San José-Santa Clara Regional Wastewater Facility

Capital Improvement Program
Monthly Status Report: December 2017

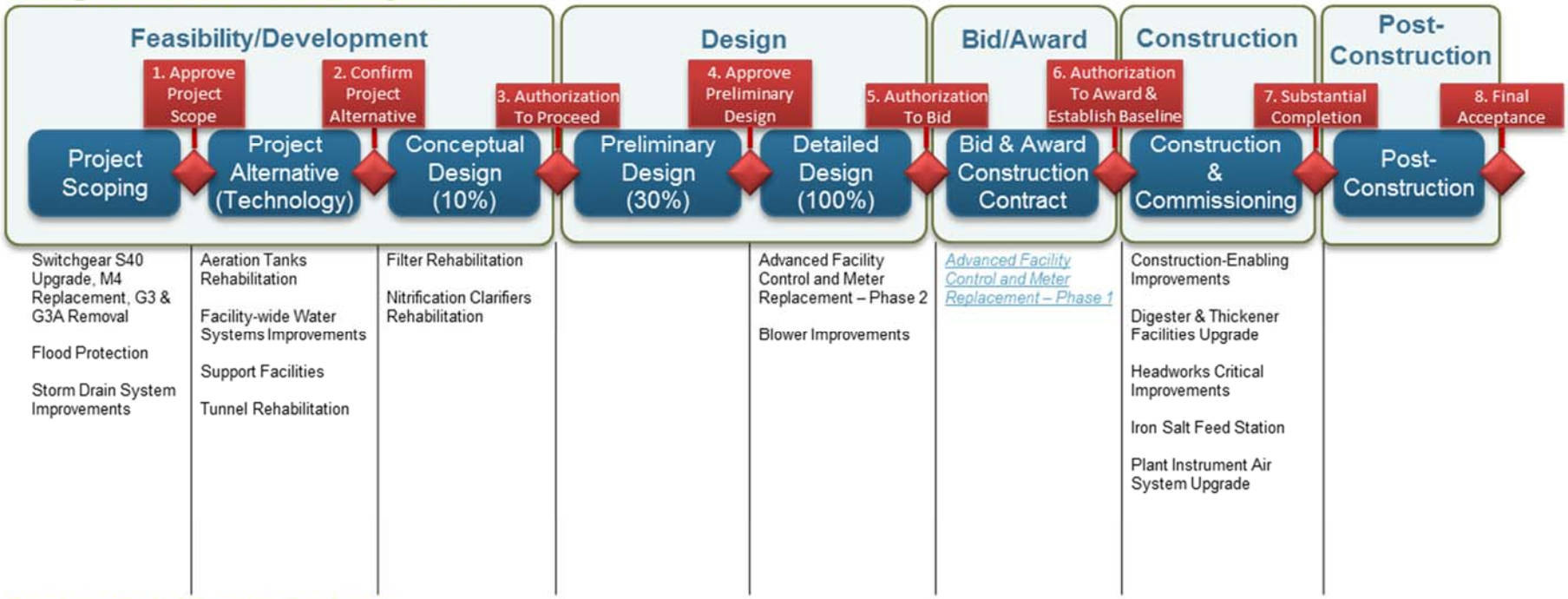
February 1, 2018

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

December 2017

Twenty CIP projects continued to progress through the feasibility/development, design, and bid/award stages of the project delivery model (PDM) in December. Of particular note, the Advanced Facility Control & Meter Replacement – Phase 1 Project moved through the Authorization to Bid stage gate. This project will upgrade the control equipment, including flow meters, sensors, valves, and actuators throughout the RWF, to increase equipment and data reliability and integrity, and improve the RWF's overall operations and efficiency. The original project was envisioned to be designed, bid, and constructed as a single project; however, after completion of the 50 percent design, the project was split into two phases to better accommodate operational constraints. The estimated $10.2 million Phase 1 construction contract will replace and/or upgrade the control equipment in the Secondary (BNR1) Battery B and Nitrification (BNR2) Battery B RWF process areas. The second phase of work will be bid in 2020 and will replace and/or upgrade the control equipment in the Secondary (BNR1) Battery A, Nitrification (BNR2) Battery A, East Primary, and Filtration process areas.

Alternatives analysis work continued this month on the Aeration Tanks Rehabilitation, Facility-wide Water Systems Improvements, and Fire Life Safety Upgrades projects. In addition, the HVAC Improvements Project team held its kickoff meeting with the design consultant. This project will replace and upgrade aging heating, ventilation, and air conditioning (HVAC) equipment in 18 support buildings across the RWF, including exhaust fans, heating ventilation units, air conditioning units, boilers, and chillers. Following the data collection exercise started this month, the project team will carry out condition assessments of the HVAC systems in early 2018. Conceptual design work progressed on the Filter Rehabilitation and Nitrification Clarifiers Rehabilitation projects. Both projects will reach 10 percent design completion in early 2018. Detailed design also progressed on the Blower Improvements Project. The project team for the Cogeneration Facility Project accepted the formal project submittal and guaranteed maximum price (GMP) proposal and issued a Notice To Proceed (NTP) to allow the contractor to commence construction of the civil site works Early Work Package 2. Additionally, the City received proposals for design-build services for the Headworks Improvements and New Headworks projects, and for construction specialty inspection services for the CIP. Staff will begin evaluating proposals received in January 2018 and hold interviews with proposers in February 2018 for both procurement efforts.

