San José-Santa Clara Regional Wastewater Facility

Capital Improvement Program
Monthly Status Report: August 2017

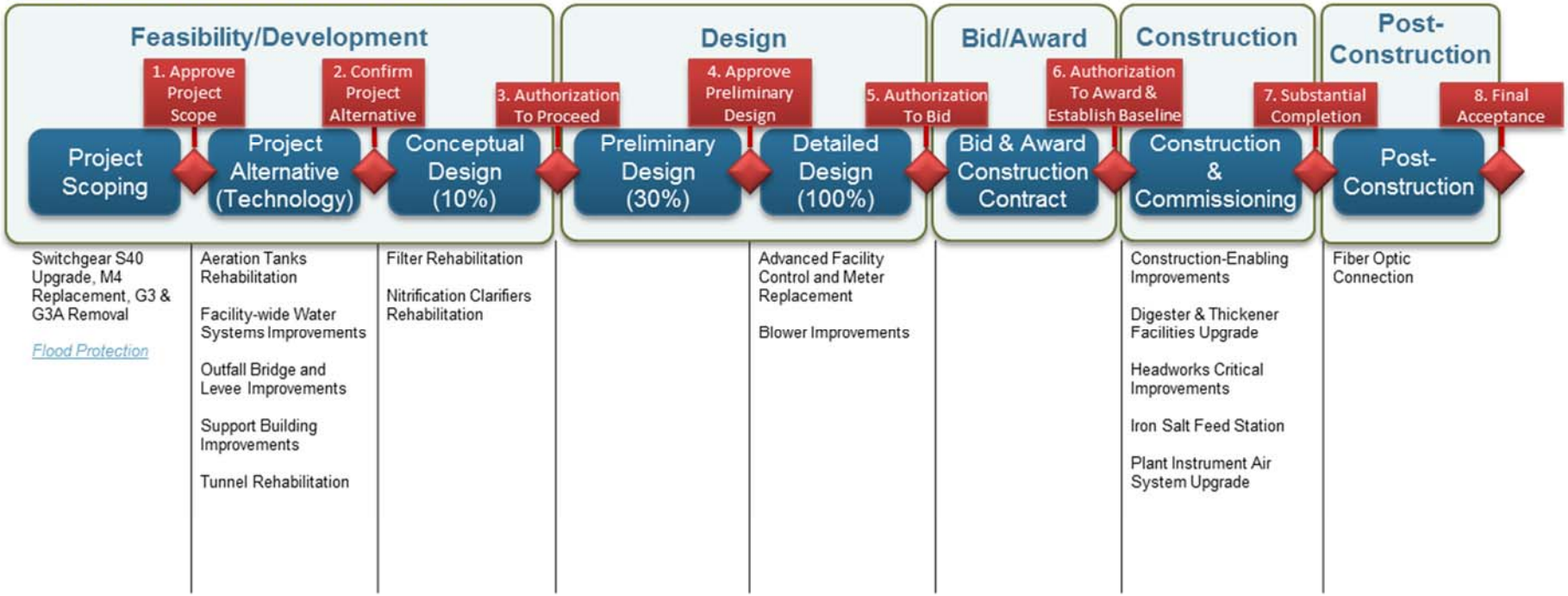
October 5, 2017

This report summarizes the progress and accomplishments of the Capital Improvement Program (CIP) for the San José-Santa Clara Regional Wastewater Facility (RWF) for August 2017.

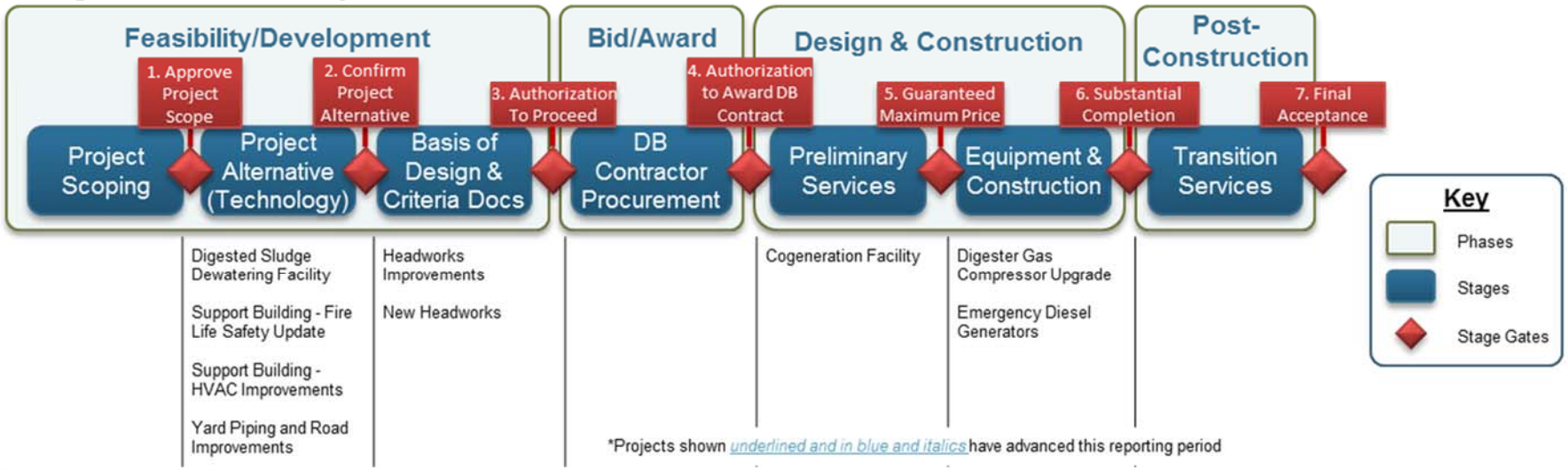
Report Contents

Project Delivery Model

Design-Bid-Build Active Projects



Design-Build Active Projects



*Projects shown underlined and in blue and italics have advanced this reporting period

