San José-Santa Clara Regional Wastewater Facility

Capital Improvement Program
Monthly Status Report: February 2016

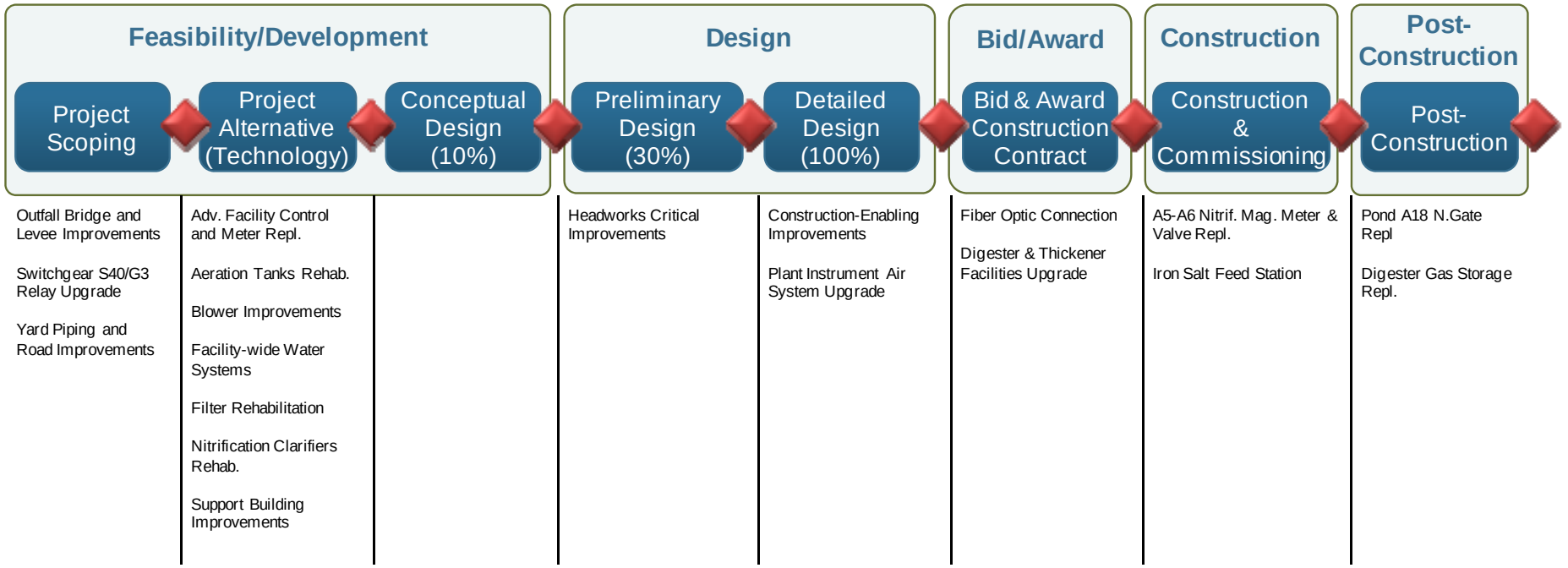
April 7, 2016

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 (RWF) for February 2016.

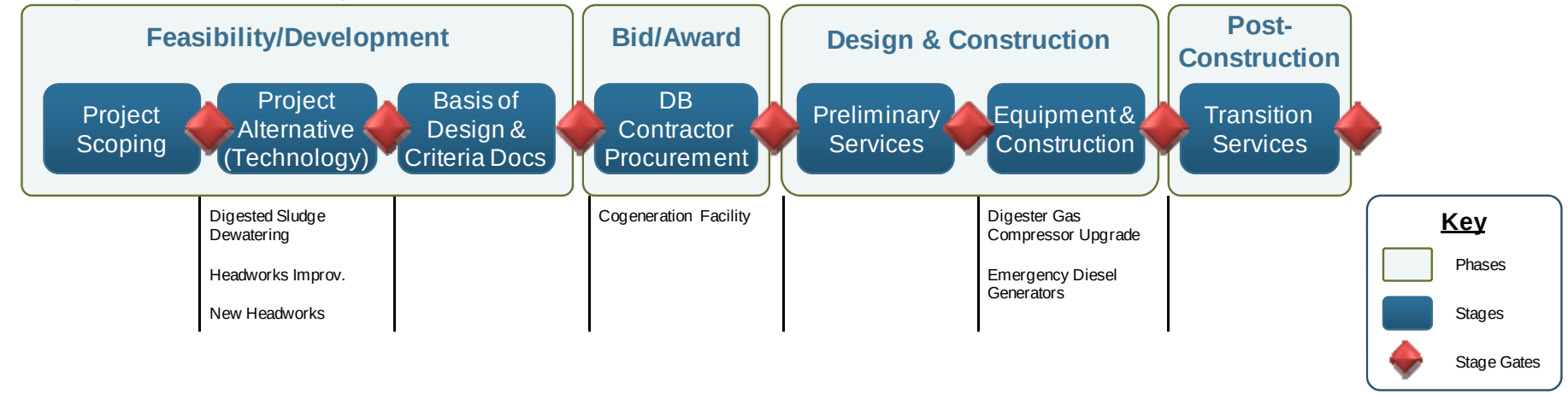
Report Contents

Project Delivery Model

Design-Bid-Build Active Projects



Design-Build Active Projects



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

Program Summary

February 2016

In February, the CIP progressed on multiple fronts, including the successful advancement of the Construction-Enabling Project through the "Authorization To Bid" Project Delivery Model (PDM) stage gate process.

