



Capital Improvement Program Monthly Status Report: March 2018

May 10, 2018

This report summarizes the progress and accomplishments of the Capital Improvement Program (CIP) for the San José-Santa Clara Regional Wastewater Facility (RWF) for March 2018.

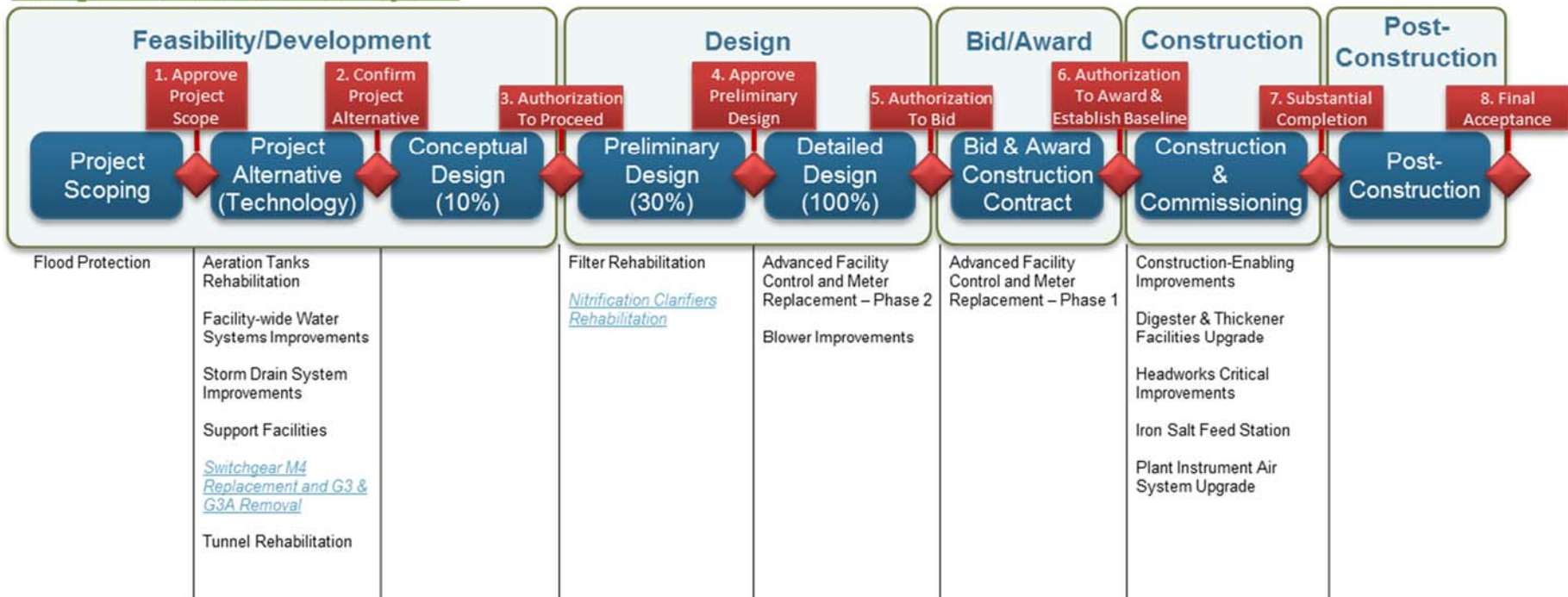
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Project Delivery Model

Design-Bid-Build Active Projects



Design-Build Active Projects



Key

- Phases
- Stages
- Stage Gates



Program Summary

March 2018

Nineteen CIP projects continued to progress through the feasibility/development, design, and bid/award stages of the project delivery model (PDM) in March. Of particular note, two projects successfully moved through stage gate approval:

- The Switchgear M4 Replacement and G3 & G3A Removal Project advanced through the Approve Project Scope stage gate. This project will replace existing aging switchgear infrastructure (M4) to provide increased circuit breaker capacity to meet future maximum loads at the RWF and to lower arc flash risks to safer levels. The project will also remove existing switchgear (G3 and G3A) that will become redundant once the new Cogeneration Facility is completed. The project initially included an upgrade of switchgear S40, but this work will now be performed by RWF electrical staff for improved coordination and efficiency.
- The Nitrification Clarifiers Rehabilitation Project advanced through the Authorization to Proceed (10% Conceptual Design) stage gate. This project will implement modifications to 16 existing clarifiers in the Biological Nutrient Removal (BNR2) secondary treatment process at the RWF. These clarifiers have been operational for over 40 years, and many of the clarifier elements are nearing the end of their useful life. The project will provide essential mechanical, electrical and structural rehabilitation to the clarifiers and associated ancillary equipment.

Alternatives analysis continued on the Aeration Tanks Rehabilitation, Facility-wide Water Systems Improvements, Fire Life Safety Upgrades, and HVAC Improvements projects. Of particular note this month, the HVAC Improvements Project began condition assessment work of 18 existing buildings at the RWF, and the City advertised a Request for Qualifications (RFQ) for design-build (DB) services for the Digested Sludge Dewatering Facility Project. Preliminary design progressed on the Filter Rehabilitation Project and 3D laser scanning of the filter galleries was completed this month. Detailed design also continued on the Blower Improvements Project with the 90% design submitted for City review and prequalification documents for construction contractors advertised this month.

Construction continued on six projects. Early site work continued on the Cogeneration Facility and a formal groundbreaking ceremony was held at the RWF this month. Design work for the project's 90% design submittal neared completion, and the Bay Area Air Quality Management District (BAAQMD) issued the air permit for the project. The Construction-Enabling Improvements Project contractor continued to install the new construction management trailers and addressed several outstanding items for the project. The Digester and Thickener Facilities Upgrade Project contractor completed the installation and testing of the temporary pumping bypass system required to allow replacement of the 78-inch settled sewage pipeline during the dry season, and also completed the foundation for the new sludge screening building. The contractor also started to excavate and remove polychlorinated biphenyl (PCB) impacted soils around the existing digester tanks in accordance with the EPA-approved Phase 1 Risk-Based Mitigation Plan and continued the construction of the new gas piping system supports. The Headworks Critical Improvements Project contractor completed functional testing and distributed control system programming for the newly installed bar screens and prepared to commence operational testing in May. The Iron Salt Feed Station Project contractor continued commissioning the new ferric dosing and polymer dosing stations. The Plant Instrument Air System Upgrade Project contractor completed the testing and calibration of a number of field instruments and electrical components of the new compressor system.