Program Summary

August 2017

In August, 17 CIP projects continued to progress through the feasibility/development, design, and bid/award stages of the project delivery model (PDM). Alternatives analysis work continued for the Aeration Tanks Rehabilitation, Digested Sludge Dewatering Facility, and Facility-wide Water Systems Improvements projects. Of particular note, the Facility-wide Water Systems Improvements Project completed field testing of the four separate RWF water systems, and the Aeration Tanks Rehabilitation Project completed condition assessment of the aeration tanks and field testing of the primary clarifiers and activated sludge processes. Conceptual design work continued on the Nitrification Clarifiers Rehabilitation Project with additional condition assessment work being carried out on the return-activated sludge (RAS) pipelines. Design also continued on the Advanced Facility Control and Meter Replacement, Blower Improvements, and Cogeneration Facility projects, with the 60 percent design submittal received this month for the Cogeneration Facility Project. The City posted the final ranking for the Yard Piping and Road Improvements Project owner's advisor procurement and a Notice of Determination for the Headworks Improvements and New Headworks projects design-builder procurement. The City also received a single statement of qualifications (SOQ) for the Tunnel Rehabilitation Project design consultant procurement.

In addition, seven CIP projects are under construction and made significant progress in August. Resolution of final outstanding work items continued on the Digester Gas Compressor Upgrade and the Emergency Diesel Generators projects. Both projects are substantially complete and are now fully operational. Mobilization and preparation of equipment submittals continued on the Headworks Critical Improvements Project. Major construction activities continued on the Digester and Thickener Facilities Upgrade, Plant Instrument Air System Upgrade, Construction-Enabling Improvements, and Iron Salt Feed Station projects.

On the Digester and Thickener Facilities Upgrade Project, the project team continued to address the many unforeseen conditions that have been encountered during construction. More recently, the team has begun to evaluate a design issue affecting the digester tanks' seismic retrofit which will likely result in additional costs and delays. Staff is anticipating that additional construction contingency will need to be added to the contract before the end of the calendar year, and plan to bring a recommendation to the Treatment Plant Advisory Committee (TPAC) and to the City Council (Council) for approval later this year.

The County recorded the City's Notice of Completion and Acceptance for the Fiber Optic Connection Project. Staff also initiated the Flood Protection Project this month. The project will implement recommendations made in the Flood Protection Study, completed in 2016, to provide protection for the RWF against 100-year return period floods. This project has a total budget of $9.1 million and is scheduled to be completed in late 2021.

Look Ahead

The following key activities are forecast for September/October:

- Conceptual design work will commence for the Filter Rehabilitation Project.
- Condition assessment work will begin for Support Building - Fire Life Safety Upgrade and Support Building - HVAC Improvements projects.
- The Advanced Facility Control and Meter Replacement Project design consultant Black and Veatch will submit the 90 percent design package for the first phase of work and the City will advertise the prequalification document for the construction contract.
- The Blower Improvements Project design consultant Brown and Caldwell will submit the 60 percent design package.
- The Cogeneration Facility Project team will seek approval of Early Work Package 2 for site work needed for the engine generators and expect to receive the Authority to Construct from the Bay Area Air Quality Management District (BAAQMD).
- The Digester Gas Compressor Project will seek approval to advance through the PDM's Substantial Completion stage gate.
- Staff will recommend amending the existing Master Consultant Agreement (MCA) with Stantec (formerly MWH) to TPAC and Council, extending program management services through June 2023 to align with the 10-year CIP.
- Staff will present the Semiannual CIP Status Report (January-June 2017) to the Transportation and Environmental Committee, TPAC, and Council.

Program Highlight – The Inspection Process During Construction

"The toughest job in construction is that of the inspector," writes Silas Birch, author and editor of numerous publications on public works. "The inspector is the vital link between what the designer conceives and the finished product."

At the RWF, the Department of Public Works is responsible for providing and overseeing construction inspection to ensure that CIP projects are built in compliance with project plans and specifications. This is no simple task. Projects are subject to contract amendments and changes, unforeseen conditions, complex material and administrative submittals, and changing coordination requirements. Likewise, the inspector is required to stay up to date on these changes and adjust accordingly.

The RWF is an industrial facility that houses both people and complex mechanical, electrical, and instrumentation processes. These processes must meet ever changing environmental and building code requirements, and inspectors with training in numerous disciplines are required to certify that work is being accomplished according to plan. For example, on the Construction Management (CM) team, City civil inspectors, contracted mechanical and electrical inspectors, third-party special inspectors, and City code inspectors all work to ensure that projects are successful from launch to completion.

Organizationally for each project, a City inspector, also known as project inspector (PI), reports directly to the project resident engineer (RE) who reports to the construction manager. The RE and construction manager work closely with the project manager, who has "cradle to grave" responsibility for the project. CM's effectiveness is dependent on accurate and timely reporting from the PIs in the field. On a typical work day, the PIs are in constant communication with the REs and the construction manager regarding progress and issues related to the projects. The PI serves as the eyes and ears of the City while verifying that the final field product meets contract requirements. The PI interacts with the general contractor daily and must strike the right balance of maintaining a good rapport while clearly identifying any deficiencies in the field. This balancing act requires patience, respect, integrity, and common sense. The PI also works closely with other CM staff and Operations and Maintenance (O&M) staff on coordination issues involving RWF operations. A good example is the Digester and Thickener Facilities Upgrade Project. The PI has worked with CM and O&M staff on more than 100 coordinated shutdowns during the first year of the project alone, delivering consistent, clear, and well-documented communications to all affected staff.