The following five active CIP construction projects continued to make progress: Construction-Enabling Improvements; Digester and Thickener Facilities Upgrade; Headworks Critical Improvements; Iron Salt Feed Station; and Plant Instrument Air System Upgrade. The Headworks Critical Improvements Project contractor completed installation of the first of two new bar screens. The Plant Instrument Air System Upgrade Project contractor completed construction of the new building roof structure, allowing equipment delivery and installation in January 2018. The Digester and Thickener Facilities Upgrade Project contractor continued construction of the new screening building, elevated pipe rack, and dissolved air floatation tanks, while the design consultant completed the digester tanks' seismic retrofit redesign. The Environmental Protection Agency (EPA) approved the hazardous materials testing and disposal plan for polychlorinated biphenyls (PCB) materials identified in the digester area. The City and contractor will work towards agreement on costs allowing these additional work items to be directed as contract change orders. Staff will provide additional updates on the delays and costs associated with these items as more information becomes available.

The CIP carried out construction Health and Safety Training based upon OSHA training syllabuses for more than 250 CIP and RWF staff during December.

Look Ahead

The following key activities are forecast for January/February 2018:

- Three projects will seek approval to advance through the Approve Project Scope stage gate: Flood Protection, Storm Drain System Improvements, and Switchgear S40 Upgrade, M4 Replacement, G3 and G3A Removal;
- The Filter Rehabilitation Project team will seek approval to advance through the Authorization To Proceed (10 percent Conceptual Design) stage gate;
- The City will issue a Request for Qualifications (RFQ) for design-build services for the Digested Sludge Dewatering Facility Project;
- The City will advertise a construction contract for the Advanced Facility Control & Meter Replacement – Phase 1 Project;
- The Bay Area Air Quality Management District (BAAQMD) will issue the air permit for the Cogeneration Facility Project. The project team will seek approval to advance through the design-build GMP stage gate;
- Construction work will commence onsite to install the temporary bypass pumping system for the Digester and Thickener Facilities Upgrade Project. This system will allow replacement of the badly corroded 78" settled sewage pipeline during the summer dry season; and
- The Iron Salt Feed Station Project will reach the Beneficial Use milestone.

- Staff will bring a recommendation to City Council (Council) and Treatment Plant Advisory Committee (TPAC) to amend a Master Services Agreement (MSA) to continue special inspection and materials testing services on the Digester and Thickener Facilities Upgrade Project.

Program Highlight – Subsurface Investigations

Most CIP projects require the installation of new buried facilities or the connection into buried underground structures or utilities. It is important to know the location and condition of existing underground facilities to allow efficient and cost-effective construction, as well as to avoid accidental disruption to important and critical treatment processes. Inadequate information about the location and nature of underground utilities can result in higher bid costs, interruptions to the treatment process, and costly damage repairs during a construction contract.

When construction contractors are not adequately informed about the location or condition of underground utilities they will add contingent costs to their bids and/or file claims to recover unanticipated expenses. For these reasons it is important that the City include as much information about underground utilities as possible in specifications and drawings.

An integral part of each design project is the conduct of a subsurface investigation. This investigation normally occurs early in the preliminary design period, once the general location of new construction is determined. The investigation consists of researching existing records; accessing the institutional knowledge of City staff and contractors; and conducting new field work to uncover buried utilities.

Figure 1: Typical Utility Conflicts

Existing records consist of historic construction photos, as-built drawings of past projects, maintenance records, and past field investigations conducted for other RWF projects. These records present a varying degree of detail and accuracy and careful judgment must be exercised when relying on the data collected. The outcome of the search and evaluation of existing records sometimes forms the basis of a scope of work for a new field investigation.

Existing records are often supplemented by the direct knowledge of the RWF's Geographical Information Systems Group; operations and maintenance (O&M) staff; and construction management teams whom have observed the location of underground structures and utilities. Staff has gained this knowledge through the observation of original construction activities, maintenance activities, or from discussions with other staff. Personnel from past construction contracts may also have records and recollections about the location of underground utilities.

Figure 2: Underground Utility Routing Challenges

Field investigations consist of potholing, trenching, ground penetrating radar, Global Positioning System (GPS) locating, or other subsurface investigative techniques to confirm or establish the presence of utilities in critical locations. Such work is conducted when confidence in the accuracy of available records is not as high as desired and when more information will likely lower the City's overall risks. It is far better to invest in verifying the correct locations of underground utilities than to pay the general contractor for costly repairs and time delays.

Construction contract documents place responsibility on the general contractor to field-verify the locations of buried utilities shown on the design drawings before starting excavation. Any discrepancies can then be addressed with design modifications early in the construction period. Taking the time and effort to perform detailed subsurface investigations during the design period and before construction activities begin reduces the potential for unexpected costs and schedule delays during construction.

