San José-Santa Clara Regional Wastewater Facility

Capital Improvement Program
Monthly Status Report for March 2015

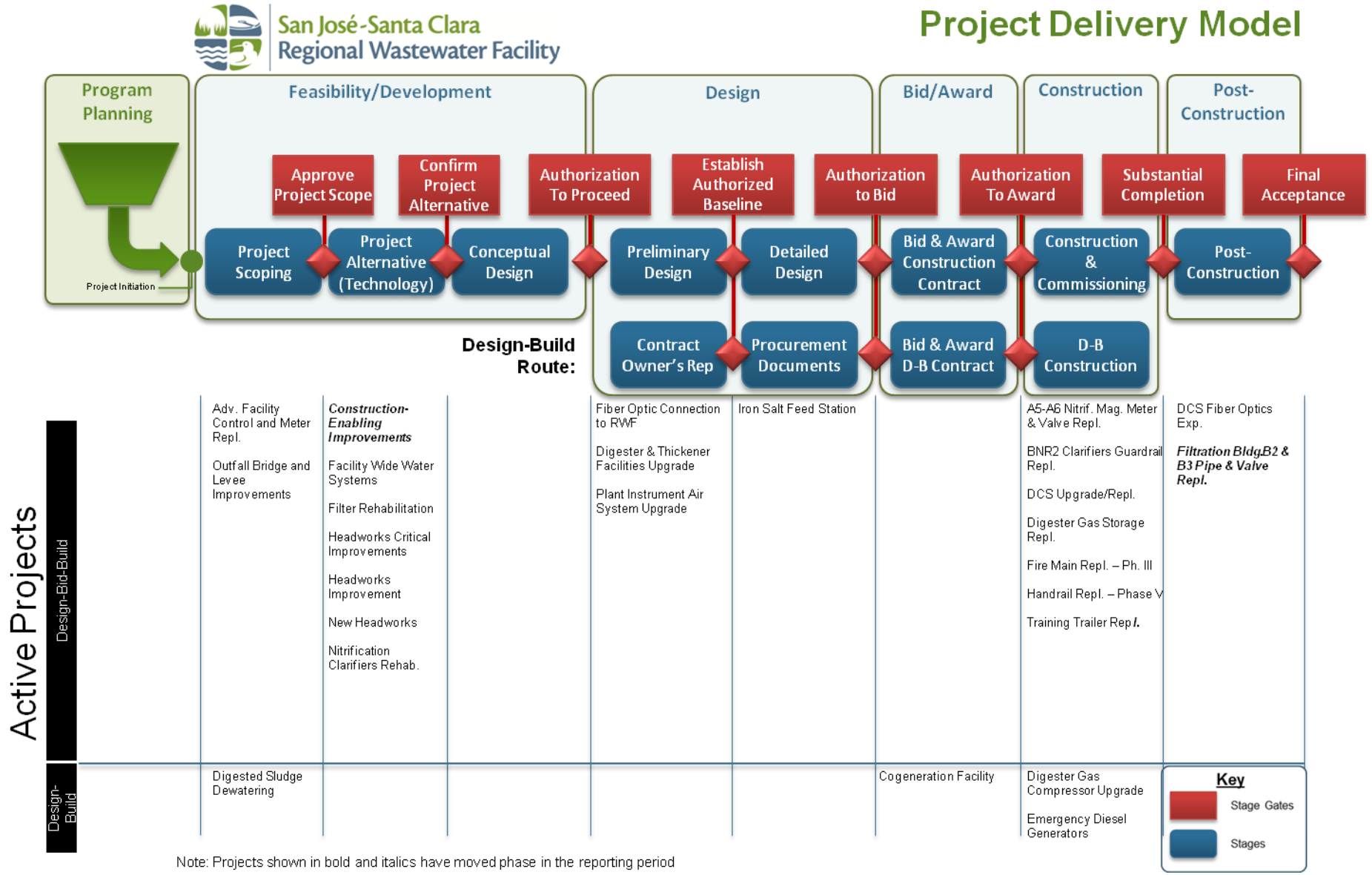
May 7, 2015

This report provides a summary of the progress and accomplishments of the Capital Improvement Program (CIP) for the San José-Santa Clara Regional Wastewater Facility (Wastewater Facility or RWF) for the period of March 2015.

Report Contents

Project Delivery Model 2
Program Summary 3
Program Performance Summary 5
Program Cost Performance 6
Project Performance 8
Project Profile 12
Regional Wastewater Facility Treatment – Current Treatment Process Flow Diagram 14
Regional Wastewater Facility Treatment – Proposed Treatment Process Flow Diagram 15
Active Construction Projects – Aerial Plan 16

Project Delivery Model



Note: Projects shown in bold and italics have moved phase in the reporting period

Program Summary

March 2015

In the month of March, the CIP progressed on multiple fronts.

We continued to advance studies and projects through stage gates of the Project Delivery Model (PDM) process. In particular, the Construction-Enabling Improvements Project and the Flood Protection Study both advanced through the "Approve Project Scope" stage gate this month.

Our Biosolids and Odor Control teams continued work on a revised Biosolids Transition strategy, based on the input received from the Treatment Plant Advisory Committee (TPAC) and City Council in December 2014. The teams are currently focusing on alternative analyses of options to meet the Plant Master Plan goal to transition out of the open-air lagoons and drying beds and to reduce odors.

