



San José-Santa Clara
Regional Wastewater Facility

Capital Improvement Program Monthly Status Report: January 2016

March 3, 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 January 2016.

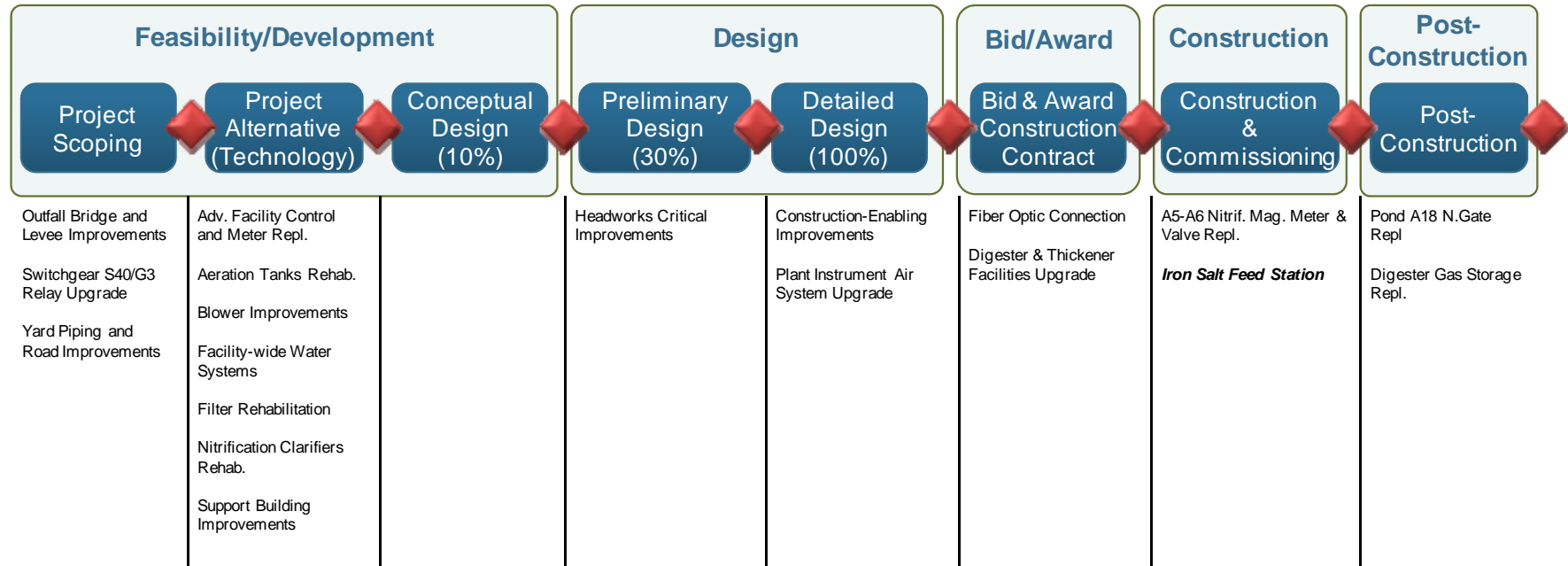
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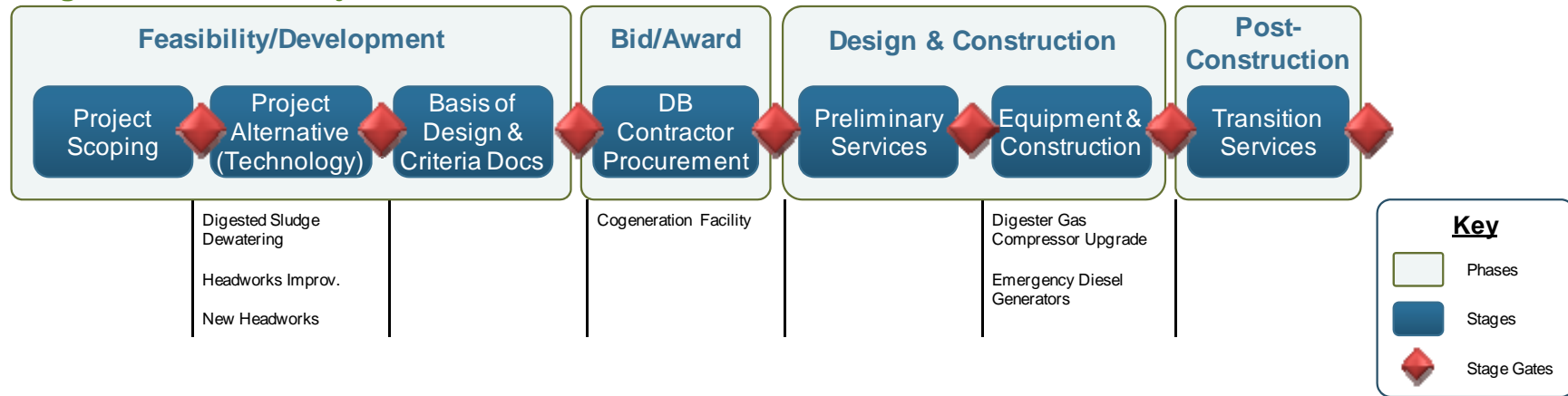