Figure 1: Inspectors on the job site

Historically, inspection for CIP projects has been provided by City inspectors, but in anticipation of the volume of significantly larger and more complex projects in the coming years, the City procured as-needed third-party construction management and inspection services in June 2016. In addition to bringing mechanical, electrical, and instrumentation inspection expertise, these additional resources allow the City's CM team to effectively manage the increased workload. One of the first projects to use full-time third-party electrical and mechanical inspectors is the Digester and Thickener Facilities Upgrade Project.

There are two types of on-call inspections: Third-party special inspections and City code inspections. Third-party special inspections include soil and asphalt testing, structural rebar, concrete, masonry, coating, and welding inspections and are defined in Chapter 17 of the International Code Council (ICC). The ICC is responsible for the International Building Code (IBC), which the state of California uses for drafting its own building code. Each project plan includes a table of inspections that identifies which construction activities require third-party special inspections. When a contractor needs a special inspection, he or she will submit an inspection request form to the PI, who then submits the request to the special inspection firm assigned to that project. The CM team uses EADOC, a document management program, for routing, monitoring status, and recording all special inspection forms.

The second type of on-call inspections, City code inspections, are provided through the Public Works Structural Engineering & Code Inspections (SECI) group, which ensures overall compliance with all applicable code, including the California Building Code. Once a project has obtained the Public Works Building Permit to construct, SECI's code inspection role starts with coordination at the pre-construction meeting. During construction, the PI will send a request for code inspection to SECI. A licensed code inspector will perform inspections based on the SECI-approved plans. At the end of construction, the SECI building inspector will perform final inspections and sign off on the Building Inspection Record card, posted at the project site. If the project has a building to occupy, a Certificate of Occupancy will be signed by the City building official.

Successful RWF project inspection is complex, with City PIs at the center. A coordinated approach is key, and will become increasingly important as CIP construction activity ramps up in the future.

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% 3/3			100% 22/22		
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% 0/1			60% 3/5		
Measurement: Percentage of CIP projects delivered within 2 months of approved baseline Beneficial Use Milestone.[2] Target: Green: >=90%; Amber: 75% to 89%; Red: < 75%							
Budget	90%	100% 1/1[1]			86% 6/7		
Measurement: Percentage of CIP projects that are accepted by the City within the approved baseline budget.[2] Target: Green: >=90%; Amber: 75% to 89%; Red: < 75%							
Expenditure	$249M	$161M			$284M[3]		
Measurement: CIP FY17-18 committed costs. Target: Committed cost meets or exceeds 70% of planned Budget. 70% of $356M = $249M. Therefore Green: >=$249M; Amber: $196M to $249M; Red: < $196M							
Procurement	80%	NA 0/0			100% 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							
Staffing[4]	80%	NA 0/0			100% 15/15		
Measurement: Number of planned positions filled for the fiscal year. Target: Green: >=80%; Amber: 70% to 79%; Red: < 70%							

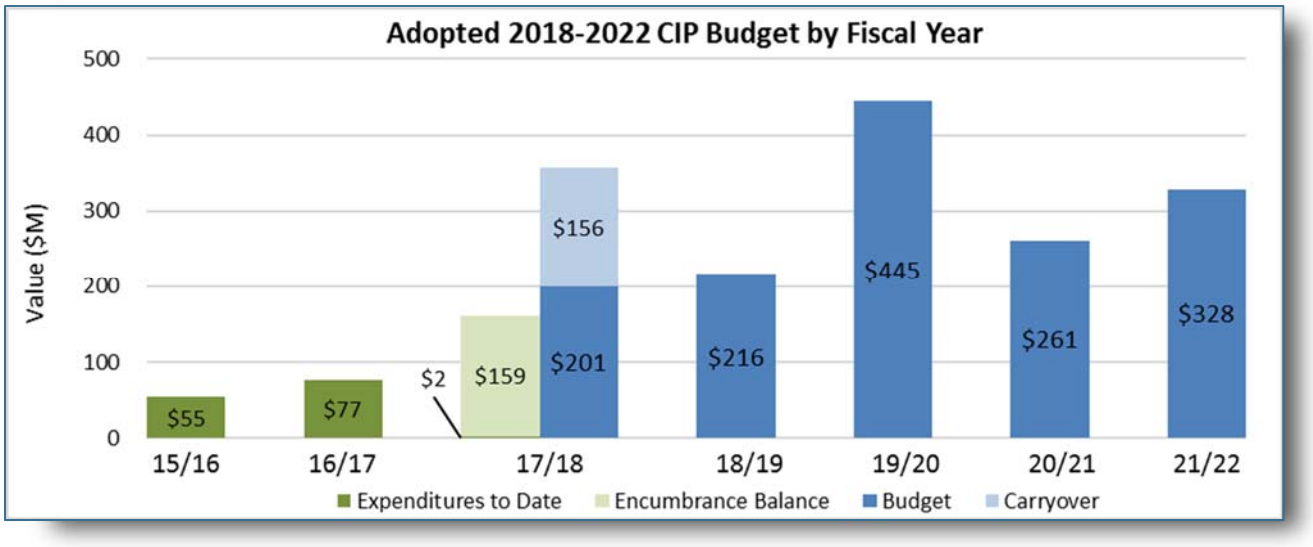
Notes

1. The Fiber Optic Connection Project was accepted by the City and delivered within the approved baseline budget.
2. The baseline Beneficial Use date and the baseline budget for each project are established at construction contract award and execution.
3. The values now reflect updated actual/forecasted amounts.
4. The staffing KPI represents CIP recruitments planned for the fiscal year and is measured quarterly. This KPI measurement does not account for staff turnover throughout the fiscal year.