Two other projects are currently in post-construction. The County recorded the City's Notice of Completion and Acceptance (NOCA) this month for the Digester Gas Compressor Upgrade Project. Staff anticipates the NOCA for the Emergency Diesel Generators Project to be recorded April 2018.

Look Ahead

The following key activities are forecast for April/May 2018:

- Project teams will seek stage gate approval for the following projects:
 1. Headworks Improvements and New Headworks projects (Headworks Project) - Stage Gate 4: Authorization to Award DB Contract; and
 2. Blower Improvements Project – Stage Gate 5: Authorization to Bid.
- The Iron Salt Feed Station Project is expected to reach Beneficial Use;
- The City will file the NOCA for the Emergency Diesel Generators Project.
- Staff will make the following recommendations to the Treatment Plant Advisory Committee (TPAC) and Council:
 - April : (1) award a master consultant agreement (MCA) for owner's advisor services for the Yard Piping and Road Improvements Project; and (2) accept the CIP Semiannual Status Report, which highlights CIP progress for the period of July through December 2017.
 - May: (1) award a construction contract for the Advanced Facility Control and Meter Replacement – Phase 1 Project; (2) accept an annual update on Discharge Regulations and Future Impacts on the RWF; and (3) accept and adopt the proposed RWF CIP Budget (TPAC May / Council June).



Program Highlight – Project Interfaces

The CIP will implement the design and construction of more than 30 projects over a ten year period within a critical facility operating around the clock. Of key importance is understanding how projects relate to one another, and identifying those projects that may impact or rely on other projects. These relationships between projects are called interfaces.

Interface examples include:

- Informational interfaces, where one project provides information that another project requires, including condition assessment reports or specific design criteria;
- Product interfaces, where one project is responsible for delivering a product to another project, such as hot water, electricity, or digester gas;
- Physical construction interfaces, where infrastructure built by different contractors meet;
- Permit compliance interfaces, where one project's actions trigger a permit condition or requirement that another project must then meet; and
- Systems and operational process modifications in one project that may impact other projects and may require design coordination or agreement regarding design criteria.

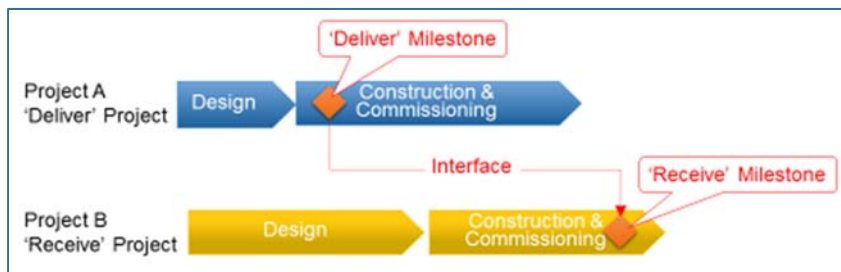


Figure 1: Interface relationship between projects

Interface management coordinates and manages efforts to identify, understand, and document project interfaces. The CIP program management team includes an interface manager role to track, monitor, and communicate the interface status and take actions to maximize benefits or minimize adverse impacts that may arise. Interface management follows a process that promotes:

- A structured, systematic approach from project initiation through commissioning;
- Accountability, with responsibilities assigned for planning and executing interface management response and activities;
- Communication through monthly reports, online tools, and additional resources;
- Collaboration with project managers, subject experts, and project teams through workshops, meetings, and documentation;
- Integration with the program's risk register, schedules, and decision logs, when necessary; and
- Stewardship of interproject relationships and dependencies.

The process begins when an interface is identified and recorded in the interface log located on the CIP Portal, a collaborative website. Anyone in the CIP can identify an interface, but most are identified by the project team or interface manager as the project progresses through each PDM stage. The interface manager then works with the project teams and subject matter experts to evaluate the interface.

Responsibilities are assigned and plans developed to avoid or mitigate any adverse impacts that may occur related to the interface. Project schedule activities are identified to monitor status and execution of the interface. The interface manager monitors these dates through monthly schedule updates and status reports. Corrective action is initiated should the schedule forecast that the interface may be delayed.

Interfaces are also reviewed for other changes that may impact them as the project progresses. Such changes may include scope, schedule, or sequence, with the interface status updated as necessary. Interfaces are closed only when the interface is executed or is no longer relevant.

Interface management requires an early understanding of project relations, identification of relations that involve CIP projects, close collaboration, and proactive management by everyone involved. Successful interface management promotes information sharing and coordination between projects, eliminates potential planning, design, construction, and/or operational conflicts, and ensures project and long-term operational goals are met.

Program Performance Summary

Eight key performance indicators (KPIs) have been established to measure overall CIP success. Each KPI represents a metric that will be monitored on a regular frequency. Through the life of the CIP, KPIs that best reflect the current program will be selected and measured. KPIs have been reset for this fiscal year.

Program Key Performance Indicators – Fiscal Year 2017-2018

KPI	Target	Fiscal Year to Date			Fiscal Year End		
		Actual	Status	Trend	Forecast	Status	Trend
Stage Gates	80%	100%			100%		
		14/14 ¹			19/19 ²		
Measurement: Percentage of initiated projects and studies that successfully pass each stage gate on their first attempt. Target: Green: >= 80%; Amber: 70% to 80%; Red: < 70%							
Schedule	90%	0%			40%		
		0/1			2/5		
Measurement: Percentage of CIP projects delivered within 2 months of approved baseline Beneficial Use Milestone. ³ Target: Green: >= 90%; Amber: 75% to 89%; Red: < 75%							
Budget	90%	50%			75%		
		1/2 ⁴			3/4 ⁵		
Measurement: Percentage of CIP projects that are accepted by the City within the approved baseline budget. ³ Target: Green: >= 90%; Amber: 75% to 89%; Red: < 75%							
Expenditure	\$248M	\$197M			\$308M ⁶		
Measurement: CIP FY17-18 committed costs. Target: Committed cost meets or exceeds 70% of planned Budget. 70% of \$354M = \$248M. Therefore Green: >=\$248M; Amber: \$194M to \$248M; Red: < \$194M							
Procurement	80%	100%			100%		
		3/3 ⁷			4/4		
Measurement: Number of consultant and contractor procurements advertised compared to planned for the fiscal year. Target: Green: >= 80%; Amber: 70% to 79%; Red: < 70%							
Safety	0	0			0		
Measurement: Number of OSHA reportable incidents associated with CIP delivery for the fiscal year. Criteria: Green: zero incidents; Amber: 1 to 2; Red: > 2							
Environmental	0	0			0		
Measurement: Number of permit violations caused by CIP delivery for the fiscal year. Target: Green: zero incidents; Amber: 1 to 2; Red: > 2							
Staffing⁸	80%	100%			100%		
		15/15 ⁹			15/15		
Measurement: Number of planned positions filled for the fiscal year. Target: Green: >= 80%; Amber: 70% to 79%; Red: < 70%							