Project Delivery Model

Design-Bid-Build Active Projects



Design-Build Active Projects



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



Program Summary

January 2016

In January, the CIP progressed on multiple fronts, including several key procurement milestones:

- Staff successfully completed the design phase of the Digester & Thickener Facilities Upgrade Project. The project team advertised the project for construction bidding this month and held a pre-bid meeting and site visit. Eight pre-qualified contractors attended. This \$85 million construction project will include upgrading four existing digesters with new covers, mixing systems, and heat exchangers. The project will also modify low-pressure digester gas piping systems and the dissolved air flotation thickeners to improve co-thickening of combined primary and waste-activated sludge; incorporate odor control; build a sludge screening facility; and rehabilitate the existing flare systems.
- Staff held a pre-proposal meeting with consultants on the Aeration Tanks Rehabilitation and Blower Improvements Projects.
- Staff completed the assessment of the Advanced Facility Control and Meter Replacement procurement and notified the successful consultant. Negotiations on final scope and agreement terms will commence in February.

The City Council (Council) approved the following items previously recommended for approval by the Treatment Plant Advisory Committee (TPAC) in December:

- The 10-year funding strategy update, including staff's recommendation of projects that will seek Clean Water State Revolving Fund (SRF) loans.

Staff presented the following recommendations to TPAC and Council in January:

- Award a \$5.2 million construction contract to Anderson Pacific Engineering Construction, Inc, for the Iron Salt Feed Station Project;

Contract negotiations continued for the Cogeneration Facility Project with design-builder CH2M Hill. Staff anticipates Council award of the design-build contract in April. Staff also met with the State Water Board to commence the application process to seek authorization of SRF loans for this project.

The Plant Instrument Air System Upgrade Project reached the 90 percent design review milestone this month and reviews have commenced. The Construction-Enabling Improvements Project reached the 100 percent design review milestone. Staff anticipates this project will pass through the Authorization to Bid stage gate next month and will be advertised for construction in March 2016.

In addition, construction continued at the RWF on the Emergency Diesel Generators Project and the Digester Gas Compressor Upgrade Project.

Look Ahead

In February, staff will continue to move forward with efforts related to consultant procurements, including the Nitrification Clarifiers Rehabilitation Project, Aeration Tanks Rehabilitation Project, Blower Improvements Project and the Facility Wide Water Systems Improvements Project. Staff will continue to advance procurements for a number of programmatic services including: General Engineering Services; Design and Construction Management Software (DCMS); Value Engineering and Peer Review Services; and Construction Management and Inspection Services.

Project team members anticipate that the Construction-Enabling Improvements Project will advance through the Authorization to Bid stage gate in February. Staff also plans to issue three Requests for Qualification (RFQ) next month: System Integrator Services Pre-qualification for future CIP projects; Owner's Representative & Construction Management Services for Digested Sludge Dewatering Facility; and Audit Services.

Staff will discuss the RWF CIP at a Council Study Session on February 8.

In addition, all CIP project managers and project engineers will continue formal staff training in February with the first of two sessions planned on Risk Management.



Program Highlight – CIP Risk Management

The goal of the CIP Risk Management process is to help ensure the successful delivery of the CIP and its component projects by managing significant risks. To achieve this goal, risk management is infused into all aspects of the Project Delivery Model (PDM). The CIP uses tools and processes to help manage risks that may affect the overall program, as well as risks that are project-specific. The tools used include a risk assessment matrix, risk 'heat maps', a program-level risk register, and individual project risk registers for all active CIP projects. These tools help identify, assess, and monitor risks, as well as develop and document risk response plans to appropriately manage and mitigate threats and maximize opportunities.

The CIP currently has risk registers in place for all active projects. Risk registers are used to record and manage identified risks. Information contained in the risk register for each risk includes a description, magnitude and likelihood of impact, proposed mitigation measures and owner. Project managers maintain and update these registers as part of the monthly progress reporting process. Project risks are also routinely reviewed at monthly CIP Package Performance Review Meetings and at all PDM stage gates. Additionally, the CIP Risk Manager regularly conducts focused reviews of the project risk registers; assists the project teams with risk identification, analysis, and risk response planning; and periodically updates the risk management plan component of the Program Execution Plan (PEP).

At the program level, Staff evaluates risk register items and develops response plans to help effectively manage the CIP's most significant risks.

Risk management is an integral part of the CIP's activities and its organizational culture. Over the next four months, the program team will:

- Develop and present to CIP staff two program management training modules focused on risk management;
- Hold three rounds of project risk register reviews, each with a different focus, to further enhance risk identification and response plans for active projects;
- Implement a risk summary dashboard on the CIP Portal, which will help track and display risk status;
- Conduct risk workshops with the CIP leadership team to evaluate additional program risk register items;
- Refine related risk response plans; and
- Update the Risk Management Plan appendix of the PEP.