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% 9/9 [1]	●	→	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	◆	→	40% 2/5	◆	→
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	●	→	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	$248M	$174M	●	↑	$298M	●	→
Measurement: CIP FY17-18 committed costs. Target: Committed cost meets or exceeds 70% of planned Budget. 70% of $354M = $248M. Therefore Green: >=$248M; Amber: $195M to $248M; Red: < $195M							
Procurement	80%	100% 1/1	●	→	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[3]	80%	100% 12/12[4]	●	→	100% 15/15	●	→
Measurement: Number of planned positions filled for the fiscal year. Target: Green: >= 80%; Amber: 70% to 79%; Red: < 70%							

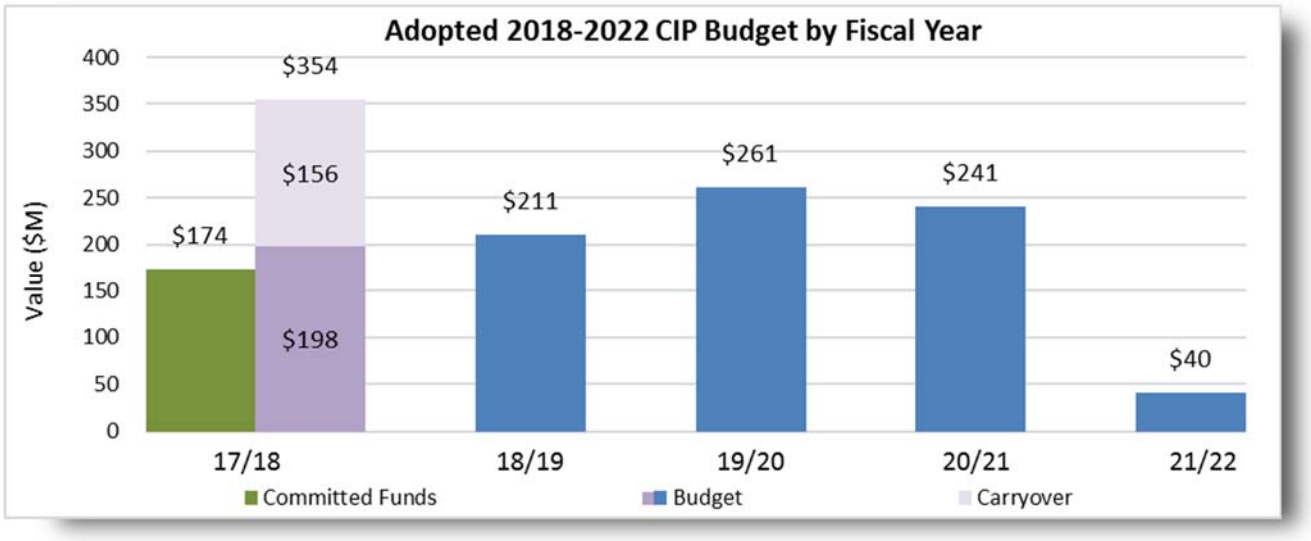
Notes

1. The Advanced Facility Control and Meter Replacement Phase 1 Project successfully completed the Authorization to Bid stage gate.
2. The baseline Beneficial Use date and the baseline budget for each project are established at construction contract award and execution.
3. Measured quarterly, the staffing KPI represents CIP recruitments planned for the fiscal year. This December report includes the most recent update. This KPI measurement does not account for staff turnover throughout the fiscal year.
4. The KPI was updated for the second quarter. The program hired or promoted two Associate Engineers, three Associate Engineering Technicians, one Engineer I/II, one Office Specialist, and one Senior Process Engineer.

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.

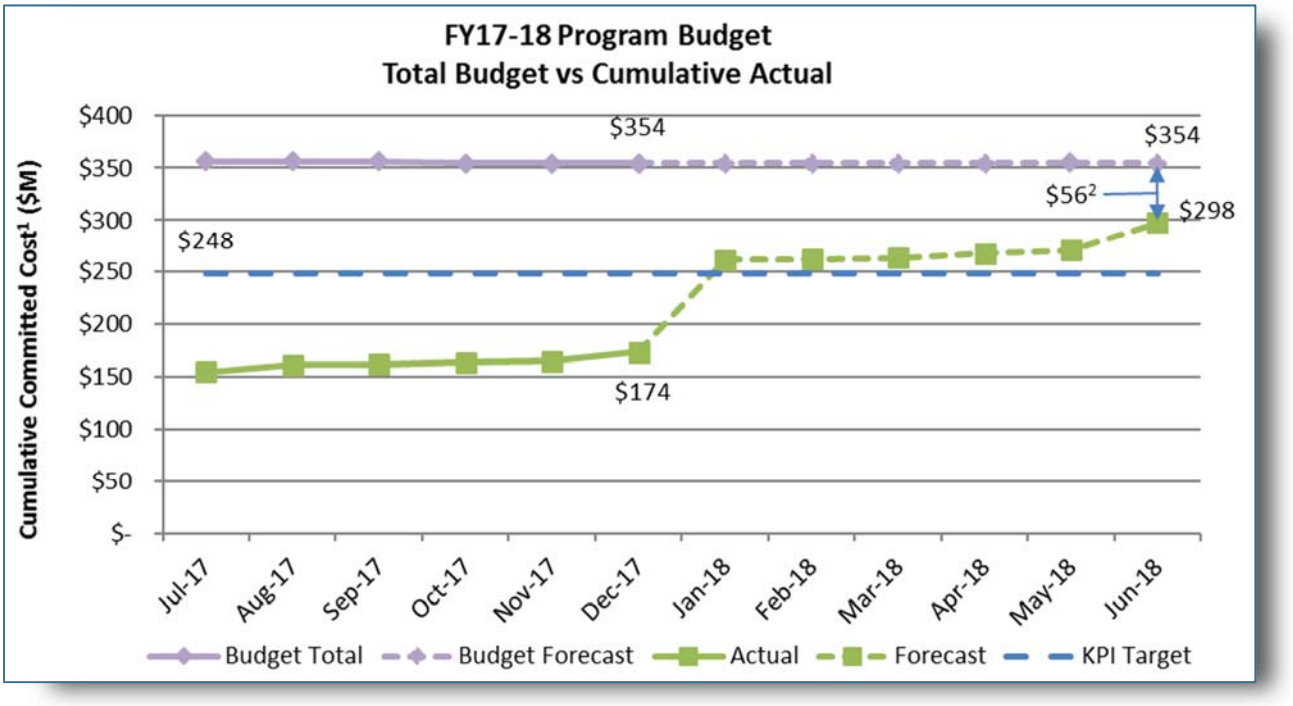
Encumbrance balance: The amount of the remaining encumbrance committed after payments.

