



San José-Santa Clara
Regional Wastewater Facility

Capital Improvement Program Monthly Status Report: August 2016

October 6, 2016

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 2016.

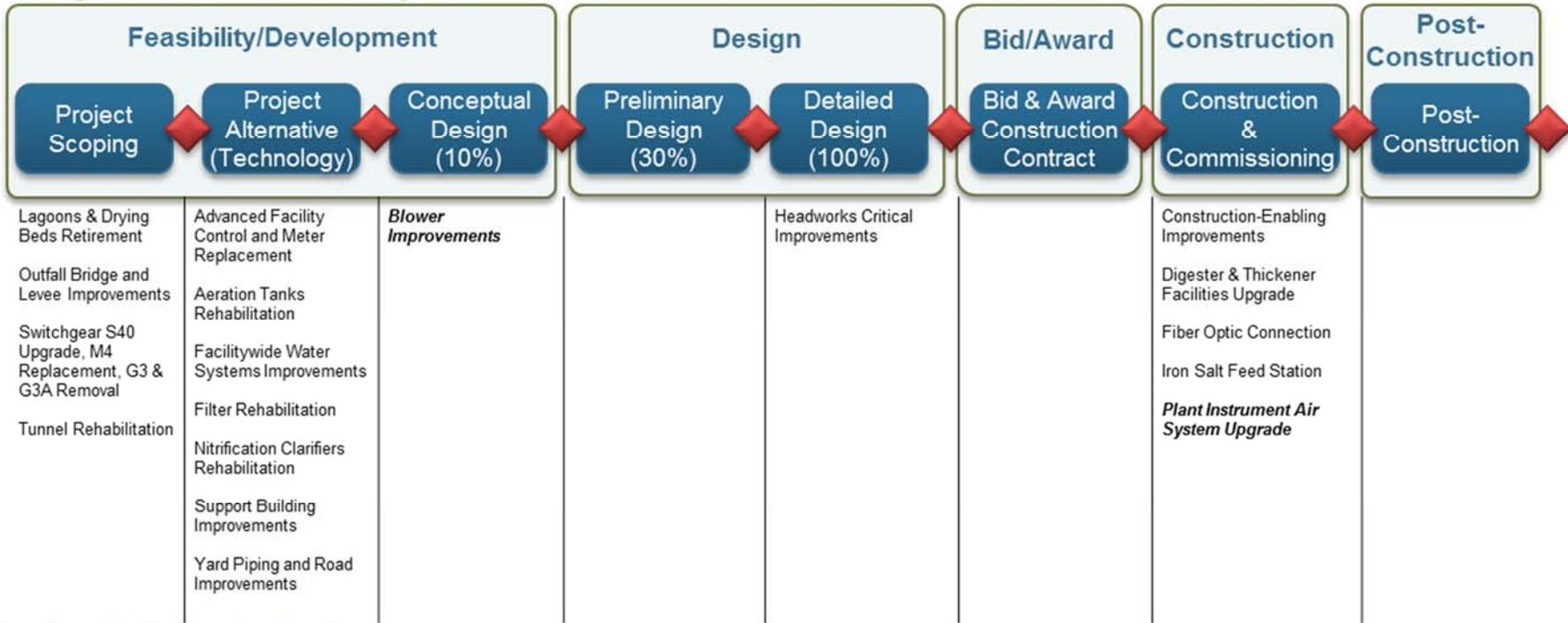
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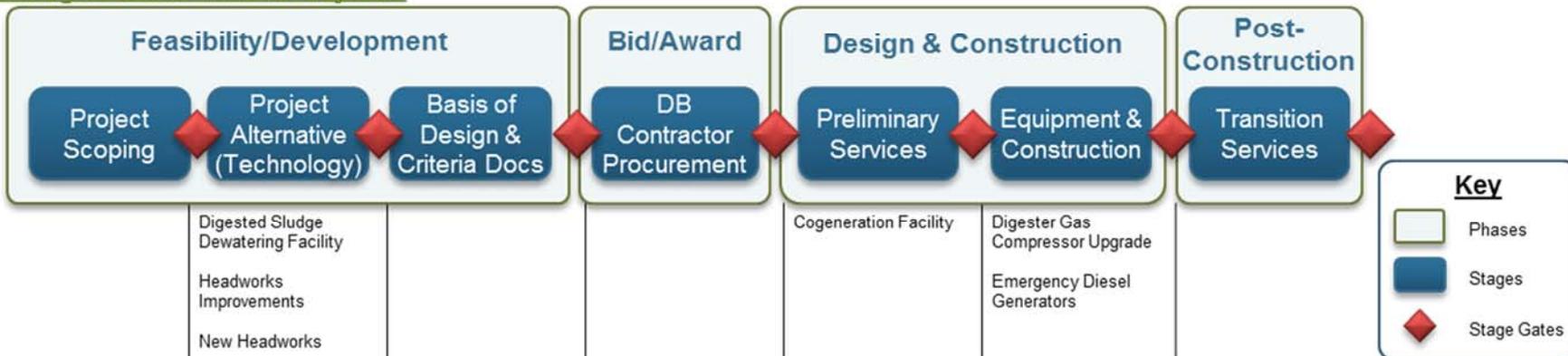


Project Delivery Model

Design-Bid-Build Active Projects



Design-Build Active Projects



Key

- Phases
- Stages
- ◆ Stage Gates

*Projects shown in **bold and italics** have advanced this reporting period



Program Summary

August 2016

The CIP progressed on multiple fronts in August, including advancing the Blower Improvements Project through the Project Delivery Model (PDM) stage gate process. The project passed through the “Confirm Project Alternative” stage gate, allowing conceptual design to proceed. Conceptual design is anticipated to be completed in October.

In additional developments, CIP staff:

- Completed Statement of Qualifications (SOQ) interviews and notified the top-ranked consultant for the Support Building Improvements Project;
- Completed the consultant selection for the Facilitywide Water Systems Improvements SOQ; and
- Presented recommendations to the Treatment Plant Advisory Committee (TPAC) and City Council (Council) to award a construction contract for the Plant Instrument Air System Upgrade Project to the lowest bidder, Anderson Pacific, for \$2,848,000. This recommendation was approved and construction is expected to commence in September.

