



San José-Santa Clara
Regional Wastewater Facility

Capital Improvement Program Monthly Status Report: May 2016

July 7, 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 May 2016.

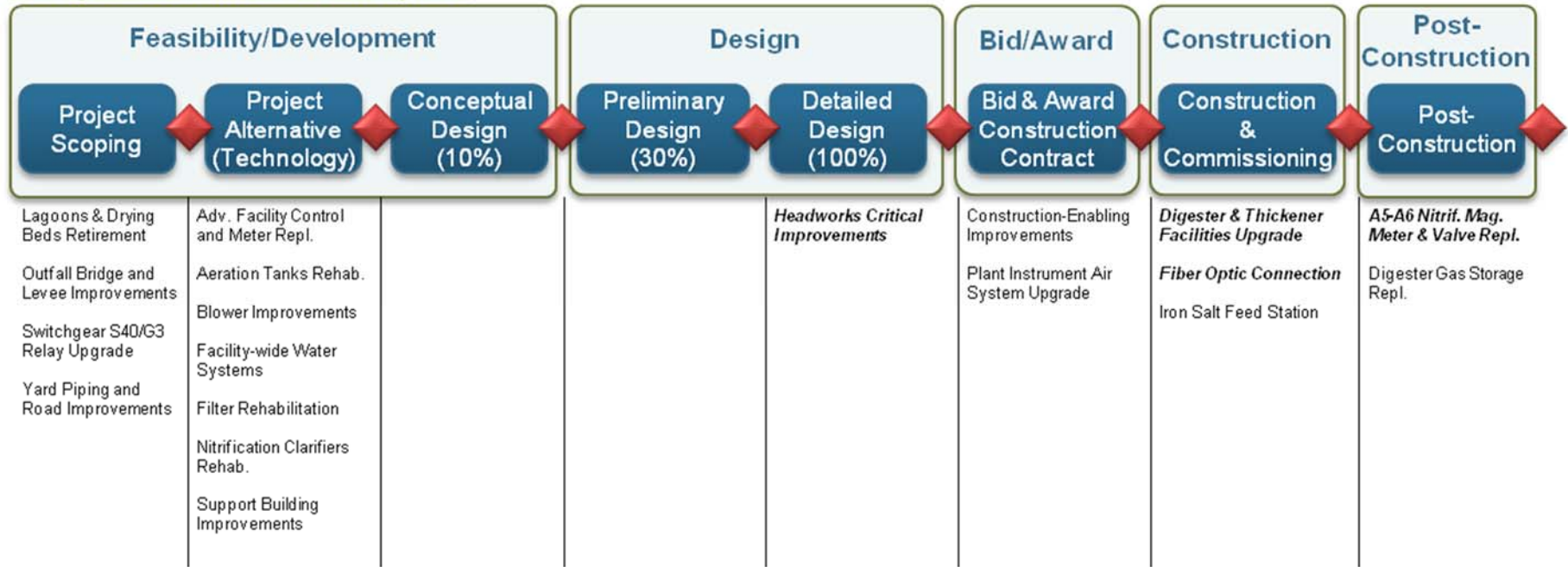
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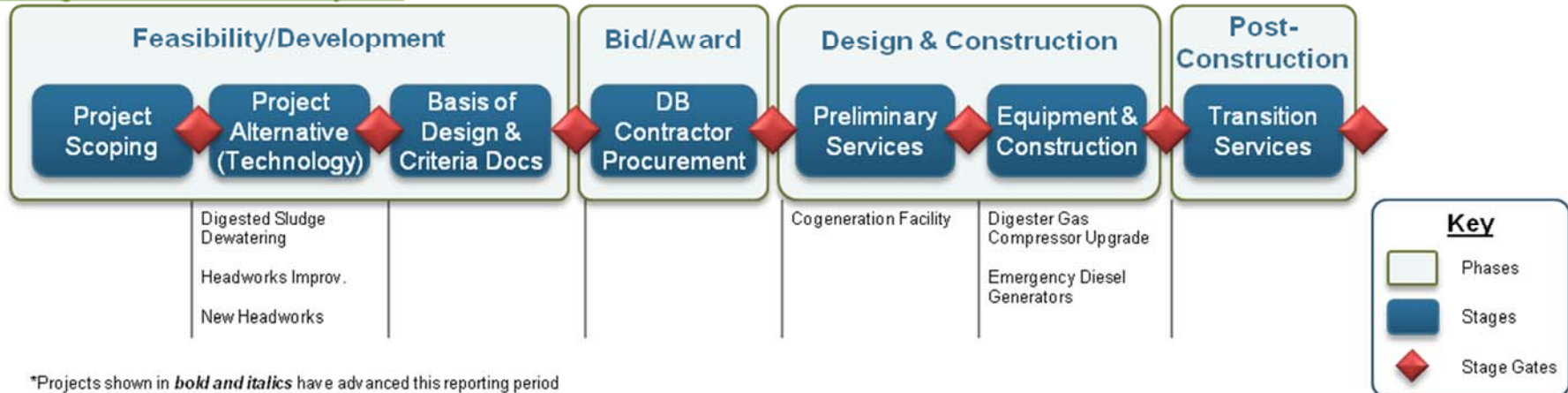