Program Cost Performance Summary

This section summarizes CIP cost performance for all construction projects and non-construction activities for fiscal year (FY) 17-18 and for the 2018-2022 CIP.

Adopted 2018-2022 CIP Expenditure and Encumbrances



Notes

Actual budget: $200.5M; actual carryover balance: $155.9M; rounded total: $356M.

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.

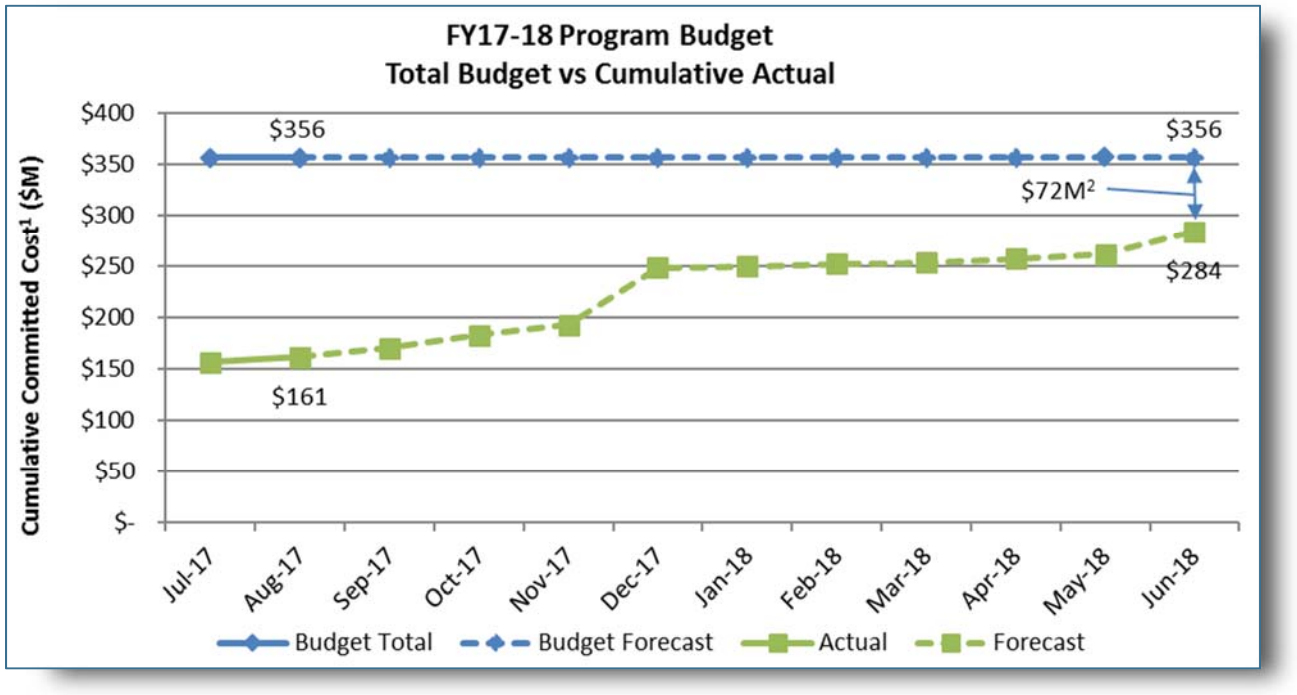
Encumbrance balance: The amount of the remaining encumbrance committed after payments.

Budget: Adopted 2018-2022 CIP Budget, which is new funding plus rebudgeted funds in FY17-18.

Carryover: Encumbrance balances at the end of a fiscal year become carryover funding. Carryover is different from rebudgeted funds in that it automatically utilizes funding that was previously committed, but not yet paid.

Fiscal Year 2017-2018 Program Budget Performance

This budget comprises the FY17-18 budget of $200.5 million, plus carryover of $155.9 million. The budget excludes Reserves, Ending Fund Balance, South Bay Water Recycling, Public Art, and Urgent and Unscheduled Rehabilitation items.



Notes

1. Committed costs are expenditures and encumbrance balances, including carryover (encumbrance balances from the previous fiscal year).
2. The forecast variance between budget and expenditures is primarily attributable to encumbrances currently forecasted to occur in FY18-19. Additional details will be provided in the September report.

Project Performance Summary

There are currently eight active projects in the construction or post-construction phases, with an additional 18 projects in feasibility/development, design, bid and award, or design and construction (design-build projects) 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, using CPMS data as a source.

Project Performance – Baselined Projects

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

KEY:

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

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.
2. An explanation of cost and schedule variances on specific projects identified in this table is provided on page 12.
3. Actual Beneficial Use date.

Project Performance – Pre-Baselined Projects

Project Name	Phase	Estimated Beneficial Use Date1
1. Cogeneration Facility	Design & Construction	Aug 2019
2. Blower Improvements	Design	Oct 2020
3. Adv. Facility Control & Meter Replacement	Design	Dec 2022
4. Outfall Bridge and Levee Improvements	Feasibility/Development	Oct 2020
5. Flood Protection	Feasibility/Development	Mar 2021
6. Headworks Improvements	Feasibility/Development	May 2021
7. Switchgear S40 Upgrade, M4 Replacement, G3 & G3A Removal	Feasibility/Development	Feb 2022
8. Digested Sludge Dewatering Facility	Feasibility/Development	Jul 2022
9. New Headworks	Feasibility/Development	Sep 2022
10. Support Building - Fire Life Safety Update	Feasibility/Development	Sep 2022
11. Support Building - HVAC Improvements	Feasibility/Development	Sep 2022
12. Filter Rehabilitation	Feasibility/Development	Oct 2022
13. Facility-wide Water Systems Improvements	Feasibility/Development	Feb 2023
14. Nitrification Clarifiers Rehabilitation	Feasibility/Development	Nov 2023
15. Aeration Tanks Rehabilitation	Feasibility/Development	Aug 2025
16. Tunnel Rehabilitation	Feasibility/Development	Aug 2026
17. Support Building Improvements	Feasibility/Development	Dec 2026
18. 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 is continuing work on the structural rehabilitation of the digesters, completing the installation of post-tensioning cables.
- The contractor is continuing work on the sludge storage tank for the new sludge screening facility, and on the extension of the dissolved air floatation tanks' walls.
- The contractor is proceeding with preparations for this fall's digester gas bypass and is finalizing the primary effluent pipeline bypass for upcoming repairs to the 78-inch pipe and wye structure, to commence in spring 2018.