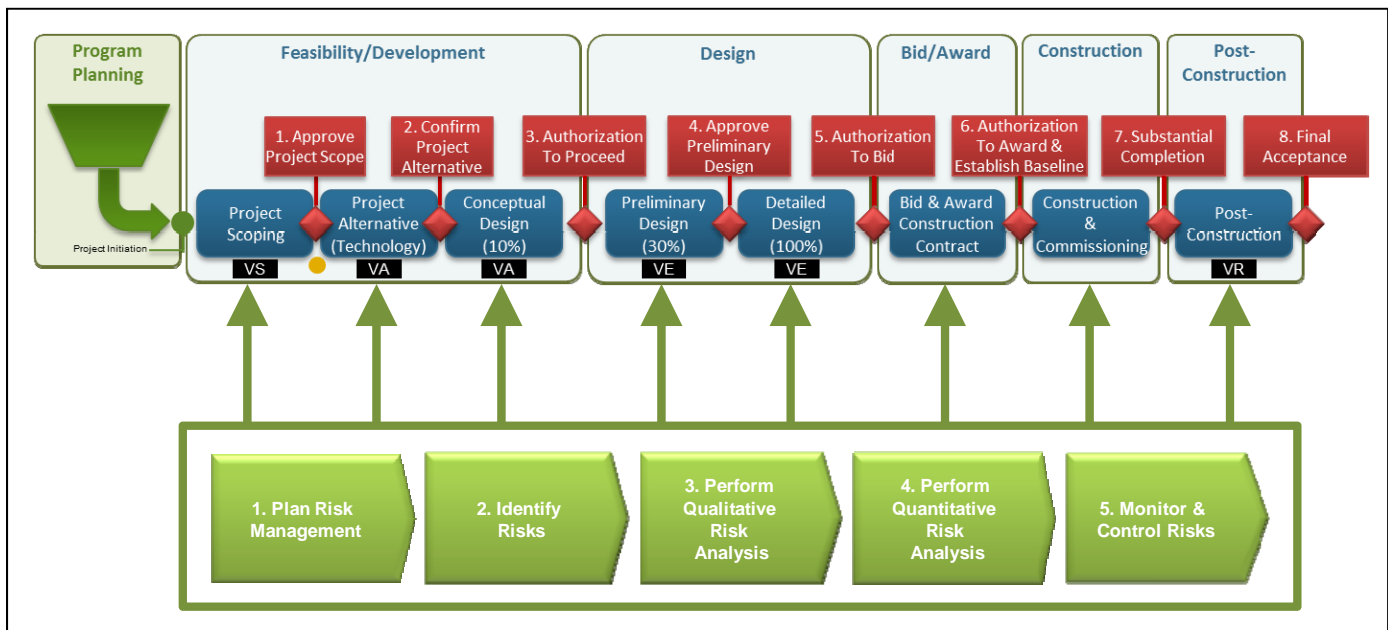


































Figure 1 - Risk Management Process as Applied to the PDM

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	Year to Date			Fiscal Year End		
		Actual	Status	Trend	Forecast	Status	Trend
Stage Gates	80%	94% (15/16) 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 ²	\$73M			\$188M ³		
Measurement: CIP Fiscal Year 15/16 committed costs. Committed cost meets or exceeds 70% of planned Budget (70% of \$219M = \$153M ²)							
Procurement	80%	83% (10/12) ⁴			100% (16/16) ⁵		
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) ⁶			86% (25/29)		
Measurement: Number of planned positions filled for the fiscal year. Criteria: Red: < 70%; Amber: 70% to 79%; Green: >=80%							

Notes

- For the Stage Gate KPI Year to Date (YTD), the number of completed stage gates remained constant at 15. The Construction-Enabling Improvements Project was scheduled this month, but was unsuccessful at passing the stage gate.
- Liquidation of a carryover contract encumbrance reduced the fiscal year budget and thereby reduced the target expenditure by \$1M.
- The Fiscal Year End Forecast decreased \$4M due to the revised encumbrance estimates
- The Procurement KPI Year to Date has increased from nine to 10 as the construction contract for the Digester & Thickener Facilities Upgrade Project was advertised this month. The procurement for the Construction Enabling Project construction contract has slipped. Finally, the procurement for consultant services for the Outfall Bridge & Levee Improvements Project has been deferred..
- The Procurement KPI Fiscal Year End has been reduced from 17 to 16 due to the deferment of the procurement for consultant services for the Outfall Bridge & Levee Improvements Project due to regional project interfaces outside of the control of the CIP.
- 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.