Staff presented our project delivery and procurement strategy, including recommendations to use design-build as a delivery method, to the Transportation & Environment Committee (T&E), TPAC, and City Council. This strategy, including the request for the delegation of authority to the Directors of Public Works and Environmental Services to determine the appropriate delivery method for each CIP project, was approved.

We completed the Facility Operations Plan (FOP) this month. The Plan, which will be updated annually, outlines the anticipated operations for the RWF for the next calendar year; describes how each of the unit processes are currently operated; and describes how each unit process may be isolated for upcoming CIP projects and operational maintenance.

The Cogeneration Facility team completed their initial assessments on Statement of Qualifications documents submitted by potential design-builders. Because of a lack of responsive prequalification submittals, the project will be re-advertised. Feedback is currently being sought from potential bidders to better understand opportunities for restructuring the Request for Qualifications to ensure a successful procurement. The Cogeneration Facility Team and the Headworks Improvements Team also continued work on procurement documents to prequalify consultant Technical Advisor / Owners Representative's for these design-build projects.

Our resourcing work on estimating staffing needs for FY15-16 and subsequent years continued. This includes comprehensive staffing needs to support the CIP, including Program Management, Engineering, Operations and Maintenance (O&M) and Environmental staff, and will form part of the wider annual update to our Program Execution Plan (PEP) which continued this month.

Procurement for the emergency repair work required at the Pond A-18 northern gate structure continued this month and a contract was awarded to allow immediate design and construction work to commence.

Construction work continued at the RWF for a number of CIP projects including the Emergency Diesel Generators, Digester Gas Compressor Upgrades, and the Digester Gas Storage Replacement projects. Beneficial Use was achieved this month on the Filtration Building B2 & B3 Pipe and Valve Replacement project.

Look Ahead

In April, we will continue to move forward on numerous efforts related to consultant procurements, including the Cogeneration Facility, Headworks Improvements, New Headworks, Facility Wide Water Systems Improvement, Filter Rehabilitation and Nitrification Clarifiers Rehabilitation. Procurements documents are expected to be issued to potential consultant bidders on the Cogeneration Facility and Headworks Projects in April.

A Stage Gate meeting will be held for the Digester and Thickener Facilities Upgrade project. This key CIP project will reach the 60% Design Stage milestone in April.

Our Biosolids team will continue work on a revised Biosolids Transition strategy, based on input received from TPAC and City Council in December. This will be brought forward for consideration to TPAC and Council in May and June respectively.

Work will continue on developing our programmatic funding and insurance strategies, including our Clean Water State Revolving Fund (SRF) project applications and investigations into the applicability of an Owner Controlled Insurance Program (OCIP).

The 2016-2020 Proposed CIP Budget will be submitted to the Budget Office in April for review and approval.

Program Highlight – The Facility Operations Plan (FOP)

The Facility Operations Plan (FOP) is a key document that allows all staff at the Facility to better understand current operational practices, as well as future CIP and operational requirements.

The Plan, which was completed in March 2015, outlines the anticipated annual operations for the RWF; describes how each of the unit processes are currently operated; and describes how each unit process may be isolated for upcoming CIP projects and operational maintenance.

The Plan consists of three sections:

1. **Annual Operating Plan:** This section describes the anticipated operations for the next calendar year, including anticipated flows and loads, anticipated CIP and Maintenance projects, and operational standby criteria (i.e., number of units allowed off-line).
2. **Unit Process Operating Strategies:** This section contains subsections for each unit process, with detailed descriptions of operations.
3. **Unit Process Isolation Analysis:** This section builds on the contents of the first two sections, and contains subsections for each unit process; describing how each unit process is anticipated to be isolated during routine maintenance, condition assessments and future construction projects.

The Plan will be maintained and updated in close collaboration with the O&M group on an annual basis. It will be used for O&M purposes, as well as become an essential CIP document that will be shared with the CIP project teams, including external designers and contractors.

A designer or contractor will be able to review this document with the CIP project team to understand what the anticipated wastewater treatment flows and loads will be in the upcoming year(s). They will also be able to understand how much of the structures and equipment are required to handle the anticipated work, and the typical operating strategy for the processes in question. Understanding these constraints will allow the teams to collaboratively develop more effective operating strategies and commissioning and start-up plans that can be agreed between all parties.

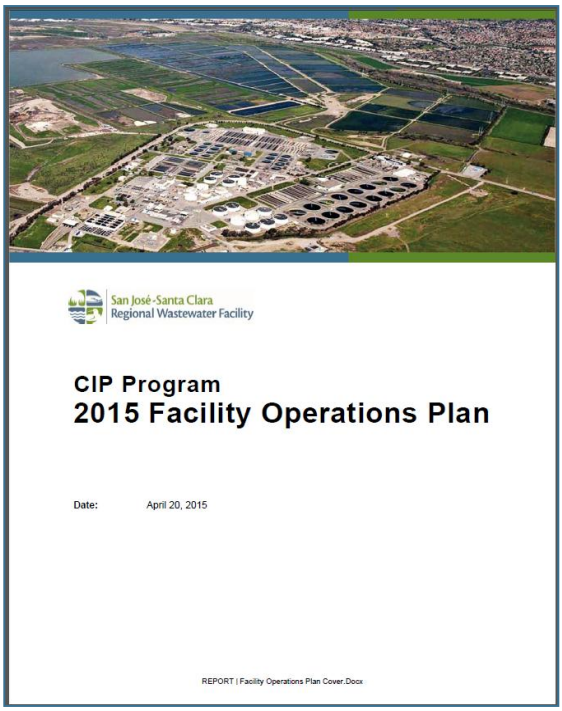


Figure 1: Facility Operation Plan Cover Page

Program Performance Summary

Seven KPIs have been established to measure the overall success of the CIP. Each KPI represents a metric which will be monitored on a regular frequency. Through the life of the CIP, KPIs will be selected and measured which best reflect the current maturity of the program. The target for the seventh KPI "Staffing Level" KPI will be established as part of the analysis of future staffing needs.