Digested Sludge Dewatering Facility

- The project team conducted a workshop to finalize alternatives and select potential building layouts. Owner's Advisor Brown and Caldwell will prepare technical memoranda for the project alternatives analysis phase.

Facilities Package

Cogeneration Facility

- The design-builder CH2M submitted the 60 percent design package and pricing proposals for taking the design from 60 percent to 100 percent to the City for review. The City anticipates approving Early Work Package 2 for site work in early September.

Construction-Enabling Improvements

- The contractor delivered the badging/security trailer to the site. Completed portions of the lay-down yard are currently being used by other contractors working on the RWF site.

Facility-wide Water Systems Improvements

- Design consultant Kennedy Jenks completed field testing of the four water systems at the RWF. The design consultant will issue the completed condition assessment report in September and will continue to build and calibrate a hydraulic model of the four water systems.

Tunnel Rehabilitation

- The project team held a non-mandatory site conference for prospective design consultants. The City received one SOQ.

Yard Piping and Road Improvements

- The City issued final rankings for the Owner's Advisor services procurement.

Liquids Package

Aeration Tanks Rehabilitation

- Design consultant Brown and Caldwell performed a condition assessment of the aeration tanks, and field-testing of the primary clarifiers and activated sludge process. The consultant also evaluated alternatives for future aeration tank configurations to meet potential future discharge requirements. Next month, the Project team will begin preparation of the condition assessment report and scope for the alternatives analysis.

Filter Rehabilitation

- The project team issued a Notice to Proceed to design consultant Kennedy Jenks to begin conceptual design. The kickoff meeting will be held in early September.

Headworks Improvements and New Headworks

- The technical evaluation panel evaluated the SOQs by four design/build teams. A notice of determination of the scoring was posted and the City short listed three firms. The City anticipates advertising the Request for Proposals to the short-listed design/build teams this fall.

Nitrification Clarifiers Rehabilitation

- Design consultant HDR performed a condition assessment of the raw activated sludge pipelines in biological nutrient removal area two and used a light detection and ranging (LIDAR) survey technique to check for elevation irregularities in the clarifier floors. Next, the design team will prepare the condition assessment report.

Power and Energy

Emergency Diesel Generators

- The CAT/ISO team have completed all the punch list items, including the modification to correct the missing member issues to the Woodward Digital Speed and Load Controller & Master Speed and Load Controller controllers.

Plant Instrument Air System Upgrade

- Contractor Anderson Pacific poured the new compressor building grade floor and equipment concrete pads.

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 winter season, contractor Teichert Construction was unable to perform site work for several weeks from October through April. Teichert has been granted 47 extra work days for weather-related delays. Teichert has also been granted additional time for the removal and replacement of asphalt pavement in damaged areas of Zanker Road; installing traffic-rated pull boxes for the streetlight system; installing underground conduits for the fiber optic system; and additional changes.

Delays in the fabrication and delivery of the portable trailers required for the project continue to impact the schedule. The trailer to be used for badging and training was delivered in August, but the trailers to be used for CM personnel are still under fabrication. Teichert now estimates that the CM trailers will be delivered in late October. Installation and furnishing of the CM trailers, plus final inspection, should take another four to six weeks, placing the Beneficial Use date in December 2017.

Digester and Thickener Facilities Upgrade

Numerous unforeseen conditions are impacting the project schedule. The conditions, detailed below, are resulting in an estimated delay to the Beneficial Use date of four months. The project team continues to evaluate the schedule delays.

- Major corrosion of an existing, below-ground 78-inch settled sewage (SES) pipeline and junction structure was encountered during construction. This corrosion has impacted the dissolved air floatation tank piping connections, two new pressurization flow boxes, and utility relocation work. All repairs have been postponed until the 2018 dry season, when a bypass pumping system can be safely installed to allow repair work to continue. Pricing and submittal review of bypass pumps and piping is in progress.
- An unidentified, 36-inch biochemical oxygen demand pipe was discovered during preparation of the foundation for the new sludge screen building. The contractor removed this pipe and relocated several unforeseen digester and landfill gas drain vaults and associated piping.
- Multiple unforeseen utility conflicts with water, natural gas, digester gas, landfill gas, storm drain, and sanitary sewer pipelines have impacted progress. These conflicts have caused numerous utility pipe, conduit, and duct bank relocations across the site, and have also impacted the new digester gas pipe rack footings, causing rerouting and other design changes.
- Digester gas bypass work has been delayed approximately six months due to BAAQMD venting restrictions. Work on digester gas bypass connections has begun, with the installation of the bypass anticipated to be completed later this fall.
- Digester structural design is being revised to account for seismic forces likely to be experienced. Revised design details will result in schedule delays and increased coordination with ongoing construction.

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; final acceptance is scheduled for October. This schedule delay was primarily due to the following factors:

- The compressor skids needed 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.