The Fiscal Year Budget for 2017-18 is $238 million, which consists of $198 million in new funds and $40 million in rebudgets. Rebudgets can happen as part of the budget adoption process in June, which is reflected in the published Adopted CIP, or as part of the fall cleanup in October, which is reflected beginning with the October external monthly report. For purposes of the monthly report, the adopted FY17-18 budget is adjusted from $238 million to $198 million by excluding certain appropriations. 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. The budgets for FY18-19 through FY 21-22 are similarly adjusted. The FY17-18 Budget also includes a fall rebudget (or cleanup) of previous fiscal year funds, which are not reflected in the published Adopted CIP.

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 $198.5 million plus carryover of $155.9 million. The budget excludes Reserves, Ending Fund Balance, Debt Service, 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 variance between budget and expenditures can be primarily attributed to the following factors:
    a. The following construction contracts are now expected to be awarded in FY18-19:
        i. Blower Improvements Project
        ii. Fire Life Safety Upgrades Project
    b. The following consultant service orders are now expected to be executed in FY18-19:
        i. Filter Rehabilitation Project – detailed design work
        ii. Facility-wide Water Systems Improvements Project - preliminary and detailed design work
        iii. Tunnel Rehabilitation Project – feasibility/development work
    c. Several other minor encumbrances for consultant services are either lower than budgeted or are anticipated to be awarded in FY18-19.
    d. Several authorized positions remain vacant, resulting in lower predicted personal services expenses than budgeted.
    e. The FY17-18 budget includes three recurring appropriations (Preliminary Engineering, Equipment Replacement, and Plant Infrastructure Improvements) totaling 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 seven active projects in the construction or post-construction phases, with an additional 20 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.

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. Iron Salt Feed Station	Construction	Feb 2018	●	◆
4. Construction-Enabling Improvements	Construction	Mar 2018	●	◆
5. Plant Instrument Air System Upgrade	Construction	May 2018	●	●
6. Headworks Critical Improvements	Construction	Jun 2018	●	●
7. Digester and Thickener Facilities Upgrade	Construction	Sep 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 13.
3. Actual Beneficial Use date.

Project Performance – Pre-Baselined Projects

Project Name	Phase	Estimated Beneficial Use Date1
1. Cogeneration Facility	Design & Construction	Dec 2019
2. Advanced Facility Control & Meter Replacement Phase 1	Design	Dec 2020
3. Blower Improvements	Design	Oct 2021
4. Advanced Facility Control & Meter Replacement Phase 2	Design	Dec 2022
5. Outfall Bridge and Levee Improvements	Feasibility/Development	Jan 2021
6. Flood Protection	Feasibility/Development	Jan 2022
7. Switchgear S40 Upgrade, M4 Replacement, G3 & G3A Removal	Feasibility/Development	May 2022
8. Digested Sludge Dewatering Facility	Feasibility/Development	Sep 2022
9. Fire Life Safety Upgrades	Feasibility/Development	Sep 2022
10. Headworks Improvements	Feasibility/Development	Sep 2022
11. New Headworks	Feasibility/Development	Sep 2022
12. Filter Rehabilitation	Feasibility/Development	Oct 2022
13. Storm Drain System Improvements	Feasibility/Development	Jan 2023
14. HVAC Improvements	Feasibility/Development	Mar 2023
15. Facility-wide Water Systems Improvements	Feasibility/Development	May 2023
16. Nitrification Clarifiers Rehabilitation	Feasibility/Development	Dec 2023
17. Aeration Tanks Rehabilitation	Feasibility/Development	Aug 2025
18. Tunnel Rehabilitation	Feasibility/Development	Sep 2026
19. Support Facilities	Feasibility/Development	Dec 2026
20. 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 hydro testing of the thickened sludge equalization tanks and pouring of the dissolved air floatation tanks' subnatant channel walls. Next, the contractor will begin to install the settled sewage pipeline bypass piping and equipment.
- The EPA approved a soil management plan to address PCB remediation.