Program Key Performance Indicators – Fiscal Year 2014-2015

KPI Description	Target	Actual	Status	Trend	Measurement
Schedule[1]	85%	100% (3/3)			Percentage of CIP projects delivered within 2 months of approved baseline Beneficial Use Milestone. ***Target: 85% of projects delivered within 2 months of approved baseline schedule or better.***
Budget[2]	90%	67% (2/3)			Percentage of CIP projects that are completed within the approved baseline budget. ***Target: 90% of projects delivered are within 101% of the baseline budget.***
Expenditure[3/4]	≥$95.7M	$93.4M			Total CIP actual + forecast committed cost for the fiscal year compared to CIP fiscal year budget. ***Target: Forecast committed cost meets or exceeds 60% of budget for Fiscal Year 14/15 (60% of $159.5M= $95.7M)***
Procurement[5]	100%	86% (6/7)			Number of actual + forecast consultant and contractor procurements compared to planned for the fiscal year. ***Target: Forecast /actual procurements for fiscal year meet or exceed planned.***
Safety	0	0			Number of OSHA reportable incidents associated with CIP construction for the fiscal year. ***Target: zero incidents.***
Environment/Permits	0	0			Number of permit violations caused by CIP construction for the fiscal year. ***Target: zero violations.***
Staffing Level[6]	TBD	TBD	TBD	TBD	Percentage of authorized staffing level ***Target: to be determined***

KEY:

Cost:	 Meets or exceeds KPI target	 Does not meet KPI target

Notes

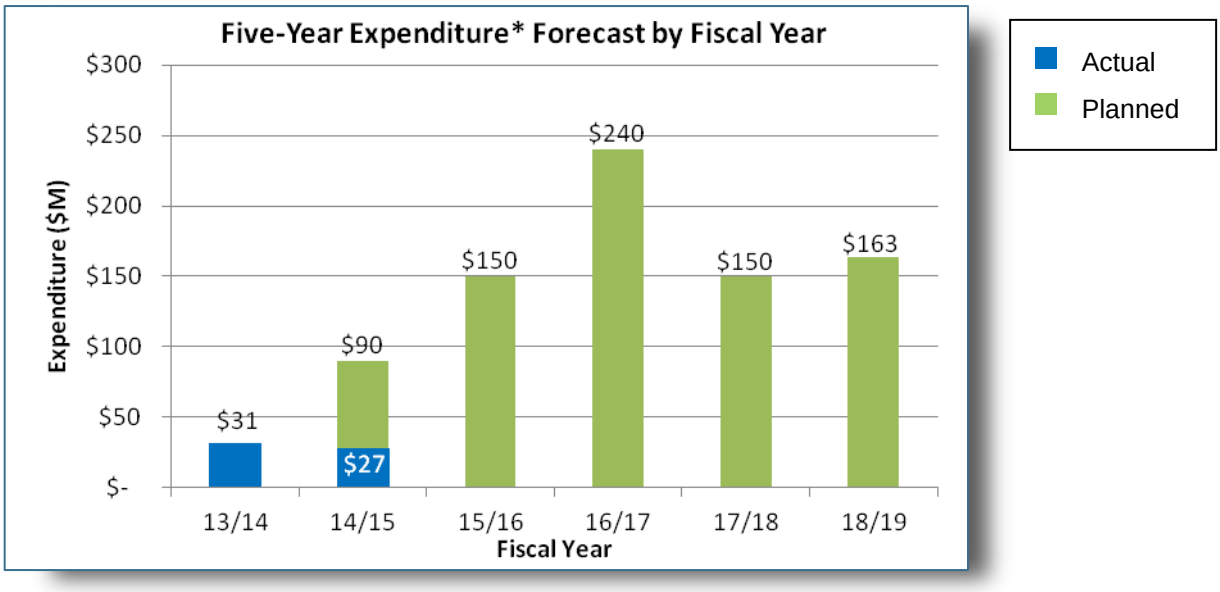
1. For the Schedule KPI, the number of completed projects increased from two to three. This count includes Filtration Building B2 & B3 Pipe & Valve Replacement, which was accepted in February, 2015.
2. For the Budget KPI, two out of three projects were completed within the approved baseline budget. These two projects are RWF Street Rehabilitation – Phase III, which was accepted in March, 2015 and 115KV Circuit Breaker Replacement, which was accepted in October, 2014. Dissolved Air Flotation Dissolution Improvements project finished 7% over budget.
3. FY14-15 budget excludes reserves, ending fund balance, South Bay Water Recycling, Public Art and Urgent and Unscheduled Rehabilitation items.
4. The Expenditure KPI Target has been adjusted from the previous month due to liquidation of the carryover from the previous Fiscal Year. Further details are provided in the "Fiscal Year 2014-2015 Program Budget Performance" section on page 7.
5. Initiation of the Audit Services and Value Engineering procurements have been delayed.
6. Staffing level KPI measured quarterly; all other KPIs measured monthly.