In addition, CIP staff:

- Advertised a Request for Qualifications (RFQ) for Program-wide Audit Consultant Services to provide ongoing construction audit and other audit services, including audits of consultant and contractor progress payments;
- Advertised a Request for Proposal (RFP) for Broker, Administrative, and Claims Management Services for an Owner-Controlled Insurance Program (OCIP); and
- Received Statement of Qualifications (SOQ) from five consultants for the recently advertised Facility-wide Water Systems Improvement Project.

Staff presented recommendations to the Treatment Plant Advisory Committee (TPAC) and City Council (Council) this month to award a $240,000 construction contract to All Phase Excavating and Construction Inc., for the Fiber Optic Connection Project. This project will complete the final phase of the fiber optic cable connection between the RWF and the City of San José's (City) fiber optic network. Staff also made a presentation on the CIP to Council at a February 8 Special Study Session.

The Construction-Enabling Improvements Project and the Plant Instrument Air System Upgrade Project both reached the 100 percent design review milestone this month. The Construction-Enabling Project successfully passed though the Authorization to Bid Stage Gate and is scheduled to be advertised for construction in March 2016. The Plant Instrument Air System project is scheduled to pass through the Authorization to Bid Stage Gate and advertise for construction in April.

A second pre-construction meeting and site visit was held for the Digester and Thickener Facilities Upgrade Project following the issuance of construction bids in January. Staff continued to work this month to answer bidders' questions and award a number of contract addenda in advance of the scheduled March bid opening.

In addition, construction continued on a number of CIP projects, including Emergency Diesel Generators and Digester Gas Compressor Upgrade.

Look Ahead

In March, staff will continue to move forward with efforts related to consultant procurements, including the Nitrification Clarifiers Rehabilitation Project; the Aeration Tank and Blower Rehabilitation Project; the Facility Wide Water Systems Improvements Project; and the Advanced Facility Control and Meter Replacement Project. Procurements for a number of programmatic services will also continue to advance, including for General Engineering Services; Design and Construction Management Software (DCMS); Value Engineering and Peer Review Services; Construction Management and Inspection Services; and Audit Services. Two RFQs are scheduled to be issued next month: System Integrator Services Pre-Qualification for future CIP projects, and Digested Sludge Dewatering Facility Owner's Advisor.

Staff will present recommendations on a number of projects to TPAC and Council in March and April, including on the Cogeneration Facility (design-build award); DCMS (purchase and implementation of system); Nitrification Clarifiers Rehabilitation Project (consultant award); A5/A6 Nitrification Magnetic Meter and Valve Replacement (construction contingency increase); Construction-Enabling Project (right-of-way dedication); Pond A18 Northern Gate Structure (end of emergency declaration); and the RWF Semiannual Status Report.

The Digester and Thickener Facilities Upgrade Project construction bids will be opened on March 17.

In addition, all CIP project managers and project engineers will continue formal staff training in March with the second of two sessions planned on Risk Management. In April, a special session will focus on council memo preparation and communications.

Program Highlight – Project Delivery Model

The Project Delivery Model (PDM) was established to ensure consistent CIP project delivery. It consists of the following key components, as shown in Figure 1 below:

- **Life Cycle**: A series of discrete phases and stages laid out in chronological order.
- **Project Stages**: Each stage is broken down into individual activities with key deliverables and supporting procedures and templates listed.
- **Governance Framework**: Approval gates between stages that confirm project alignment with CIP mission, vision and goals.

The PDM was initially developed as part of CIP startup in early 2014 for both design-bid-build (DBB) and low-bid design-build (DB) delivery methods as shown below.

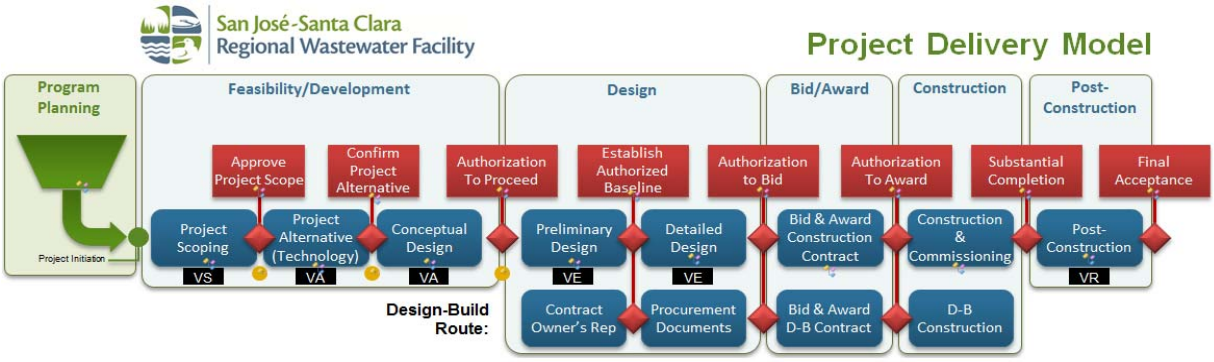


Figure 1 – Original Project Delivery Model released February 2014

As part of the CIP's continuous improvement approach, staff reviewed and updated the PDM in late 2015 after two years of use on DBB and DB projects. Changes included updating content and creating a separate, progressive DB life cycle. A revised PDM was released in January 2016, as shown below.

