San José-Santa Clara Regional Wastewater Facility

Capital Improvement Program
Monthly Status Report: September 2018

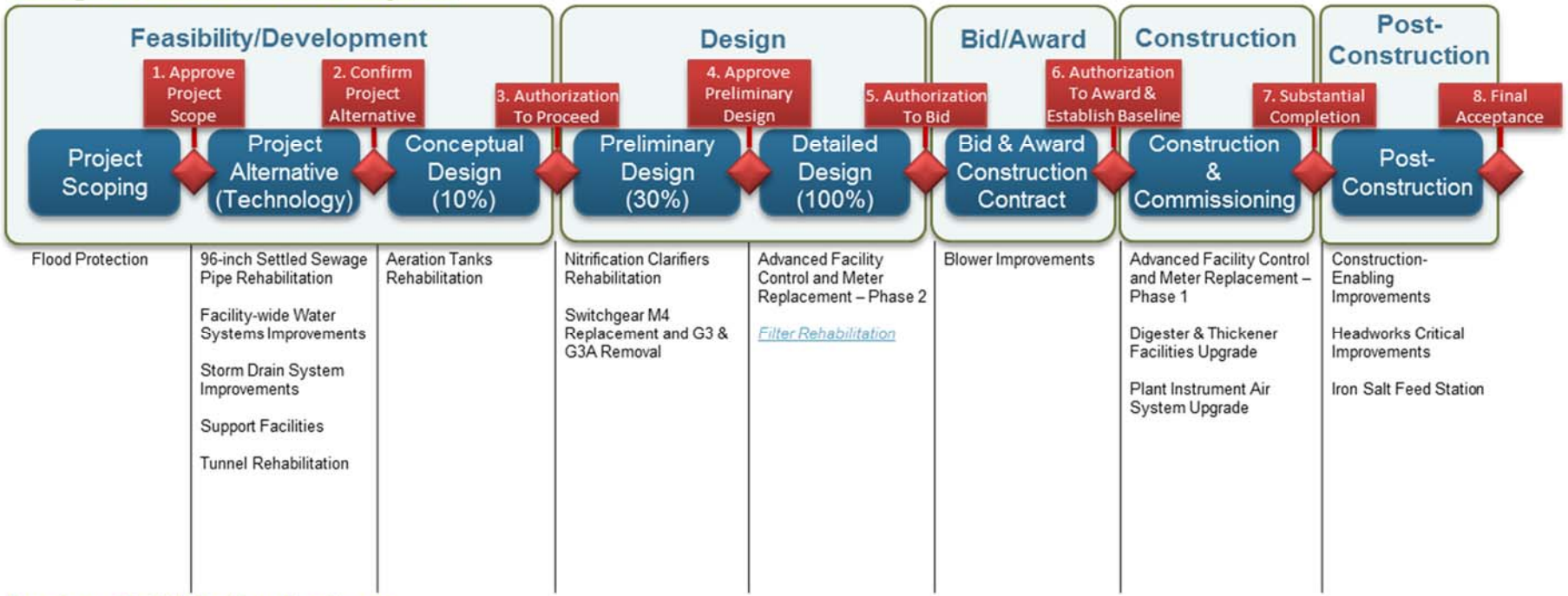
November 1, 2018

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

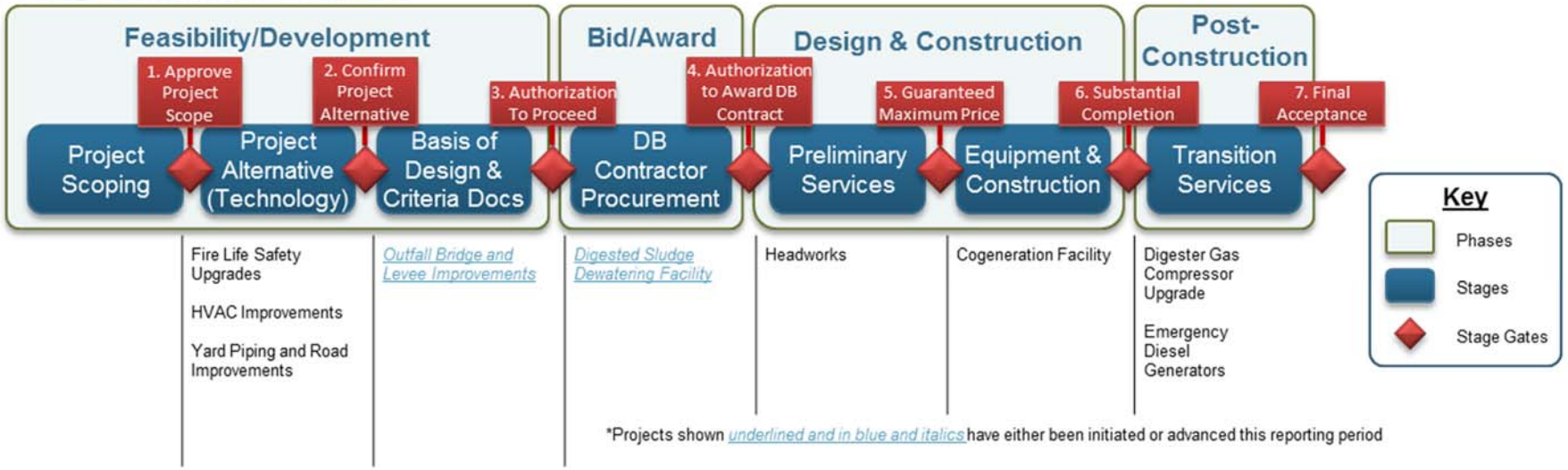
Report Contents

Project Delivery Model

Design-Bid-Build Active Projects



Design-Build Active Projects



*Projects shown underlined and in blue and italics have either been initiated or advanced this reporting period

Program Summary

September 2018

In September, the City of San José (City) advanced three projects through the Project Delivery Model (PDM) stage gate process. The Outfall Bridge and Levee Improvements Project successfully passed Stage Gate 2 – Confirm Project Alternative. The Filter Rehabilitation Project advanced through Stage Gate 4 – Approve Preliminary Design. The Digested Sludge Dewatering Facility Project passed Stage Gate 3 – Authorization to Proceed, which allows the team to advertise a Request for Proposals for design-build (DB) contractor services in early October.