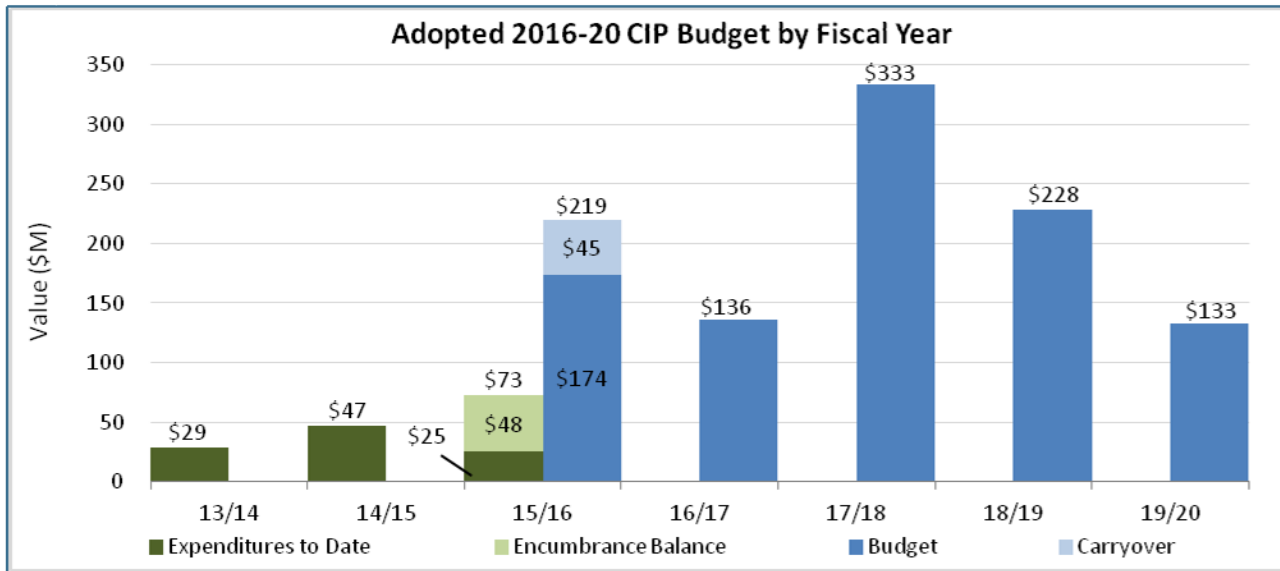


Program Cost Performance Summary

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.

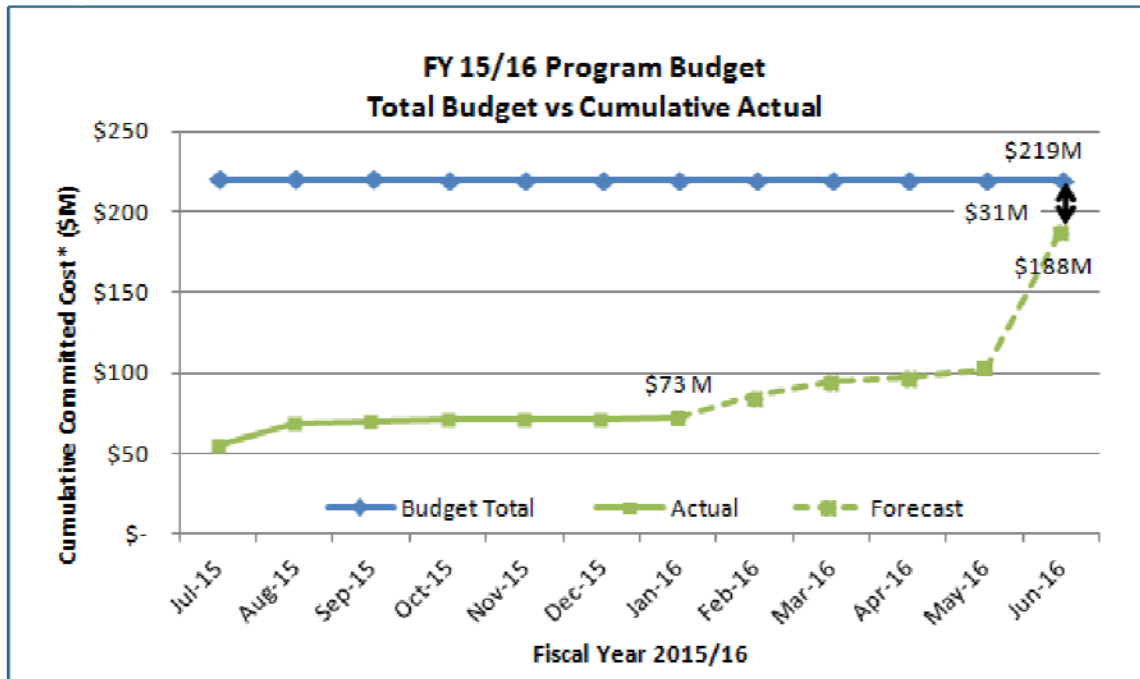
Budget: Adopted FY 2016-2020 Budget. This is new funding plus rebudgeted funds.