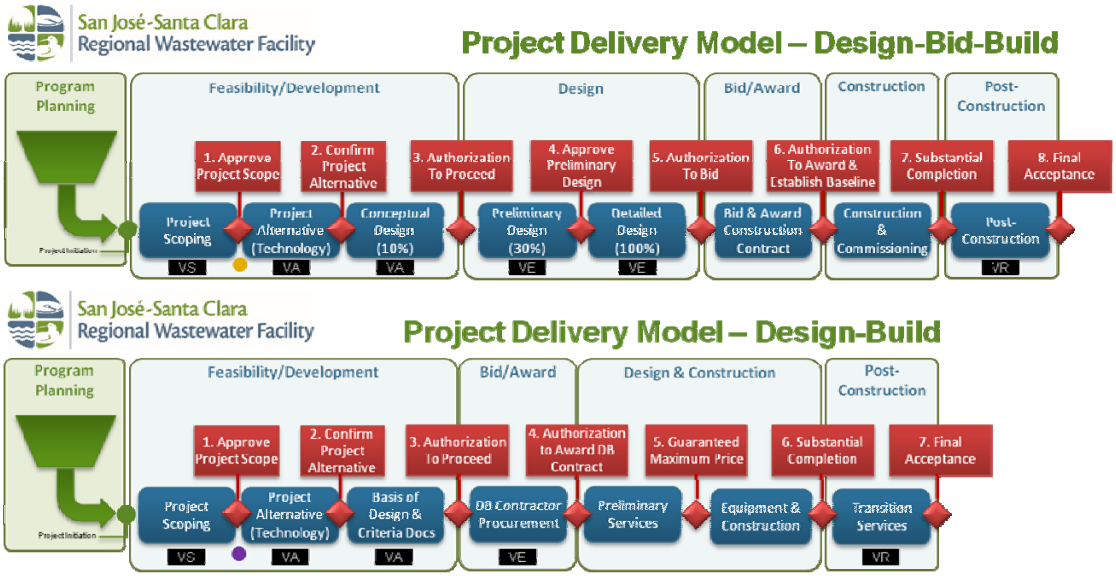


Figure 2 – Updated Project Delivery Model released January 2016

The PDM continues to be a key CIP tool that is followed on all projects and used on a daily basis to facilitate project delivery conversations and reporting. Copies of the PDM are displayed in all meeting rooms and in many staff workspaces at the RWF Environmental Services Building, reflecting widespread adoption and use.

Program Performance Summary

Eight key performance indicators (KPIs) have been established to measure the overall success of the CIP. 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 maturity of the program.

Program Key Performance Indicators – Fiscal Year 2015-2016

KPI	Target	Fiscal Year to Date			Fiscal Year End		
		Actual	Status	Trend	Forecast	Status	Trend
Stage Gates	80%	100% (16/16)[1]			100% (28/28)		
Measurement: Percentage of initiated projects and studies that successfully pass each stage gate. Criteria: Red: < 70%; Amber: 70% to 80%; Green: >=80%							
Schedule	85%	33% (1/3)			25% (1/4)		
Measurement: Percentage of CIP projects delivered within 2 months of approved baseline Beneficial Use Milestone. Criteria: Red: < 75%; Amber: 75% to 85%; Green: >=85%							
Budget	90%	100% (4/4)			83% (5/6)		
Measurement: Percentage of CIP projects that are completed within the approved baseline budget. Criteria: Red: < 80%; Amber: 80% to 89%; Green: >=90%							
Expenditure	$153M	$75M			$188M		
Measurement: CIP Fiscal Year 15/16 committed costs. Committed cost meets or exceeds 70% of planned Budget (70% of $219M = $153M)							
Procurement	80%	86% (12/14)[2]			100% (16/16)		
Measurement: Number of consultant and contractor procurements for initiated projects and program-wide services advertised compared to planned for the fiscal year. Criteria: Red: < 70%; Amber: 70% to 79%; Green: >=80%							
Safety	0	0			0		
Measurement: Number of OSHA reportable incidents associated with CIP construction for the fiscal year. Criteria: Red: > 2; Amber: 1 to 2; Green: zero incidents							
Environmental	0	0			0		
Measurement: Number of permit violations caused by CIP construction for the fiscal year. Criteria: Red: > 2; Amber: 1 to 2; Green: zero incidents							
Staffing	80%	86% (6/7)[3]			86% (25/29)		
Measurement: Number of planned positions filled for the fiscal year. Criteria: Red: < 70%; Amber: 70% to 79%; Green: >=80%							