Work began this month on a Flow Management Study to set future RWF flow management practices. This study is essential for consistent hydraulic planning and long-term flows management. It will validate current flow routing assumptions, field-calibrate existing hydraulic models, and evaluate hydraulic capacities and potential flow constraints throughout the RWF. This work will inform future CIP designs and operations across all projects that pertain to the treatment of liquid waste.

Design continued on the Headworks Critical Improvements Project, which reached the 90 percent design milestone this month. The Cogeneration Facility design-build project also made significant progress, holding five technical workshops and issuing engine-selection procurement documents. The design-builder will submit the Basis of Design Report for the cogeneration project in September, and anticipates early procurement of the cogeneration engines in November. Alternatives analysis continued on the Headworks Improvements, New Headworks, Filter Rehabilitation, and Nitrification Clarifiers Rehabilitation projects, with technical workshops held for each project this month. Condition assessment work also progressed on the Filter Rehabilitation and Nitrification Clarifiers Rehabilitation projects.

Construction work continued on the Emergency Diesel Generators, Digester Gas Compressor Upgrade, Iron Salt Feed Station, and Fiber Optic Connection projects. Site activities commenced this month on the Construction-Enabling Improvements project with clearing and grubbing, grading, and earthwork activities getting underway. A groundbreaking ceremony for the Digester and Thickener Facilities Upgrade project — the largest of the 10-year CIP projects to commence construction so far — was held at the RWF on August 24.

Look Ahead

In September, CIP project teams and the selected design consultants will move forward with design, condition assessment, and alternatives analysis work for the Headworks Improvements, New Headworks, Cogeneration Facility, Filter Rehabilitation, Blower Improvements, and Nitrification Clarifiers Rehabilitation projects. Applications and discussions will continue with the State Water Resources Control Board on Clean Water State Revolving Fund (SRF) funding for the Digester and Thickener Facilities Upgrade and Cogeneration Facility projects.

Staff will proceed with consultant procurements and service orders for the Aeration Tanks Rehabilitation; Facilitywide Water Systems Improvements; Advanced Facility Control and Meter Replacement; Switchgear S40 Upgrade, M4 Replacement, G3 & G3A Removal; Digested Sludge Dewatering Facility; and Support Buildings Improvement projects.

Procurements for a number of programmatic services will continue to advance, including Audit Services, Owner-Controlled Insurance Program (OCIP), and Industrial Hygienist services.

Also in September, staff will recommend that TPAC and Council:

- Award an agreement to provide broker, administrative, and claims services to implement an OCIP;
- Award a master consultant agreement for the Facilitywide Water Systems Improvement project;
- Award a master consultant agreement to provide audit services at the RWF; and
- Process a change order for the Emergency Diesel Generator Project to eliminate particulate filters. This change will result in a credit to the City of approximately \$718,000.

Construction activities will continue on the Emergency Diesel Generators, Digester Gas Compressor Upgrade, Iron Salt Feed Station, Fiber Optic Connection, Digester and Thickener Facilities Upgrade, and Construction-Enabling Improvement projects. Construction will commence next month on the Plant Instrument Air System Upgrade project.

In addition, all CIP project managers and project engineers will continue formal staff training, with the next training session to be focused on design management.



Program Highlight – Code Compliance Coordination

Permits ensure that regulatory agencies can properly administer and enforce codes and regulations to safeguard the public and the environment. Permits are particularly important for the CIP Program, which is constructing large, publicly funded, high-profile, critical infrastructure projects for the entire South Bay. Without permits, there would be no guarantee a project would be built correctly—and any resulting infrastructure failure would be very expensive to fix. Instead, all CIP projects go through a comprehensive evaluation process to determine whether permits are required, ensuring that projects are built safely and function effectively.

In the early stages of the CIP program, leadership identified the need to develop a permitting procurement strategy to deal with the size and complexity of the projects. This strategy incorporates the following elements:

- Identify potential permit requirements and summarize potential applicability to CIP projects (i.e., Fire, Building & Safety, PG&E, etc.)
- For each permit type, summarize requirements, schedule for procurement, and responsible parties
- Create templates for key permit applications/submissions
 - Steps
 - Parties
 - Estimated durations
- Provide ongoing updates to permit strategy
- Regularly update staff on permit requirements, strategies, and future trends

CIP Permit Coordinator

Instead of each project manager learning the permitting process and developing a permit procurement plan, the CIP established the CIP Permit Coordinator (PC) as a centralized resource for project managers. The PC guides project managers in obtaining permits required for construction, allowing more time and resources to focus on other important project aspects. Additionally, the PC acts as a liaison between the CIP and regulatory agencies to streamline permit processing.

PC duties include:

- Assisting with the creation of permit procurement plans for each project,
- Assisting project managers in meetings with permit agencies,
- Monitoring permit procurement plan compliance, and
- Assisting project managers with procurements as requested

The Department of Public Works Building Official Program

The Department of Public Works Building Official Program (BOP) encompasses the Structural Engineering and Code Inspection group. This group administers the California Building Code (see Figure 1), and the City of San José Fire Department, which administers the California Fire Code. The BOP issues the Public Works Building Permit and construction inspections for all City projects, including the CIP. The Public Works Building Permit ensures that projects have been designed according to the current 2013 California Building Code (the 2016 California Building Code was recently adopted by the City and will be effective as of January 1, 2017) and City of San José Ordinance requirements. Routine inspections during construction verify that projects have been built according to applicable codes.