Project Delivery Model

Design-Bid-Build Active Projects



Design-Build Active Projects



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



Program Summary

May 2016

In May, the CIP progressed on multiple fronts, including advancing two projects through the Project Delivery Model (PDM) stage gate process: the Headworks Critical Improvement Project (Approve Preliminary Design), and the Flood Protection Study (Final Acceptance). In additional developments, CIP staff:

- Advertised a Request for Qualifications (RFQ) for the Support Building Improvements Project. This project will address aging infrastructure at the RWF by bringing existing buildings into compliance with current building safety codes; improving plant reliability where feasible; and providing new building infrastructure as necessary. Priority focus will center on refurbishing and updating fire alarm and suppression systems as well as heating, ventilation, and air conditioning systems.
- Held selection interviews with two consultants for Owner's Advisor services on the Digested Sludge Dewatering Facility Project.
- Held a pre-construction meeting and site walk for interested bidders for the Plant Instrument Air System Upgrade Project.
- Presented the following recommendations to the Treatment Plant Advisory Committee (TPAC) and San José City Council (Council), all of which were accepted or approved:
 - Approve a master consultant agreement award for the Nitrification Clarifiers Rehabilitation Project to HDR *;
 - Approve an ordinance designating additional Public Right-of-Way for Zanker Road, associated with the Construction Enabling Improvements Project **;
 - Approve three master consultant agreement awards to provide general engineering services at the RWF for a five-year period (Brown and Caldwell, AECOM, and Black and Veatch);
 - Award a construction contract for the Digester and Thickener Facilities Upgrade Project to the low bidder, Walsh Construction, for \$107.9 million;
 - Award a construction contract for the Fiber Optic Connection Project to the second low bidder, Aegis ITS, for \$272,000.

Design continued on the Headworks Critical Improvements Project, which met the preliminary design 30 percent milestone. Alternatives analysis commenced on the Filter Rehabilitation Project with kickoff meetings and technical workshops held. Design also commenced on the Cogeneration Facility design-build project with kickoff meetings and partnering sessions.

Staff issued a notice of intent to award the construction contract for the Construction-Enabling Improvements Project, having assessed the bids received in May. A recommendation will be made to TPAC and Council next month to proceed with the award of the contract to the lowest bidder.

Major construction work continued on the Emergency Diesel Generators, Digester Gas Compressor Upgrade, and Iron Salt Feed Station projects this month. The Digester Gas Compressor Upgrade Project passed a significant milestone with the successful installation of the gas compressor skids on site. Construction work also recommenced this month on the Influent Magnetic Meter and Valve Replacement Project for Nitrification Clarifiers A-5 and A-6. Beneficial Use for this project was achieved May 27.

Look Ahead

In June, CIP project teams and the selected design consultants will move forward with alternatives analysis and designs for the Headworks projects, and for the Cogeneration Facility, Filter Rehabilitation, and Blower Improvements projects. Negotiations on the final scope for the Nitrification Clarifiers Rehabilitation Project will be completed to allow the project alternative analysis stage to commence with the selected design consultant. Staff will also advance the Yard Piping and Road Improvements Project through the Project Scoping stage gate.

Staff will continue with efforts related to consultant procurements and service orders, including the Facility Wide Water Systems Improvement Project; the Advanced Facility Control and Meter Replacement Project; Switchgear S40/G3 Relay Upgrade Project; Digested Sludge Dewatering Facility Project; and the Support Buildings Improvement Project. Procurements for a number of programmatic services will continue to advance, including Audit Services, Owner Controlled Insurance Program, and System Integrator Services. Construction bids will also be received for the Plant Instrument Air System Upgrade Project in June.

Staff will seek Council's award of consultant contracts for the following projects: Aeration Tanks and Blower Rehabilitation; Construction Management and Inspection Services; and Value Engineering and Peer Review Services. Staff will also seek Council approval of an ordinance designating additional public right-of-way for Zanker Road, needed for the Construction-Enabling Improvements Project; award of a construction contract for the Construction Enabling Improvements Project; and adoption of the 2017-2021 Proposed CIP.



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

* The Nitrification Clarifier award was presented to TPAC on April 14, 2016 and approved by Council on May 10, 2016.

** Zanker Right-of-Way was presented to TPAC on May 19, 2016; approved by Santa Clara City Council on May 24, 2016; and by San José City Council on June 7, 2016.