Notes

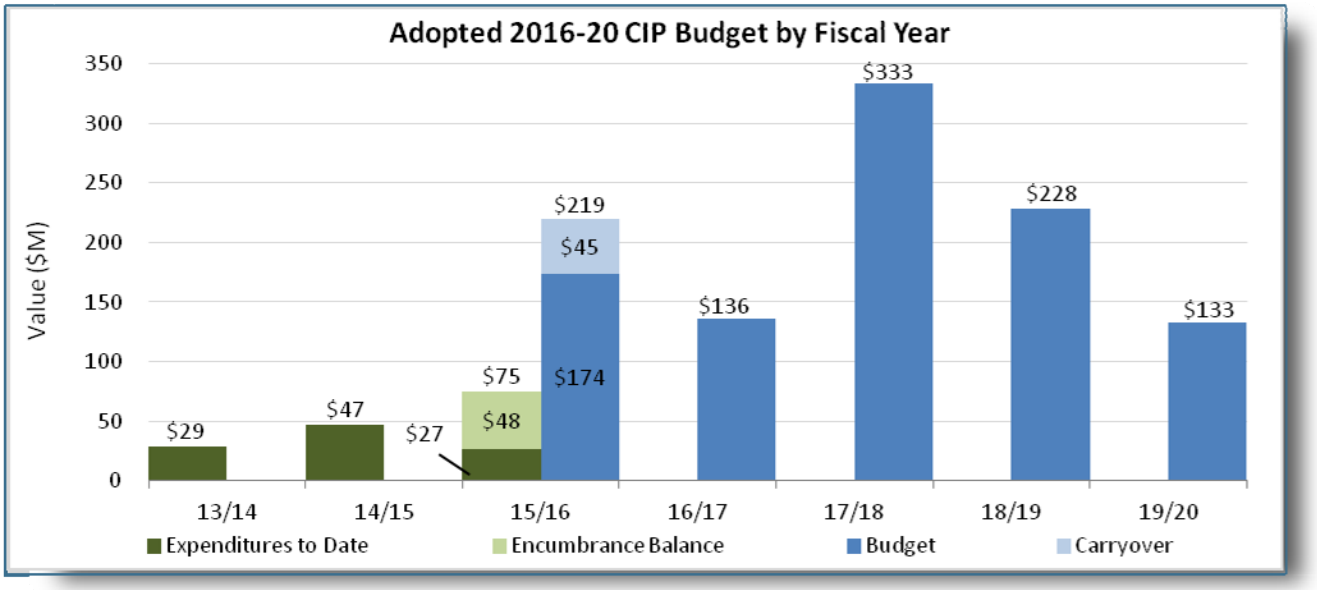
1. For the Stage Gate KPI Fiscal Year to Date (YTD), the number of completed stage gates increased from 15 to 16 with the Construction-Enabling Improvements Project successfully completing its stage gate.
2. The Procurement KPI Year to Date has increased from 10 to 12 as procurements were advertised in February for the Program-Wide Audit Consultant Services; and the Broker, Administrative, and Claims Management Services for an OCIP.
3. 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 provides a summary of CIP cost performance for all construction projects and non-construction activities for FY15-16 and the 2016-2020 CIP.

Adopted 2016-2020 CIP Expenditure and Encumbrances

To accommodate the proposed increase in expenditures and encumbrances over the next five years, the City is implementing a long-term financial strategy to fund needed, major capital improvements while minimizing the impact to ratepayers. FY13-14 and FY14-15 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 ($2.6M and $1.5M, 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, which are committed to a vendor, consultant, or contractor. The encumbrance reserves the funding within the appropriation and project.

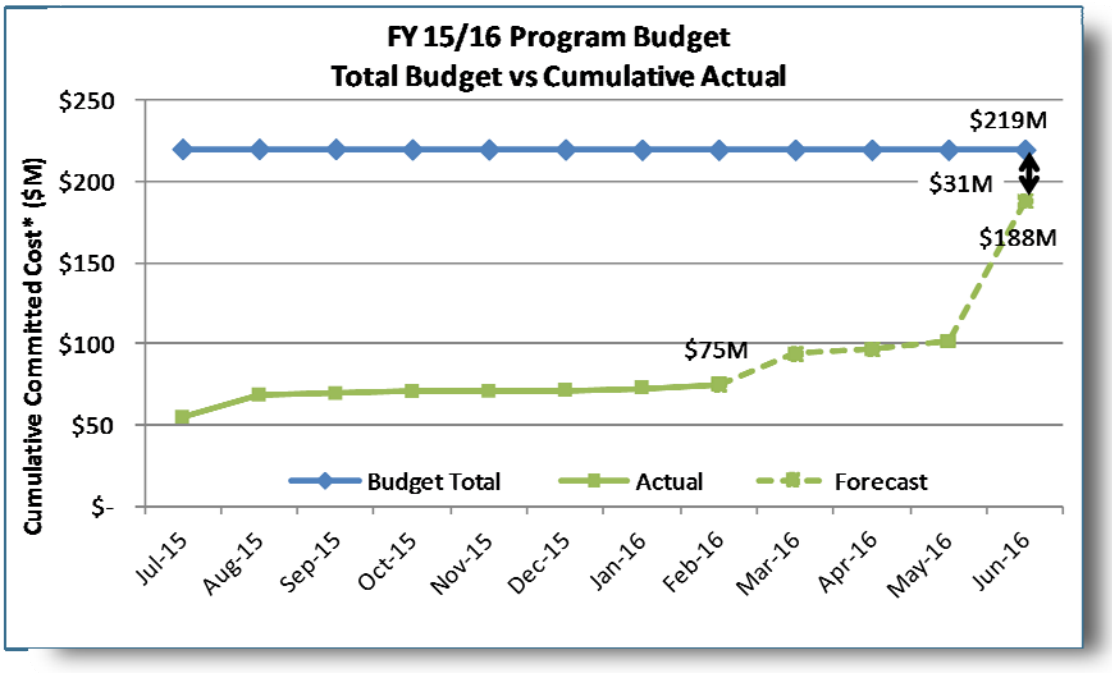
Encumbrance Balance: The amount of the remaining encumbrance committed after payments.

Budget: Adopted FY 2016-2020 Budget. This is new funding plus rebudgeted funds.

Carryover: Encumbrance balances at the end of a fiscal year become carryover funding. This is different from rebudgets, in that it is done automatically to utilize funding that was previously committed, but not yet paid.

Fiscal Year 2015-2016 Program Budget Performance

The fiscal year program budget is $219 million. This budget represents the 2015-2016 budget of $174 million plus carryover of $45 million. The budget excludes Reserves, Ending Fund Balance, South Bay Water Recycling, Public Art, and Urgent and Unscheduled Rehabilitation items.