Field preparation work continued on the Yard Piping and Road Improvements Project to facilitate condition assessment of the 84-inch primary effluent pipeline. A hazardous materials investigation was conducted under the Advanced Facility Control and Meter Replacement - Phase 2 Project to identify the presence of hazardous materials for the purpose of developing plans, specifications, and engineer's estimates. Conceptual design work continued on the Fire Life Safety and Facility-wide Water Systems Improvements projects. Field survey work was completed for the Storm Drain System Improvements Project and process shut down planning work started to enable condition assessment work to commence in October.

The Switchgear M4 Replacement and G3 & G3A Removal Project team progressed the 60 percent design. This project will improve the reliability of the RWF 5kV electrical ring bus distribution system by replacing the existing 35-year-old M4 switchgear that has reached the end of its useful life. As part of the project, the G3 and G3A switchgear associated with the existing cogeneration units EG1, EG2 & EG3 will be decommissioned after the Cogeneration Facility Project is completed.

Construction work on the Digester and Thickener Facilities Upgrade Project reached 50 percent completion; this month the contractor completed the polychlorinated biphenyl (PCB) mitigations for digesters 5, 6, and 8. PCB mitigation for digester 7 is anticipated to be finished in October. The contractor continued work on post-tensioning (PT) cables and shotcrete for all digesters. The contractor also continued work on the digester 5 ring beam foundation and reinforcement steel for the remaining digesters' concrete ring beam foundations. The contractor also continued the installation of the digester gas piping and supports, sludge screening, and structures for the polymer injection and odor control systems. Finally, the contractor began installing the dissolved air flotation chains and flight collectors and skimmers.

Look Ahead

The following key activities are forecast for October and November of 2018:

- The next two months will be extremely busy with five projects proceeding to Stage Gate. The projects are as follows:
    1. Facility-wide Water System Improvements Project – Stage Gate 2: Confirm Project Alternative;
    2. 96-inch Settled Sewage Pipe Rehabilitation Project – Stage Gate 2: Confirm Project Alternative
    3. Headworks Project – Interim Stage Gate 4.1: Site Selection and Budget;
    4. Nitrification Clarifiers Rehabilitation Project – Stage Gate 4: Approve Preliminary Design; and
    5. Fire Life Safety Upgrades Project – Stage Gate 3: Authorization to Proceed.
- The Blower Improvements Project team will return to the Treatment Plant Advisory Committee (TPAC) and Council with a recommendation to award a construction contract in the amount of $29.5 million plus a fifteen percent contingency.
- The DB contractor will complete a major concrete pour (approximately 1,700 cubic yards of concrete requiring over 180 concrete trucks in a 16-hour period) as part of the Cogeneration Facility Project. The new concrete base slab will serve as the foundation for the new internal combustion engines.
- The Digester and Thickener Facilities Upgrade Project contractor will install the odor control equipment and pour the walls for the sludge screening building.
- The Plant Instrument Air System Upgrade Project will complete the 28-day operational testing.
- The City will advertise the RFP for design-builder services for the Digested Sludge Dewatering Facility Project.
- The City will file Notice of Completion and Acceptance (NOCA) for the Iron Salt Feed Station and Headworks Critical Improvements projects.

Program Highlight – Risk Management

The goal of CIP Risk Management is to help ensure successful delivery of individual projects and the overall program through proactive management of significant risks. This involves identifying and mitigating risks to increase the probability and/or impact of positive risks (opportunities), and to decrease the probability and/or impact of negative risks (threats) in order to optimize the likelihood of individual project and overall program success.

The CIP approach to risk management is defined in the Program Execution Plan - Risk Management Plan (RMP). The RMP defines the processes, tools and roles required to effectively identify and manage risks at both the program and project level.

Process

The risk management process is iterative and continuous in nature (refer to Figure 1 below) executed throughout the life of each project and the overall program. Risks may be identified at any time requiring analysis, risk response planning, and ongoing continuing management until the risk is no longer a threat/opportunity or the project has been completed.

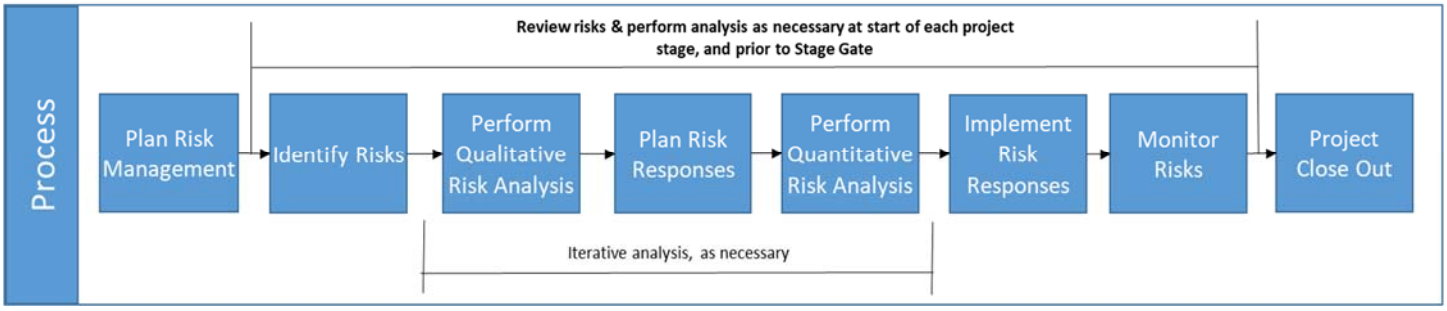


Figure 1: CIP Risk Management Process

Tools

The tools used in risk management include a risk assessment matrix, standard risk checklist for consideration by the project teams, risk 'heat maps' for presentation of key risks, and project and program-level risk registers.

All active CIP projects have risk registers. Project managers maintain and update project risk registers as part of the monthly progress reporting process. Information for each risk includes a description, magnitude and likelihood of impact, proposed mitigation measures and owner. Project risks are routinely reviewed at monthly CIP Package Performance Review Meetings and at PDM stage gates. Additionally, the CIP Risk Manager regularly conducts focused reviews of the project risk registers; and assists the project teams with risk identification, analysis, and risk response planning.

These risk tools help identify, assess, and monitor risks in a consistent and visible manner, as well as provide a written record of risk response plans to appropriately manage and mitigate threats and maximize opportunities.