Notes

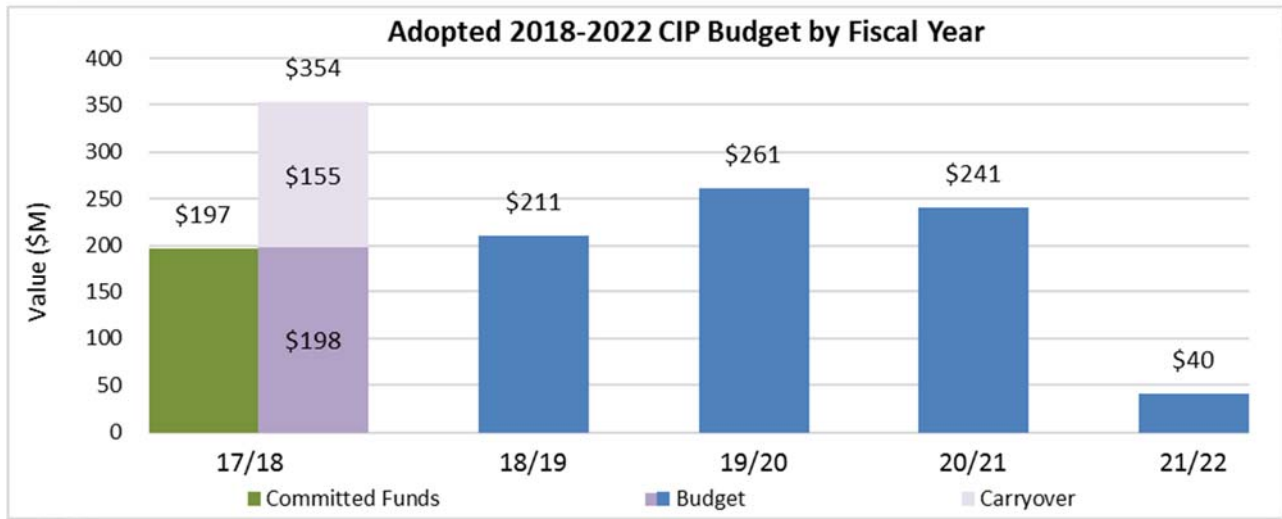
1. The Switchgear M4 Replacement and G3 & G3A Removal (formally named Switchgear S40 Upgrade, M4 Replacement, G3 & G3A Removal) and the Nitrification Clarifier Rehabilitation projects successfully completed the Approve Project Scope and Authorization to Proceed stage gates, respectively.
2. The fiscal year-end count has been updated to reflect a decrease in the number of planned stage gates due to project schedule revisions.
3. The baseline Beneficial Use date and the baseline budget for each project are established at construction contract award and execution.
4. The Digester Gas Compressor Upgrade Project was accepted by the City with project expenses exceeding the approved baseline budget.
5. The Construction-Enabling Improvements Project is no longer anticipated to be accepted this fiscal year.
6. The fiscal year-end expenditure forecast increased by approximately \$2 million due to revised encumbrance estimates.
7. The City advertised the Request for Qualifications for DB services for the Digested Sludge Dewatering Facility Project.
8. The staffing KPI is measured quarterly and represents CIP recruitments planned for the fiscal year. This KPI measurement does not account for staff turnover throughout the fiscal year.
9. The KPI was updated for the third quarter. The program filled three positions: an associate engineer, engineer I/II, and an associate engineering technician.



Program Budget Performance Summary

This section summarizes the cumulative monthly budget performance for fiscal year (FY)17-18 based on the 2018-2022 CIP.

Adopted 2018-2022 CIP Expenditure and Encumbrances



Notes

Committed Funds: Total of expenditures and encumbrances.

Expenditure: Actual cost expended, either by check to a vendor or through the City's financial system, for expenses such as payroll or non-personal expenses that do not require a contract.

Encumbrance: Financial commitments such as purchase orders or contracts that are committed to a vendor, consultant, or contractor. An encumbrance reserves the funding within the appropriation and project.

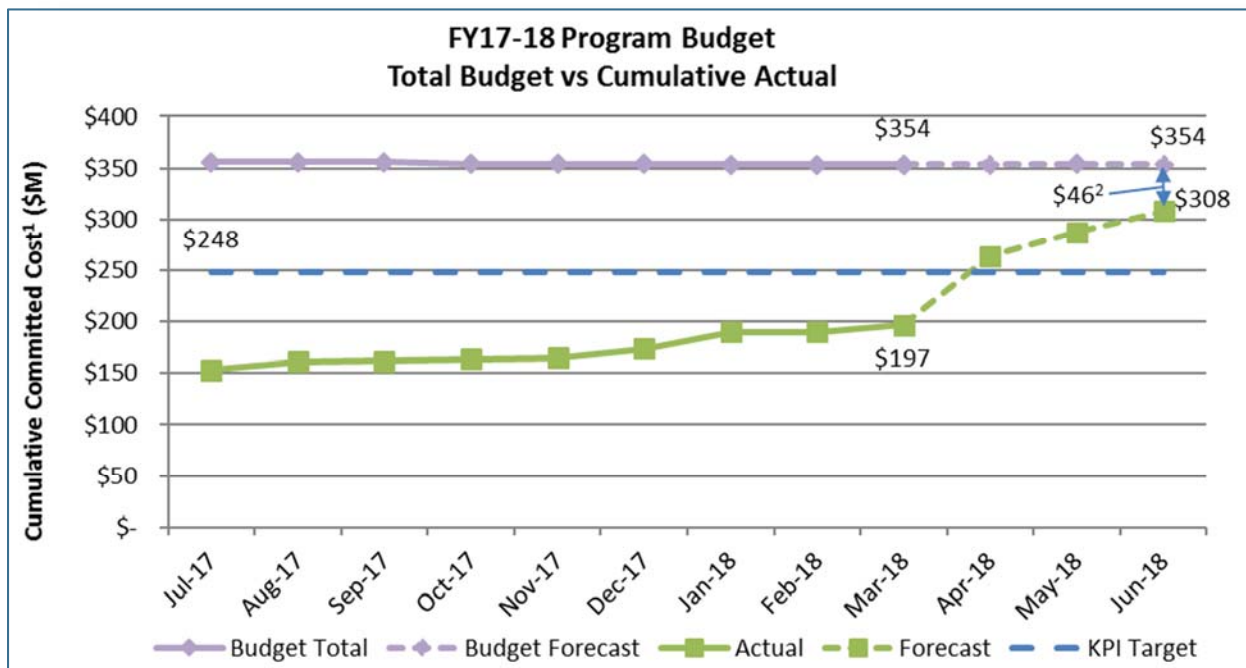
The FY17-18 budget is \$238 million, which consists of \$198 million in new funds and \$40 million in rebudgets. For purposes of this monthly report, the adopted FY17-18 budget is adjusted from \$238 million to \$198 million due to excluding certain appropriations that are not measured as part of the expenditure KPI. Excluded appropriations include Urgent and Unscheduled Treatment Plant Rehabilitation, SBWR Extension, Debt Service Repayment for Plant Capital Improvement Projects (San José only debt service), Public Art, State Revolving Fund Loan Repayment, City Hall Debt Service Fund, Clean Water Financing Authority Debt Service Payment Fund, Equipment Replacement Reserve, and Ending Fund Balance. Similar adjustments have been made to the budgets for FY18-19 through FY 21-22. In October, the fall cleanup action increased the FY17-18 budget by \$3 million.