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

Project Performance Summary

There are currently six active projects in the construction or post-construction phase, with a further 19 projects in feasibility/development, design, or bid and award phases (see PDM graphic, page 2). 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 Staff System (CPMS). Green/red icons are included in the table below to indicate whether these projects 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]
Pond A18 Northern Gate Structure	Post-Construction	Aug 2015[3]	*N/A*[4]	*N/A*[4]
Digester Gas Storage Replacement	Post-Construction	Nov 2015[3]		
A5-A6 Nitrification Mag. Meter & Valve Replacement	Construction	May 2016		
Digester Gas Compressor Upgrade	Construction	Sep 2016		
Emergency Diesel Generators	Construction	Dec 2016[5]		 [5]
Iron Salt Feed Station	Construction	Mar 2017		

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 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 12.
3. Actual Beneficial Use date.
4. Due to the emergency nature of the Pond A18 Northern Gate Replacement project, cost and schedule performance measurement criteria have not been applied.
5. The Emergency Diesel Generators Project Beneficial Use date was adjusted in January from August 2016 to December 2016.

Project Performance – Pre-Baselined Projects

Project Name	Phase	Estimated Beneficial Use Date[1]
Fiber Optic Connection	Bid & Award	Nov 2016
Cogeneration Facility	Bid & Award	Apr 2019
Digester & Thickener Facilities Upgrade	Bid & Award	Jun 2019
Construction-Enabling Improvements	Design	Dec 2016
Headworks Critical Improvements	Design	Aug 2017
Plant Instrument Air System Upgrade	Design	Jan 2018
Blower Improvements	Feasibility/Development	Jan 2019
Adv. Facility Control & Meter Replacement	Feasibility/Development	May 2020
Switchgear S40 Upgrade, M4 Replacement, G3 & G3A Removal	Feasibility/Development	Sept 2020
Headworks Improvements	Feasibility/Development	April 2021
Outfall Bridge and Levee Improvements	Feasibility/Development	Nov 2021
Digested Sludge Dewatering Facility	Feasibility/Development	Dec 2021
Facility Wide Water Systems Improvements	Feasibility/Development	Feb 2022
Filter Rehabilitation	Feasibility/Development	Mar 2022
New Headworks	Feasibility/Development	Aug 2022
Nitrification Clarifiers Rehabilitation	Feasibility/Development	Aug 2022
Yard Piping and Road Improvements	Feasibility/Development	Aug 2022
Aeration Tanks Rehabilitation	Feasibility/Development	Sept 2023
Support Building 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 being reviewed as part of project schedule reviews.

Significant Accomplishments

The projects below are described under different "packages." In the CIP, packages are groups of projects organized within the same treatment process area.

Biosolids Package

Digester and Thickener Facilities Upgrade

- The City responded to bid questions and issued necessary addenda.
- The City conducted a second, non-mandatory site visit in order to allow the eight prequalified contractors additional time to inspect the existing facilities.

Digested Sludge Dewatering Facility

- The project team completed the final RFQ documents for the Owner's Advisor role this month. The City anticipates the procurement will commence next month.

Facilities Package

Construction-Enabling Improvements

- The project team successfully advanced the project through the Authorization to Bid Stage Gate.

Facility Wide Water Systems Improvements

- The consultant selection process is underway. Staff received five SOQs from interested firms and began the evaluation process to select the consultant for this project. The selection process is expected to be completed in late March. Award is targeted for June.

Cogeneration Facility

- The City concluded negotiations with the design-builder. The staff report recommending approval of the contract is scheduled for consideration by TPAC and the Council in April.

Fiber Optic Connection

- TPAC and Council approved the contract with the low bidder in the amount of $240,000. The contract has been sent to the contractor for execution.

Liquids Package

Iron Salt Feed Station

- The project team finalized a contract with the consultant for Engineering Support During Construction services.
- The project team finalized the contract with a special inspection services consultant.

Aeration Tanks and Blower Rehabilitation

- The City executed a service order for the Blower Improvements Condition Assessment and Conceptual Design.
- The project team held a kickoff meeting on Blower Improvements Condition Assessment and Conceptual Design.
- Staff received Aeration Tank and Blower Rehabilitation Project SOQs and held a technical evaluation panel meeting.

Nitrification Clarifier

- The project team completed negotiations on the Not to Exceed (NTE) budget for the master consultant agreement.

Power and Energy

Digester Gas Compressor Upgrade

- The project team continued to work on the outdoor cooling equipment and 480V Motor Control Center.

Emergency Diesel Generators

- The generator manufacturer successfully completed the factory acceptance test.

Explanation of Project Performance Issues

A5-A6 Nitrification Magnetic 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 cost more to modify the electrical system than to order and install compatible actuators. Operations and Maintenance (O&M) staff requested that the actuators match the custom actuators used in the other 14 clarifiers. The City pursued various options to resolve the issue and received a proposal from the contractor to install new actuators based on a revised specification. A counterproposal was provided to the contractor in December. Discussions between senior management from both sides have been productive. A negotiated agreement to resolve all outstanding contract issues was concluded in January. A change order was issued on January 27 for the contractor to purchase replacement custom actuators, with lead time of between 12 to 14 weeks. Council approval of additional required funding is expected in March. Contractor mobilization, actuator installation, wiring, troubleshooting, and punch list signoff will take a minimum of three weeks. Beneficial Use is forecast for late May 2016.