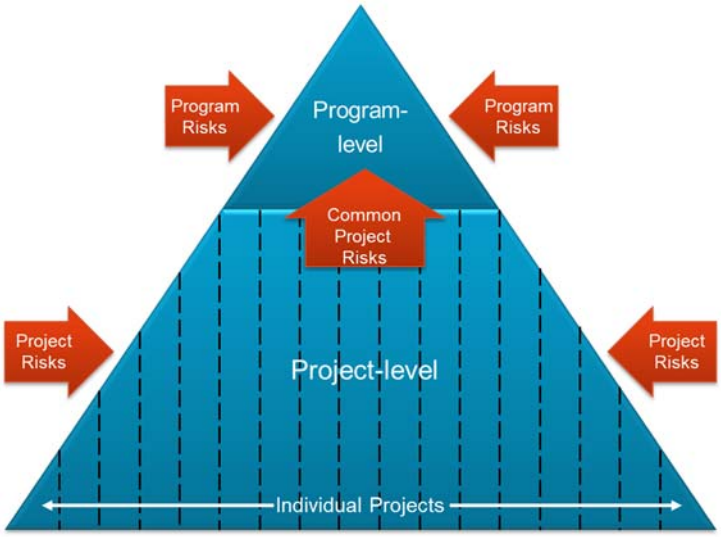


Figure 2: Program and Project Risk Relationship

Roles

The CIP has a Risk Manager, reflecting the importance of risk management to the overall successful delivery of the Program. The Risk Manager oversees and maintains the risk processes and tools and works with the project teams in the identification and management of risks. The Risk Manager also monitors risks across projects to identify common risks that may require a program-level response. In addition, the Risk Manager maintains the Program Risk Register which comprises the common project risks mentioned above, as well as risks which pose threats or opportunities to the CIP. This relationship between project and program risks is illustrated in Figure 2.

Program Performance Summary

Seven 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 the current fiscal year.

Program Key Performance Indicators – Fiscal Year 2018-2019

KPI	Target	Fiscal Year to Date			Fiscal Year End		
		Actual	Status	Trend	Forecast	Status	Trend
Stage Gates	90%	100% 6/6 [1]	●	→	100% 19/19	●	→
Measurement: Percentage of initiated projects and studies that successfully pass each stage gate on their first attempt. Target: Green: >= 90%; Amber: 75% to 90%; Red: < 75%							
Schedule	90%	50% 1/2	◆	→	33% 1/3	◆	→
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%	NA 0/0	●	→	75% 3/4	▲	→
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	$252M	$218M	●	↑	$297M[3]	●	↑
Measurement: CIP FY18-19 committed costs. Target: Committed cost meets or exceeds 70% of planned Budget. 70% of $360M = $252M. Therefore Green: >=$252M; Amber: $198M to $252M; Red: < $198M							
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							
Vacancy Rate[4]	10%	18% 15/84	▲	↑	6% 5/84	●	→
Measurement: Ratio of the number of vacant approved positions to approved positions. Target: Green: <= 10%; Amber: 10% to 20%; Red: > 20%							

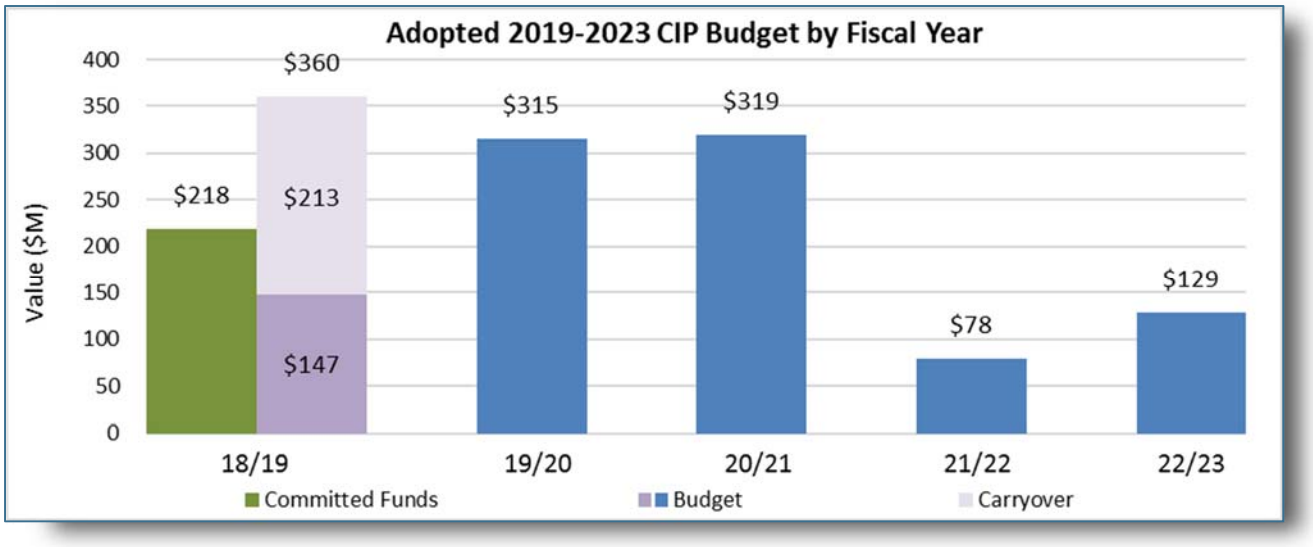
Notes

1. The Digested Sludge Dewatering Facility, Filter Rehabilitation, and Outfall Bridge and Levee Improvements projects successfully completed Stage Gate 3 - Authorization to Proceed, Stage Gate 4 - Approve Preliminary Design, and Stage Gate 2 - Confirm Project Alternative, respectively.
2. The baseline Beneficial Use date and the baseline budget for each project are established at construction contract award and execution.
3. The fiscal year-end forecast was increased approximately $3 million due to revised encumbrance estimates.
4. The Vacancy Rate KPI measures City CIP-approved positions (ESD and Public Works) and program management consultant full-time staff.

Program Budget Performance Summary

This section summarizes the cumulative monthly budget performance for fiscal year (FY)18-19 based on the Adopted 2019-2023 CIP.

Adopted 2019-2023 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 for 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.