Program Cost Performance

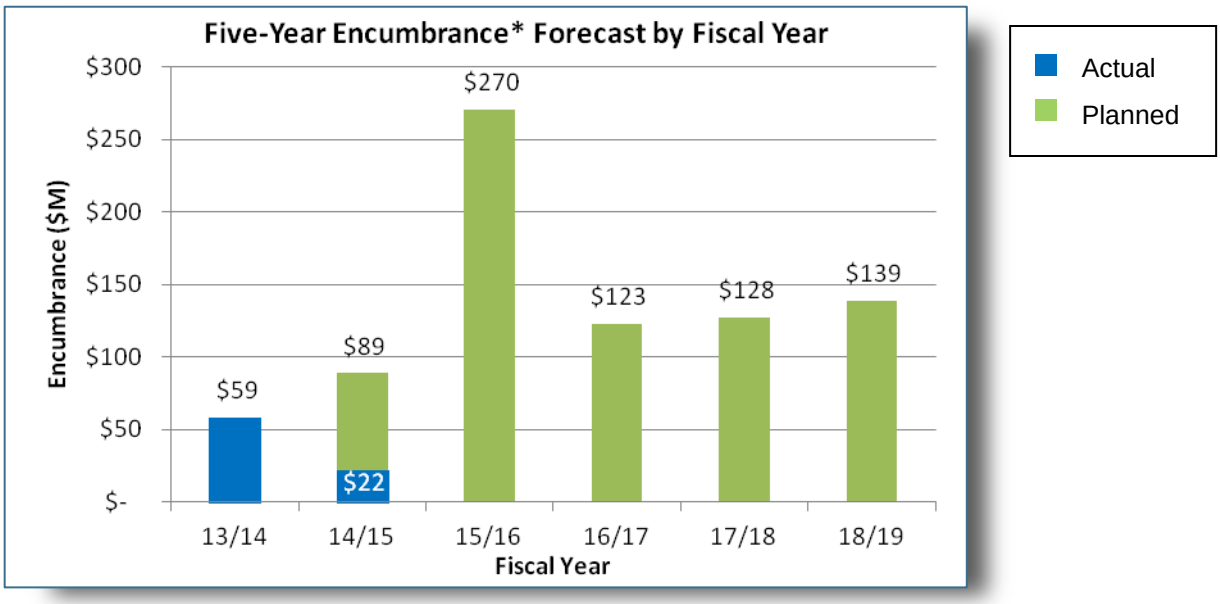
This section provides a summary of CIP cost performance for all construction projects and non-construction activities for FY13-14 and the 2015-2019 CIP.

Adopted 2015-2019 CIP Expenditure and Encumbrances

To accommodate the proposed increase in expenditures and encumbrances over the next five years, the City is developing a long-term financial strategy to fund the needed, major capital improvements while minimizing the impact to ratepayers.



*Expenditure defined as: Actual cost expended associated with services and construction of physical asset which may include encumbered amounts from previous years



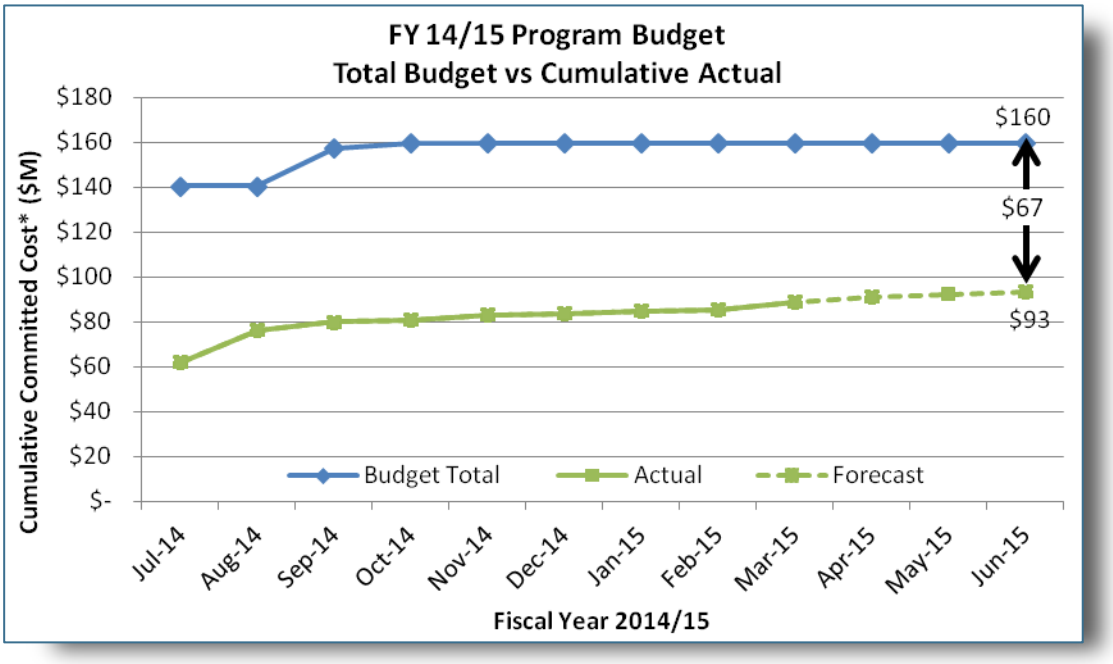
*Encumbrance defined as: Financial commitments, such as purchase orders or contracts, which are chargeable to an appropriation and for which a portion of the appropriation is reserved