Program Highlight – Environmental Team Coordination

The CIP's Environmental Team helps ensure successful project delivery by leading the program's environmental protection and compliance activities. Required environmental clearances, determined on a project-by-project basis, may include California Environmental Quality Act (CEQA) review; air permitting through the Bay Area Air Quality Management District (BAAQMD); and biological permitting through agencies such as the United States Army Corps of Engineers (Corps), California Department of Fish and Wildlife, and the Santa Clara Valley Habitat Agency (SCVHA). The team's work both safeguards the environment and provides key data for the CIP's Environmental Key Performance Indicator (see page 6).

One of the Environmental Team's main goals is to ensure that CIP projects comply with CEQA. The CEQA statute requires agencies to inform decision makers and the public of potential significant environmental impacts; identify ways to avoid or reduce those impacts via alternatives or mitigation measures; and disclose to the public the reasons for government approval. In San José, the City's Planning, Building, and Code Enforcement Department (Planning) coordinates CEQA clearances. The Environmental Team serves as the liaison between Planning and the CIP to ensure that the CEQA process has been completed for all projects.

Projects that apply for funding through the Clean Water State Revolving Fund (SRF) Program must meet additional environmental requirements known as "CEQA Plus." The Environmental Team provides additional guidance to these projects on complying with CEQA Plus and completing the environmental package of the application.

Environmental activities are integrated throughout the CIP's PDM. The Environmental Team staff work with project teams throughout the life of a project to help them effectively navigate environmental requirements as the project moves through the PDM. If the CEQA process has identified required mitigation measures, The Environmental Team ensures that they are successfully implemented, and reports back to Planning to obtain approval before construction begins. This reporting continues throughout construction and post-construction, when the Environmental Team collaborates with Construction Management to monitor projects.

The Environmental Team anticipates the following milestones within the next month:

- Receiving the Authority to Construct from the BAAQMD for the Digester and Thickener Facilities Upgrade Project;
- Submitting the SRF environmental package to the State Water Resources Control Board for the Cogeneration Project; and
- Receiving Certificates of Conformance from Planning for the Fiber Optic Connection and Iron Salt Feed Station projects. These certificates document project application approval by the SCVHA for projects covered under the Santa Clara Valley Habitat Conservation Plan.

In the CIP's Program Execution Plan, the Environmental Protection and Compliance Strategy (Appendix U) provides more detailed information on the Environmental Team roles and responsibilities. The plan and videos of the Environmental Team's training presentations on CEQA, air permitting, and biological permitting are available on the CIP Portal for reference and new staff training.



































Figure 1 –Environmental Team staff coordinating implementation of environmental impact mitigations for the Iron Salt Feed Station Project

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% (20/20) ¹			100% (22/22) ²		
Measurement: Percentage of initiated projects and studies that successfully pass each stage gate. Criteria: Red: < 70%; Amber: 70% to 80%; Green: >=80%							
Schedule	85%	25% (1/4) 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	\$162M	\$80M			\$207M ⁴		
Measurement: CIP Fiscal Year 15/16 committed costs. Committed cost meets or exceeds 70% of planned Budget (70% of \$209M = \$146M)							
Procurement	80%	100% (17/17) ⁵			100% (17/17)		
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							
Staffing⁶	80%	53% (9/17)			59% (17/29)		
Measurement: Number of planned positions filled for the fiscal year. Criteria: Red: < 70%; Amber: 70% to 79%; Green: >=80%							

Notes

- The number of completed stage gates increased from 18 to 20 for the Stage Gate KPI Fiscal Year to Date (YTD) as the Headworks Critical Improvements Project successfully completed the Approve Preliminary Design Stage Gate and Study 13 – Flood Protection successfully completed the Final Acceptance Stage Gate.
- The Fiscal Year End Stage Gate KPI total number of stage gates has decreased by two projects.
- The Influent Magnetic Meter and Valve Replacement for Nitrification Clarifiers A-5 and A-6 Project achieved Beneficial Use, but was more than 2 months late.
- The forecast has been adjusted to reflect latest budget projections.
- The Procurement KPI Year to Date number of procurements has increased from 16 to 17 as a procurement was advertised in May for Consultant Services for the Support Building Improvements Project contract.
- 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.