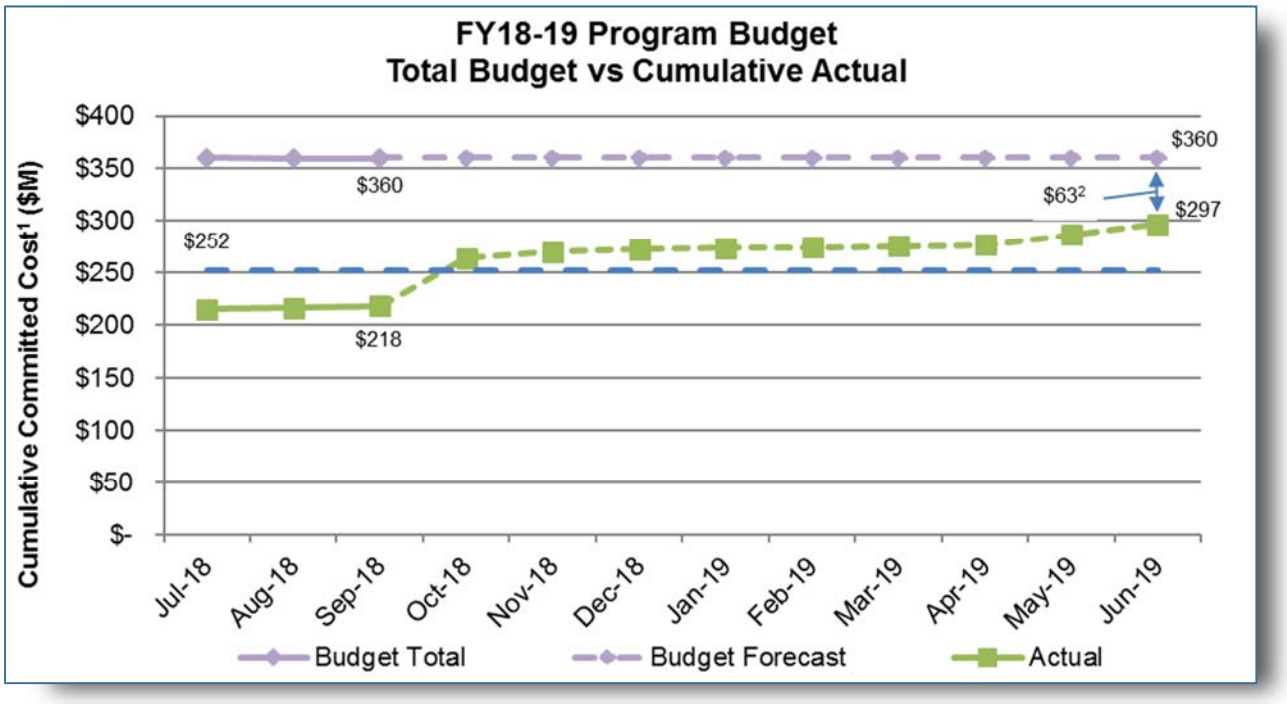
The FY18-19 budget is $175 million, which consists of $121 million in new funds and $54 million in rebudgets. For purposes of this monthly report, the adopted FY18-19 budget is adjusted from $175 million to $147 million due to the exclusion of certain appropriations that are not measured as part of the expenditure KPI. Excluded appropriations include City Hall Debt Service Fund; Clean Water Financing Authority Debt Service Payment Fund; Debt Service Repayment for Plant Capital Improvement Projects (San José only debt service); Equipment Replacement Reserve; Ending Fund Balance; Public Art; SBWR Extension; State Revolving Fund Loan Repayment; and Urgent and Unscheduled Treatment Plant Rehabilitation. Similar adjustments have been made to the budgets for FY19-20 through FY 22-23.

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. FY18-19 carryover is $213 million.

Budget of $147 million and carryover of $213 million totals $360 million for FY18-19.

Fiscal Year 2018-2019 Program Budget Performance

The FY18-19 CIP budget is comprised of approximately $147 million in new funds, plus encumbrances carryover of $213 million for a total of $360 million. This excludes City Hall Debt Service Fund; Clean Water Financing Authority Debt Service Payment Fund; Debt Service Repayment for Plant Capital Improvement Projects (San José only debt service); Equipment Replacement Reserve; Ending Fund Balance; Public Art; SBWR Extension; State Revolving Fund Loan Repayment; and Urgent and Unscheduled Treatment Plant Rehabilitation items. Overall, the forecasted fiscal year-end committed funds exceeds the fiscal year-end target by $45 million.



Notes

1. Committed costs are expenditures and encumbrance balances, including carryover (encumbrance balances from the previous fiscal year).
2. The variance between forecasted budget and forecasted commitments can be primarily attributed to the following factors:
    a. Several construction contracts are now anticipated to be awarded in FY19-20 instead of FY18-19 based on updated schedules:
        i. Fire Life Safety Upgrades Project
        ii. Switchgear M4 Replacement and G3 & G3A Removal
    b. Several consultant service orders will not be awarded in FY18-19:
        i. Aeration Tank Rehabilitation Project
        ii. Support Facilities Project
        iii. Tunnel Rehabilitation Project
    c. The Blower Improvement Project construction bids came in under budget.
    d. Several other minor encumbrances for consultant services are either lower than budgeted or are anticipated to be awarded in FY19-20.
    e. Several authorized positions remain vacant, resulting in lower predicted personal services expenses than budgeted.
    f. The payment for the annual premium budgeted for the Owners Controlled Insurance Program that was paid in in FY18-19 is now anticipated to be paid in FY19-20 due to later than expected invoicing from the insurers in FY17-18.

Project Performance Summary

There are currently seven projects in the construction and post-construction phases and an additional 18 projects in feasibility/development, design, bid and award, or design and construction phases (see PDM, page 2). 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. Iron Salt Feed Station	Post-Construction	May 2018[3]	●	◆
2. Construction-Enabling Improvements	Post-Construction	Aug 2018[3]	●	◆
3. Headworks Critical Improvements	Post-Construction	Aug 2018[3]	●	●
4. Plant Instrument Air System Upgrade	Construction	Nov 2018	●	◆
5. Cogeneration Facility	Design & Construction	Mar 2020[4]	●	●
6. Digester and Thickener Facilities Upgrade	Construction	Jan 2021	◆	◆
7. Advanced Facility Control & Meter Replacement - Phase 1	Construction	June 2021	●	●

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 pages 12 and 13.
3. Actual Beneficial Use date.
4. The project construction Beneficial Use date will be baselined once the City accepts the DB contractor's construction schedule.