Digested Sludge Dewatering Facility

- The City Planning Department completed the California Environmental Quality Act (CEQA) determination, concluding an addendum to the Plant Master Plan Environmental Impact Report will be required. Next, the project team will issue an RFQ for the design-build entity in February 2018.

Facilities Package

Cogeneration Facility

- The City executed and issued the Notice to Proceed for Early Work Package 2 allowing the contractor to construct sitework, utilities, and the foundation slab. Next, the project team will complete negotiations with the design-builder and execute the definitive contract amendment establishing the GMP.

Facility-wide Water Systems Improvements

- Design consultant Kennedy/Jenks (KJ) completed hydraulic modeling of the groundwater system. Next, the project team will review outstanding hydraulic modeling calibration issues and consider alternative analysis options.

Fire Life Safety Upgrades

- KJ completed condition assessments of the fire life systems at 31 RWF buildings. Once the condition assessment findings are evaluated and agreed upon with the project team, KJ will begin alternative analysis which is anticipated to be completed in July 2018.

Flood Protection

- The project team updated the RWF Flood Protection Guidance document prior to defining the project scope. Staff anticipates approval of the project scope in February 2018.

HVAC Improvements

- The project team held its kickoff meeting with design consultant KJ. Following the data collection exercise started this month, the project team will carry out condition assessments of the HVAC systems in 18 support buildings across the RWF in early 2018.

Yard Piping and Road Improvements

- The City completed the Owner Advisor Services selection evaluation process. Black and Veatch was the highest ranked consultant. Staff anticipate going to Council in April 2018 to recommend award of the agreement.

Liquids Package

Advanced Facility Control and Meter Replacement – Phase 1

- Design consultant Black & Veatch submitted the 100 percent design documents.
- The project team successfully completed the Authorization to Bid stage gate. Next month, the City will advertise the project and hold a pre-bid conference. Bids are scheduled to be opened in February 2018.

Aeration Tanks Rehabilitation

- Brown and Caldwell (B&C) held a workshop to present the condition assessment findings to the project team and stakeholders. Next month, B&C will hold a workshop to select the preferred alternative for meeting future discharge requirements.

Filter Rehabilitation

- KJ provided the draft Conceptual Design Report (CDR) and Class 4 Opinion of Probable Construction Cost (OPCC) to the City for review, and held a workshop to present the CDR to staff. Next, the project team will seek authorization to proceed to preliminary design.

Headworks Critical Improvements

- Contractor Overaa Construction completed installation of the first bar screen and will begin installation of the final bar screen next month.

Iron Salt Feed Station

- Contractor Anderson Pacific completed minor changes in piping and process control programming, as well as operational testing with water. Next, the contractor will begin operational testing with chemicals. Staff anticipate achieving Beneficial Use in February 2018.

Nitrification Clarifiers Rehabilitation

- HDR and the project team held the first workshop during the conceptual design phase. The final conceptual design report is anticipated in February 2018.

Power and Energy Package

Plant Instrument Air System Upgrade

- Contractor Anderson Pacific completed the new compressor building roof and began storing the compressor equipment and tanks in the building. Next, the contractor will install the doors and louvers.
- The City approved the Compressor Building roadway design. Anderson Pacific will install the roadway when the weather clears.

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 the fabrication and delivery 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; however, the trailers to be used for construction management personnel are still under fabrication. Teichert now estimates that the construction management trailers will be delivered in January 2018. Installation and furnishing of these trailers, plus final inspection, should take another four to six weeks, placing the Beneficial Use date in March 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 $137,000.

Digester and Thickener Facilities Upgrade

This project is over budget due to numerous unforeseen conditions, seismic design modifications, and hazardous material issues that are currently being investigated.

Numerous unforeseen conditions are impacting the project schedule. The conditions, detailed below, are resulting in an estimated five-month delay to the Beneficial Use date.

- Contractor Walsh Construction encountered major corrosion of an existing, below-ground 78-inch settled sewage pipeline and junction structure 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 was delayed approximately six months due to BAAQMD venting restrictions. Work on digester gas bypass connections was completed and the digester gas bypass is now in service.

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

- Digester structural design is being revised for seismic safety. Revised design details will result in schedule delays and increased coordination with ongoing construction.
- Planned excavations for digesters five through eight are on hold until testing of soils and concrete for PCBs is completed and results show clearance of hazardous material contamination around the surrounding work areas.

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 early 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.

Emergency Diesel Generators

This project reached Beneficial Use in July 2017; final acceptance is scheduled for February 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 is completing their outstanding items and obtaining O&M final signoff.
- 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 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 project is now in the post-construction phase for completion of remaining minor outstanding items.

Iron Salt Feed Station

The Iron Salt Feed Station Project construction has been delayed by four months due to a combination of heavy winter rain; longer than anticipated time to fabricate the double containment pipeline and leak detection system; and longer than anticipated time to complete operational testing and commission the new equipment. Staff anticipate that the contractor will reach Beneficial Use in February 2018.