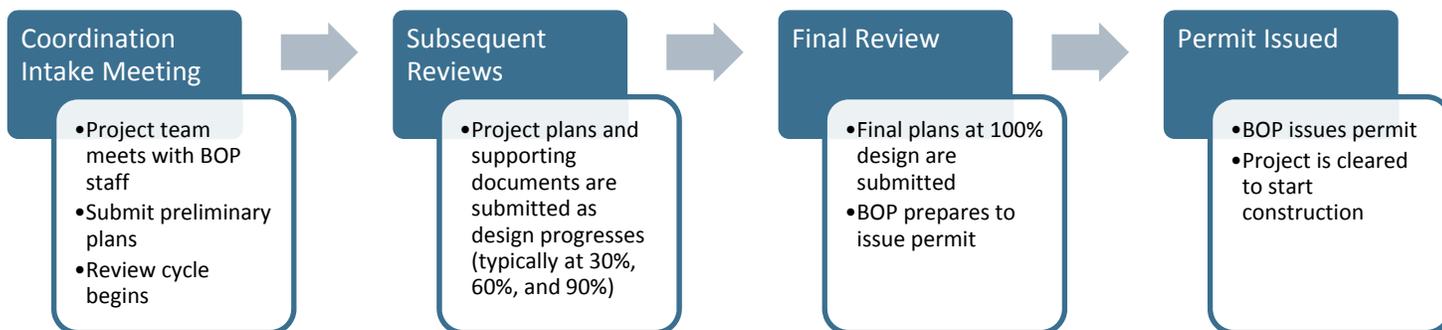


Figure 1: Permitting Process



Next Steps

Using existing CIP tools (e.g. CIP Portal, Project Delivery Model, Program Execution Plan, etc.), staff will develop additional aids to help project managers track permits and incorporate permitting into project scopes, schedules, and budgets. Permit guidelines for project managers will be issued with regard to adding requirements to consultant service orders. CIP permit training classes will also be held to guide project managers through the permit process.

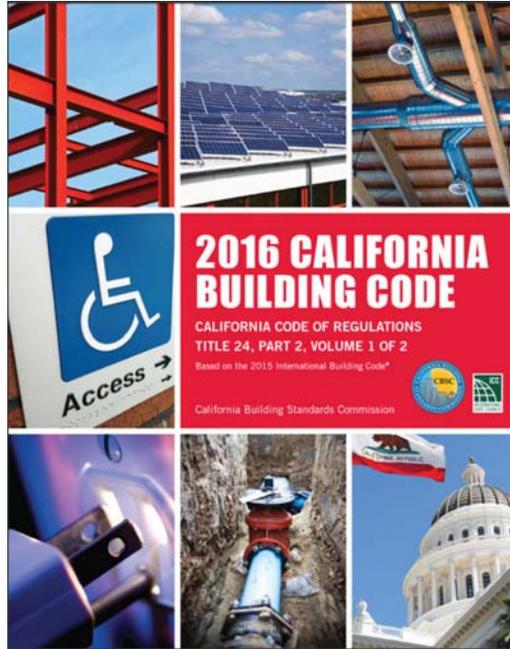


Figure 2: The City of San José recently adopted the 2016 California Building Code, effective January 1, 2017.

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 will be selected and measured that best reflect the current program.

Program Key Performance Indicators – Fiscal Year 2016-2017

KPI	Target	Fiscal Year to Date			Fiscal Year End		
		Actual	Status	Trend	Forecast	Status	Trend
Stage Gates	80%	100% 1/1 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%	NA 0/0 ²			50% 2/4 ³		
Measurement: Percentage of CIP projects delivered within 2 months of approved baseline Beneficial Use Milestone. Target: Green: >=90%; Amber: 75% to 89%; Red: < 75%							
Budget	90%	NA 0/0 ⁴			75% 3/4 ⁵		
Measurement: Percentage of CIP projects that are accepted by the City within the approved baseline budget. Target: Green: >=90%; Amber: 75% to 89%; Red: < 75%							
Expenditure	\$193M	\$162M ⁶			\$243M ⁶		
Measurement: CIP FY16-17 committed costs. Committed cost meets or exceeds 70% of planned Budget Target: 70% of \$276M = \$193M. Therefore Green: >=\$193M; Amber: \$152M to \$193M; Red: < \$152M							
Procurement⁷	80%	NA 0/0			100% 5/5		
Measurement: Number of consultant and contractor procurements advertised compared to planned for the fiscal year. Target: Green: >=80%; Amber: 70% to 79%; Red: < 70%							
Safety	0	0			0		
Measurement: Number of OSHA reportable incidents associated with CIP delivery for the fiscal year. Criteria: Green: zero incidents; Amber: 1 to 2; Red: > 2							
Environmental	0	0			0		
Measurement: Number of permit violations caused by CIP delivery for the fiscal year. Target: Green: zero incidents; Amber: 1 to 2; Red: > 2							
Staffing⁸	NA	NA	NA	NA	NA	NA	NA
Measurement: Number of planned positions filled for the fiscal year. Target: Green: >=80%; Amber: 70% to 79%; Red: < 70%							

Notes

1. The Blower Improvements Project successfully passed stage gate 2: Confirm Project Alternative.
2. No projects reached Beneficial Use this month. 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.
3. The Emergency Diesel Generators and Digester Gas Compressor Upgrade projects are expected to reach Beneficial Use this fiscal year, but are not expected to be within two months of the baseline schedule.
4. No projects were accepted this month.
5. The Digester Gas Compressor Upgrade Project is forecast to be accepted this year, but is currently over budget by 1.5 percent.
6. These values now reflect updated actual/forecasted amounts.
7. There were no procurements planned this month.
8. The City staffing level KPI for planned recruitments for positions that are vacant at the start of the fiscal year is measured quarterly; all other KPIs are measured monthly. KPI measurement does not account for staff turnover throughout the fiscal year.