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 has decreased from \$220 million to \$219 million due to the liquidation of a carryover encumbrance. The budget amount of \$219 million represents the 2015-2016 budget of \$174 million plus the reduced carryover of \$45 million. The budget amount 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 ⁵	Construction	Sep 2016		
Emergency Diesel Generators	Construction	Dec 2016		
Iron Salt Feed Station	Construction	Mar 2017		

KEY:

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

Notes

- 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.
- An explanation of cost and schedule variances on specific projects identified in this table is provided on page 12.
- Actual Beneficial Use date.
- Due to the emergency nature of the Pond A18 Northern Gate Replacement project, cost and schedule performance measurement criteria have not been applied.
- The baseline schedule was reset for the Digester Gas Compressor Upgrade Project due to the approved addition of scope to allow for proper interconnection and operations with the Digester and Thickener Facilities Upgrade and Cogeneration Facility projects. The schedule performance indicator has returned to green.



Project Performance – Pre-Baselined Projects

Project Name	Phase	Estimated Beneficial Use Date ¹
Fiber Optic Connection	Bid & Award	Nov 2016
Cogeneration Facility	Bid & Award	Mar 2019
Digester & Thickener Facilities Upgrade	Bid & Award	Jun 2019
Construction-Enabling Improvements	Design	Dec 2016
Headworks Critical Improvements	Design	June 2017
Plant Instrument Air System Upgrade	Design	Jan 2018
Blower Improvements	Feasibility/Development	Mar 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	Nov 2023
Support Building Improvements	Feasibility/Development	Jan 2027

Notes

- 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

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

- Staff advertised the final plans and specifications for construction bids. Bid opening is scheduled for March.
- Staff conducted a pre-bid meeting and site visit. Eight pre-qualified contractors attended this non-mandatory meeting.

Digester Gas Storage Replacement

- The facility successfully passed the 45-day commissioning period. Project Acceptance is anticipated in March 2016.

Facilities Package

Cogeneration Facility

- Staff conducted the second of three all-day contract negotiations workshops with the proposed design-builder. The project team anticipates Council award of the contract in April.
- Staff met with the State Water Board to commence the application process to seek SRF funding for this project.

Construction-Enabling Improvements

- Staff has completed final design and held a stage gate to authorize the project for bidding. Construction cost estimates were trending high, causing project staff to revisit several scope items and cost estimates to bring the project estimate back in line with the budget. The project team expects the construction contract to be awarded in July.

Facility Wide Water Systems Improvements

- The consultant selection process is underway, and the non-mandatory pre-submittal meeting was held for interested firms in January, with Statements of Qualifications (SOQ) due in February.

Liquids Package

Aeration Tanks Rehabilitation and Blower Improvements

- Staff held a pre-submittal meeting with consultants in January. SOQs are due in February.

Iron Salt Feed Station

- Council awarded the construction contract to Anderson Pacific on January 19.
- Notice to Proceed expected to be issued to the contractor in March 2016 and construction completion is anticipated in spring 2017.

Power and Energy

Digester Gas Compressor Upgrade

- The gas compressor motors have been shipped from Hyundai in Korea to Unison Solutions (Gas Skid Packager).
- Work continued on outdoor cooling equipment and 480V Motor Control Center.
- The factory acceptance test for the gas compressor skids is expected to take place at Unison Solutions in late March or early April.

Plant Instrument Air System Upgrade

- Consultant is incorporating comments to the 90% detail plans and specification.



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 has 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" sign off will take a minimum of three weeks. Beneficial Use is forecasted for late May 2016.

Digester Gas Storage Replacement

During a comprehensive review of the gas storage tank design submitted by the 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 in March 2016.



Project Profile - Iron Salt Feed Station

The Iron Salt Feed Station Project will construct a new ferric chloride feed station and a new polymer feed station at the RWF. Each station will include chemical storage tanks; metering pumps; concrete containment structures; metal canopies; chemical offloading areas; electrical systems; and instrumentation and control systems. The ferric chloride feed station will store and deliver ferric chloride to the influent to control hydrogen sulfide levels in the digester gas. The polymer feed station will store, activate and deliver polymer to the primary influent to enhance primary treatment.

The benefits of this project include:

- Compliance with air permit requirements through the reduction of hydrogen sulfide levels in the digesters' gas;
- Reduced corrosion throughout the RWF's downstream processes;
- Reduced odors at headworks and the primary clarifiers;
- Increased primary solids removal;
- Increased biogas production in the digesters; and
- Reduced biological oxygen demand loading to RWF's downstream treatment processes.

The project design was completed in August 2015. Extensive work was performed during the design phase to address environmental, safety, construction, operation and maintenance concerns.