Carryover: Encumbrance balances at the end of the previous fiscal year are automatically carried forward to the current fiscal year as carryover funding to pay invoices for approved construction contracts and consultant agreements.



Fiscal Year 2017-2018 Program Budget Performance

The FY17-18 budget is comprised of approximately \$198 million in new funds plus encumbrance carryover of \$155 million for a total of \$354 million. This excludes Reserves, Ending Fund Balance, Debt Service, South Bay Water Recycling, Public Art, and Urgent and Unscheduled Rehabilitation items.



Notes

- Committed costs are expenditures and encumbrance balances, including carryover (encumbrance balances from the previous fiscal year).
- The variance between forecasted budget and forecasted commitments can be primarily attributed to the following factors:
 - Construction contracts that are not expected to be awarded in FY17-18:
 - Blower Improvements Project
 - Fire Life Safety Upgrades Project
 - Several consultant service orders planned for award in FY17-18 are now expected to be awarded in FY18-19:
 - Filter Rehabilitation Project – detailed design work
 - Facility-wide Water Systems Improvements Project - preliminary and detailed design work
 - Tunnel Rehabilitation Project – feasibility/development work
 - Several other minor encumbrances for consultant services are either lower than budgeted or are anticipated to be awarded in FY18-19.
 - Several authorized positions remain vacant, resulting in lower predicted personal services expenses than budgeted.
- The FY17-18 budget includes three recurring appropriations (Preliminary Engineering, Equipment Replacement, and Plant Infrastructure Improvements) that total approximately \$3.66 million. These appropriations are included in the budget to implement minor capital improvement projects that may be needed during the fiscal year. No major expenditures or encumbrances are currently planned against these appropriations.



Project Performance Summary

There are currently six active projects in the construction phase and two projects in the post-construction phase, with an additional 19 projects in feasibility/development, design, or bid and award phases (see PDM, page 2). All active projects are listed in the tables below. Projects in the construction phase have established cost and schedule baselines and are monitored using the City's Capital Project Management System (CPMS). Green/red icons are included in the table below to indicate whether these projects are on budget and schedule.

Project Performance – Baselined Projects

Project Name	Phase	Estimated Beneficial Use Date ¹	Cost Performance ²	Schedule Performance ²
1. Digester Gas Compressor Upgrade	Post-Construction	Apr 2017 ³	◆	◆
2. Emergency Diesel Generators	Post-Construction	Jul 2017 ³	●	◆
3. Construction-Enabling Improvements	Construction	May 2018	●	◆
4. Iron Salt Feed Station	Construction	May 2018	●	◆
5. Headworks Critical Improvements	Construction	Jun 2018	●	●
6. Plant Instrument Air System Upgrade	Construction	Jun 2018	●	●
7. Cogeneration Facility	Design & Construction	Jan 2020 ⁴	●	●
8. Digester and Thickener Facilities Upgrade	Construction	Jul 2021	◆	◆

KEY:

Cost:	● On Budget	◆ >1% Over Budget
Schedule:	● On Schedule	◆ >2 months delay

Notes

- Beneficial Use is defined as work that is sufficiently complete, in accordance with contract documents, that it can be used or occupied by the City. Beneficial Use dates are reviewed as part of project schedule reviews.
- An explanation of cost and schedule variances on specific projects identified in this table is provided on page 11 and 12.
- Actual Beneficial Use date.
- The project construction Beneficial Use date will be baselined once the contractor submits their construction schedule.



Project Performance – Pre-Baselined Projects

Project Name	Phase	Estimated Beneficial Use Date ¹
1. Advanced Facility Control & Meter Replacement Phase 1	Bid and Award	Dec 2020
2. Headworks Improvements	Bid and Award	Sep 2022
3. New Headworks	Bid and Award	Sep 2022
4. Blower Improvements	Design	Nov 2021
5. Filter Rehabilitation	Design	Oct 2022
6. Advanced Facility Control & Meter Replacement Phase 2	Design	Dec 2022
7. Outfall Bridge and Levee Improvements	Feasibility/Development	Dec 2020
8. Switchgear M4 Replacement and G3 & G3A Removal	Feasibility/Development	Jan 2022
9. Storm Drain System Improvements	Feasibility/Development	Jul 2022
10. Fire Life Safety Upgrades	Feasibility/Development	Sep 2022
11. Flood Protection	Feasibility/Development	Sep 2022
12. Digested Sludge Dewatering Facility	Feasibility/Development	Oct 2022
13. HVAC Improvements	Feasibility/Development	Mar 2023
14. Facility-wide Water Systems Improvements	Feasibility/Development	Aug 2023
15. Nitrification Clarifiers Rehabilitation	Feasibility/Development	Dec 2023
16. Aeration Tanks Rehabilitation	Feasibility/Development	Sep 2025
17. Support Facilities	Feasibility/Development	Dec 2026
18. Tunnel Rehabilitation	Feasibility/Development	Dec 2026
19. Yard Piping and Road Improvements	Feasibility/Development	Jan 2027

Notes

1. Beneficial Use is defined as work that is sufficiently complete, in accordance with contract documents, that it can be used or occupied by the City. Beneficial Use dates are reviewed as part of project schedule reviews.