Emergency Diesel Generator

This project reached Beneficial Use July 7; final acceptance is scheduled for October. 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 179 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, has taken longer than expected to develop the controls and network switches that interface with existing RWF controls. Caterpillar and Peterson Control are in the process of completing all outstanding items. A problem was found with the new network switches during the factory acceptance test. The City and the design-build team completed an engineering study and found a solution to the problem. Additional switches have been installed for the existing network system. Caterpillar's completion of the Level 2 process load tuning testing for four new emergency diesel generators also took longer than anticipated.

- Additional time was required for PG&E to review the third-party report on the protective devices testing and to 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 the first two 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 project was completed in July and is moving into the post-construction phase for completion of remaining minor outstanding items and necessary training.

Project Profile – Facility-wide Water System

Background

The RWF currently has four major water systems that support day-to-day operations and maintenance activities, and the wastewater treatment processes. The four water systems include:

- 1W: This water system is sourced by the City's Municipal System, or potable system, and is used for drinking, plumbing fixtures, makeup water for cooling, and eyewash stations;
- 2W: This water system is sourced by groundwater, and is used for processes such as pump seal water, flushing, and cooling;
- 3W: This water system is sourced by process water from plant effluent, and is used for the digester heat loop, cooling water for engines, and capping water at the lagoons; and
- 4W: This water system is sourced by process water from plant effluent, and is used for fire protection for most of the buildings and purple hydrants around the plant.

The 1W, 2W, and 3W systems are well beyond their useful life and require frequent repairs due to leaks and failures. Limited analysis has been done over the years to determine the condition and service capacity of these water systems and whether they are sufficient to meet both current and future water demands. The 4W system is sourced from final plant effluent; the project team will determine whether there is adequate capacity to meet fire flow demands as well as O&M and treatment process requirements, and whether it should be separated as a standalone system and potentially converted to potable water source.

The purpose of this project is to rehabilitate, replace, combine, and/or extend the RWF's four water systems, including piping, valves, pumps, controls, and other ancillary equipment. The scope of design work and extent of services will be based on condition assessment, hydraulic modeling, and study of existing and future water sources and demands at the RWF. The project will not include design of new piping and ancillary equipment inside buildings or treatment facilities, which will be included in the scope of other CIP projects.

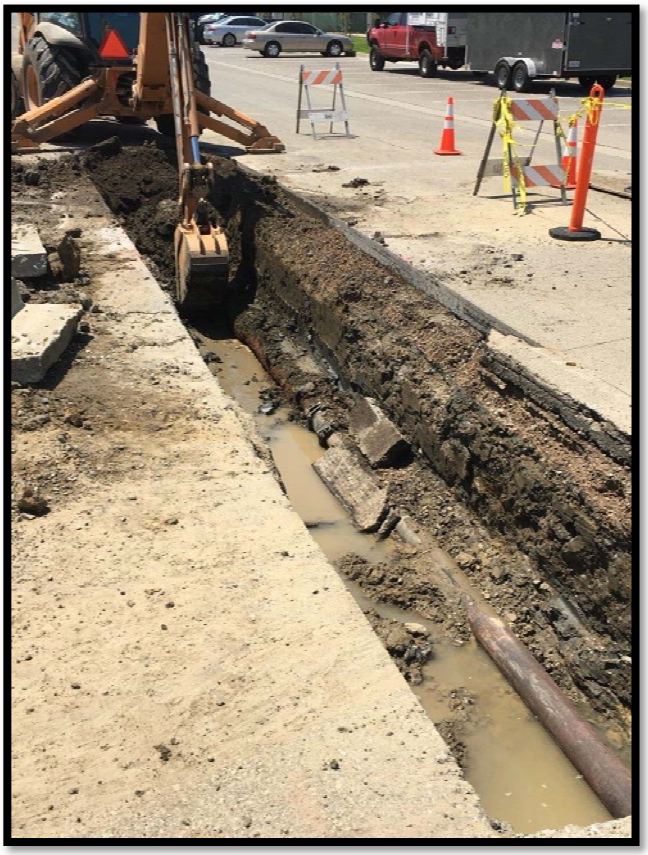
The project will be delivered using conventional design-bid-build (DBB) approach. Completion of this project will result in more reliable potable and process water systems; a water system exclusively for fire protection use; and an adequate water supply with redundancy for future upgrades and new CIP facilities within the RWF. This project is scheduled to be completed by 2023.

The current total project budget is approximately $17.7 million, with anticipated construction costs of approximately $13.2 million.

Current Project Status

Kennedy/Jenks Consultants was awarded an MCA in September 2016 to provide design engineering services and recently completed a condition assessment of the water systems. This month, they completed field testing and hydraulic data collection with assistance from City staff. The results will be used to calibrate the hydraulic model to identify deficiencies in the water systems. The next steps will be to estimate future water demands for CIP projects that will be used in the hydraulic model to simulate a 2040 build-out scenario. The results of the model and the condition assessment will be used in the alternative analysis. This analysis will identify necessary water systems improvements moving forward into the design phase in mid-2018.

Figures 2 and 3 (next page) illustrate the type of pipe failures commonly encountered with the 1W, 2W, and 3W systems.