Project Performance – Pre-Baselined Projects

Project Name	Phase	Estimated Beneficial Use Date[1]
1. Headworks Project	Design and Construction	Dec 2022
2. Blower Improvements	Bid and Award	Nov 2021
3. Switchgear M4 Replacement and G3 & G3A Removal	Design	Feb 2022
4. Advanced Facility Control & Meter Replacement Phase 2	Design	Dec 2022
5. Filter Rehabilitation	Design	Mar 2023
6. Nitrification Clarifiers Rehabilitation	Design	Jan 2024
7. 96-inch Settled Sewage Pipe Rehabilitation	Feasibility/Development	Sep 2019
8. Outfall Bridge and Levee Improvements	Feasibility/Development	Dec 2020
9. Digested Sludge Dewatering Facility	Feasibility/Development	Oct 2022
10. Fire Life Safety Upgrades	Feasibility/Development	Oct 2022
11. Storm Drain System Improvements	Feasibility/Development	Nov 2022
12. Flood Protection	Feasibility/Development	Jan 2023
13. HVAC Improvements	Feasibility/Development	Mar 2023
14. Facility-wide Water Systems Improvements	Feasibility/Development	May 2024
15. Support Facilities	Feasibility/Development	Mar 2027
16. Aeration Tanks Rehabilitation	Feasibility/Development	Apr 2027
17. Tunnel Rehabilitation	Feasibility/Development	June 2027
18. Yard Piping and Road Improvements	Feasibility/Development	June 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

Digested Sludge Dewatering Facility

- The project passed Stage Gate 3: Authorization to Proceed, which will allow the project team to advertise the RFP for a DB contractor in early October. Proposals will be due in December.

Digester and Thickener Facilities Upgrade

- Contractor Walsh completed the polychlorinated biphenyl (PCB) mitigations for digesters 5, 6, and 8 and is continuing PCB mitigation for digester 7, which is anticipated to be finished in October.
- The first of two layers of PT cables and shotcrete was completed for all digesters. The first two of four lifts of the Digester 5 ring beam foundation were completed.
- The contractor also began installing the dissolved air flotation chains and flight collectors and skimmers.

Facilities Package

Cogeneration Facility

- The gas purification system equipment began arriving on-site; equipment is being stored in the new central contractor laydown area until installation.
- The engine building reinforcement and underground electrical duct bank work continued in preparation for the concrete pour scheduled for next month.

Filter Rehabilitation Project

- The project successfully passed Stage Gate 4: Approve Preliminary Design. The design consultant is expected to complete detailed design by October 2019.

Fire Life Safety Upgrades

- Design consultant Kennedy/Jenks completed the conceptual design drawings. The project is expected to go to Stage Gate 3: Authorization to Proceed in December.

Outfall Bridge and Levee Improvements

- The project passed Stage Gate 2: Confirm Project Alternative and design consultant AECOM began conceptual design.

Storm Drain System Improvements

- Consultant AECOM finished locating the storm drain pipes that are planned to be upsized by using ground penetrating radar, induction, and conduction methods in concert with GPS surveying techniques.

Yard Piping and Road Improvements

- Owner's Advisor Consultant Black & Veatch (B&V) completed the condition assessment of the 96-inch and 87 by 136-inch settled sewage pipes and submitted the detailed report and videos to the City for review. These two pipes are in poor condition and a design-bid-build construction package will be prepared by the Owner's Advisor to expedite the necessary repairs.

Liquids Package

Advanced Facility Control and Meter Replacement – Phase 1

- Contractor Overaa Construction began mobilizing and preparing construction submittals. Construction will begin in May 2019 coinciding with the next dry season.

Advanced Facility Control and Meter Replacement – Phase 2

- The project team conducted a hazardous materials investigation for the plans, specifications, and engineer's estimates development. Next month, design consultant Black and Veatch will submit the 90 percent design package.

Headworks

- The project team held workshops with the DB contractor CH2M Hill on 1) risk management; 2) site selection; and 3) permitting. The team expects to advance to stage gate next month.

Nitrification Clarifiers Rehabilitation

- The project team in consultation with the design consultant HDR Engineering, Inc. finalized selection of value engineering recommendations that will be incorporated into the project. Next month the project team will bring the project to Stage Gate 4: Approve Preliminary Design.

Power and Energy Package

Plant Instrument Air System Upgrade

- Contractor Anderson Pacific successfully performed the 8-hour functional test. Next, the project team will perform the 28-day commissioning test.

Explanation of Project Performance Issues

Iron Salt Feed Station

Project construction was 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; piping modifications to resolve a pump operational issue at the ferric chloride station; and installation of additional piping to allow operations and maintenance (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. Specifically, fine-tuning the control program; identifying and resolving pump operational issues; and addressing problems with the new flow meter and level sensor have taken additional time.

The project team resolved all issues and completed the commissioning test in May 2018. Beneficial Use was achieved on May 14, 2018. The project team is working with the contractor to complete the remaining work and anticipates filing the NOCA in October 2018.

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 was granted 47 extra work days for weather-related delays. Teichert was also 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 the project's portable trailers impacted the schedule. In early August 2018, the contractor completed installation of the utilities (electrical, communications, and wastewater) required to obtain a temporary Certificate of Occupancy permit for the trailers. The temporary Certificate of Occupancy was received in August 2018 and substantial completion was issued. The project team provided the contractor with a list of remaining contract work to be completed. Staff will work with Teichert to complete the outstanding work and schedule meetings to begin negotiating project close out and including liquidated damages. The project team anticipates accepting the project in December 2018.

Plant Instrument Air System Upgrade

Project construction has been delayed by seven months due to four issues: 1) Staff discovered that the planned construction site access route crossed a large settled sludge pipeline, requiring an alternative access route to be developed and constructed; 2) the contractor was temporarily unable to install a section of the conduit from the sludge control building to the new compressor building due to other work being performed in the area by a different contractor; 3) the development of the 28-day commissioning test procedure took longer than anticipated to develop, and 4) the project team discovered oxidized (rusted) carbon steel shavings in an existing condensate tank unrelated to the project construction during the 8-hour functioning test. The material was removed, and test successfully completed. The project is expected to achieve Beneficial Use in November 2018.