The following challenges were addressed during the design process:

- CEQA Initial Study: Reviewed the environmental impact report, prepared initial study report and developed mitigation measures to be implemented during the construction phase;
- Air Permit Application: Obtained authority to construct from the Bay Area Air Quality Management District;
- Geotechnical Investigation: Characterized onsite soils and made recommendations for site preparation, structure foundation design, and underground utility installation;
- Site Survey: Created accurate, detailed topographic and utility location maps that served as the basis for design;
- Pre-construction Hazardous Material Assessment: Evaluated whether specific soil management and disposal procedures for contaminated materials are required;
- Pre-construction Potholing: Field-verified larger existing underground utilities to minimize delays, avoid unnecessary utility relocations, and reduce redesign costs during the construction phase; and
- Process Hazard and Operability Analysis: Identified and assessed hazards and operability concerns; and developed and integrated mitigation measures into the design.

The project was advertised for bidding in September 2015 and awarded by Council in January 2016. Construction is anticipated to begin in spring 2016 with substantial completion by spring 2017.

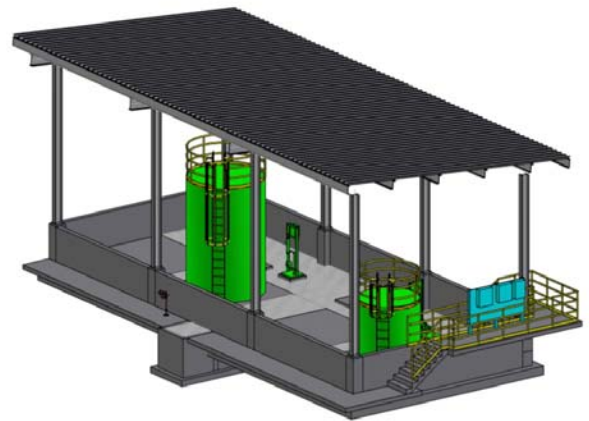


Figure 2 - Polymer Feed Station

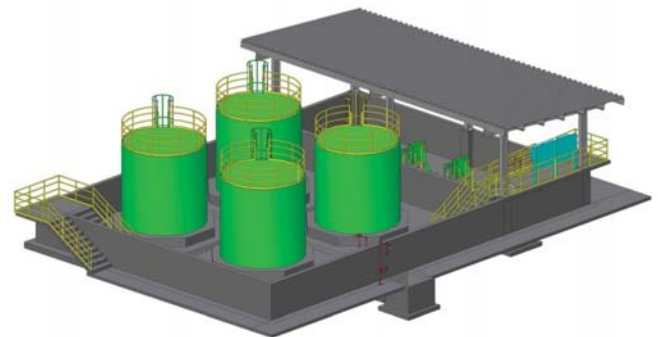


Figure 3 - Ferric Chloride Feed Station

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Regional Wastewater Facility Treatment – Current Treatment Process Flow Diagram