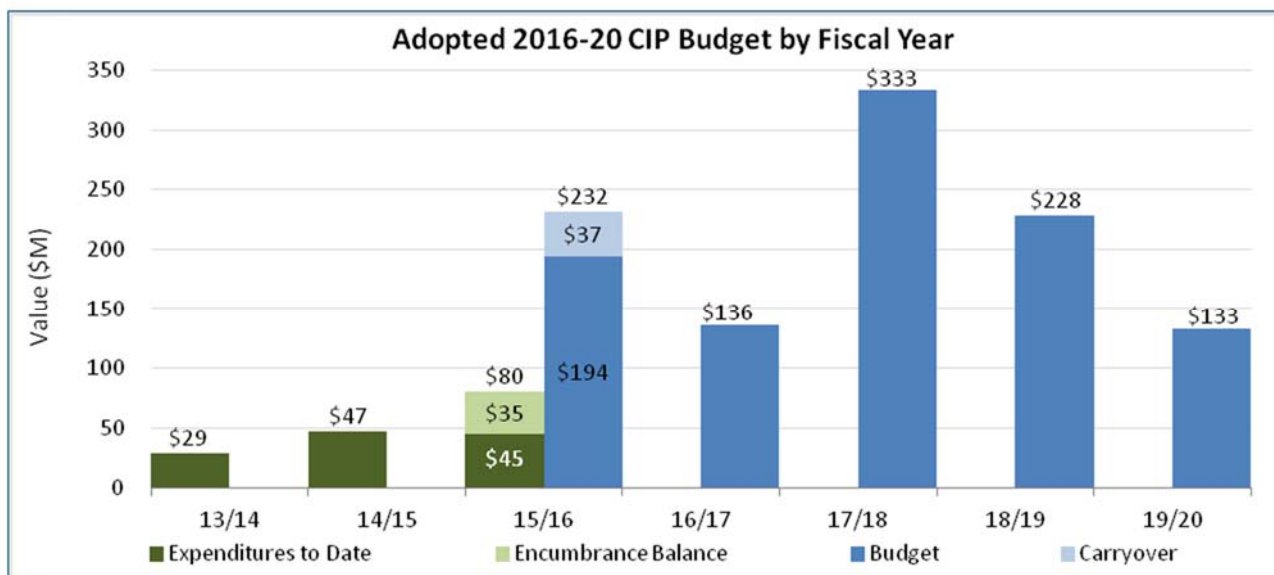


Program Cost Performance Summary

This section summarizes CIP cost performance for all construction projects and non-construction activities for FY15-16 and for 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, 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.

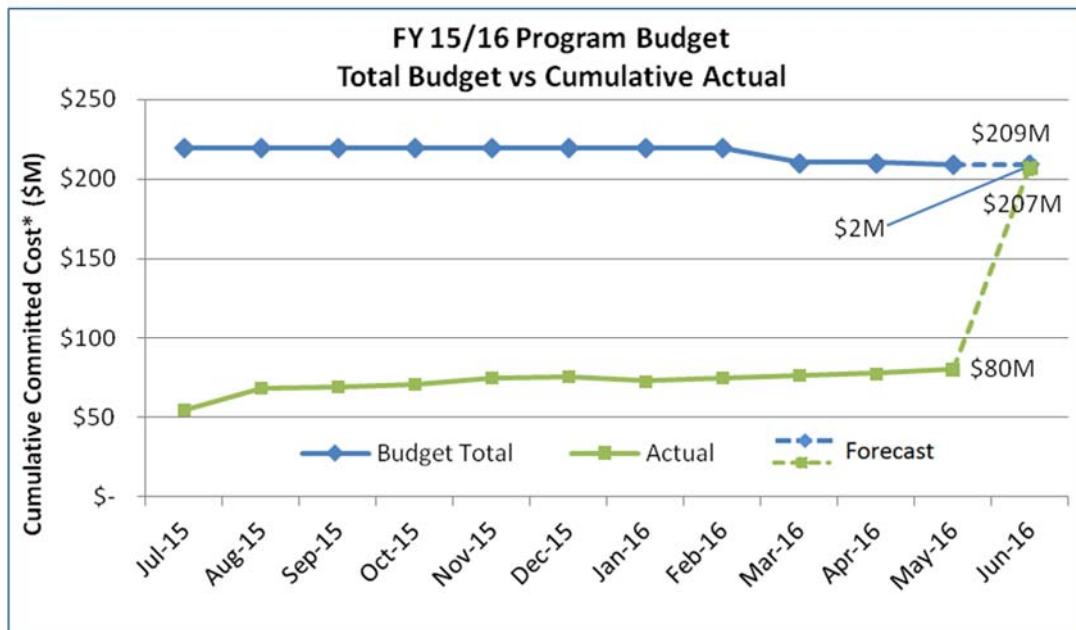
Budget: Adopted FY 2016-2020 Budget. This is new funding plus rebudgeted funds.

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 2015-2016 Program Budget Performance

This budget comprises the 2015-2016 budget of \$172.0 million plus carryover of \$37.4 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 seven active projects in the construction or post-construction phases, with a further 18 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 Storage Replacement	Post-Construction	Nov 2015 ³		
2. A5-A6 Nitrification Mag. Meter & Valve Replacement	Construction	May 2016 ³		
3. Digester Gas Compressor Upgrade	Construction	Oct 2016		
4. Emergency Diesel Generators	Construction	Dec 2016		
5. Fiber Optic Connection	Construction	Feb 2017 ⁴		
6. Iron Salt Feed Station	Construction	Sept 2017		
7. Digester Thickener and Facilities Upgrade	Construction	July 2019 ⁴		

