructed, and a 15kV switchgear was installed. Through September 2021, construction was approximately 43 percent complete.
- **Nitrification Clarifiers Rehabilitation - Phase 1:** In the reporting period, the contractor continued installation of pressure relief valves in the eight clarifiers. The contractor also installed mechanical piping in the influent valve boxes, drain valves and electrical works in the RAS gallery, and scum piping. Through September 2021, construction was approximately 31 percent complete.

- **Switchgear M4 Replacement and G3 & G3A Removal:** In June, the contractor demolished the existing M4 Switchgear, and installed the new M4 switchgear and enclosure in July. In August, pre-operational and functional testing of the new switchgear was completed, new bus ducts were installed, and testing of the fiber optics cable was completed. Operational testing is ongoing. Through September 2021, construction was approximately 53 percent complete.
- **Yard Piping Improvements – Phase 1:** In January, staff received two bids for the construction contract. In March, Council awarded the construction contract to Michels Pipeline Construction. Since construction began in May, the contractor has completed installation of the 96-inch gate guides and cured-in-place pipe (CIPP) for the 78-inch and 96-inch pipes. The contractor also completed excavation at the 24-inch RAS line to assist with condition assessment, and backfilled and restored the road surface afterwards. Substantial completion is expected by October 2021.

Staff, contractors, and consultants continued to work safely and there were no reportable incidents to the State’s Division of Occupational Safety and Health (Cal/OSHA) from January through September 2021.

Staff expects to achieve the following before the end of December 2021:

1. Obtain Council approval to award the construction contract for Outfall Channel and Instrumentation Improvements project.
2. Continue design on four projects: Digested Sludge Dewatering Facility, Facility-wide Water Systems Improvements, HVAC Improvements, and Fire Life Safety Upgrades.
3. Open bids for the Storm Drain Systems Improvement project

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 quarterly progress reports with TPAC.

COORDINATION

This report has been coordinated with the Office of the City Attorney.

CEQA

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

TRANSPORTATION AND ENVIRONMENT COMMITTEE

October 13, 2021

Subject: Regional Wastewater Facility CIP Semiannual Status Report, January 2021 – September 2021

Page 8

/s/

KERRIE ROMANOW

Director, Environmental Services

/s/

MATT CANO

Director, Public Works

For questions, please contact Napp Fukuda, Assistant Director, Environmental Services Department at (408) 973-5353.

Attachment A – Projects in Construction: January 2021 – September 2021

Attachment A – Projects in Construction: January 2021 – September 2021

#	Project Name	Contractor	Amount Awarded	Date Awarded	Estimated Beneficial Use
1.	7757 – Advanced Facility Control Meter Replacement - Phase 1	C. Overaa & Co.	Base Contract: \$5,790,000 Contingency: \$1,158,000	5/22/18	Winter 2021
2.	8868 – Advanced Facility Control Meter Replacement - Phase 2	Kiewit Infrastructure West Co.	Base Contract: \$7,046,100 Contingency: \$1,409,220	5/17/20	Spring 2023
3.	8073 – Blower Improvements	Monterey Mechanical Company	Base Contract: \$29,498,000 Contingency: \$4,425,000	10/30/18	Fall 2022
4.	7382 – Digester and Thickener Facilities Upgrade	Walsh Construction Company II, LLC	Base Contract: \$107,925,000 Contingency: \$53,490,625	5/24/16	Spring 2022
5.	7448 -Filter Rehabilitation	Walsh Construction Company II, LLC	Base Contract: \$33,290,577 Contingency: \$6,658,000	10/20/20	Summer 2024
6.	7701 – Headworks	CH2M HILL Engineers, Inc.	Base Contract: \$126,874,142 Contingency: \$12,688,000	02/25/20	Summer 2023
7.	7731 – Nitrification Clarifiers Rehabilitation – Phase 1	C. Overaa & Co.	Base Contract: \$26,184,000 Contingency: \$5,237,000	10/22/19	Winter 2022
8.	7759 – Switchgear M4 Replacement and G3 & G3A Removal	Blocka Construction, Inc.	Base Contract: \$5,519,000 Contingency: \$827,850	12/17/19	Winter 2022
9.	8142 – Yard Piping Improvements – Phase 1	Michels Pipeline Construction	Base Contract: \$3,096,903 Contingency: \$464,535	3/23/21	Fall 2021