Digester and Thickener Facilities Upgrade

This project encountered numerous unforeseen conditions at the beginning of construction in 2016, described below. In 2017, design modifications were required to address seismic risks, and discovery of hazardous materials required extensive cleanup. Delays for these conditions are still being discussed and evaluated.

The City has negotiated contract change orders for the following unforeseen conditions discovered in 2016:

- Major corrosion of a below-ground, 78-inch settled sewage pipeline and junction structure delayed the construction of dissolved air flotation tank piping connections, two new pressurization flow boxes, and utility relocation work. The contractor postponed all repairs until a temporary pumping and pipeline system could be designed and safely installed to enable replacement of the pipeline in the 2018 dry season. In May of 2018, the contractor started full-time operation of this temporary pumping and pipeline system and began replacement of the 78-inch settled sewage pipeline, which is anticipated to be completed by late September 2018.
- A 36-inch biochemical oxygen demand pipe was found to be obstructing the new sludge screen building foundation. The contractor removed this pipe and relocated several gas drain vaults and associated piping before foundation construction began.
- Multiple conflicts between contract work and existing utilities required numerous relocations including water, natural gas, digester gas, landfill gas, storm drains, and sanitary sewer pipelines. The contractor completed necessary relocations and rerouting, especially near the new digester gas pipe rack footings. Many of these modifications also require design changes.
- Bay Area Air Quality Management District venting restrictions also delayed digester work. The contractor completed the temporary digester gas connections and the system became operational in February 2018.

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

- Digester structural redesign: The design consultant revised the structural drawings to address seismic issues by enlarging the foundation ring beam at the base of each of the four digesters. The contractor provided a cost proposal associated with this revision and the City issued a change order for a portion of the proposal. Work associated with the new foundation is ongoing.
- Hazardous material mitigation: Testing of soils and concrete for PCBs was completed and a final conditional approval was provided by the Environmental Protection Agency (EPA). All removal and disposal of contaminated materials has been completed to comply with the risk-based management plan approved by the EPA. All contaminated soils have been removed and disposed of and most of the impacted concrete has been encased. The last portion of the work will be finalized once all foundation work is completed. At that time, final reports on the work will be submitted to the EPA.

In November 2017, Council approved a contingency increase of $15 million. The City issued change orders against the increased contingency for delays associated with the conditions discovered in 2016.

In June 2018, Council approved a second contingency increase of $25 million for additional costs associated with the seismic redesign, hazardous material remediation, and extended construction duration.

An estimated delay of approximately 145 working days is currently reflected in the revised Beneficial Use date of January 2021. Staff is working with Contractor Walsh to evaluate the estimated delay days and anticipates having an updated schedule by late November.

Project Profile – Outfall Bridge and Levee Improvements

Treated RWF effluent is discharged via twin outfall pipes into an outfall channel before being conveyed a half-mile to a weir structure. The effluent discharges over the weir into an artesian slough. A footbridge crosses the channel over the weir structure and is used to mount probes and sensors to monitor water quality parameters upstream of the weir to demonstrate compliance with the RWF's National Pollutant Discharge Elimination System (NPDES) permit. Once effluent passes over the weir, it mixes with tidal water and travels another two miles until reaching Coyote Slough and into South San Francisco Bay.

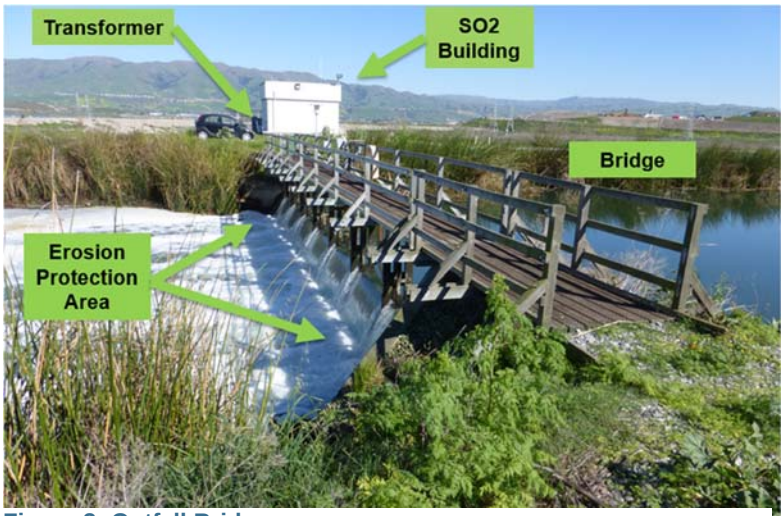


Figure 3: Outfall Bridge

This project has six components: (1) replacement of the footbridge above the outfall weir; (2) relocation and replacement of an electrical transformer located adjacent to the sulfur dioxide (SO2) building; (3) bolstering erosion protection along the downstream face of the outfall weir; (4) replacement of pH and dissolved oxygen probes on the footbridge; (5) replacement of the outfall pipes flow meters; and (6) provision of fiber optic communications to critical instrumentation from outfall bridge area to the main facility.

A condition assessment of the project components was performed by the design consultant AECOM in June 2018. The assessment included a visual inspection, topographic survey, geotechnical analysis, underwater diver inspection, and interviews with RWF personnel. The dive inspection confirmed the deterioration of the underwater bridge substructure, the need for erosion protection on the downstream face of the weir, and replacement of the outfall flow meters located inside the two outfall pipes.

Outfall Bridge

The existing timber outfall bridge spans the approximately 65-foot-wide outfall channel and was last rehabilitated in 2000. Operators use the bridge to collect water samples two to three times daily. The project will replace the bridge.

Figure 4: Project Site Map

Electrical Transformer

The 25-year-old existing electrical transformer (4160V:480V) is located adjacent to the sulfur dioxide building and supports all electrical equipment in the outfall channel, on the outfall bridge, and within the building. The transformer will be replaced and may be relocated as it currently sits at the edge of a slope on the widened levee which has settled and experienced some erosion since its original installation.

Flow Meters

The flow meters in the twin outfall pipes are nearing the end of their useful life. These meters are crucial to the RWF's operations and NPDES permit compliance. The project will replace these meters.