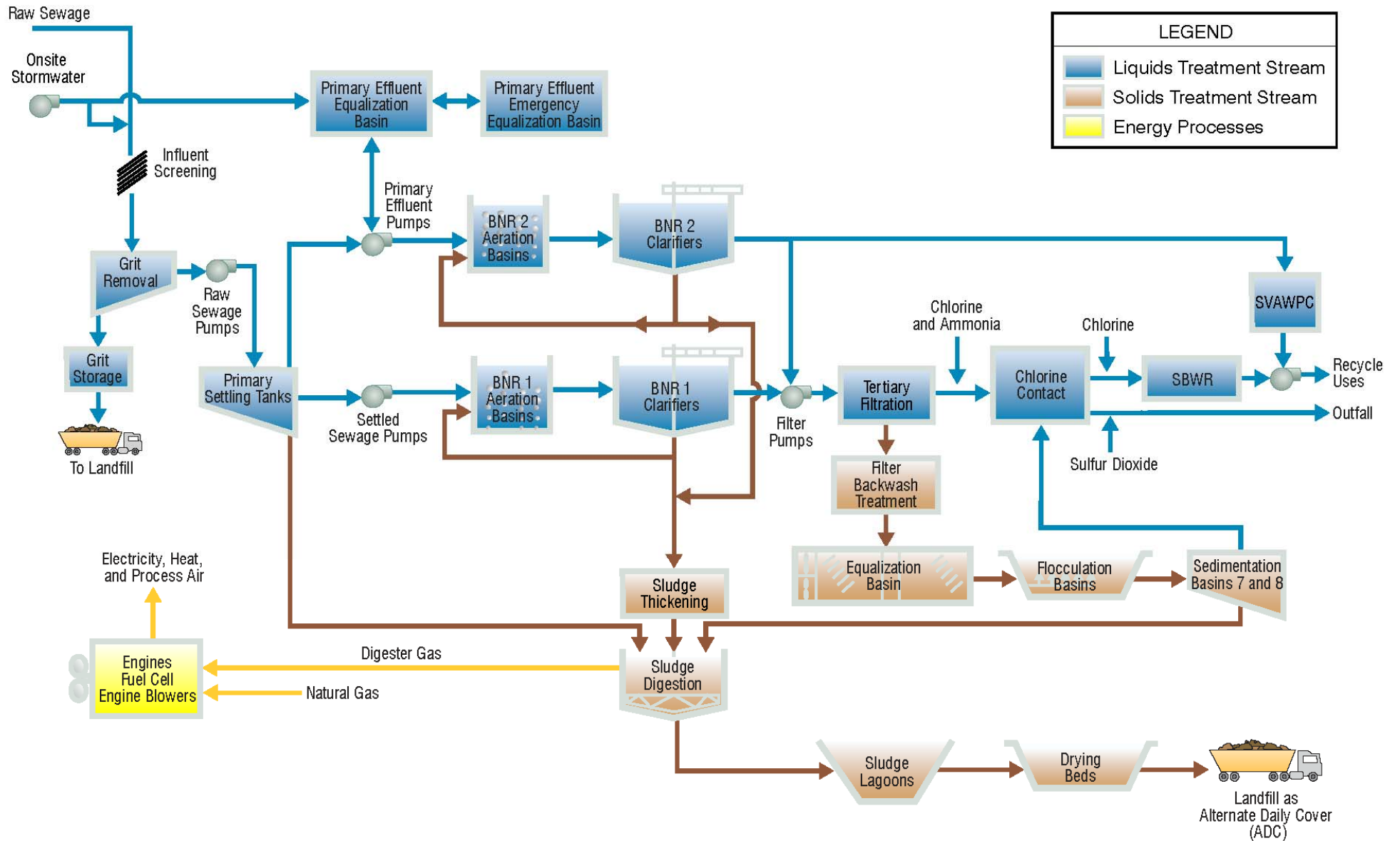


Figure 4 — Current Treatment Process Flow Diagram



Regional Wastewater Facility Treatment – Proposed Treatment Process Flow Diagram