Significant Accomplishments

Biosolids Package

Digester Thickener and Facilities Upgrade

- Contractor Walsh Construction completed the installation and testing of the settled sewage pipeline bypass piping and equipment and the foundation for the new sludge screening building. The contractor started excavating and removing PCB-impacted soils and continued construction of gas piping system supports.

Digested Sludge Dewatering Facility

- The City advertised an RFQ for the selection of a design-builder and held a site walk. The project team anticipates issuing the RFP in summer 2018 and executing the DB contract in spring 2019.

Facilities Package

Cogeneration Facility

- The BAAQMD issued the Authority to Construct and DB contractor CH2M started clearing and grubbing activities at the project site. The City also held a groundbreaking ceremony on March 1.

Fire Life Safety Upgrades

- Design consultant Kennedy/Jenks (K/J) submitted a draft of the condition assessment technical memorandum for City review. The project team will hold a project workshop to review the condition assessment findings in April 2018.

Flood Protection

- The project team met with Santa Clara Valley Water District (SCVWD) to review draft hydrological model results for the 500-year flood boundary projections for the Coyote Creek System.

HVAC Improvements

- Design consultant K/J began condition assessment work of 18 RWF buildings, which will be completed in April 2018.

Outfall Bridge and Levee Improvements

- The City executed a service order with AECOM for engineering services. Condition assessment will start in April 2018.

Liquids Package

Aeration Tanks Rehabilitation

- The project team reviewed the draft condition assessment and alternatives analysis report from design consultant Brown and Caldwell (B&C). The report contained tank rehabilitation options and potential improvements to meet future nutrient limits for the RWF effluent and is expected to be finalized in May.

Blowers Improvements

- Design consultant B&C submitted the 90 percent design and updated the project cost estimate for City review.

Headworks Critical Improvements

- Contractor Overaa Construction continued bar screen replacement work and expects to be finished in June 2018.

Iron Salt Feed Station

- Contractor Anderson Pacific and the project team continued to troubleshoot operational issues with the ferric chloride and polymer dosing systems.

Nitrification Clarifiers Rehabilitation

- The project passed Stage Gate 3: Authorization to Proceed, authorizing the team to proceed with preliminary design.

Power and Energy Package

Plant Instrument Air System Upgrade

- Contractor Anderson Pacific completed installation of the air piping and ceiling-mounted lighting.

Switchgear M4 Replacement and G3 & G3A Removal

- The project passed Stage Gate 1: Approve Project Scope. Preliminary design work will begin in summer 2018.



Explanation of Project Performance Issues

Construction-Enabling Improvements

This project was originally scheduled to be substantially complete by mid-February 2017. Due to the extremely wet 2016-17 winter season, contractor Teichert Construction was unable to perform site work for several weeks from October 2016 through April 2017. Teichert has been granted 47 extra work days for weather-related delays. Teichert has also been granted additional time to remove and replace asphalt pavement in damaged areas of Zanker Road; install traffic-rated pull boxes for the streetlight system; install underground conduits for the fiber optic system; and make additional changes.

Delays in completing the installation of portable trailers required for the project continue to impact the schedule. The trailer to be used for badging and training was delivered in August; trailers to be used for construction management personnel were delivered in mid-January. Installation of the utilities, access ramps, and canopy systems is underway. Teichert estimates that it could take several more weeks to obtain required materials and schedule necessary subcontractors, which could result in another six to nine weeks to complete the installation and setup of the trailers. These delays would place the Beneficial Use date in May 2018. The City notified Teichert that the number of contract work days has been exceeded and that liquidated damages are in effect. By the end of this reporting month, liquidated damages were \$199,000.

Digester and Thickener Facilities Upgrade

This project has encountered numerous unforeseen conditions including required design modifications addressing seismic forces and the discovery of hazardous materials.

The unforeseen conditions are impacting the project schedule and cost. The City has negotiated contract change orders for the following conditions, resulting in an estimated six-month delay to the Beneficial Use date:

- Major corrosion of a below-ground 78-inch settled sewage pipeline and junction structure is impacting the dissolved air floatation tank piping connections, two new pressurization flow boxes, and utility relocation work. The contractor has postponed all repairs until a bypass pumping system can be safely installed during the 2018 dry season.
- A 36-inch biochemical oxygen demand pipe was obstructing the new sludge screen building foundation. The contractor has removed this pipe and relocated several gas drain vaults and associated piping.
- Multiple conflicts between contract work and existing water, natural gas, digester gas, landfill gas, storm drain, and sanitary sewer pipelines are requiring numerous relocations. The contractor has completed necessary relocations and modifications, including rerouting and other design changes to the new digester gas pipe rack footings.
- BAAQMD venting restrictions has delayed digester gas bypass work by approximately six months. The contractor has now completed the digester gas bypass connections and put the digester gas bypass in service.

In November 2017, Council approved a contingency increase of \$15 million. The City has issued change orders against the increased contingency for delays associated with the above conditions, including an increase of 140 working days to the project schedule.

The following additional outstanding issues are currently being evaluated and are expected to result in additional costs and delays:

- Digester structural redesign: The design consultant has completed the revised structural drawings addressing seismic issues. Next, the contractor will provide a cost proposal to construct the revised plans.
- Hazardous material mitigation: Testing of soils and concrete for PCBs has been completed. The consultant has prepared a hazardous material survey report summarizing the results of the sampling. The project team has determined disposal options. The contractor has started to excavate and remove PCB-contaminated soils.

An estimated delay of 300 working days based on the contractor's latest submittal is now reflected in the revised Beneficial Use date of July 2021. This estimated delay is being evaluated by City staff.

Digester Gas Compressor Upgrade

This project is over budget by approximately 3 percent due to higher than anticipated project delivery costs associated with increased construction inspection requirements and an extended project timeline.

The contractor achieved Beneficial Use in April 2017; NOCA was achieved in March 2018. This schedule delay was primarily due to the following factors:

- The compressor skids were required to be reclassified from Class 1, Division 2 to Class 1, Division 1. This issue was resolved in May 2015.
- BAAQMD delayed approval of the digester gas flaring during the tie-in of the new gas piping. This issue was resolved in November 2016.
- Functional testing of the automation system took longer than anticipated. Multiple competing process shutdowns with other projects contributed to the delay.
- NOCA was delayed due to outstanding minor work items and the record drawing submittal.



