



Memorandum

TO: TRANSPORTATION AND ENVIRONMENT
COMMITTEE

FROM: Kerrie Romanow
Matt Loesch

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

DATE: February 13, 2023

Approved

Date

2/15/23

RECOMMENDATION

Accept the annual status report on the San José-Santa Clara Regional Wastewater Facility Capital Improvement Program for the period of January through December 2022.

BACKGROUND

The San José and Santa Clara City Councils adopted the Plant Master Plan in November 2013 and December 2013, respectively. The Plant Master Plan identified more than 100 capital improvement projects totaling over \$2.1 billion to be implemented at the Regional Wastewater Facility over the next 30 years. A validation process was completed in early 2014 to update and prioritize the recommended Plant Master Plan 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 Capital Improvement Program (CIP) and ten-year funding strategy. The 2023-2027 Adopted CIP includes approximately \$1.02 billion in funding, of which approximately \$500 million is for construction. The balance of the budget is for non-construction items such as debt service repayment, program management, and the owner-controlled insurance program. To provide visibility and accountability for this significant CIP effort, staff began providing formal semiannual status reports to the Transportation & Environment Committee, the Treatment Plant Advisory Committee, and City Council in spring 2013. Now that the CIP is well-established, entering its tenth year, and given the long duration of projects, status reports will be provided annually, starting with this report.

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 twentieth in the report series and highlights key program and project accomplishments in the 2022 calendar year. This report also complements CIP status reports which staff issued monthly from April 2014 through April 2021 and quarterly beginning in May 2021; these reports provide more frequent and time-relevant updates. Through December 2022, 90 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.

During the reporting period as the City slowly returned to a more normal operating environment, safety remained a top priority. At the Regional Wastewater Facility, staff and contractors continued to undergo brief health screenings before entering the premises. Staff and contractors were also encouraged to wear masks while working indoors, maintain physical distance, and frequently wash 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 December 2022.

A. Dewatered Biosolids Management Strategy

Continuing with the implementation of the approved Biosolids Management Strategy, the City received five proposals for transportation and beneficial use services in early March 2022 in response to a Request for Proposals that had been advertised in November 2021. The scope of services includes, but is not limited to, coordinating with Regional Wastewater Facility staff to schedule the delivery of empty and clean containers; loading dewatering biosolids and covering containers once loaded; transporting dewatered biosolids to beneficial use sites; and preparing reports for billing and regulatory purposes.

Following evaluation of the proposals, staff began negotiations with the three highest ranking companies with a focus on vetting each company's approach to managing the facility's dewatered biosolids, the available capacity at proposed beneficial use sites, and clarifying the commercial terms of the agreements in coordination with the City Attorney's Office. In December 2022, City Council approved agreements with Denali Water Solutions, LLC, Synagro West, LLC, and Lystek International Limited to manage approximately 35%, 57%, and 8% respectively of the facility's dewatered biosolids. Approval of the transportation and beneficial use service agreements provides reliability, secures capacity, and sets competitive service rates in advance of the Dewatering Facility's operation, anticipated to be in fiscal year 2025-2026. The agreements also provide flexibility as they have options to extend the term from June 30, 2029 through June 30, 2033, should staff need more time to implement the longer-term aspects of the

Dewatered Biosolids Management Strategy, particularly the development of an on-site partner facility.

In parallel with the work on these agreements, staff continued to evaluate the feasibility of a future on-site partner facility that will process the Regional Wastewater Facility's dewatered biosolids for beneficial reuse. Staff is working with Arup, one of their Consultants, to conduct a financial feasibility analysis for this facility. As part of this effort, a Request for Information will be issued in February 2023 to confirm the private sector's interest in delivering a facility within an acceptable range of potential technical solutions and commercial arrangements that align with the City's objectives and risk allocation. Staff plans to complete the feasibility and financial analysis later in 2023.

B. Aeration Tanks Upgrade Approach

The Regional Wastewater Facility has two sets of aeration tanks. These "Biological Nutrient Removal" tanks were constructed in phases between the 1960's and 1980's. The aeration tanks form part of the secondary treatment process where air provided by large blowers encourage growth of naturally occurring bacteria that breakdown organic pollutants in the wastewater. The Plant Master Plan identified the need for both rehabilitation of the aeration tanks due to their age, but also the potential need for a higher capacity treatment process to meet more stringent future regulations.

In 2020, the CIP initiated a Process Optimization Study to identify, evaluate, and recommend secondary treatment improvements, taking into account anticipated future regulations and projected future flows and loads. A significant change in regulation is anticipated for the upcoming 2024 Nutrient Watershed Permit. This permit is expected to impose Total Inorganic Nitrogen limits for all dischargers to the San Francisco Bay, with compliance likely required by 2029. The recent algal bloom incident in the North Bay, in the summer of 2022, has heightened concern about the impact of nutrient discharge to the bay and resulted in increased scrutiny and discussion on both the anticipated load caps (collective or by agency) and the timing of implementation.