Project Profile – Fire Life Safety Upgrades

The RWF's main operational area is approximately 150 acres and houses unit treatment processes as well as more than two dozen support building facilities that are scattered throughout the site. The main support building facilities include an administration building, environmental services building (including a laboratory), warehouse, training trailers, and various maintenance shops (e.g., electrical, instrumentation and control, machine, paint, wood, and vehicle service). The existing support building facilities were constructed over time corresponding with the original RWF construction in 1954 followed by subsequent facility expansions. Much like the unit treatment processes, the support building facilities are now between 30 to 60 years old and are in need of refurbishment, replacement, and/or upgrade. The buildings range in size from 1,440 square feet to 31,600 square feet with a combined total estimated floor area of approximately 180,000 square feet.

In late 2011, a Fire Code Compliance Gap Analysis study was conducted that identified fire code compliance gaps and fire risk potentials across most of the support buildings. A total of 109 findings were identified based on visual inspections of 29 support buildings; 8 findings were ranked in the high-risk category, and 32 findings were ranked in the medium risk category. The remaining findings were ranked as low or slight risk. Since 2012, RWF staff have implemented standard operating procedures and taken corrective actions to address many of the findings, however, some findings remain outstanding and require capital construction.

Figure 3: Global Alarm Panel in the Filter Influent Pump Station

The study identified two high risk items related to the fire protection system serving the various support buildings: 1) lack of a separate fire water system dedicated solely for firefighting purposes (the current source of water for firefighting purposes is supplied from the final effluent of the RWF; the same fire water also serves as a backup water supply for part of the digestion process), and 2) the need to perform hydraulic analysis to confirm adequate flow, pressure, and pumping capacity exists to serve both current (and future) operations. The Facility-wide Water System Improvements project will address these specific findings.

The study also identified several medium ranked issues related to support buildings: 1) lack of seismic bracing of fire sprinkler systems in some buildings; 2) absence of alarm monitoring on fire pumps (e.g. running, power failure) and electronic notification to the main control room; and 3) lack of a centralized alarm monitoring and notification system for existing buildings with fire alarm systems to enable immediate and automatic notification to RWF staff, the main control room, and the Fire Department in the event of fire. The Fire Life Safety Upgrades project will address these issues.

In January 2017, the City awarded a master consultant agreement to KJ to provide engineering services for this project and other related support building projects at the RWF. The project will follow a 30 percent low-bid, design-build delivery model, with KJ completing a conceptual design and performance specifications for a design-build entity. Construction is scheduled to begin in spring 2020 with substantial completion expected for all project sections by fall 2022.

The design consultant's tasks include:

- Conducting non-destructive field assessments of 31 (29 original + 2 additional) buildings to ensure conformance with 2016 California Building Code and California Fire Code;
- Conducting non-destructive field assessments of on-site firewater systems and existing fire notification infrastructure;
- Designing and installing a centralized fire alarm system, integrating existing and new fire alarm systems, and dedicating a centralized monitoring location;
- Identifying opportunities for improving fire life safety systems in critical facilities beyond minimum code requirements; and
- Resolving any identified code deficiencies.

The condition assessment is scheduled to be completed in January 2018. This effort will provide the design team with valuable information regarding existing building conditions and current alarm system operations. KJ is currently reviewing the data to prepare a condition assessment report and presentation for spring 2018.