Fiscal Year 2014-2015 Program Budget Performance

The fiscal year program budget is $160 million. The budget amount of $160 million represents the 2014-2015 budget of $107 million plus carryover of $53 million. The budget amount excludes reserves, ending fund balance, South Bay Water Recycling, Public Art and Urgent and Unscheduled Rehabilitation items.

The projected year-end variance of approximately $67 million is primarily due to the following reasons:

- Award of the Cogeneration Facility design-build contract and technical support services agreement are now expected in FY15-16 ($24 million).
- Award of construction contracts for the Iron Salt Feed Station, Plant Instrument Air System Upgrade, and Switchgear S40/G3 Relay Upgrade projects are anticipated in FY15-16 ($18 million).
- Award of a design contract for critical rehabilitation work in the Headworks Improvements is expected in FY15-16 ($4 million).
- Work not yet initiated or re-programmed into later years for Secondary and Nitrification Clarifier Rehabilitation and Aeration Tanks and Blower Rehabilitation ($4 million)
- Lower than expected expenditures and encumbrances in Equipment Replacement, Preliminary Engineering, and Program Management ($4 million).
- Award of a design contract for the Advanced Facility Control and Meter Replacement project has been removed from the forecast while the project team reevaluates the scope to determine the best way to implement the project ($2 million).
- Lowered forecasts for consultant services for the Emergency Diesel Generators, Fiber Optic Connection to RWF, and Plant Instrument Air System Upgrade projects ($2 million).
- Miscellaneous project balances across 18 projects ($9 million)



*Committed costs are expenditures and encumbrance balances, including carryover (encumbrance balances from the previous fiscal year).

Project Performance

There are currently 11 active projects in the construction or post-construction phase with a further 15 projects in feasibility/development, design or bid and award phases (see PDM graphic at the front of this report). All active projects are listed in the tables below. Projects in the construction phase have cost and schedule baselines established and are monitored using the City's Capital Project Management System (CPMS). These projects have green/red icons included in the table below to indicate whether they are on budget and schedule using the CPMS data as a source.

Project Performance – Baselined Projects

Project Name	Phase	Estimated Beneficial Use Date[1]	Cost Performance[2]	Schedule Performance[2]
Distributed Control System (DCS) Fiber Optics Network Expansion	Post-Construction	May 2014		
Filtration Building B2 & B3 Pipe & Valve Replacement	Post-Construction	Feb 2015[3]		
Fire Main Replacement - Phase III	Construction	Apr 2015		
A5-A6 Nitrification Mag. Meter & Valve Replacement	Construction	May 2015		
BNR-2 Clarifier Guardrail Replacement	Construction	May 2015		
Training Trailer Replacement	Construction	Jun 2015		
Handrail Replacement - Phase V	Construction	Aug 2015		
Digester Gas Storage Replacement	Construction	Aug 2015		
DCS Upgrade/Replacement	Construction	Jun 2016		
Emergency Diesel Generators	Construction	Aug 2016		
Digester Gas Compressor Upgrade	Construction	Oct 2016		

KEY:

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

Notes

1. Beneficial Use is defined as when the work is sufficiently complete, in accordance with the contract documents, so that the City can occupy or use the work. Beneficial use dates are being 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 11.
3. Actual Beneficial Use Date

Project Performance – Pre-Baselined Projects

Project Name	Phase	Estimated Beneficial Use Date[1]
Cogeneration Facility	Procurement	Jan 2019
Fiber Optic Connection to RWF	Design	Dec 2015
Iron Salt Feed Station	Design	Nov 2016
Plant Instrument Air System Upgrade	Design	Nov 2017
Digester & Thickener Facilities Upgrade	Design	Sep 2018
Construction-Enabling Improvements	Feasibility/Development	Oct 2016
Headworks Critical Improvements	Feasibility/Development	Apr 2017
Adv. Facility Control & Meter Repl. Ph. 2	Feasibility/Development	Aug 2019
Headworks Improvements	Feasibility/Development	Jan 2021
Outfall Bridge and Levee Improvements	Feasibility/Development	Feb 2021
Facility-wide Water Systems Improvements	Feasibility/Development	Aug 2021
Filter Rehabilitation	Feasibility/Development	Jan 2022
Nitrification Clarifiers Rehabilitation	Feasibility/Development	Mar 2022
New Headworks	Feasibility/Development	May 2022
Digested Sludge Dewatering Facility	Feasibility/Development	Aug 2022

Notes

1. Beneficial Use is defined as when the work is sufficiently complete, in accordance with the contract documents, so that the City can occupy or use the work. Beneficial use dates are being reviewed as part of project schedule reviews.