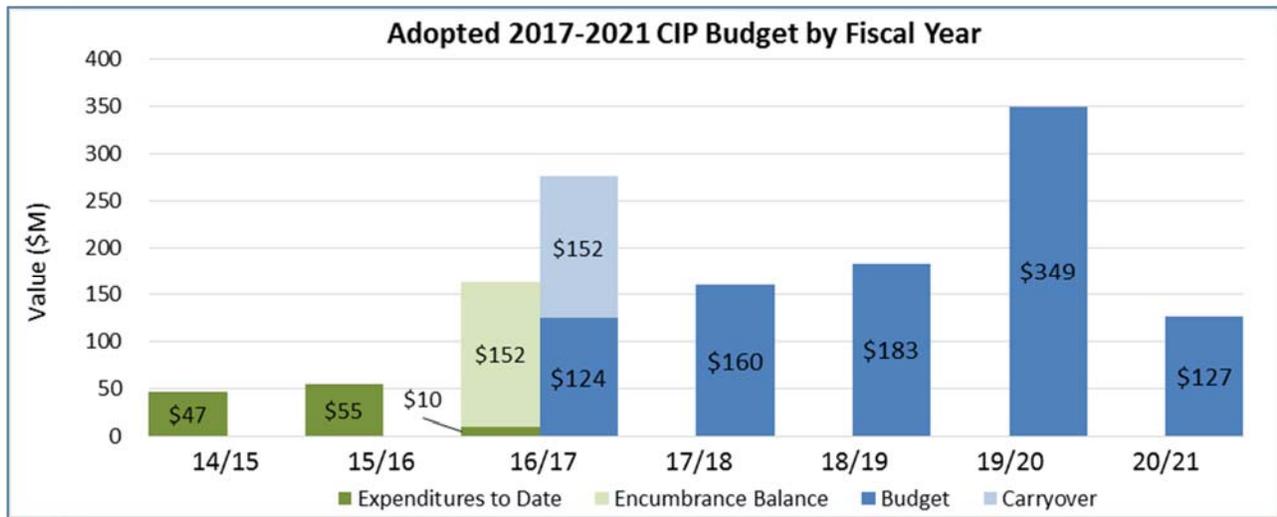


Program Cost Performance Summary

This section summarizes CIP cost performance for all construction projects and non-construction activities for FY16-17 and for the 2017-2021 CIP.

Adopted 2017-2021 CIP Expenditure and Encumbrances

FY14-15 and FY15-16 expenditures have been adjusted to reflect the CIP portion of the Treatment Plant Capital Fund (Fund 512), excluding South Bay Water and Urgent and Unscheduled Cost (\$2.6 million and \$1.5 million, respectively).



Notes:

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. The encumbrance reserves the funding within the appropriation and project.

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

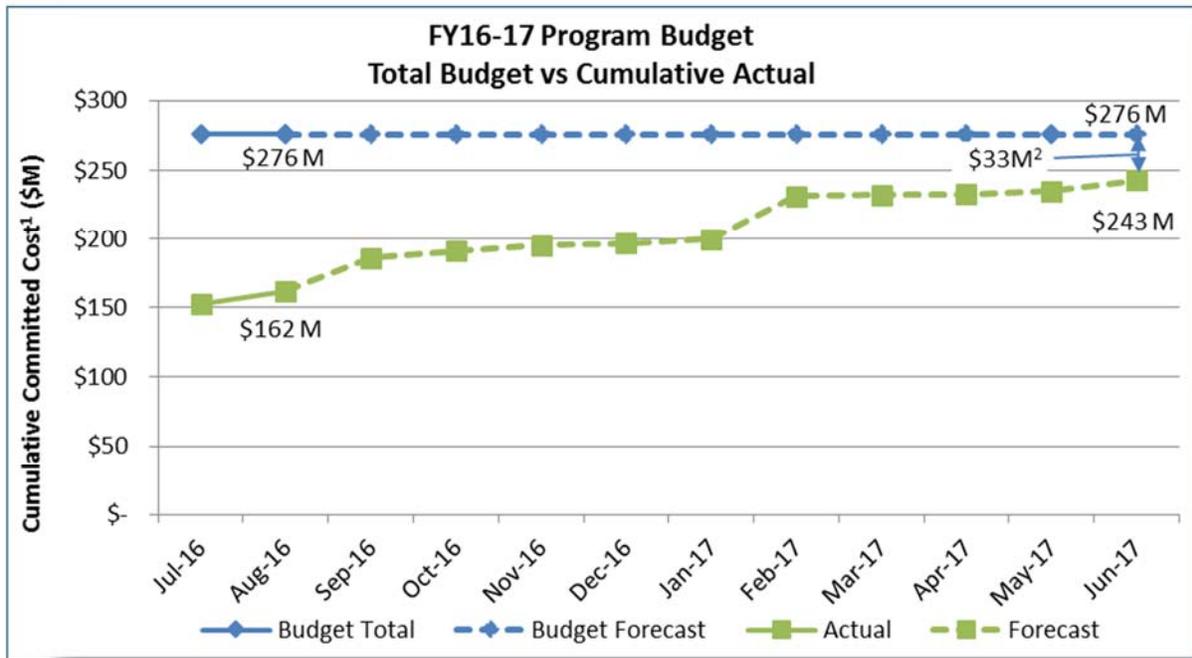
Budget: Adopted FY 2017-2021 Budget, which is new funding plus rebudgeted funds.

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 2016-2017 Program Budget Performance

This budget comprises the FY16-17 budget of \$124 million, plus carryover of \$152 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 expenditure is primarily due to project contingencies not anticipated to be expensed, and changes in the timing of the Blower Improvements Project. Originally the project had identified that there may be a need to pre-purchase blowers to meet schedule constraints. As design has progressed this has not been found to be necessary and the equipment will now be purchased in FY17-18 as part of the main construction award.



Project Performance Summary

There are currently seven active projects in the construction or post-construction phases, with an additional 17 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. Digester Gas Compressor Upgrade	Construction	Jan 2017		
2. Emergency Diesel Generators	Construction	Mar 2017		
3. Fiber Optic Connection	Construction	Feb 2017		
4. Construction-Enabling Improvements	Construction	Mar 2017		
5. Iron Salt Feed Station	Construction	Sept 2017		
6. Plant Instrument Air System Upgrade	Construction	Jan 2018 ³		
7. Digester and Thickener Facilities Upgrade	Construction	April 2020		

KEY:

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

Notes

- Beneficial Use is defined as work that is sufficiently complete, in accordance with contract documents, that it can be used or occupied by the City. Beneficial Use dates are reviewed as part of project schedule reviews.
- An explanation of cost and schedule variances on specific projects identified in this table is provided on page 13.
- Project construction Beneficial Use date will be baselined once the contractor submits their construction schedule.