Digester Gas Storage Replacement

During a comprehensive review of the gas storage tank design submitted by design consultant Brown and Caldwell, it was noted that the removable piston legs used in the subcontractor's proposed design did not meet design standards and could cause problems with the tank's intended use. The contractor was granted a three-month, no-cost time extension to September 28 to complete design modifications to the gas holder support structure. Several owner-requested changes were evaluated during the pre-startup period, resulting in three additional change orders. All work requiring welding or other spark-producing activities was completed prior to the introduction of gas. The tank successfully passed its required leakage test and was commissioned in November 2015. The tank is in use, the project is within budget, and final contract closeout activities are expected to be completed by April 2016.

Emergency Diesel Generator

The schedule for completion is delayed approximately three months due to the following three factors:

1. Caterpillar, the supplier of the Emergency Diesel Generator system, encountered delays in developing the controls that interface with the existing Facility controls.

2. Additional time required for Pacific Gas & Electric to approve and witness test the installation and commissioning of the Emergency Diesel Generator equipment.

3. The commissioning sequence for the existing facility cogeneration engines EG-1, EG-2 and EG-3 changed. The controls for the existing cogeneration generators are being modified to load-share with the new emergency diesel generators. To minimize impacts from having an existing cogeneration unit out of service, these units can only be modified after the new generators have been commissioned. This sequence change has extended the project completion date.

Project Profile – Headworks

At the RWF, the headworks facilities provide the first step of processing, also called preliminary treatment. Preliminary treatment removes inorganic material such as sticks, stones, grit, and sand from the influent wastewater stream to protect and reduce wear on the downstream process equipment, and to enhance process performance.

Of the RWF's two separate headworks facilities, the original Headworks 1 includes screens; grit removal through an aerated grit chamber, detritor systems, screenings and grit handling facilities; and pumping facilities. Headworks 1 has been in operation for more than 50 years and has a rated capacity of 271 million gallons per day (MGD). Commissioned in 2008, Headworks 2 includes screens; vortex grit removal units; screenings and grit handling facilities; and a pump station. Headworks 2 has a rated capacity of 160 MGD. It was built to supplement Headworks 1 in response to a 1998 storm that resulted in an estimated peak wet-weather flow of 330 MGD.

The CIP headworks improvements have been divided into the following three projects, listed in order of their scheduled completion dates:

Headworks Critical Improvements Project - To address urgent reliability and safety concerns, this project will include repair and replacement of existing gates, screens, and control power to Headworks 2.

Headworks Improvements Project - This project will improve the reliability of Headworks 2 and rehabilitate Headworks 1 to enable it to remain in operation until the completion of the New Headworks Project. The Headworks Improvements Project will also include short-term structural repairs to Headworks 1 and the installation of infrastructure needed to reroute flows from Headworks 1 to Headworks 2 in preparation for the decommissioning of Headworks 1.

New Headworks Project - This project will include the design and construction of a new headworks facility, including a new pump station, screens, grit removal, piping and other appurtenances to replace the aging Headworks 1. The New Headworks Project will also include the decommissioning of Headworks 1.

Due to the straightforward nature of the Headworks Critical Improvements Project, the traditional design-bid-build method has been selected as the project delivery method. The other two projects will use the progressive design-build method of delivery to transfer performance risk; provide a single point of responsibility for both design and construction; and increase the potential for innovative solutions to complex issues.

CDM Smith has been selected as Engineer for the Headworks Critical Improvements Project and as Owner's Representative for the other two projects. Notice to Proceed for all three projects is scheduled for March 2016, which will allow the preliminary design work to commence on the Headworks Critical Improvement Project and evaluation of project alternatives to commence on the other headworks projects.