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 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 11.
- Actual Beneficial Use date.
- Project construction Beneficial Use Date will be baselined once 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. Construction-Enabling Improvements	Bid & Award	April 2017
3. Plant Instrument Air System Upgrade	Bid & Award	Jan 2018
4. Headworks Critical Improvements	Design	Sept 2017
5. Blower Improvements	Feasibility/Development	Jan 2019
6. Adv. Facility Control & Meter Replacement	Feasibility/Development	Aug 2020
7. Switchgear S40 Upgrade, M4 Replacement, G3 & G3A Removal	Feasibility/Development	Jan 2021
8. Headworks Improvements	Feasibility/Development	April 2021
9. Outfall Bridge and Levee Improvements	Feasibility/Development	Nov 2021
10. Digested Sludge Dewatering Facility	Feasibility/Development	Dec 2021
11. Facility Wide Water Systems Improvements	Feasibility/Development	May 2022
12. Filter Rehabilitation	Feasibility/Development	May 2022
13. New Headworks	Feasibility/Development	Aug 2022
14. Yard Piping and Road Improvements	Feasibility/Development	Sept 2022
15. Nitrification Clarifiers Rehabilitation	Feasibility/Development	Sept 2022
16. Aeration Tanks Rehabilitation	Feasibility/Development	Sept 2023
17. Support Building Improvements	Feasibility/Development	Jan 2027
18. Lagoons & Drying Beds Retirement	Feasibility/Development	Mar 2027

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 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

- Council approved award of the construction contract to Walsh Construction. Construction will commence in June with contractor site-walks and the pre-construction meeting planned. Contractor mobilization and a formal partnering session to occur in July.

Digested Sludge Dewatering Facility

- Selection interviews with two consultants were held both of whom were shortlisted from the four SOQs received in April.

Facilities Package

Cogeneration Facility

- The City issued the first Notice to Proceed (NTP) for the design-build contract to CH2M Hill Engineers, Inc. This covers Preliminary Services leading to the Basis of Design report.
- The project team held a formal partnering session and kickoff meeting. Attendees included City RWF Staff (CIP Leadership, Engineering, O&M), CH2M Hill and Overaa.

Fiber Optic Connection

- Council approved award of the construction contract to Aegis ITS, Inc. for \$271,692. The pre-construction meeting is scheduled in June.

Influent Magnetic Meter and Valve Replacement for Nitrification Clarifiers A-5 and A-6

- The contractor remobilized and completed all work; Beneficial Use was achieved on May 27.

Support Buildings Improvements Project

- The City advertised an RFQ for consultant services. Responses are due June 10. Priority focus of the early work will be refurbishing and updating fire alarm and suppression systems as well as HVAC systems.

Liquids Package

Blower Improvements

- The Project Team completed the condition assessment of the blowers and started the alternatives analysis. A stage gate is planned for early August prior to the project proceeding to conceptual design.

Filter Rehabilitation

- The City issued the NTP for Service Order No 1 to Kennedy/Jenks who will begin interviews with Operation and Maintenance staff and preparing design technical memoranda.

Headworks Critical Improvements

- The 30% design review was completed and the Approve Preliminary Design stage gate was successfully passed.

Headworks Improvements and New Headworks

- Project quality management and technology selection workshops were held.

Nitrification Clarifiers Rehabilitation

- Council approval a Master Consultant Agreement with HDR Engineering, Inc.
- Staff held a site walk with O&M staff and the consultant to develop a strategy for pipeline condition assessment.



Power and Energy

Digester Gas Compressor Upgrade

- The contractor, Anderson Pacific Engineering Construction, received and installed two sets of gas compressor skids and their respective control panels in the new Compressor Building.

Plant Instrument Air System Upgrade

- A pre-construction meeting and site walk were held for interested bidders. Bids are due to be returned on June 2.



Explanation of Project Performance Issues

A5-A6 Nitrification Magnetic Meter and 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. 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 2015. Discussions between senior management from both sides have been productive. A negotiated agreement to resolve all outstanding contract issues was concluded in January 2016 and a change order was issued for the contractor to purchase replacement custom actuators, with lead time of between 12 to 14 weeks. Council approved the additional required funding in March. The Contractor remobilized and completed the work, with a Beneficial Use date of May 27.

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 2015 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 the Notice of Completion and Acceptance was recorded with the County on May 5.

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 RWF controls. They have now delivered and are installing the controls and switchgear enclosures.
2. Additional time is required for Pacific Gas & Electric (PG&E) to approve and witness-test the installation and commissioning of the emergency diesel generator equipment. The Office of the City Attorney, the Public Works Department, and PG&E have reviewed and approved the PG&E Telemetry Services Agreement. The City has submitted payment to PG&E. Next, PG&E's technical team will review the City's project drawings and begin the design for PG&E equipment installation and connection with 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 generators are being modified to load-share with the new emergency diesel generators. However, these units may be modified only after the new generators have been commissioned. This sequence change has extended the project completion date. After revisiting the rehabilitation sequence for the existing cogeneration generators, the project team determined that commissioning for the EG-1 engine modification and the new generators may be combined, which will reduce the schedule delay.