Project Performance – Pre-Baselined Projects

Project Name	Phase	Estimated Beneficial Use Date ¹
1. Cogeneration Facility	Design & Construction	May 2019
2. Headworks Critical Improvements	Design	Sept 2017
3. Blower Improvements	Feasibility/Development	Mar 2019
4. Adv. Facility Control & Meter Replacement	Feasibility/Development	Dec 2020
5. Switchgear S40 Upgrade, M4 Replacement, G3 & G3A Removal	Feasibility/Development	April 2021
6. Headworks Improvements	Feasibility/Development	April 2021
7. Digested Sludge Dewatering Facility	Feasibility/Development	Dec 2021
8. Outfall Bridge and Levee Improvements	Feasibility/Development	Feb 2022
9. Filter Rehabilitation	Feasibility/Development	May 2022
10. Facilitywide Water Systems Improvements	Feasibility/Development	July 2022
11. New Headworks	Feasibility/Development	Aug 2022
12. Nitrification Clarifiers Rehabilitation	Feasibility/Development	Nov 2022
13. Yard Piping and Road Improvements	Feasibility/Development	Dec 2022
14. Aeration Tanks Rehabilitation	Feasibility/Development	Jan 2024
15. Tunnel Rehabilitation	Feasibility/Development	Nov 2025
16. Support Building Improvements	Feasibility/Development	Jan 2027
17. Lagoons & Drying Beds Retirement	Feasibility/Development	Mar 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

- Staff finalized scope and fee negotiations with the top-ranked firm for owner's advisor services. Staff will bring a recommendation to Council in October.

Digester and Thickener Facilities Upgrade

- The City held a groundbreaking ceremony on August 24.
- The project team has begun coordinating dedicated process shutdowns with Operations and Maintenance (O&M) staff in advance of demolition work by Walsh Construction.
- The project team has begun reviewing submittals and requests for information from the contractor.

Facilities Package

Cogeneration Facility

- Staff held five workshops to discuss major elements of the project. Topics included engines; gas treatment; emissions controls; heat recovery; building architecture; heating and cooling loops; and landfill gas considerations.
- The design-build team continues to develop the Basis of Design Report, which is due in mid-September.

Construction-Enabling Improvements

- Teichert Construction, Inc. began construction with clearing, grading, and earthwork activities.

Facilitywide Water Systems Improvements

- Staff completed its evaluation of the SOQs and will present an award recommendation to Council in September.

Fiber Optic Connection

- The contractor, Aegis ITS, Inc., has ordered materials and is anticipated to begin site work in early September.

Support Building Improvements

- Staff conducted interviews with the top-ranked firms and will present an award recommendation to Council in November.

Yard Piping and Road Improvements

- The project team completed all requirements associated with stage gate conditions, and received approval from CIP leadership to proceed to the Project Alternatives stage.

Liquids Package

Advanced Facility Control and Meter Replacement

- Staff reviewed the final design cost and schedule proposal received under the General Engineering Services master consultant agreement with Black and Veatch Corporation.

Blower Improvements

- Staff successfully passed Stage Gate 2: Confirm Project Alternative, and finalized negotiations with the design consultant, Brown and Caldwell, for final design.
- Program staff completed a draft of the Blower Improvement Conceptual Design Report.

Filter Rehabilitation

- The design consultant, Kennedy/Jenks Consultants, Inc., submitted the draft final copy of the Maintenance of Plant Operations Plan, held a preliminary inspection debrief workshop to discuss visual condition assessment results, and submitted the draft final copy of the Tertiary Process Narrative that summarized the filter unit process.

Headworks Critical Improvements

- Staff received and began internal review of the 90 percent design and cost estimate submittals.

Headworks Improvements and New Headworks

- Staff held an alternative analysis workshop and developed a recommended approach to implement the project.



Iron Salt Feed Station

- Anderson Pacific completed site excavations.
- Staff held a workshop with the programming subcontractor, ABB/TESCO, to coordinate distributed control system programming.

Nitrification Clarifiers Rehabilitation

- HDR completed the visual condition assessment of the nitrification clarifiers and mixed liquor channels, and continued to plan the approach for a condition assessment of the settled sludge lines.

Power and Energy Package

Emergency Diesel Generators

- The City Fire Department approved the pressure test for the fuel tanks, belly tanks, and double containment piping. This approval allows the tanks to be filled with fuel.
- Anderson Pacific completed outstanding items for the generators and switchgear.

Plant Instrument Air System Upgrade

- Council awarded a construction contract to Anderson Pacific in the amount of \$2,848,000. Construction is expected to commence in September.



Explanation of Project Performance Issues

Emergency Diesel Generator

The project completion schedule has been delayed approximately nine months due to the following three factors:

- Caterpillar, the supplier of the emergency diesel generator system, encountered delays in developing 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 have completed an engineering study and have found a solution to the problem. Additional switches will be ordered and installed for the network system.
- Additional time is required for Pacific Gas & Electric (PG&E) to schedule the witness test of the emergency diesel generator equipment installation and commissioning to connect to the RWF grid. The City completed a batteries load test. The third-party testing report has been submitted to PG&E for review and approval. After PG&E approves the emergency diesel generator plans and the third-party test report, it will require 60 days to schedule a PG&E technical team to witness the emergency diesel generator equipment commissioning.
- A no-cost time extension change order has been processed and fully executed to split the commissioning sequence into two periods and ensure RWF backup power during engine modification work. The City is currently working on phase 1 engine modification.

Digester Gas Compressor Upgrade

This project is over budget by 1.5 percent. The two issues below have increased project delivery costs, pushing the total project cost slightly over budget:

- Construction inspection requirements were more involved than anticipated, and
- Necessary changes in the contract have extended the project and the project management labor budget was not increased to reflect the project time extension.

The project Beneficial Use has been delayed primarily due to the following reasons:

- The compressor skids needed to be reclassified from Class 1 Division 2 to Class 1 Division 1, and
- The Bay Area Air Quality Management District (BAAQMD) has not approved digester gas flaring during the tie-in of the new gas piping with existing piping.

Staff have resolved the reclassification issue and are working with the BAAQMD to update the RWF air permit to allow flaring during equipment upgrades.