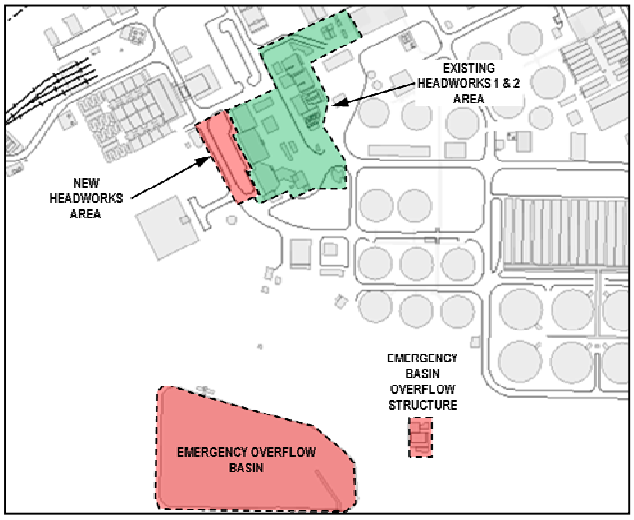


Figure 3: Headworks Projects Site Location

Figure 4: Headworks 1 Bar Screens

Page intentionally left blank

Regional Wastewater Facility Treatment – Current Treatment Process Flow Diagram

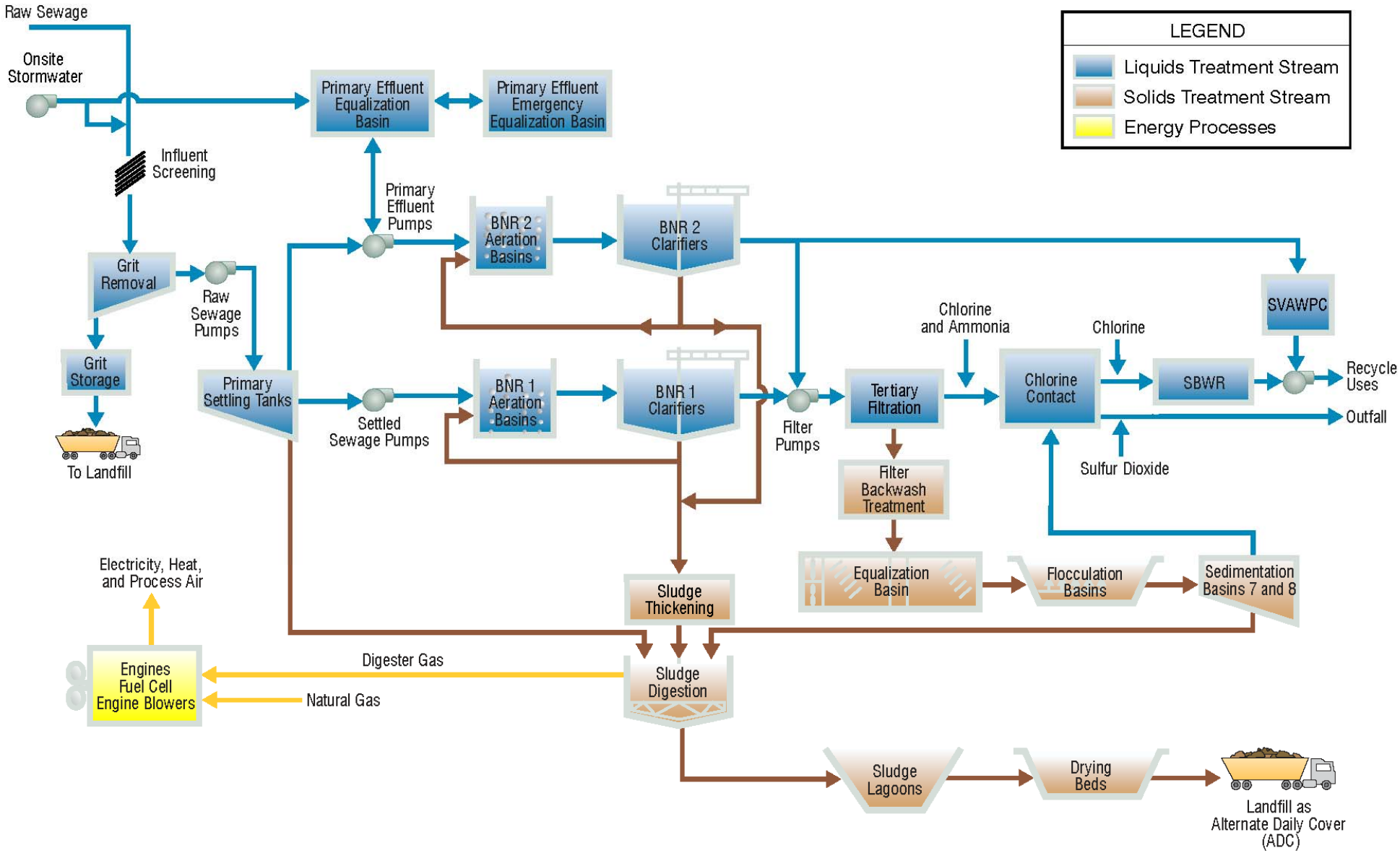


Figure 5 — Current Treatment Process Flow Diagram