Fiber Optic Communications

Currently, the instruments at the bridge and SO2 building communicate through radio transmission. The project will install fiber optic connections from the filtration influent pump station to the SO2 building to improve communication and security, expand the amount of data that can be transmitted, and allow automation.

AECOM has begun the conceptual design, including the development of environmental documentation required to apply for appropriate state and federal permits to construct the project. The project will be constructed using the low-bid design-build delivery method with construction scheduled for the summer of 2020 and Beneficial Use anticipated in December 2020. The project budget is $8,291,000.

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Regional Wastewater Facility Treatment – Current Treatment Process Flow Diagram

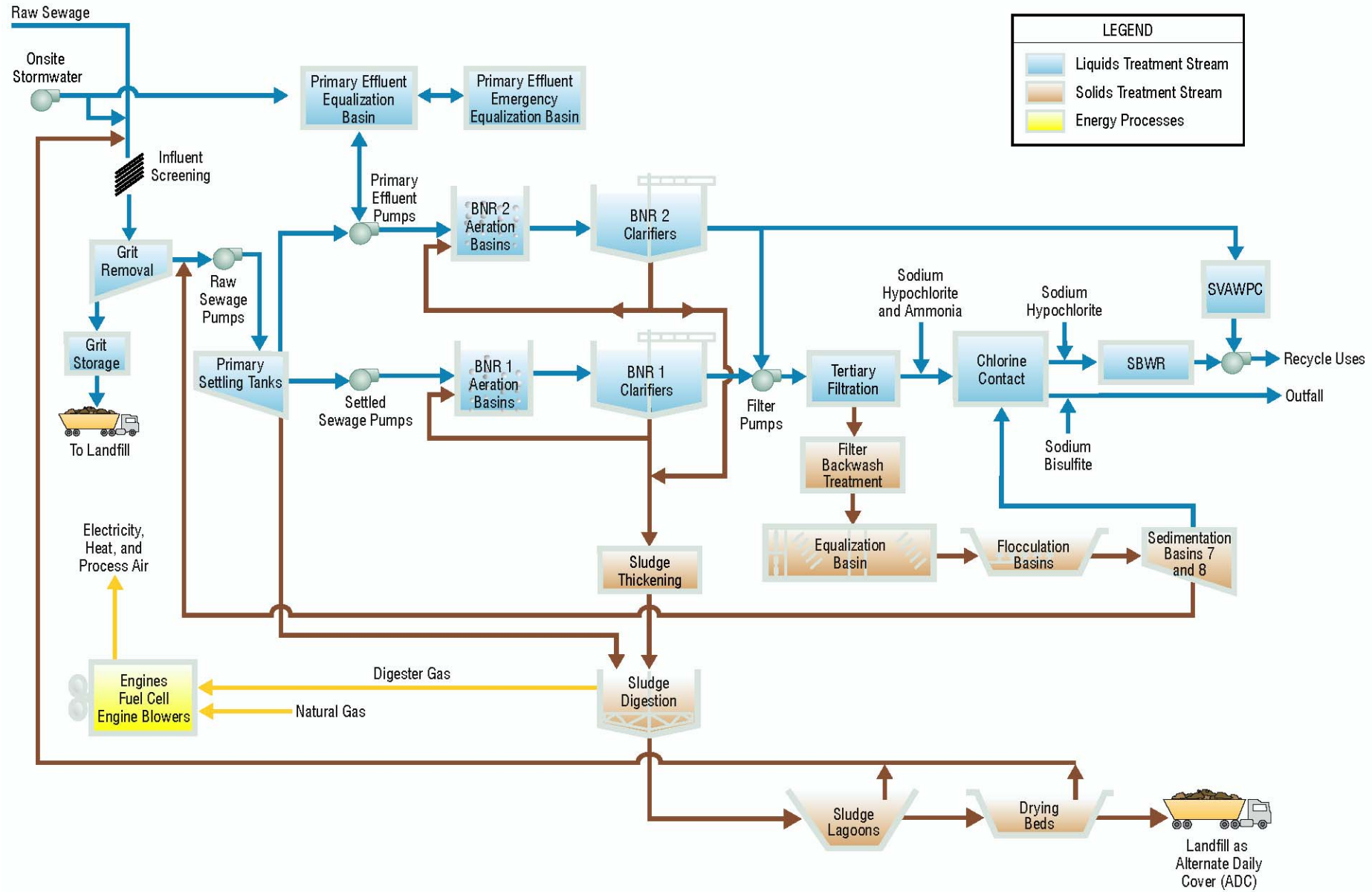

Figure 5 – Current Treatment Process Flow Diagram

Regional Wastewater Facility Treatment – Proposed Treatment Process Flow Diagram

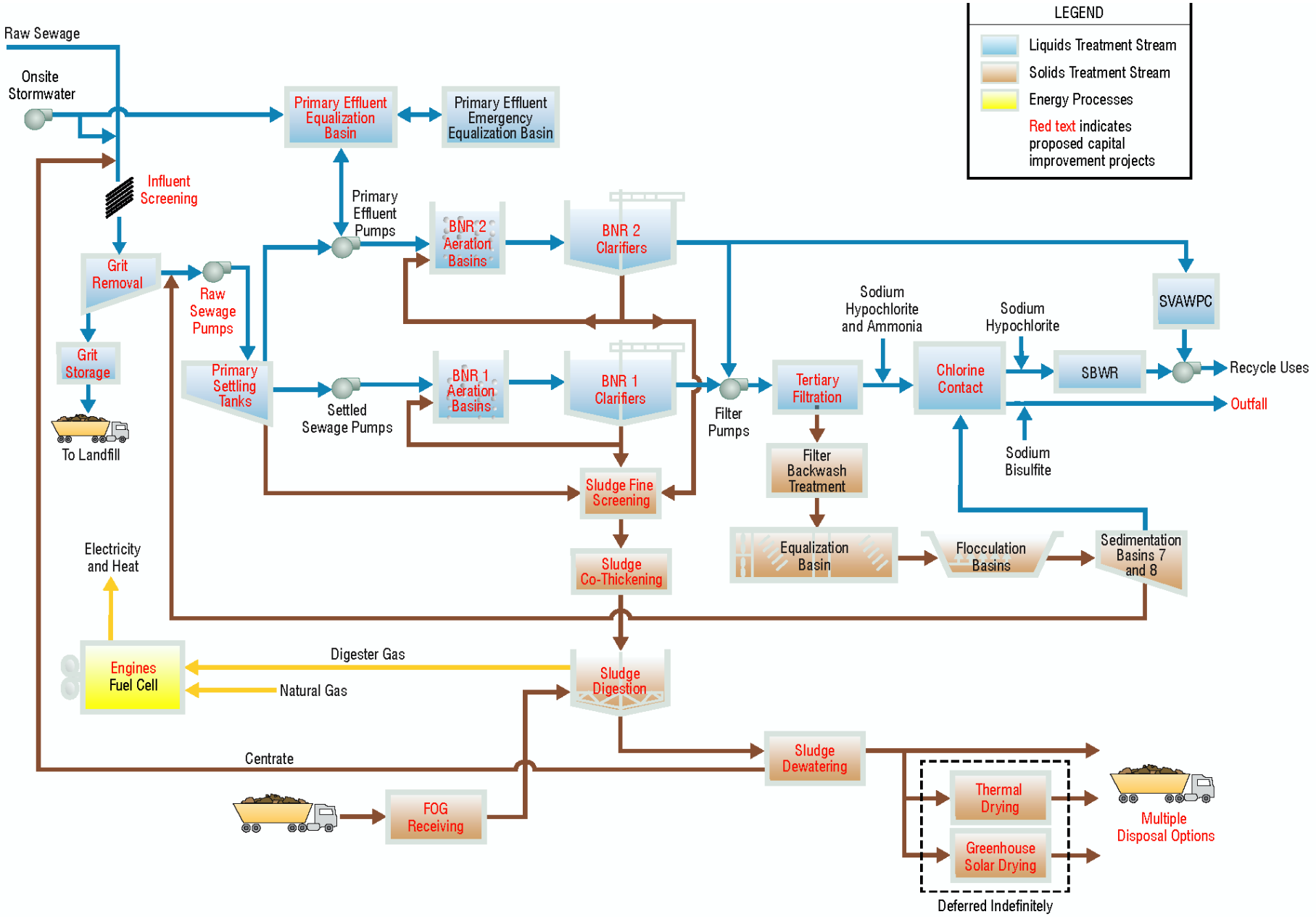

Figure 6 – Proposed Treatment Process Flow Diagram

Active Construction Projects – Aerial Plan

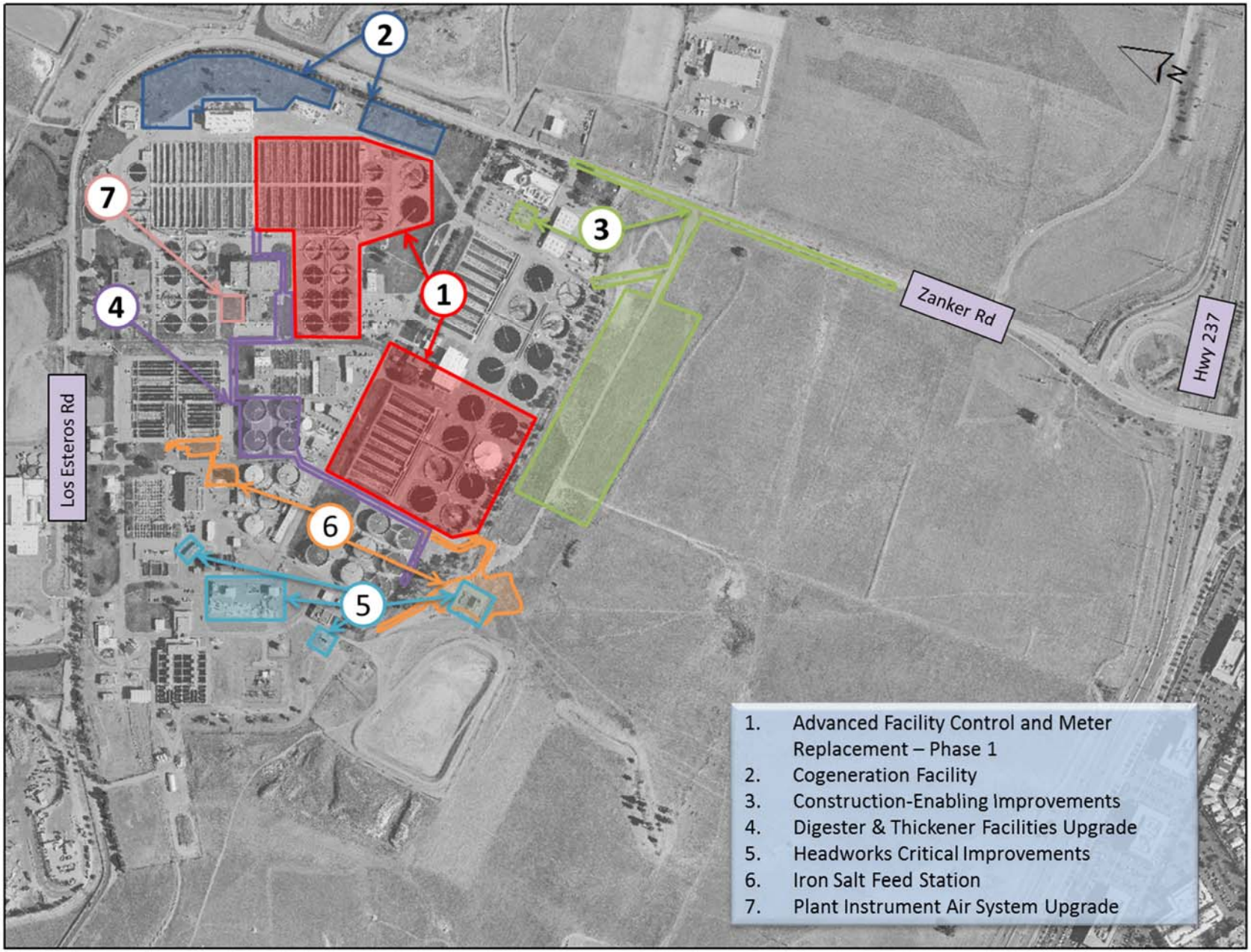

Figure 7: Active Construction Projects