Emergency Diesel Generators

This project reached Beneficial Use in July 2017; final acceptance is anticipated by spring 2018. The schedule shows a project completion delay of approximately one year from the Notice to Proceed (NTP) completion date. The City granted a schedule addition of 189 working days through the change order process due to additional scope. The project has extended beyond the original schedule due to the following factors:

- Caterpillar, the supplier of the emergency diesel generator system, took longer than expected to develop the controls and network switches that interface with existing RWF controls. Caterpillar has completed their outstanding items. Peterson Control completed their outstanding items and has obtained O&M final signoff.
- Additional time was required for PG&E to review the third-party protective devices testing report and schedule the witness test for the new emergency diesel generators. PG&E has now completed this work.
- A no-cost time extension change order was required to split the commissioning sequence into two phases and ensure RWF backup power during engine modification work. The contractor completed both phases of the project, including modifications to the existing EG1 engine; an eight-hour load test for the four new generators; installation of the fueling and diesel exhaust fluid systems; and upgrades to the existing EG2 and EG3 engines and M4 switchgear.

The contractor has reached a settlement with the City on liquidated damages.

Iron Salt Feed Station

The Iron Salt Feed Station Project construction has been delayed by eight months due to a combination of heavy winter rain in 2016-17; longer than anticipated time to fabricate the double containment pipeline and leak detection system; some piping modifications to resolve a pump operational issue at the ferric chloride station; and the installation of additional piping to allow O&M staff to temporarily dose polymer at an alternate location. In addition, operational testing and commissioning of the new equipment has taken longer than anticipated to fine tune the control program, identify and resolve pump drop off issues, and address issues with the new flow meter and level sensor. Staff anticipate that the project will reach Beneficial Use in May 2018.



Project Profile – Digested Sludge Dewatering Facility

A series of physical, biological, and chemical processes treat the liquids and solids streams during the RWF wastewater treatment process. Separated solids (or sludge) is thickened and processed through anaerobic digesters for 15 to 30 days to reduce pathogen content and sludge volume. The thickened digested sludge is then pumped to open air lagoons and drying beds for further sludge volume reduction, treatment, and stabilization over a four-year cycle. The RWF generates approximately 85 tons of biosolids per day, which are used as alternate daily cover (ADC) at the local Newby Island Landfill.

The 2013 Plant Master Plan recommended transitioning from the existing open-air lagoons and drying beds to a new mechanical dewatering facility. Benefits of this transition include:

- Reducing odors in the community,
- Positioning the RWF to have multiple and diversified disposition options,
- Reducing the footprint of the biosolids processing area from 750 acres to about 160 acres to enable other land uses; and
- Creating flexibility to respond to future regulatory changes governing the disposal of treated biosolids at landfills as well as changing market conditions related to beneficial reuse of treated biosolids.

In 2014, a biosolids management strategy was further developed to address biosolids transition implementation. Council approved recommendations from this strategy in December 2014 and June 2015, including the new Digested Sludge Dewatering Facility Project. In addition, recent developments in solids waste regulations (SB1383) further validate the need for this project. Implementation of SB 1383 could preclude the RWF from continuing to dispose of its biosolids at Newby Island Landfill (or any other California landfill) as soon as 2020. Construction of the new digested sludge dewatering facility will position the RWF to have biosolids disposition options in compliance with this regulation.

The project will construct a new mechanical dewatering facility and associated support facilities to replace the existing lagoons and drying beds. The support facilities are anticipated to include transfer sludge pumps; digested sludge storage tanks and feed pump stations; dewatering centrifuges; sludge cake conveyance facilities; polymer facilities; centrate pumps; and truck load-out facilities. The project team identified a site for the new dewatering facility on the east side of Zanker Road (see Figure 2). The total project budget is approximately \$97 million.

The project will be delivered using the progressive design-build method. In October 2016, Council approved a master consultant agreement with B&C to provide engineering services as the City's owner's advisor. Their services include development of project alternatives, the project definition report (PDR), and preparation of the documents required by the California Environmental Quality Act (CEQA). B&C completed the alternatives analysis in 2017. As a result of this work, the City selected decanter centrifuges for the dewatering technology, and identified other acceptable alternatives for sludge pumping, storage, cake conveyance, and site layout. At present, the project team is working with B&C to complete the PDR and CEQA documentation by fall 2018.

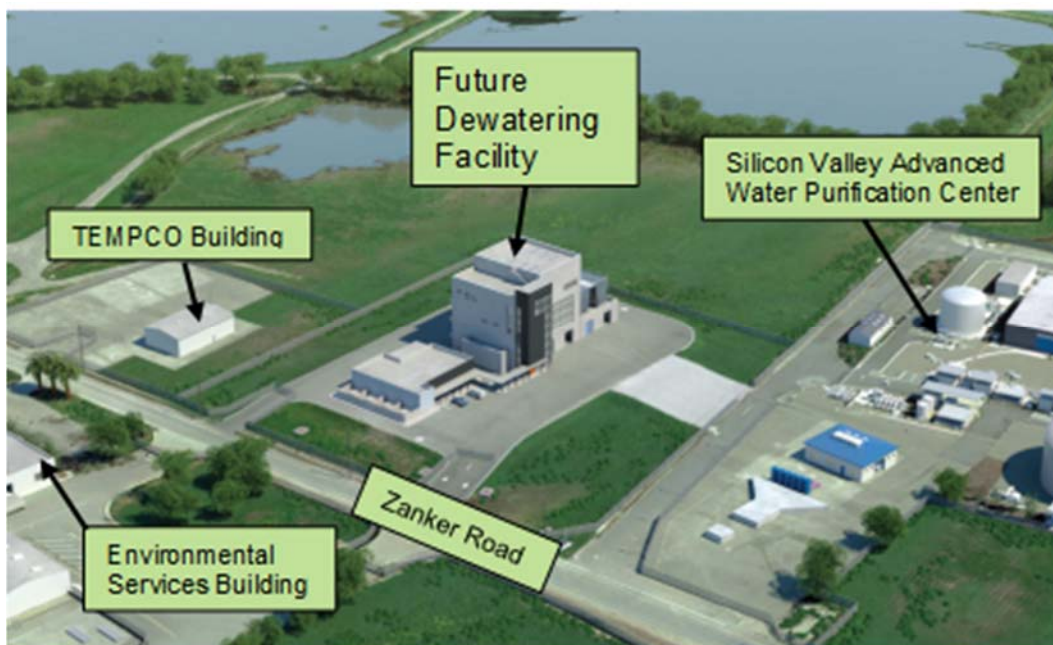


Figure 2: Mechanical Dewatering Facility Conceptual Rendering

In March, the City issued an RFQ for design-builder (DB) services. The top-ranked teams will be invited to submit proposals as part of the Request for Proposals (RFP) process. The project team anticipates making a recommendation to Council to award a DB contract in spring 2019. Once awarded, the DB entity will provide detailed design and complete construction of the new facilities based on a negotiated guaranteed maximum price. Construction is scheduled to begin in fall 2020 with substantial completion expected by winter 2022.