Regional Wastewater Facility Treatment – Proposed Treatment Process Flow Diagram

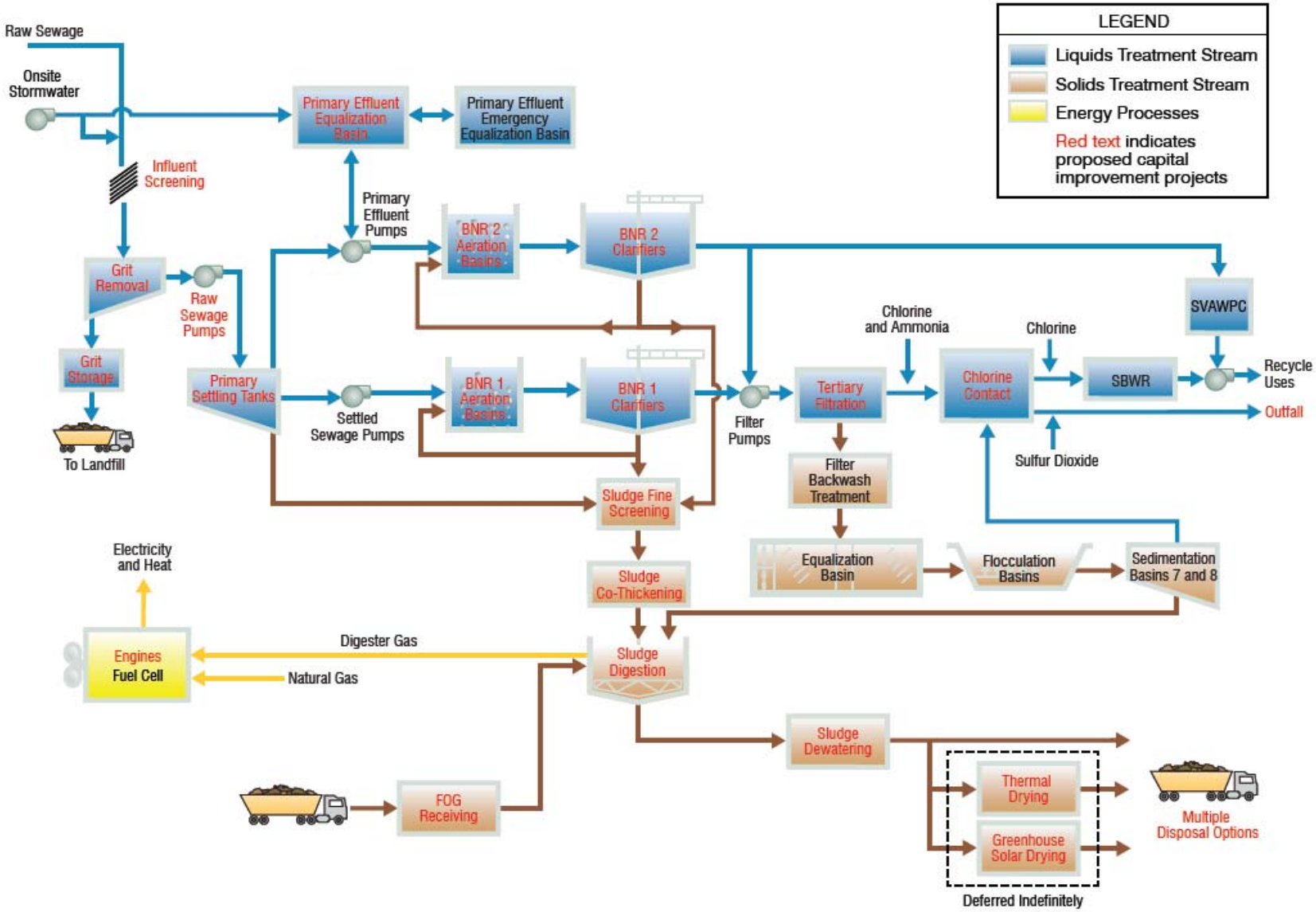


Figure 6 — Proposed Treatment Process Flow Diagram

Active Construction Projects – Aerial Plan

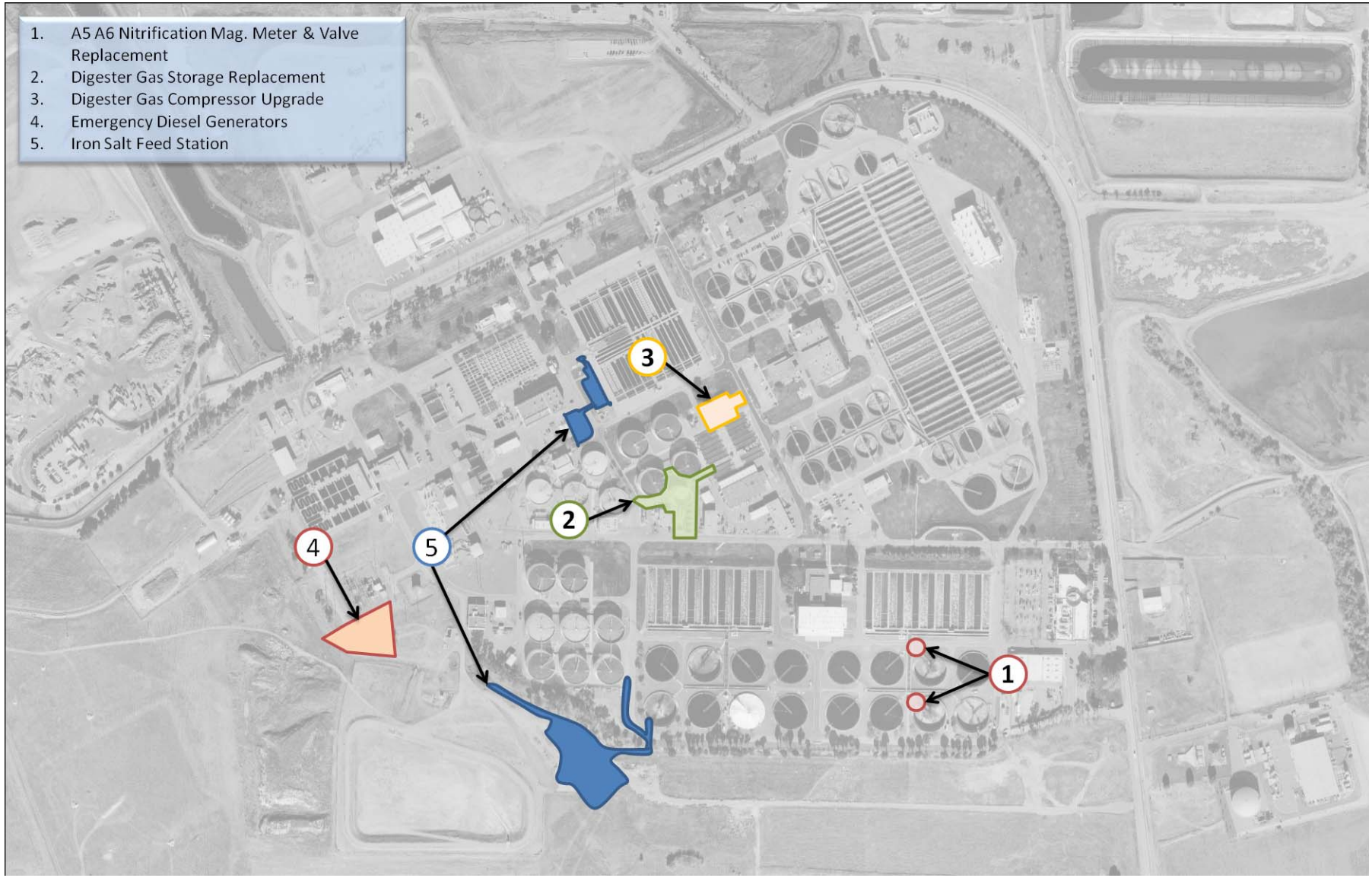


Figure 7—Active Construction Projects