Project Profile – Support Building Improvements Project

The plan now underway to renovate and refurbish the entire RWF site brings with it an opportunity to upgrade the RWF's complex network of support buildings, staff amenities, and other facilities. A key function of the support facility network is to provide comprehensive repair shop and warehousing support, as well as a range of other elements. Support facilities to be upgraded include warehouses and repair workshops; various heating, ventilation, and air conditioning (HVAC) systems; the fire alarm and sprinkler systems; landscaping; signage; lighting; and women's restrooms and locker rooms. As a critical part of the overall RWF remodel effort, these improvements will be completed under the Support Building Improvements Project concurrently with the construction of other CIP projects. The total project budget is roughly \$54 million.

Support building facilities were constructed over many years as the need arose. Because of the complexity of the network and the differences in age, condition, and use of each building, a design and engineering consultant was required who could provide a wide range of planning, design, and engineering services over a long contract term. In June 2016, staff completed a Request for Qualifications (RFQ) and evaluated the two responding firms. Staff then negotiated a master consultant agreement (MCA) with the top-ranked consultant, Kennedy/Jenks. Staff anticipate presenting the proposed MCA to TPAC and Council in November.

The project consists of the following parts:

1. Fire, Life, and Safety improvements, including installation of new sprinklers and fire alarm systems with a central control room; scheduled to begin in 2019.
2. Heating, Ventilating, and Air Conditioning improvements, including installation of new and more efficient HVAC units that are more operationally efficient to control and monitor via the City's standard Building Management System.
3. New warehouse construction to store RWF parts, tools, and other supplies.
4. Public Art and Landscape Improvements, including installation of enhanced landscaping around the RWF perimeter, Administration, and Environmental Services buildings; sitewide landscape elements such as fencing, plants, irrigation, pavement, hardscape improvements, and site lighting; and new building identification signage.
5. Upgraded restrooms, locker rooms, new bridge cranes, and elevators.

City service orders under the MCA will include various tasks such as condition assessments, project alternatives, cost analysis, conceptual design, preliminary design, and detailed design. Either the design-bid-build or design-build project delivery approach may be used. Both would allow for dedicated interaction with O&M staff during design and construction, and both could reduce the City's risk; potentially lower the volume and cost of contract change orders; decrease construction delays; and provide more efficient solutions to complex construction sequencing issues. In addition, both approaches would include CEQA review process completion support and, potentially, assistance with the SRF application process.

Staff will execute a consultant service order to begin assessing the buildings and gathering documents for project alternatives and cost analyses. Construction of Parts 1 and 2 is scheduled to begin in 2019 with substantial completion expected for all sections of the project by 2027.



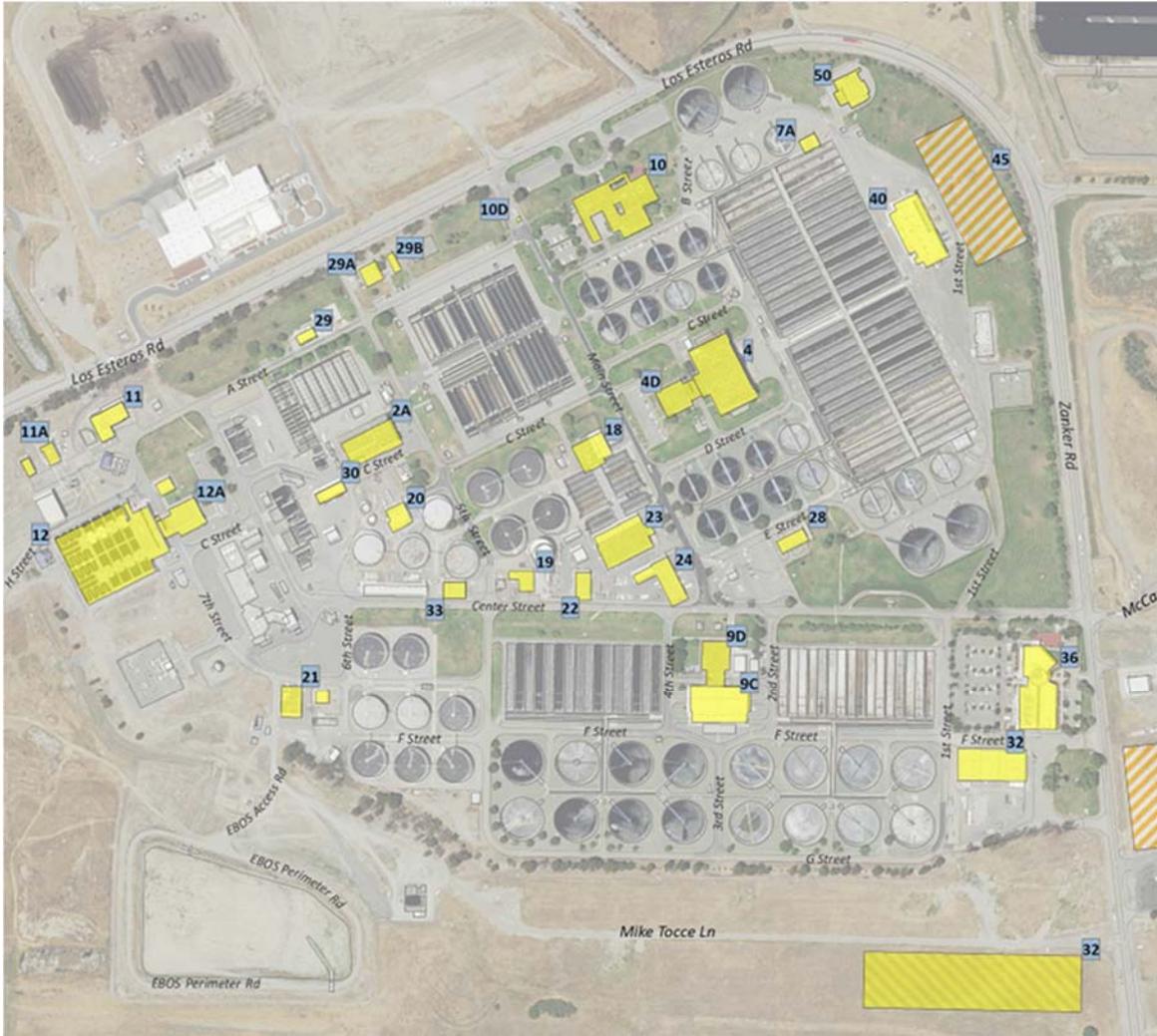


Figure 3: Existing Support Building Facilities Map with Building Identification Numbers