Project Profile – Cogeneration Facility Project

The CIP Plant Master Plan includes the key RWF objectives of energy self-sufficiency and reduced greenhouse gas emissions through renewable energy generation and increased energy efficiency. The Cogeneration Facility Project maximizes the use of digester gas produced by the anaerobic digestion tanks to meet power and heat requirements, while reducing reliance on externally-supplied natural gas. Existing RWF cogeneration equipment ranges in age from 20 to 60-plus years, and is becoming increasingly less reliable. In 2012, the City completed a comprehensive study of the RWF's power generation equipment and concluded that the existing cogeneration equipment needed to be replaced to improve efficiency and reliability of onsite power and heat, while reducing air emissions.

The new cogeneration facility includes installation of up to four natural gas/biogas-fired reciprocating engines, with three operating as primary duty and one as standby. The engines will be housed in a new building on the east side of the RWF site. Three operating engines will generate 12.4 megawatts of power and replace all existing RWF engines. The project also includes installation of a new digester gas treatment system; heat recovery systems; electrical switchgear; emissions controls; backup boilers; and water, stormwater, and sanitary sewer utilities.

This project will be the first progressive design-build project at the RWF under the new design-build procurement process defined in 2014 Senate Bill No. 785. Progressive design-build is a preferred delivery method because of the potential for expedited project delivery; performance guaranteed by the contractor; design innovation and efficiencies; better coordination during tie-ins and startup; and single point of contractual responsibility.

CH2M HILL Engineers, Inc. (CH2M) has been selected as the progressive design-builder and has teamed up with a locally-based firm, C. Overaa & Company. The progressive design-build contract involves two distinct phases:

Phase 1 - Preliminary Services: This initial design phase will develop the 60 percent design of the facility. After completion of the 60 percent design plans, the City and CH2M will negotiate and execute a contract amendment with a guaranteed maximum price.

Phase 2 - Equipment and Construction: This phase includes CH2M's design-build work to complete the design, construct and commission the facility, and gain final acceptance of the project.

Phase 1 of the project was initiated in April and is projected to be completed in May 2017. Phase 2 is scheduled for June 2017 to March 2019. The total project budget is \$106.8 million.



Figure 3: Example facility



Figure 2: Rendering of future facility by CH2M Hill Engineers, Inc.

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Regional Wastewater Facility Treatment – Current Treatment Process Flow Diagram