Significant Accomplishments

Biosolids Package

Biosolids Transition Strategy

The odor modeling study continued this month, evaluating the odor impacts of the existing sludge lagoons and drying beds and studying the feasibility of retaining current operations and meeting the Wastewater Facility's odor goals. Staff will be presenting the odor and cost information for the updated biosolids transition strategy to TPAC and Council in May and June respectively. In addition, staff concluded the site alternatives evaluation for the proposed dewatering facility.

Digester and Thickener Facilities Upgrade

The project team met with the Planning Department to initiate the CEQA process. In addition, staff began the application submittal process for a SRF loan. The State Water Resources Control Board, which administers the fund, assigned a project manager. Staff has planned a meeting with the Board in April to discuss the specifics of the application review process.

Facilities Package

Cogeneration Facility

Staff has completed a review of the prequalification submittals and determined that because of a lack of responsive prequalification submittals, the project will be re-advertised. Staff has restructured the Request for Qualifications to clarify some of the requirements and plans to reissue the RFQ in mid-April.

Pond A18 Northern Gate Emergency Replacement

On March 3, the City Council adopted a resolution finding and declaring an emergency such that the replacement of the Northern Hydraulic Control Structure could begin immediately. Staff received informal bids from three contractors and on March 30, awarded a construction contract to Galindo Construction in the amount of $588,420. Staff also received an emergency permit from the U.S. Army Corps of Engineers to construct the repairs.

Programmatic Studies

Odor and Corrosion Control Study

CIP and O&M staff visited Orange County Sanitation District plants to learn more about odor control facilities. First-hand observation of O&M issues faced by other facilities will help the program as it considers various odor control technologies for the RWF.

Automation Master Plan

The team conducted five workshops, engaging key O&M staff, to review current and proposed process control strategies. The outcome of this study will be a comprehensive control strategy for all CIP projects.

Architectural Guidelines

The City engaged IBI Architects to assist in the development of architectural guidelines for the RWF.

Traffic Circulation and Impact Study

Staff conducted a kick-off meeting with Fehr and Peers to initiate the study. The consultant will prepare a construction management traffic plan that will help the program coordinate and mitigate the anticipated increase in construction traffic in and around the Wastewater Facility over the next several years.

Explanation of Project Performance Issues

A5-A6 Nitrification Mag. Meter & Valve Replacement

In September 2014, during startup, the project team discovered that the actuators that had been specified and installed were incompatible with the available power supply. Engineering staff determined it would be more costly to modify the system than to order and install compatible actuators. In addition, O&M staff requested that the actuators match those used in the other clarifiers. The contractor has submitted a proposal for the requested equipment. Beneficial use is expected by the end of May 2015.

Handrail Replacement - Phase V

For safety reasons, the contractor has only been replacing handrails on empty aeration basins. November through April is designated as the rainy season during which O&M staff need to have aeration basins available in the event of heavy rains. As a result, the contractor has suspended work until the end of April 2015. Work is expected to resume when the remaining basins become available. Beneficial Use is expected by late August 2015.

Digester Gas Compressor Upgrade

During the course of the design portion of this design build project, it was determined that some of the equipment for this project would need to meet the explosion-proof classification of Class 1, Division 1 of the National Electric Code. This classification was more stringent than what was originally called for in the bid documents. Potential cost and schedule impacts will be evaluated by project staff once a change order request is received from contractor, Anderson Pacific. A provisional three-month delay has been estimated based on the delivery schedule for the new motors. Beneficial Use is expected by early October 2016.

Project Profile

RWF Street Treatment – Phase III

This project is a continuation of the roadway improvement efforts, which started in 2012, to rehabilitate and extend the service life of aging roadways inside the Wastewater Facility. Many pavement sections showed structural failures, unraveling surface, potholing and poor surface drainage. Phase III work covered Center Street from Main Street to Zanker Road and 1st Street just south of the Blower Generator Building (Building 40).

Pavement assessment and design were performed by the City's Materials Testing Laboratory. Project bid plans and specifications were prepared by Public Works staff in consultation with RWF staff. Project staff successfully implemented an add-alternate bid item for additional 20,000sf of pavement rehabilitation south of Building 40 that reduced the potential number of change orders. In June 2014, the City awarded a contract to O'Grady Paving, Inc. for a total amount of $388,859. Construction on Phase III began in September 2014 and was beneficially completed in November 2014, on schedule and on budget. Final Acceptance was achieved on March 16, 2015.

Project highlights:

- Surface-grinded existing asphalt pavement: 90,000 sq. ft.
- Placed new rubberized hot mix asphalt overlay: 1300 tons
- Removed and replaced concrete curb and gutter: 960 ft.
- Installed new asphalt berm: 250 ft.
- Project Budget: $657,000.