The Process Optimization Study identified a Modified Step-feed Biological Nutrient Removal with Simultaneous Nitrification Denitrification as a method to provide ultimate compliance with the future regulations and flows and loads. This will be used in conjunction with a hydrocyclone-based activated sludge wasting technology (inDENSE™) and carbon addition. The study also recommended that these changes be introduced incrementally, to adequately address needs at the facility.

Based on these recommendations, staff is in the process of developing different implementation alternatives to incrementally upgrade the aeration tanks in a cost-effective manner while ensuring sufficient treatment capacity based on flows and loads projections, compliance with existing regulations and the anticipated Total Inorganic Nutrients load cap and prioritized structural rehabilitation. These alternatives identify the

magnitude and timing of both capital and operational cost impacts with the intent that a preferred approach is selected which minimizes the cost impact to rate payers.

On the project delivery front, there were 25 active projects at various stages of the project delivery model during the reporting period.

A. Feasibility/Development Highlights

Six projects were in the feasibility/development phase during the 2022 calendar year.

Key activities completed during this period include the following:

- **Final Effluent Pump Station – Phase 1:** Due to the combined effects of rising sea levels, storm surges, and king tide events, this project will build a flood wall along each bank of the outfall channel, replace the existing outfall bridge, and implement design improvements to the Outfall Pump Station. Staff completed project scoping and started negotiating with the design consultant to perform alternative analysis and conceptual design services.
- **Plantwide Security System Upgrades:** During the reporting period, the project team finalized the scope, which includes adding camera monitoring stations, installing card readers at entrances of buildings, and upgrading the camera system throughout the facility. The team has begun work on alternative analysis and conceptual design.
- **Yard Piping Improvements – Phase 3:** Since project initiation in April 2022, the project team has been reviewing consultant submittals. Condition assessment of the 108-inch filter influent pipeline was completed in November. In December, flow meters were installed to capture flow data for wet and dry weather.

B. Design/Bid and Award Highlights

Five projects were in the design or bid/award phase at the end of December 2022. Key activities completed during this period include the following:

- **Facility-wide Water Systems Improvements:** During the reporting period, the design consultant completed the 90 percent design. 100 percent design will be completed by February 2023.
- **Flood Protection:** In this reporting period, the project team finalized the scope of the project, and the design consultant completed the conceptual design. The 50 percent (preliminary) design is expected to be completed by September 2023.
- **HVAC Improvements:** In May 2022, the design was completed, and the project was advertised for bidding in August. The City received a single bid in October that was approximately three times over the Engineer's Estimate and that bid was rejected. The project team investigated the reasons behind the single bid and its discrepancy with the Engineer's Estimate and recommended delaying a rebid until August 2023.
- **Main Guard Shack Replacement:** In August, the design consultant completed the conceptual design. 50 percent and 100 percent design are expected to be completed in April and September 2023, respectively.
- **Yard Piping Improvements – Phase 2:** In March, alternatives analysis and conceptual design were completed and in October the design consultant completed

100 percent design. In November, staff advertised the construction contract for bid. City Council award of the construction contract is expected in April 2023.

C. Construction Highlights

Nine projects, totaling approximately \$489 million, were in construction during the period ending December 2022 (see Attachment). Two of the nine projects are being delivered using the progressive design-build method, with the remaining seven projects being delivered using the design-bid-build approach. Four projects reached beneficial use including Advanced Facility Control & Meter Replacement – Phase 1, Digester and Thickener Facilities Upgrade, Switchgear M4 Replacement and G3 & G3A Removal, and Yard Piping Improvements – Phase 1. Key activities completed during this period include the following:

- **Advanced Facility Control & Meter Replacement – Phase 2:** The contractor completed functional testing of new equipment in Secondary Battery A, and continued to work on close out activities in Nitrification Battery A. In October, functional testing and startup for tanks A1-A6, clarifiers (except A3), dissolved oxygen meters, total suspended solids meters, flumes, and flow meters were completed. Substantial completion is expected in March 2023.
- **Blower Improvements:** In January, the contractor completed functional testing and operational testing on Tertiary Building Blower #5. Pre-operational testing on Secondary Blowers #2 and #3 was completed in July. Operational testing on Tertiary Building Blowers #2 and #1 was completed in November. Substantial completion is expected in May 2023.
- **Digested Sludge Dewatering Facility:** In March, City Council approved the amended and restated design-build contract with Walsh Construction, foundation and the stone columns were added. In June, as part of the early work package, the sanitary sewer line for the dewatering building was installed. In August, the design-builder began main construction work, starting with the truck loadout area stair pad, dewatering building elevator pit, and walls of the dewatering building. Potholing for utility investigation began in November. Through December 2022, construction was approximately 19 percent complete.
- **Filter Rehabilitation:** In January, the contractor installed electrical duct banks south of the Filter Building to power the new S12 Switchgear. In March, filter media, blowers, and electrical components were delivered, and structural work began in the Filtration Building. In June, four layers of gravel media were placed and leveled on each filter. New electrical feeds and controls were installed in the Filter Building. In September, the contractor completed work in filters A1-A3 and A5-A8 and all A filters have been returned to service. Through December 2022, construction was approximately 45 percent complete.
- **Fire Life Safety Upgrades:** Notice to Proceed was issued to the contractor Blocka Construction, Inc. in October. The project team has been reviewing contractor submittals. Through December 2022, construction was approximately 41 percent complete.