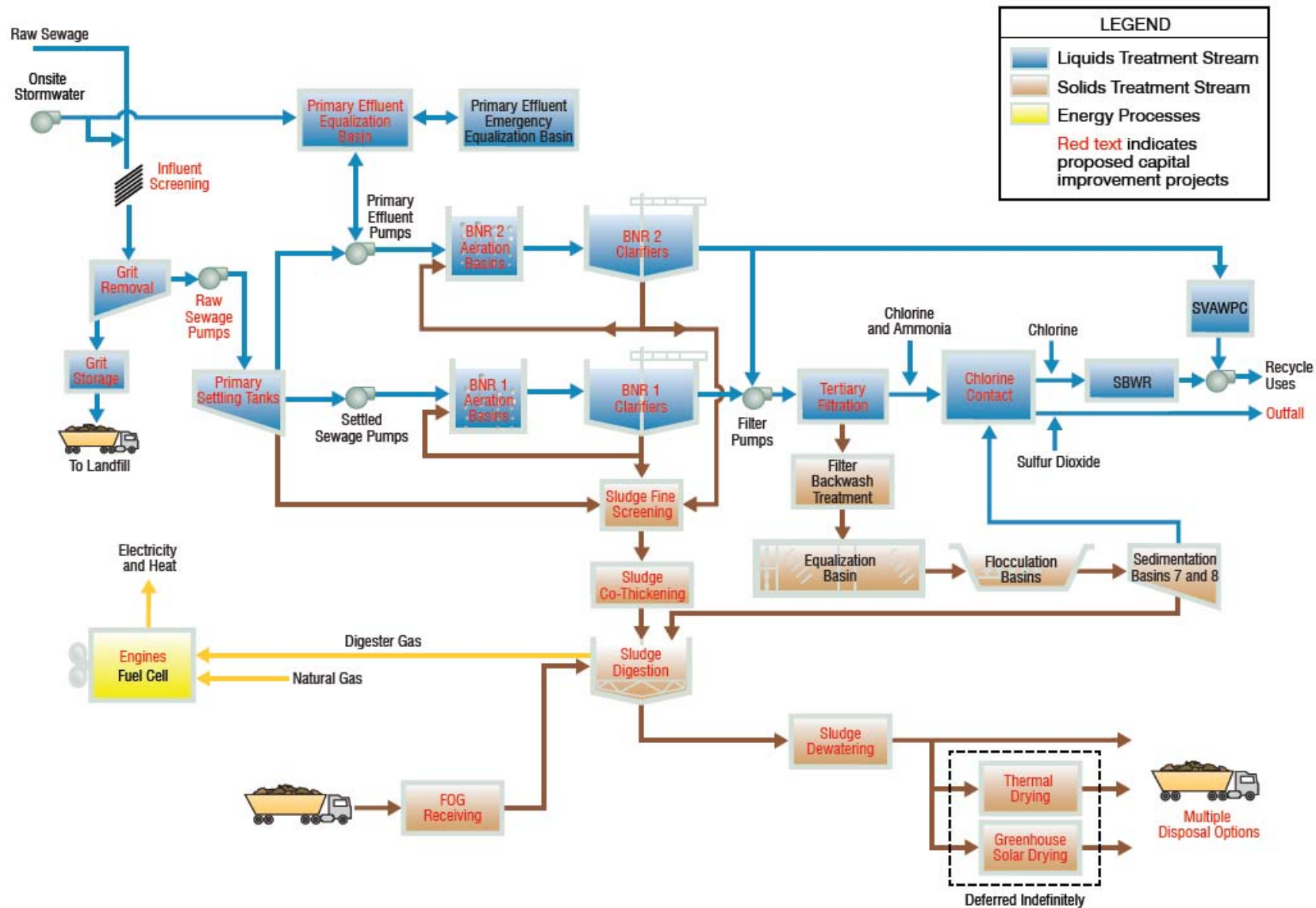


Figure 5 — Proposed Treatment Process Flow Diagram



Active Construction Projects – Aerial Plan

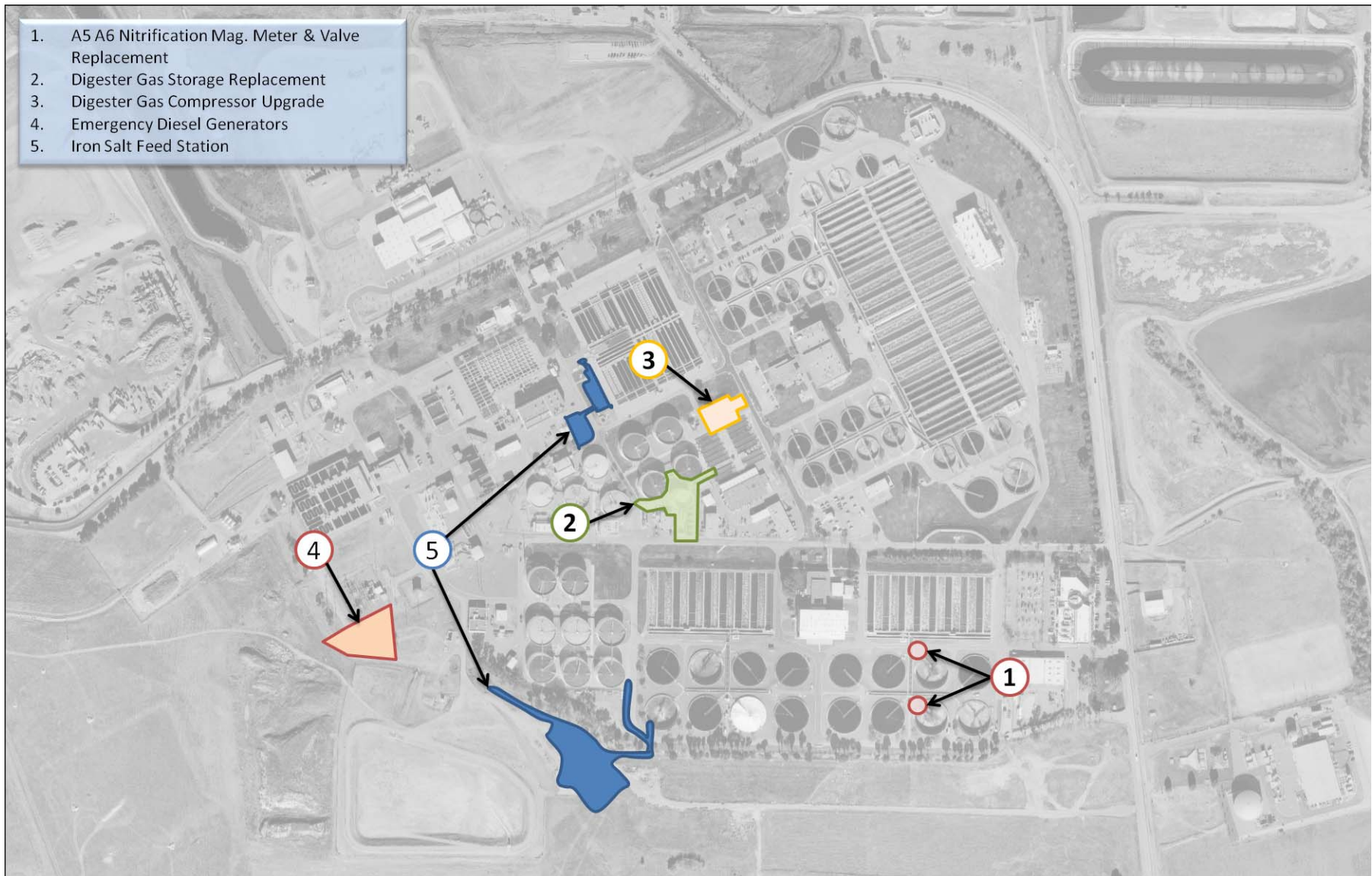


Figure 6—Active Construction Projects