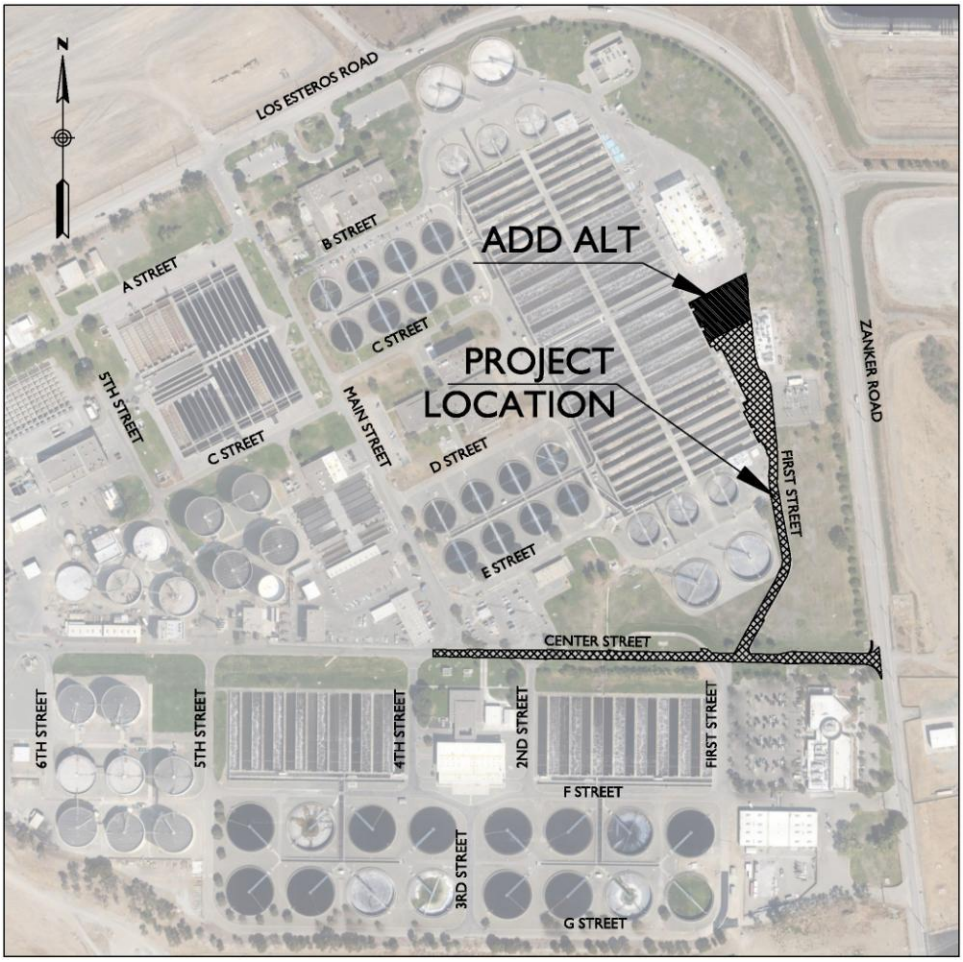


Figure 2: RWF Street Treatment Phase III Location Plan

Figure 3: View of Center and 1st Streets facing East
(Zanker Rd)