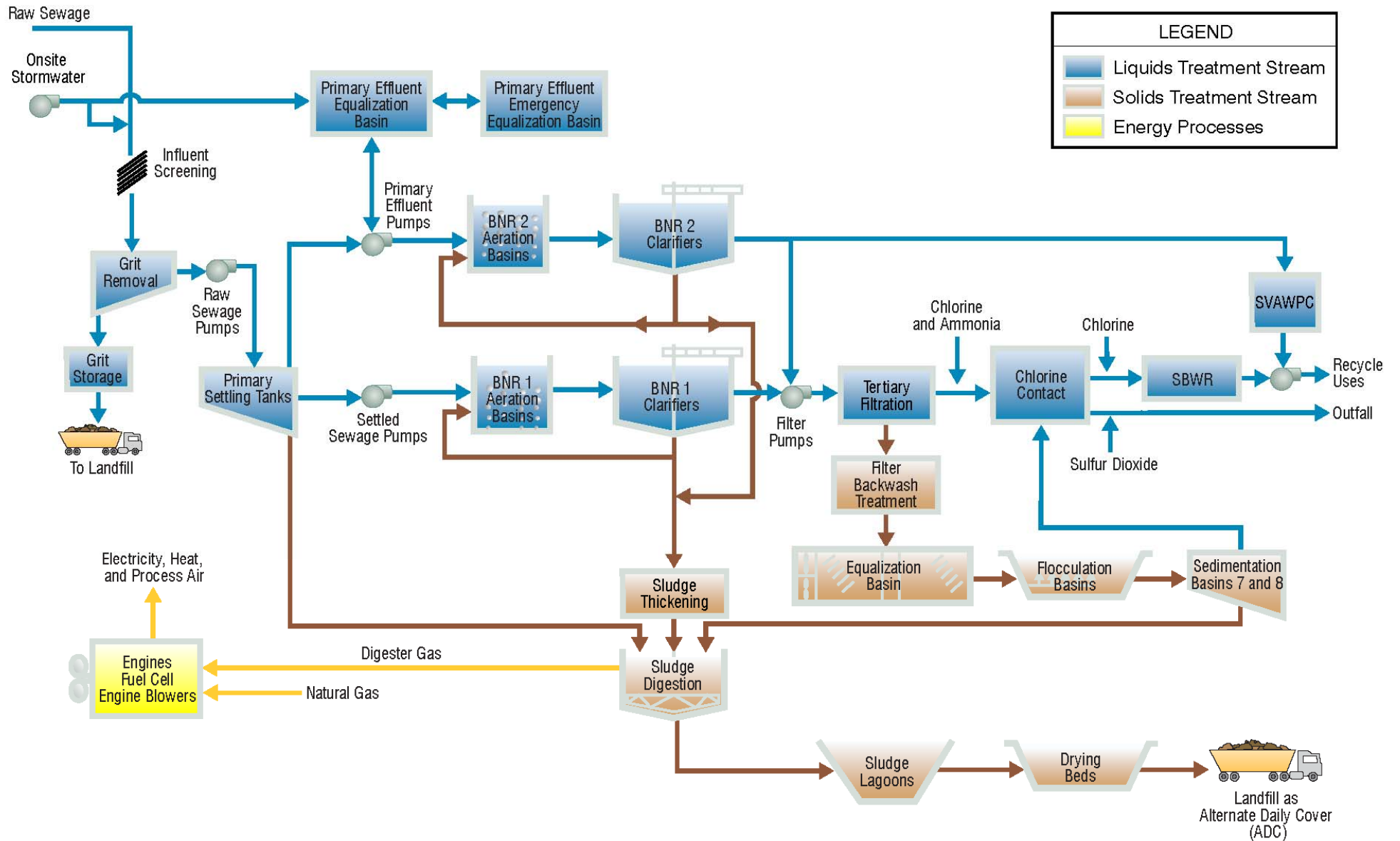
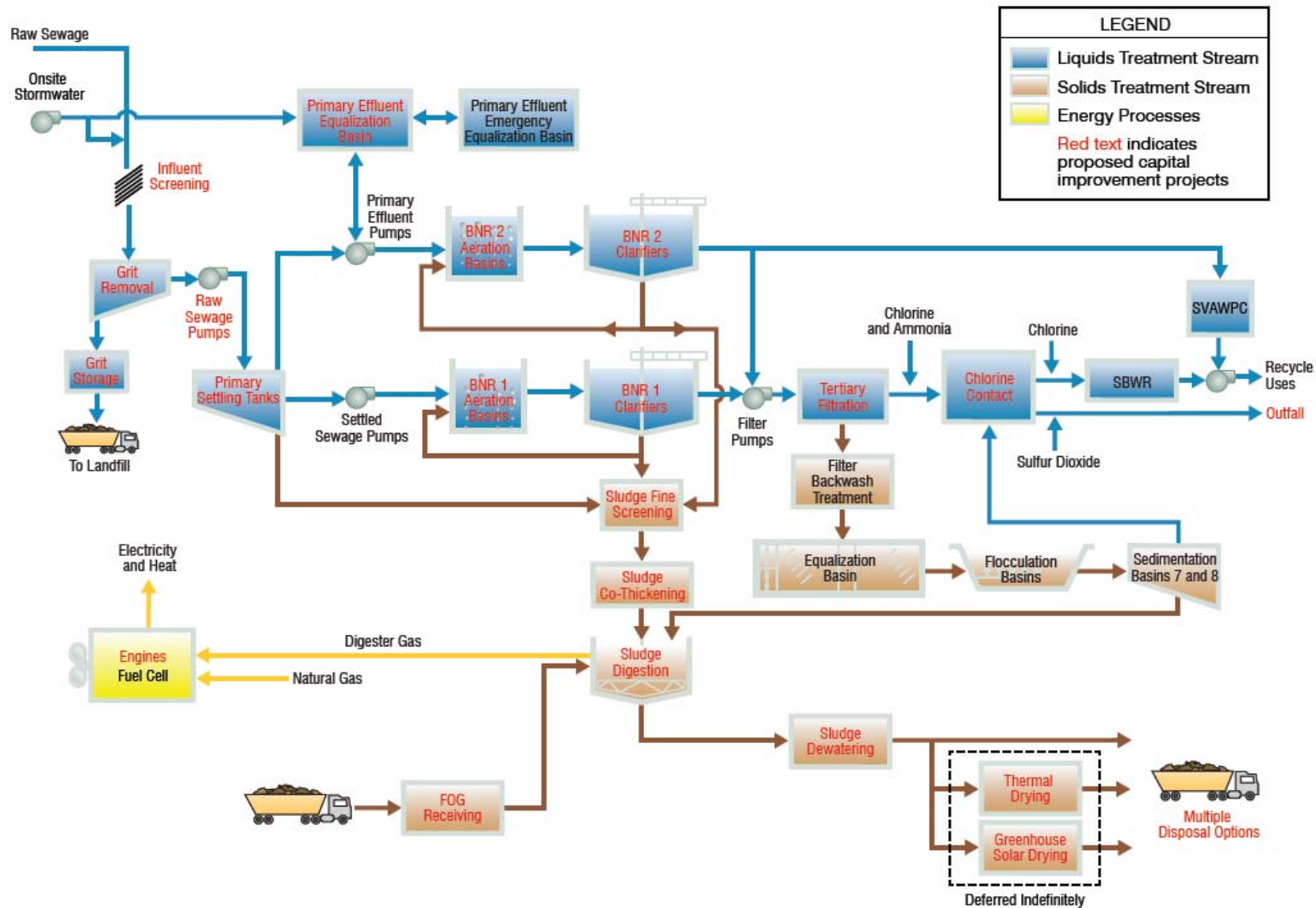