- **Headworks:** In March, installation of all major equipment, including the odor control system was complete. In June, the last section of concrete lining for the 12-million-gallon Emergency Overflow Basin was installed.
During this period, the design-builder also completed various steps in the testing startup and commissioning of facilities and equipment to confirm that they operate as designed, City staff provided training to operate the systems, and the operation and maintenance manuals and equipment spare parts were provided. In the early part of 2022, the design-builder performed software Factory Acceptance Testing for the Distributed Control System and submitted drafts of Operations & Maintenance manuals. By spring, Pre-Operational Testing on new bar screens, raw sewage pumps, grit basins, and grit classifiers had been completed. In the summer, equipment training for City operators began and the 12-million-gallon Emergency Overflow Basin was filled with clean water for Functional Testing. During Functional Testing, equipment was run by the design-builder using clean water only, with process water (sewage) not introduced until Operational Testing to reduce cleaning costs if corrective actions are required. In the fall, the spare parts list was developed, Functional Testing was completed, and staff training continued. Looking ahead the project is expected to commence Operational Testing in early 2023 and complete TSC - Testing Startup and Commissioning, and reach substantial completion in the summer.
- **Nitrification Clarifiers Rehabilitation - Phase 1:** In January, functional testing of new equipment in the Battery B clarifiers was completed and operational testing was finished in April. Clarifier center columns, drives, and arms in clarifiers B6 and B7 were installed in April while inlet valve box pipes, pipe trains were demolished in the return activated sludge gallery, in addition to installing drain wet valves, pipe trains, and pipe support. Pre-operational testing was completed in July and in September, work was completed in the return activated sludge gallery. Functional testing of B6 and B7 clarifiers was completed in November. A construction contingency increase in the amount of \$5,200,000 was approved by City Council in November. Additional funding was for construction changes, delay time and time-related overheads encountered to date and future changes due to unforeseen and differing site conditions. Substantial completion is expected in July 2023.
- **Outfall Channel and Instrumentation Improvements:** The City issued the Notice To Proceed to contractor, Anvil Builders Inc., in January. In April, wildlife exclusion fencing was installed. The contractor completed excavation for the flow meter vault in July. In September, the contractor installed the duct bank from the Sulfur Dioxide Building to the access bank, bridge lights, flow meter vault, panel pad/canopy, and concrete and asphalt work in the Daylight Station. Substantial completion is expected in August 2023.
- **Storm Drain System Improvements:** The City issued the Notice To Proceed to contractor, Ranger Pipelines, Inc., in April. The contractor started to flush and clean the storm drain pipes in June. In August and September, pipes on A St., the North Administration Building parking lot, B St., Main St., C St., D St., and the Environmental Services Building parking lot were removed and replaced. In October,

pipes were removed and replaced on G St., 1st St., 2nd St., 3rd St., and F St. Substantial completion is expected in December 2023.

Staff, contractors, and consultants continued to work safely and there was one reportable incident to the State's Division of Occupational Safety and Health (Cal/OSHA) from January through December 2022. The fatality of a construction worker occurred in June on the Advanced Facility Control and Meter Replacement – Phase 2 project. The investigation by Cal/OSHA resulted in citations issued to the contractor, Kiewit Infrastructure West Co., but there were no violations or associated penalties against the City.

Staff expects to achieve the following by the end of December 2023:

1. Reach substantial completion on the Advanced Facility Controls and Meter Replacement – Phase 2, Blower Improvements, Headworks, Nitrification Clarifiers Rehabilitation – Phase 1, Outfall Channel and Instrumentation Improvements, and Storm Drain System Improvements projects;
2. Amend Master Services Agreement with Brown and Caldwell for owner's advisor services on the Digested Sludge Dewatering Facility project;
3. Advertise the construction contracts for Facility-wide Water Systems Improvements, HVAC Improvements, and New Headworks Access Road projects.
4. Obtain City Council approval to award the construction contracts for Facility-wide Water Systems Improvements, HVAC Improvements, and Yard Piping Improvements – Phase 2 projects;
5. Advertise a Request for Proposals for owner's advisor services on the Additional Digester Facility Upgrade project;
6. Advertise a Request for Information for a biosolids disposition partner facility; and
7. Initiate the East Primary Rehabilitation and Nitrification Clarifiers Rehabilitation – Phase 2 projects.

COORDINATION

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

/s/

KERRIE ROMANOW
Director, Environmental Services

/s/

MATT LOESCH
Acting Director, Public Works

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

ATTACHMENT: Projects Under Construction: January 2022 – December 2022