Figure 4: View of Center Street facing West

Regional Wastewater Facility Treatment – Current Treatment Process Flow Diagram

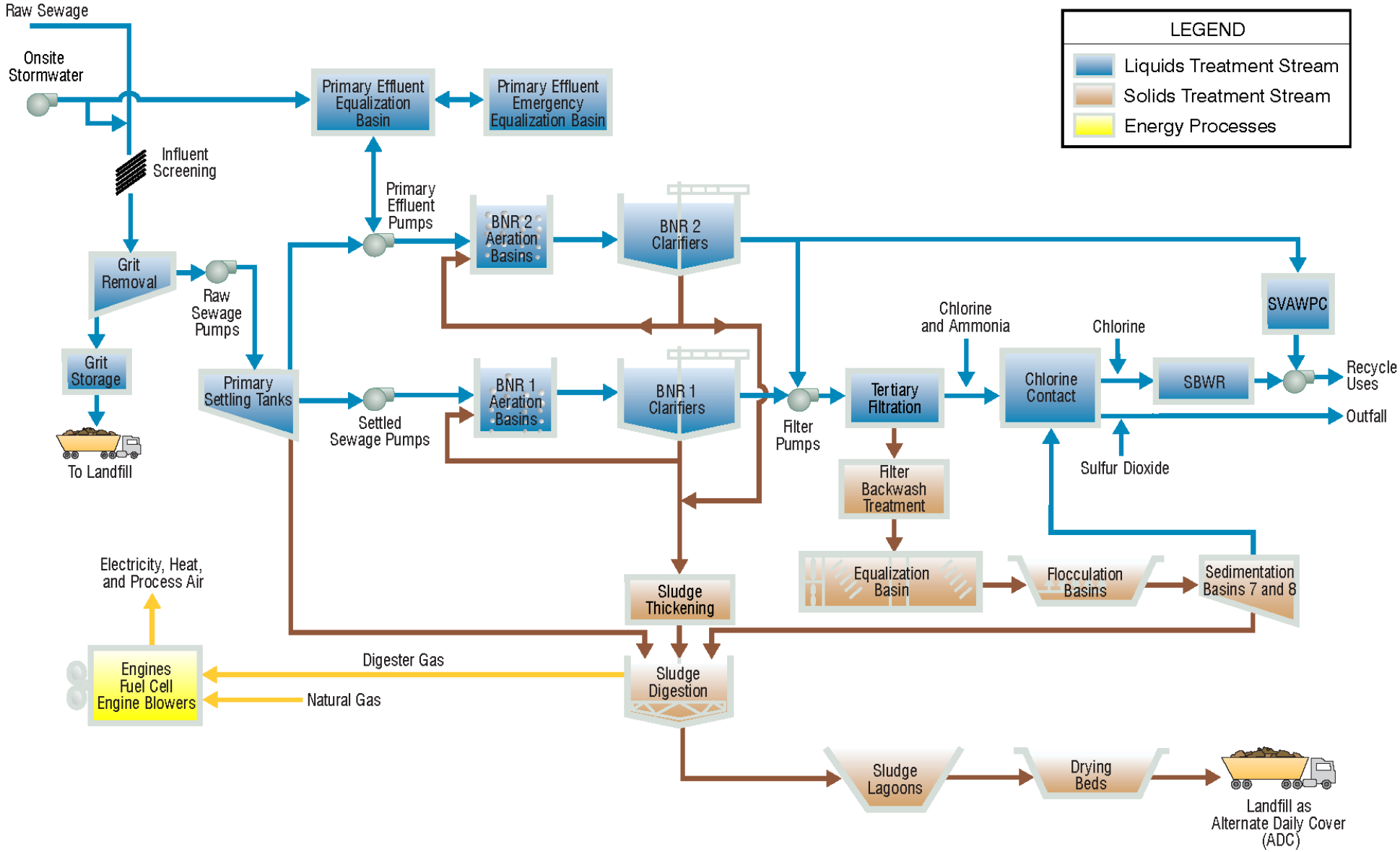


Figure 5—Current Treatment Process Flow Diagram

Regional Wastewater Facility Treatment – Proposed Treatment Process Flow Diagram

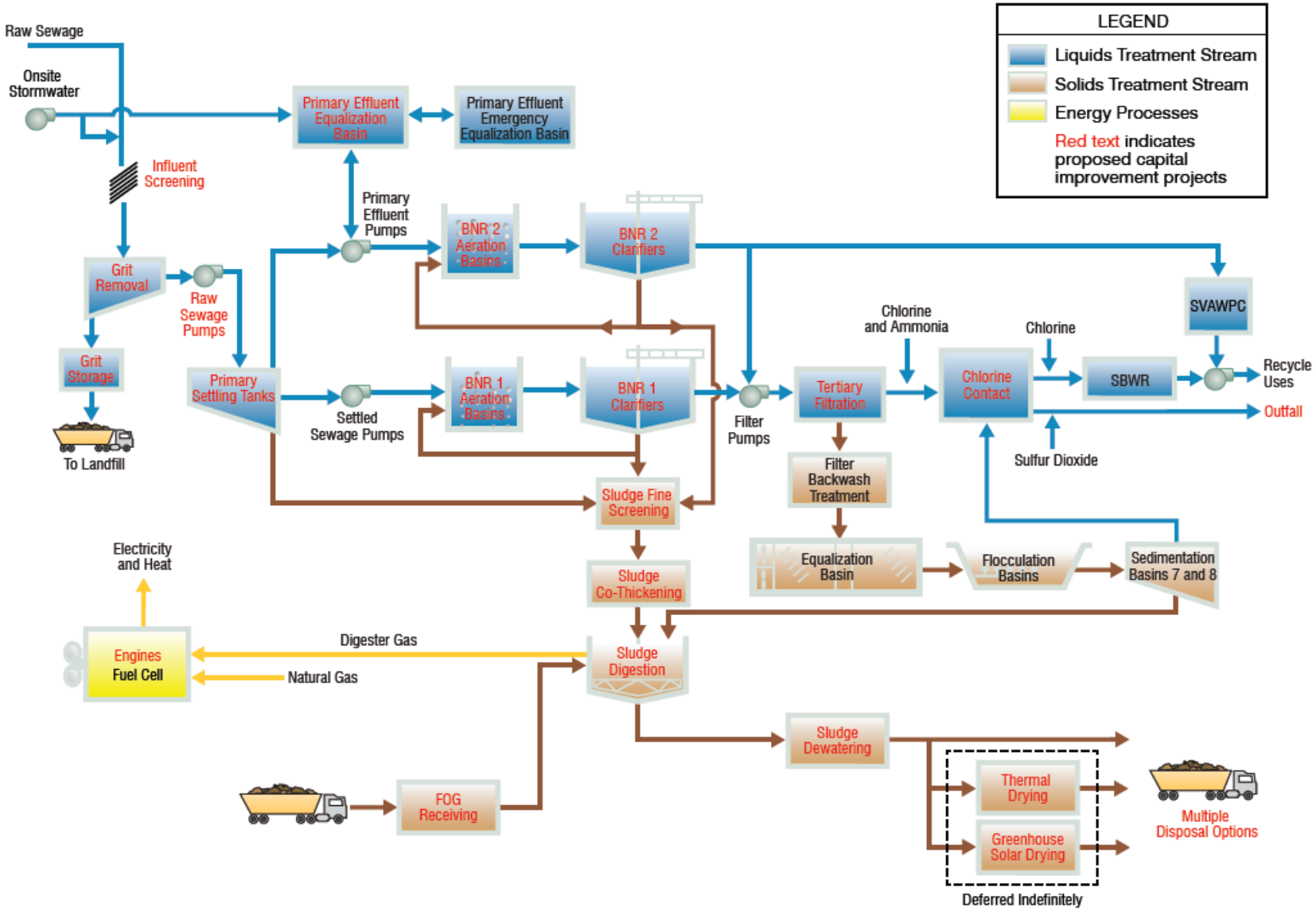


Figure 6—Proposed Treatment Process Flow Diagram

Active Construction Projects – Aerial Plan