Figure 4: Fire Control and Communicator in CL/SO2 Building

Regional Wastewater Facility Treatment – Current Treatment Process Flow Diagram

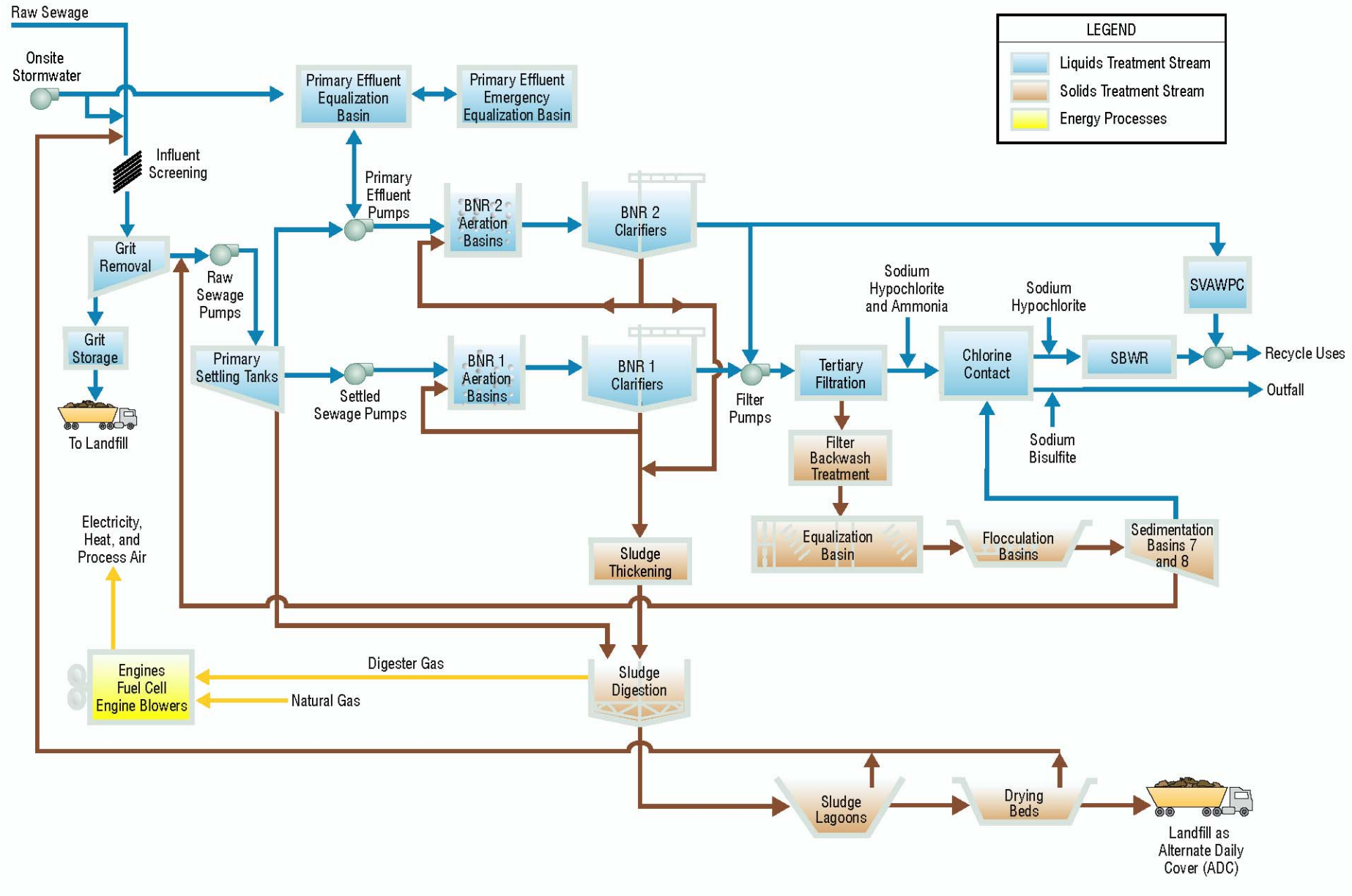


Figure 5 – Current Treatment Process Flow Diagram