Figures 2 & 3: 2W pipe break

Regional Wastewater Facility Treatment – Current Treatment Process Flow Diagram

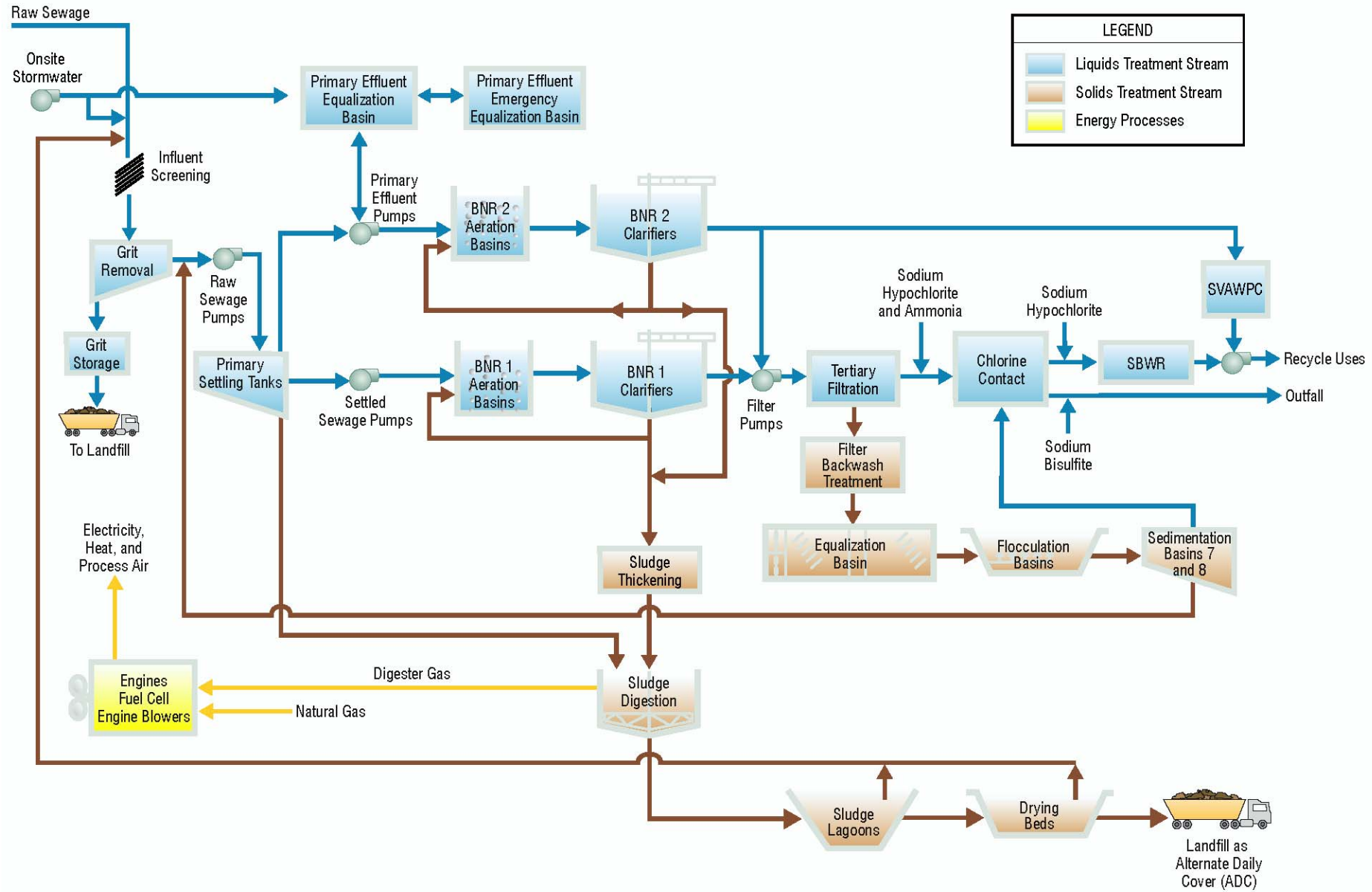


Figure 4 – Current Treatment Process Flow Diagram

Regional Wastewater Facility Treatment – Proposed Treatment Process Flow Diagram