Figure 4 – Current Treatment Process Flow Diagram



Regional Wastewater Facility Treatment – Proposed Treatment Process Flow Diagram



LEGEND	
█	Liquids Treatment Stream
█	Solids Treatment Stream
█	Energy Processes
█	Red text indicates proposed capital improvement projects

Figure 5 – Proposed Treatment Process Flow Diagram



Active Construction Projects – Aerial Plan

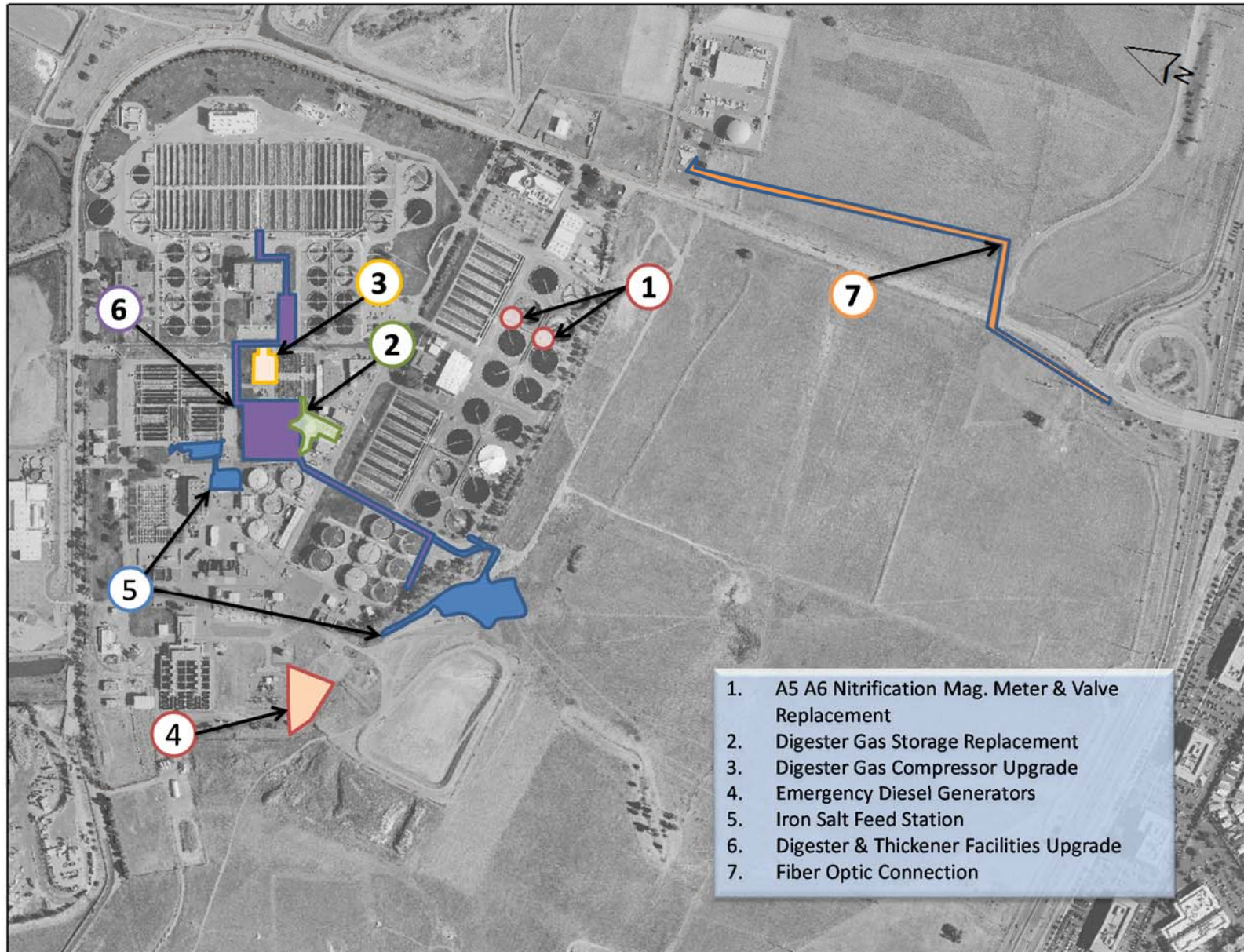


Figure 6 – Active Construction Projects