Regional Wastewater Facility Treatment – Proposed Treatment Process Flow Diagram

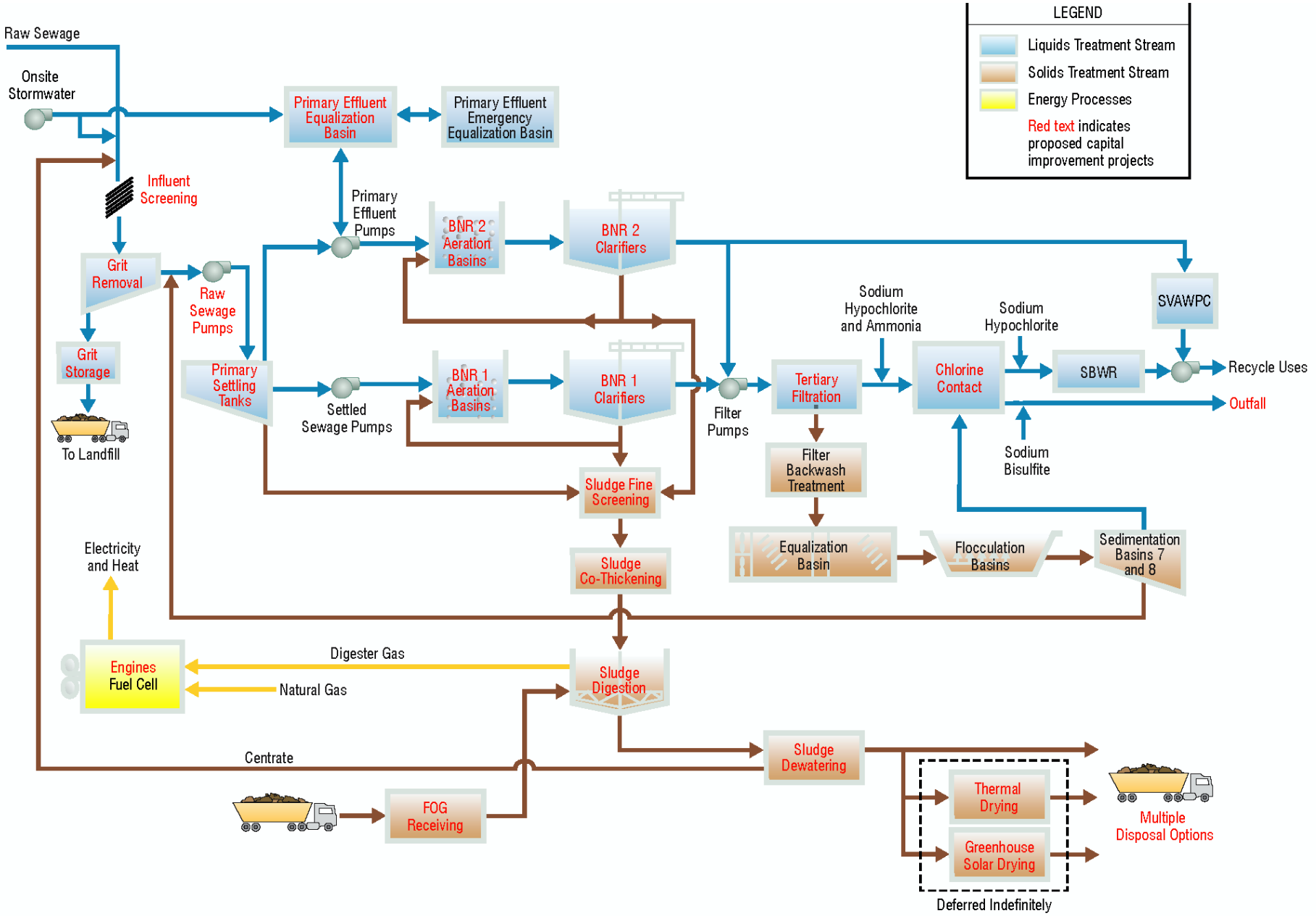


Figure 6 – Proposed Treatment Process Flow Diagram

Active Construction Projects – Aerial Plan

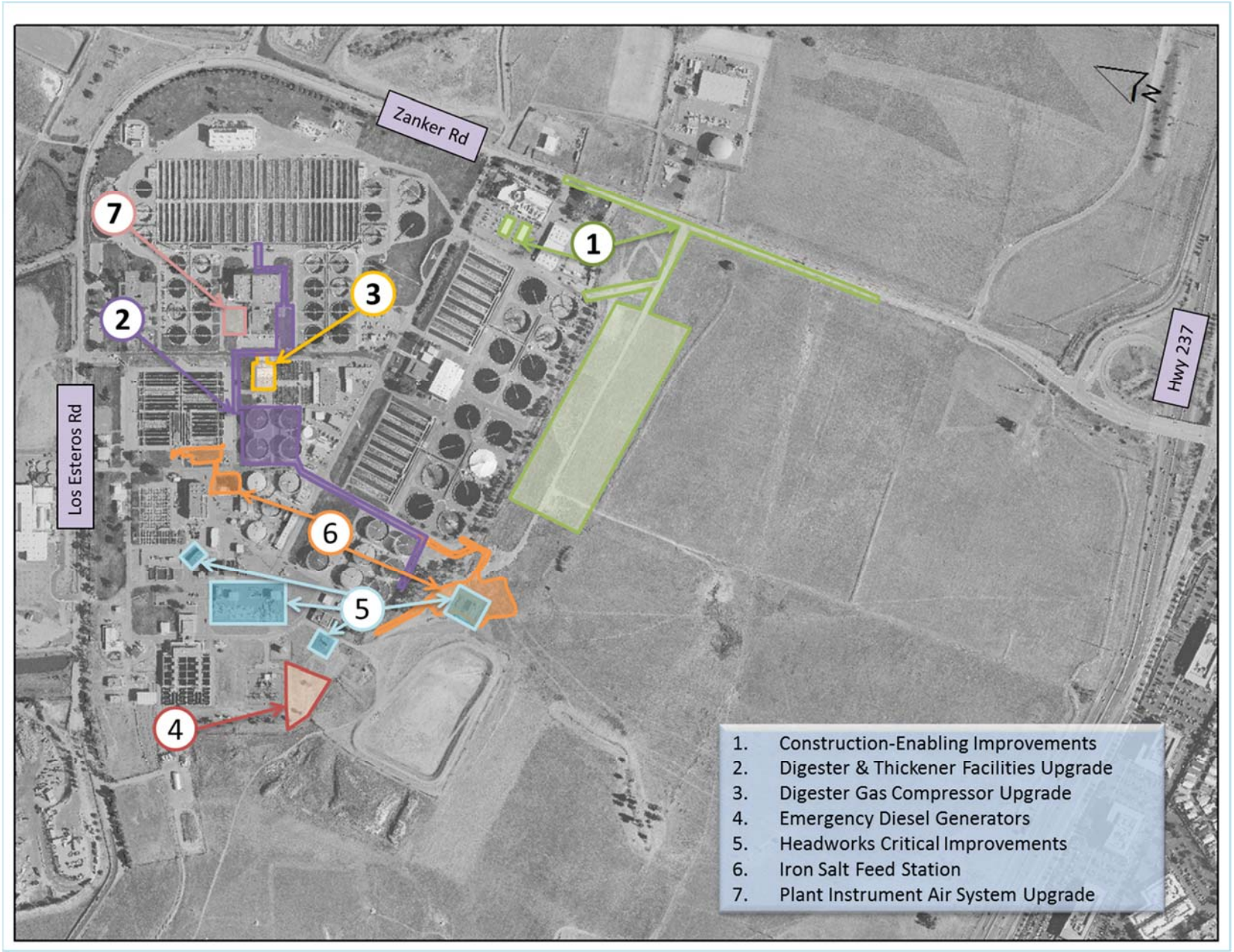


Figure 7 – Active Construction Projects