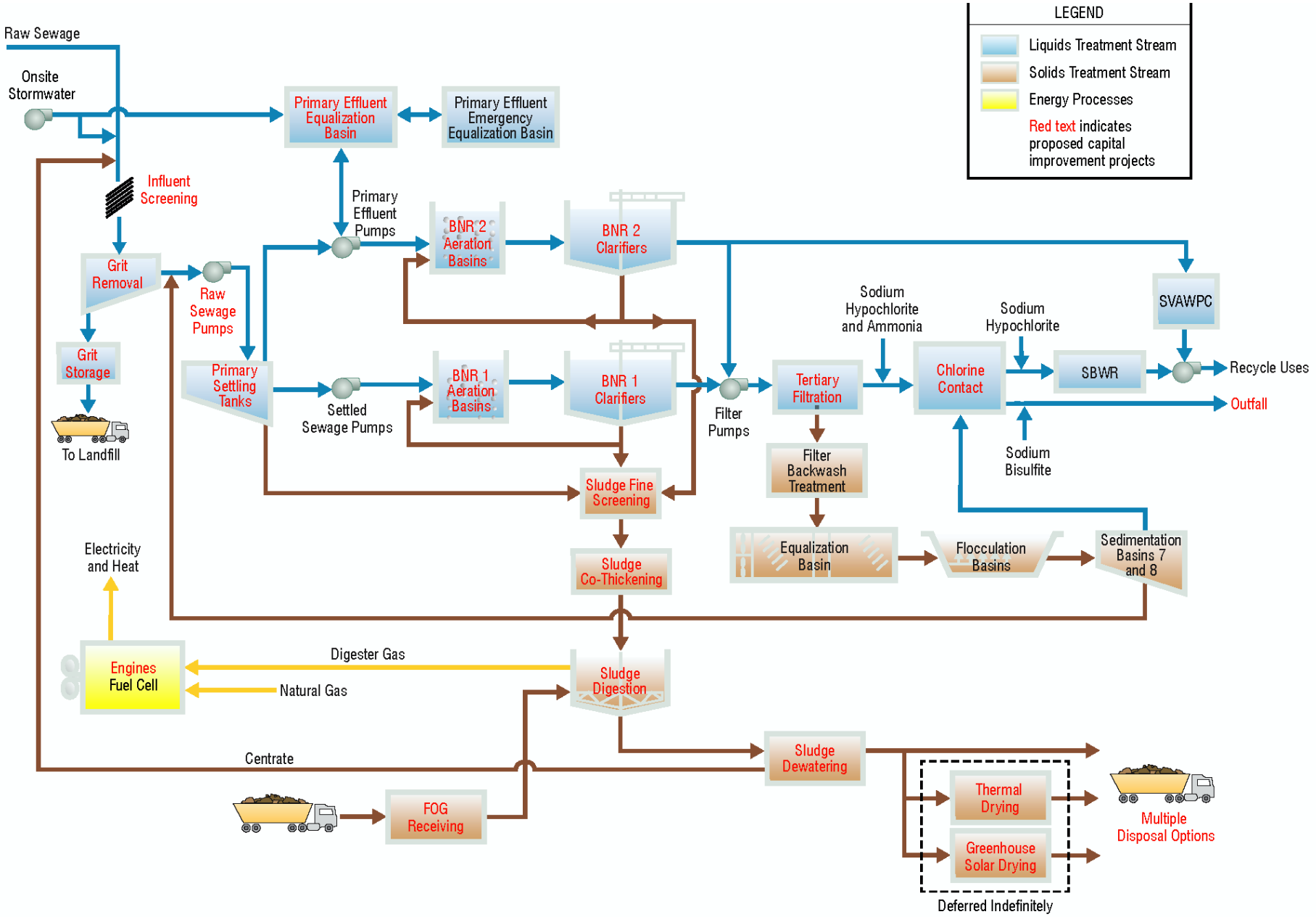


Figure 5 – Proposed Treatment Process Flow Diagram

Active Construction Projects – Aerial Plan

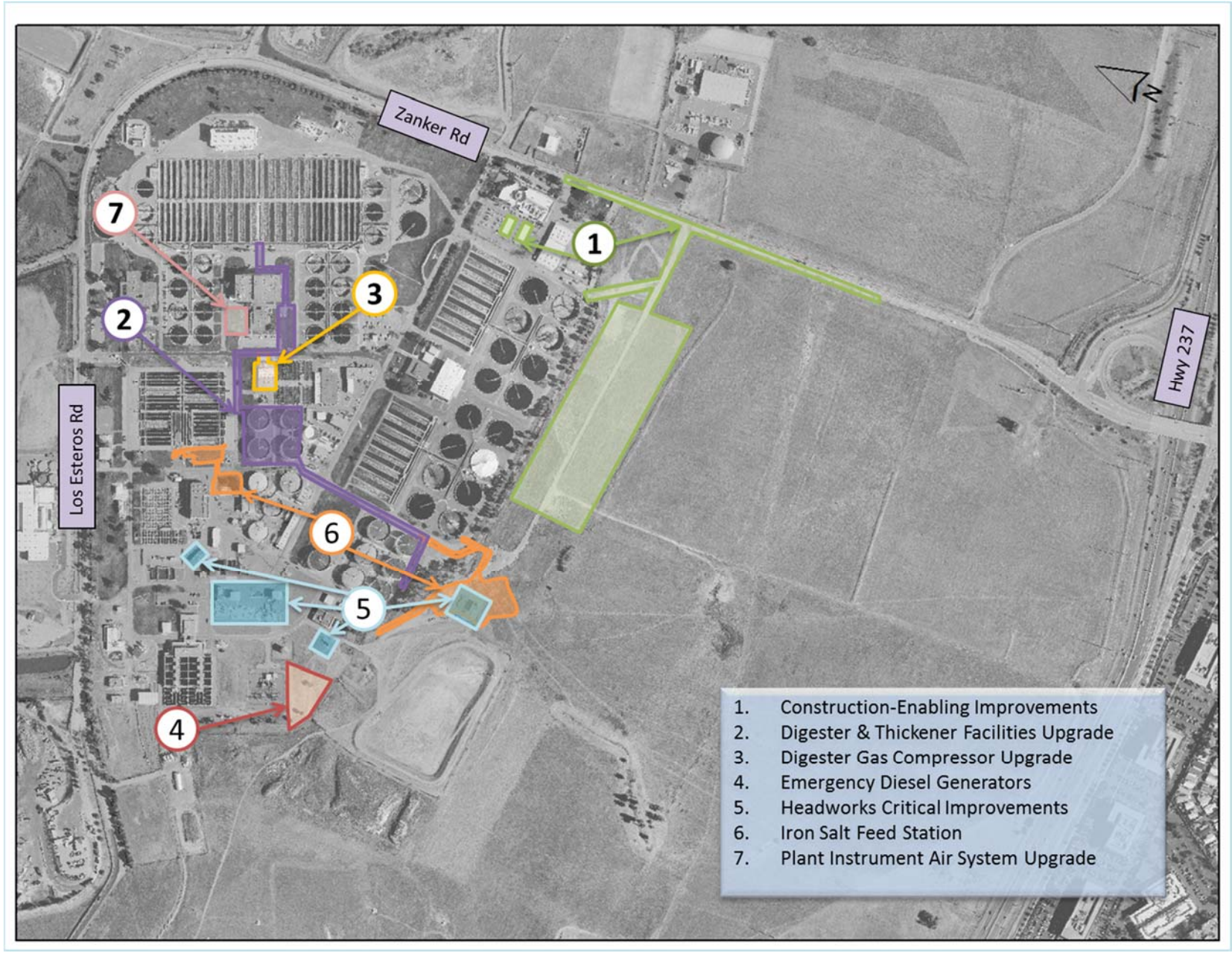


Figure 6 – Active Construction Projects