Regional Wastewater Facility Treatment – Current Treatment Process Flow Diagram

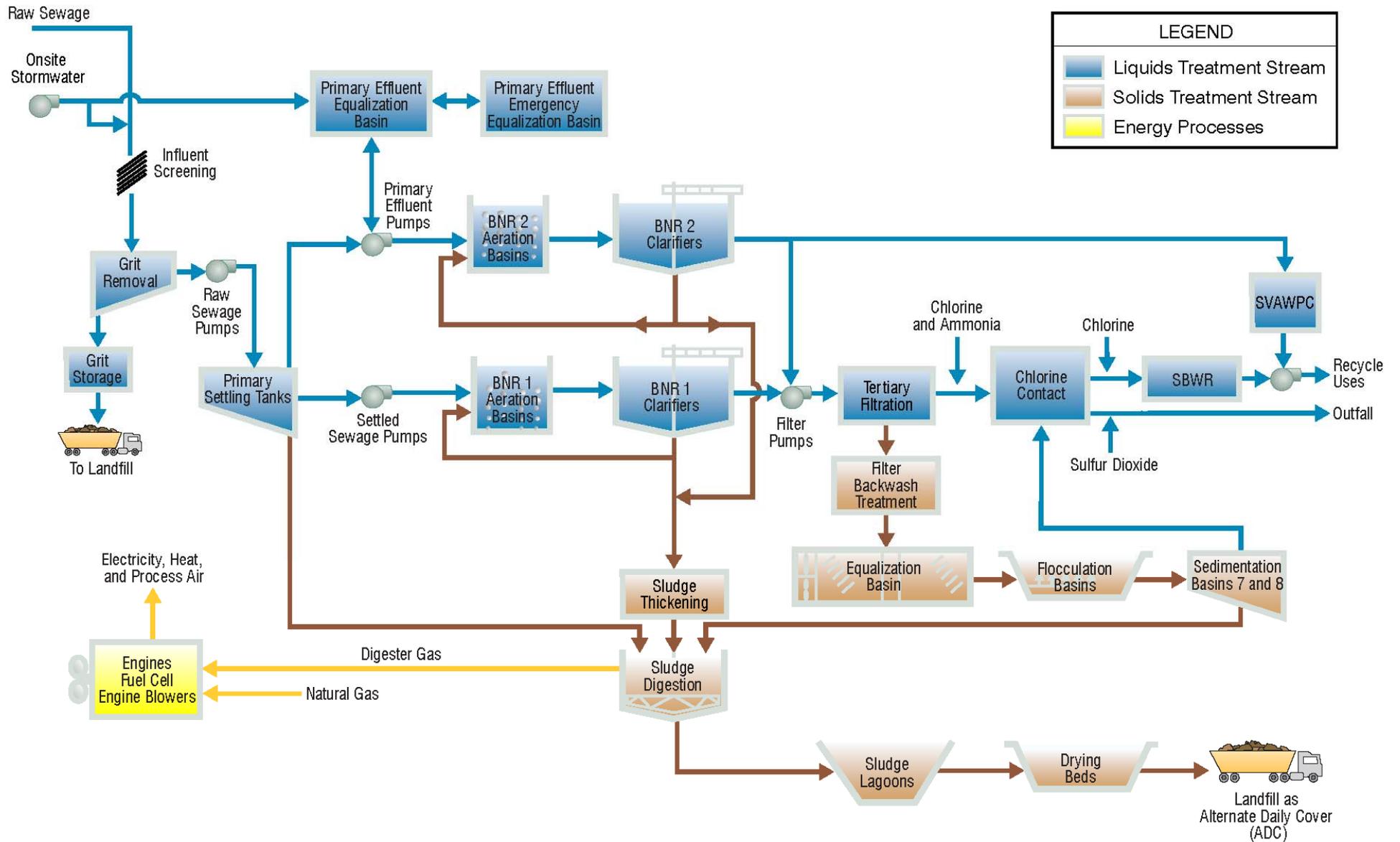


Figure 4 – Current Treatment Process Flow Diagram



Regional Wastewater Facility Treatment – Proposed Treatment Process Flow Diagram