Regional Wastewater Facility Treatment – Current Treatment Process Flow Diagram

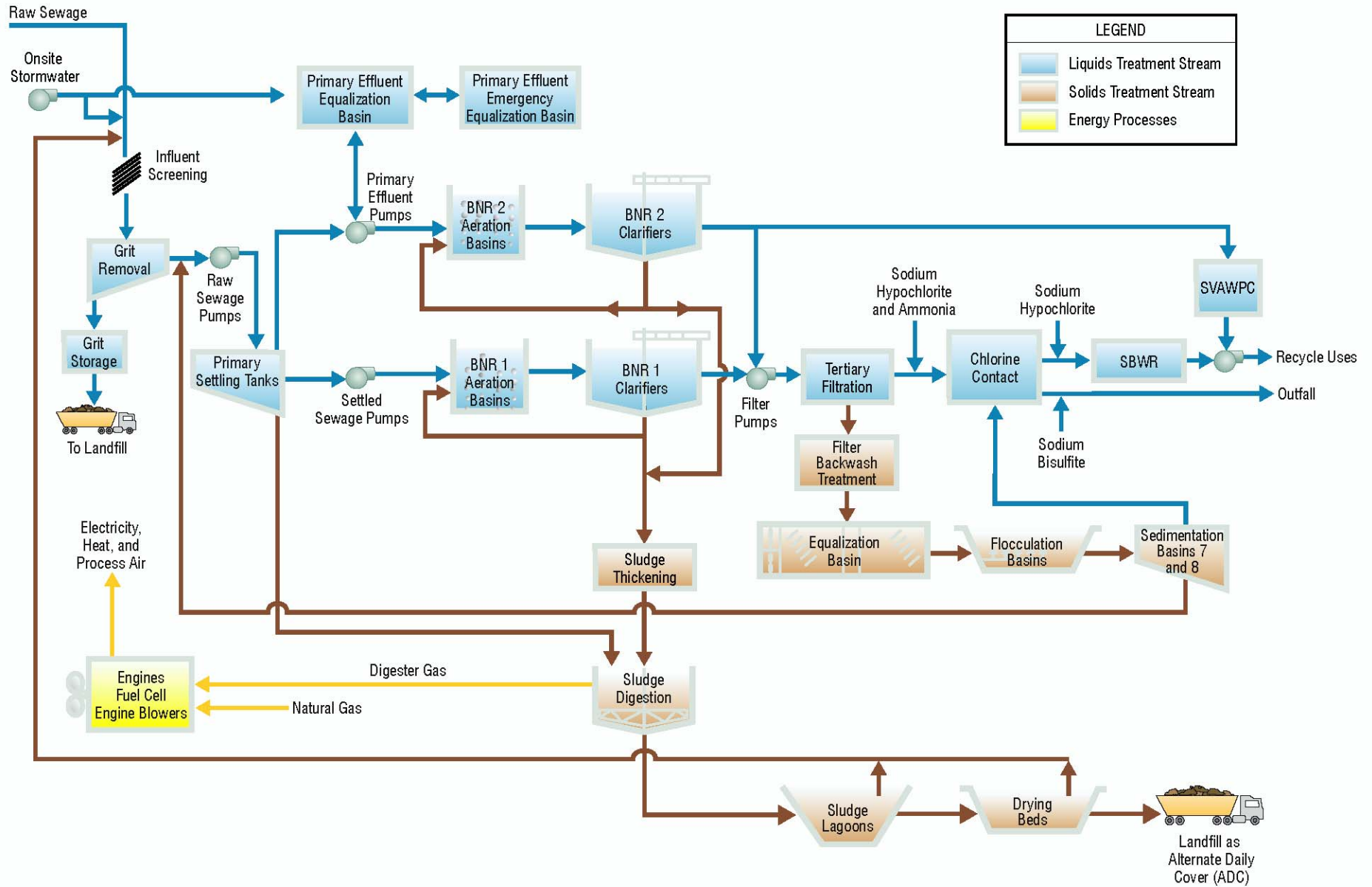


Figure 3 – Current Treatment Process Flow Diagram



Regional Wastewater Facility Treatment – Proposed Treatment Process Flow Diagram

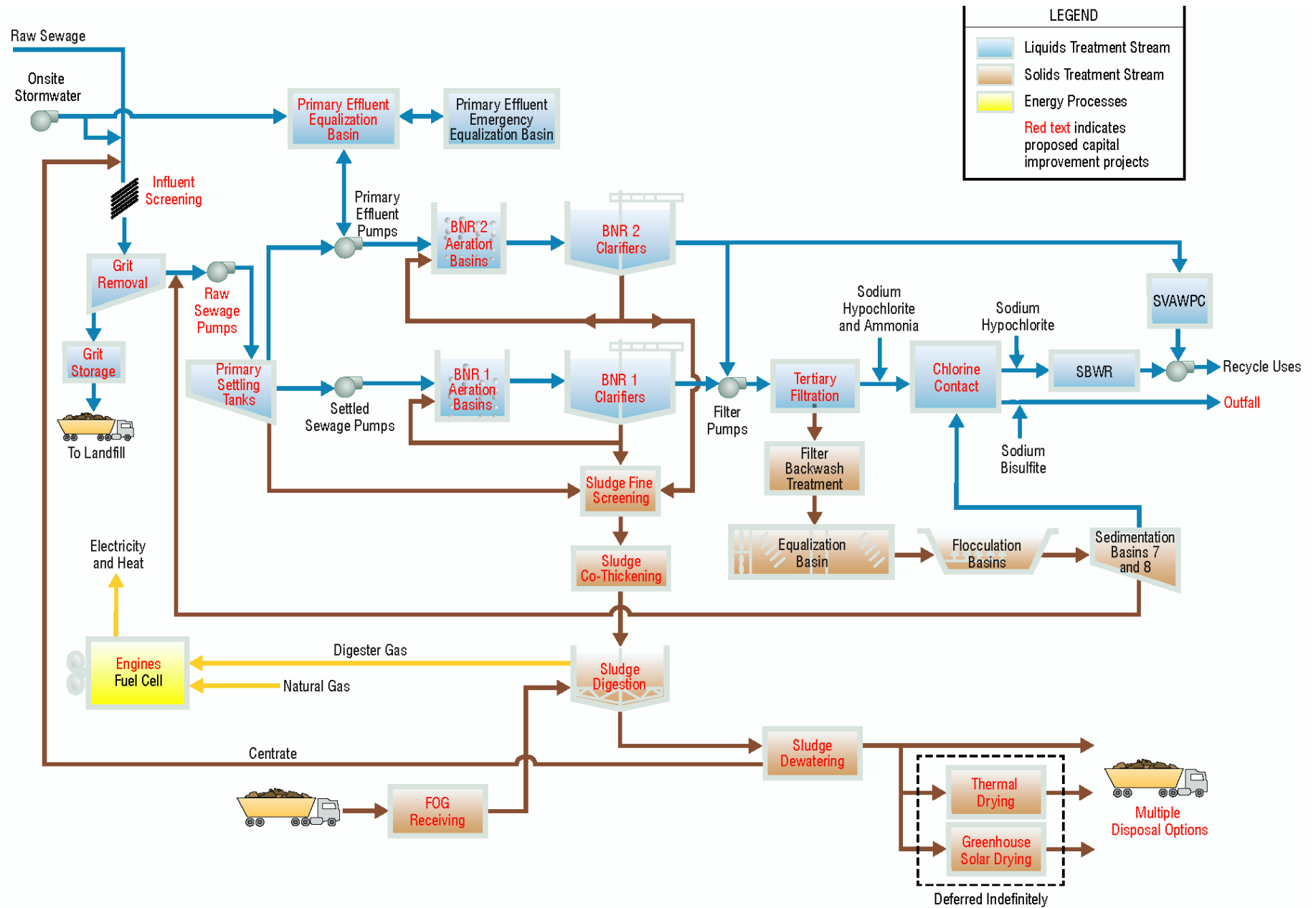


Figure 4 – Proposed Treatment Process Flow Diagram



Active Construction Projects – Aerial Plan

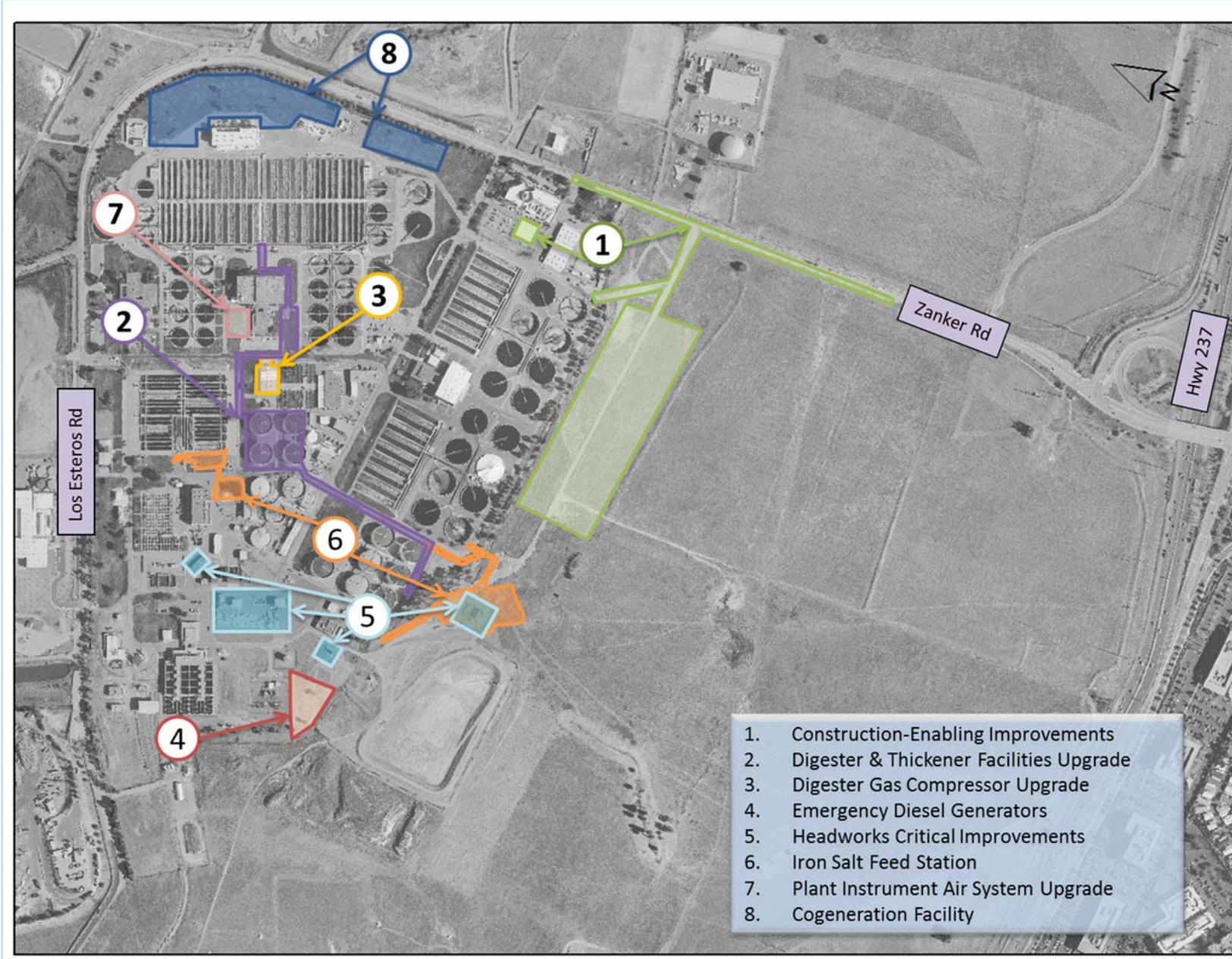


Figure 5: Active Construction Projects