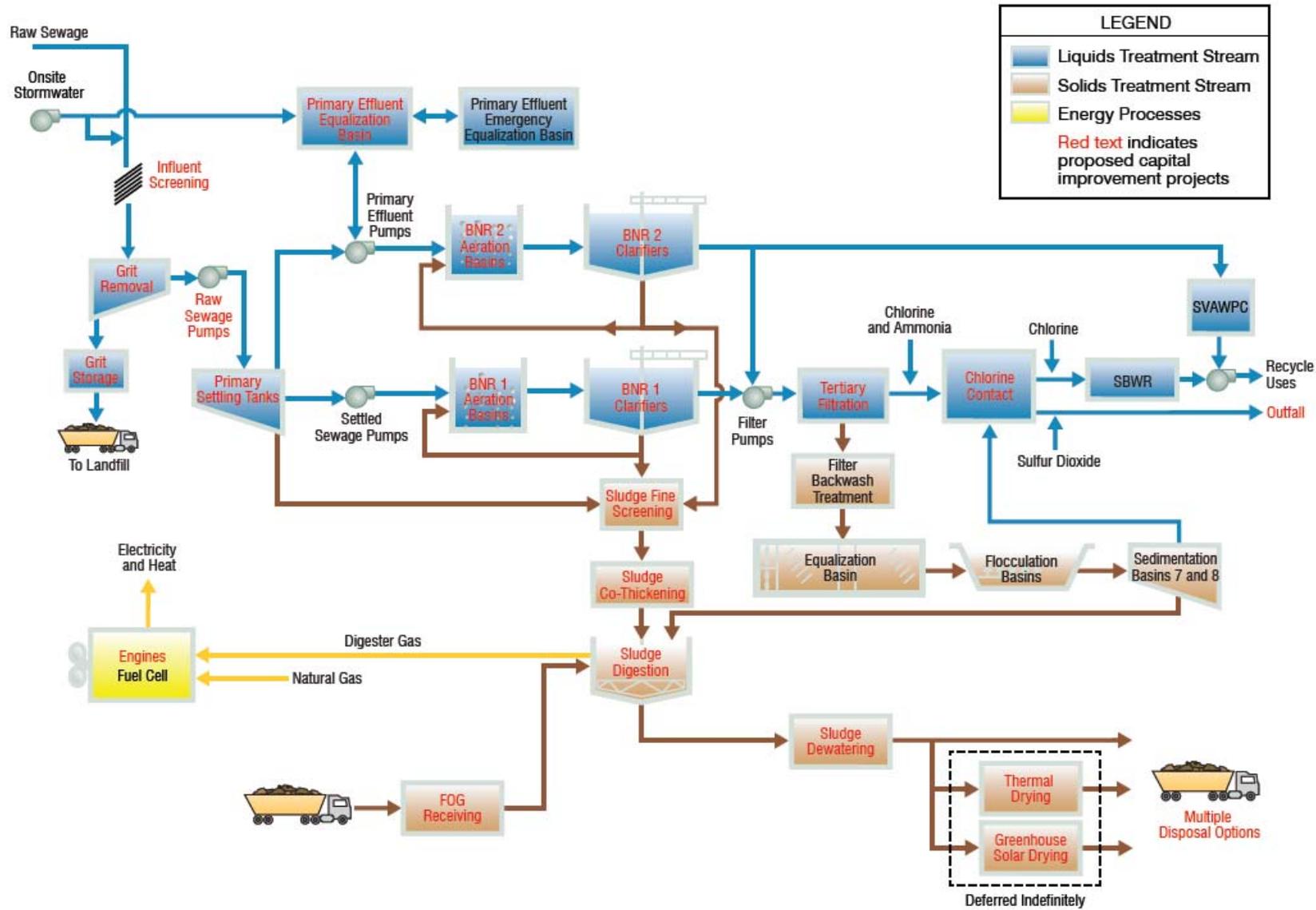


Figure 5 – Proposed Treatment Process Flow Diagram



Active Construction Projects – Aerial Plan

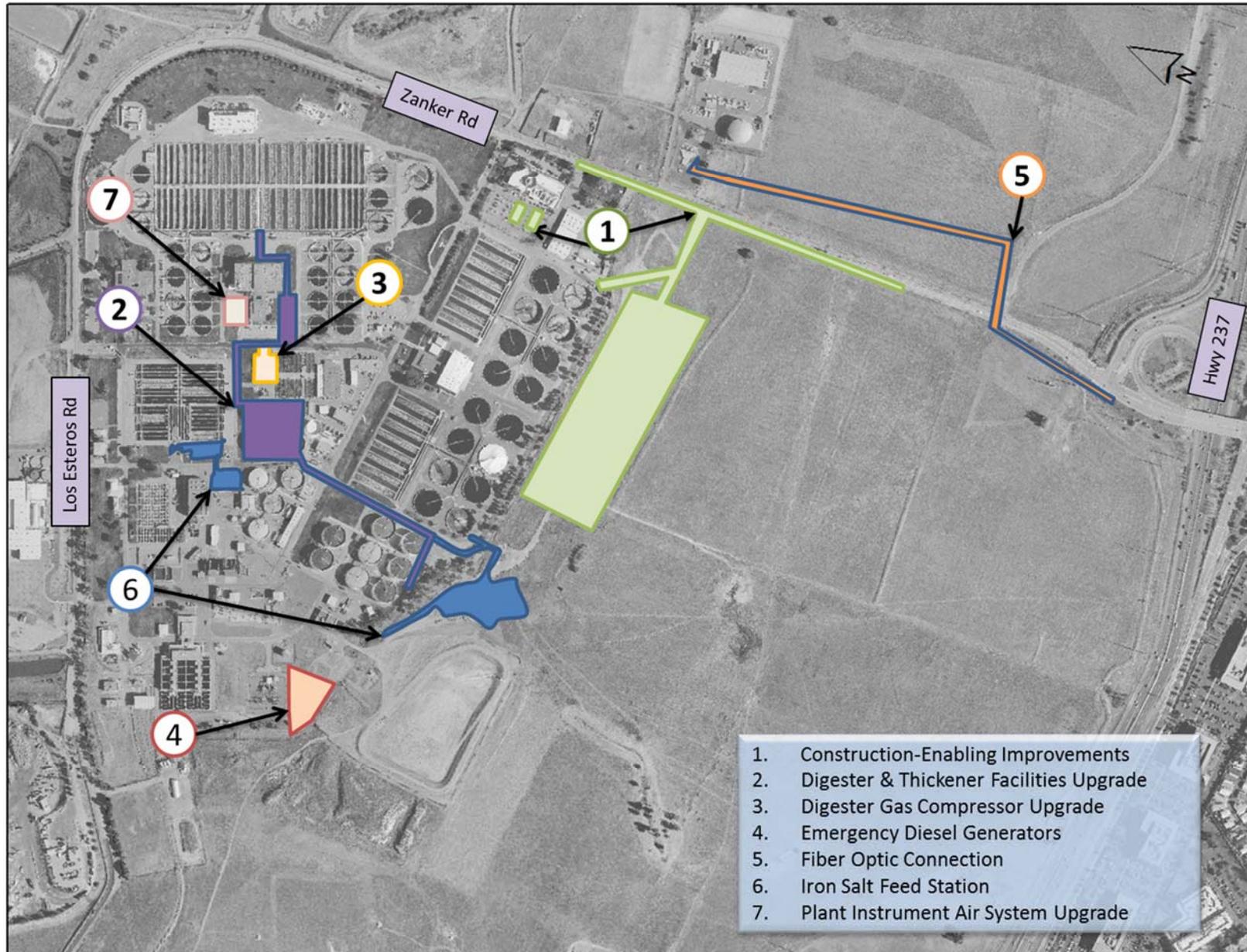


Figure 6 – Active Construction Projects

