San José-Santa Clara Regional Wastewater Facility

Capital Improvement Program

Monthly Status Report: April 2020

June 4, 2020

This report summarizes the progress and accomplishments of the Capital Improvement Program (CIP) for the San José-Santa Clara Regional Wastewater Facility (RWF) for April 2020.

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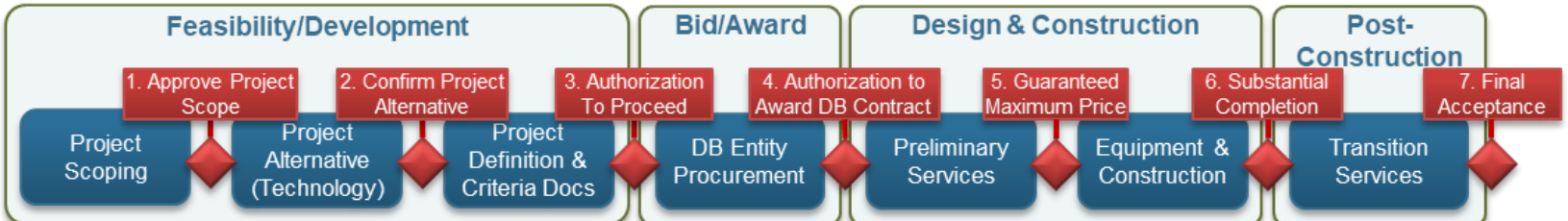
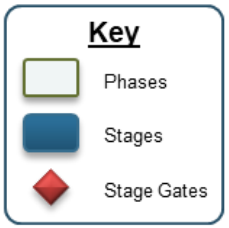
Progressive Design-Build Active Projects



Digested Sludge Dewatering Facility

Cogeneration Facility

Headworks



*Projects shown *underlined and in blue and italics* have either been initiated or advanced this reporting period.
**Project delivery method has changed to design-bid-build.

Program Summary

April 2020

In April, the COVID-19 pandemic continued to impact the CIP. Projects under construction were designated as essential in early April, in accordance with the Santa Clara County Public Health Officer Order issued March 31, allowing work to continue. CIP construction management (CM) field staff continued to perform their duties at the RWF. The City provided updated safety guidance to contractors and CM staff in accordance with the latest health order. All other CIP staff continued to work remotely, utilizing virtual meetings and email communication. Additional information on the CIP's COVID-19 response is provided in the Program Highlight on the next page.

Two projects advanced through the Project Delivery Model (PDM, p. 2). The Flood Protection Project was approved to proceed to the Project Alternatives stage and the Yard Piping Improvements – Phase 1 Project was approved to proceed with preliminary design. In addition, the scopes for the Process Optimization Study and Energy Management Strategic Plan Update Study were approved and the studies were authorized to move forward.

The Digester and Thickener Facilities Upgrade Project contractor worked with operations and maintenance (O&M) staff to perform multiple process shutdowns to connect new pipes, electrical equipment and controls into existing systems. San José Fire Department personnel inspected and approved the waterless dry agent fire suppression systems in the two electrical buildings and in the electrical room of the new primary sludge screening building.

The Cogeneration Facility Project design-builder connected the compressed digester gas (CDG) line from the Cogeneration Building to the connection point with the Digester and Thickener Facilities Upgrade Project. The line was purged and inerted.

The Blower Improvements Project contractor installed reduced-voltage soft starters at the Tertiary Blower Building and completed the transfer of locker rooms from Building 40 to temporary trailers.

The Advanced Facility Control and Meter Replacement – Phase 1 Project contractor completed the functional testing of 25 flow meters in the Secondary Battery B area with RWF treated effluent.

The Headworks Project team and owner's advisor reviewed Early Design Package 1 (EDP1) plans and specifications and returned comments to the design-builder. The team received approvals from the Bay Area Air Quality Management District (BAAQMD) and the Santa Clara Valley Habitat Agency, which allowed construction to start. Mobilization began with the delivery of construction trailers.

The Yard Piping Improvements – Phase 1 Project team completed an inspection of the 77-inch by 121-inch secondary effluent pipe using a remotely operated vehicle (ROV), for a distance of about 2,200 feet.

The design-builder for the Digested Sludge Dewatering Facility Project held a concept refinement and phasing workshop that presented alternatives for both the digested storage and dewatered sludge cake storage designs.

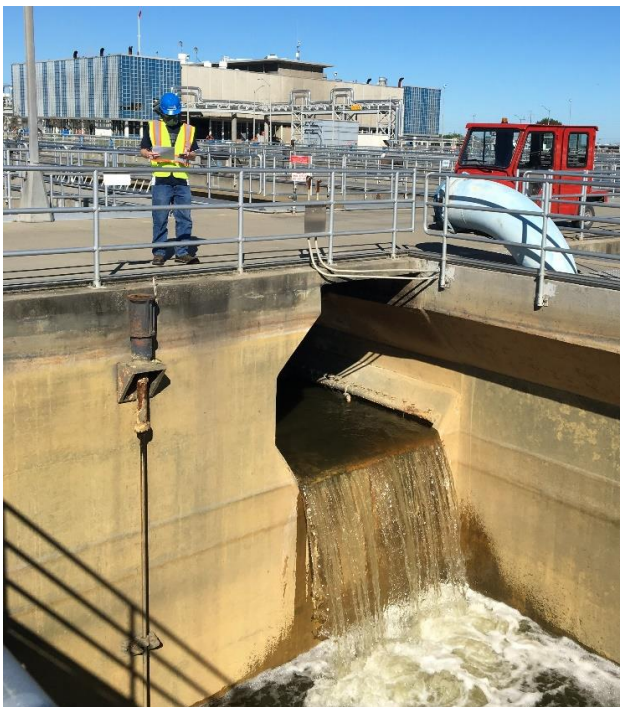


Figure 1: Advanced Facility Control and Meter Replacement – Phase 1 Project worker collecting water level readings during flow meter functional testing at the Secondary Battery B area.

Look Ahead

The following key activities are forecast for May and June 2020:

- The City will issue a Notice to Proceed (NTP) to the contractor for the Switchgear M4 Replacement and G3 & G3A Removal Project.
- Staff will recommend award of the construction contract for the Advanced Facility Control and Meter Replacement – Phase 2 Project.
- The City will open bids for the Filter Rehabilitation Project.
- Pre-commissioning activities will begin on the Cogeneration and Digester and Thickener Facilities Upgrade projects.
- Three projects will seek to advance through the following stage gates:
    - Construction Enabling Improvements Project – Stage Gate 8: Final Acceptance
    - Facility-wide Water Systems Improvements Project – Stage Gate 3: Authorization to Proceed
    - Outfall Bridge and Instrumentation Improvements Project – Stage Gate 4: Approve Preliminary Design

Program Highlight – Working During the COVID-19 Pandemic

Like the rest of the world, business at the RWF has been anything but usual. In response to the novel coronavirus, or COVID-19, the City moved into Stage 5 of its Pandemic Response Plan, the most restrictive level. Residents have been sheltering in place, only leaving their homes for essential business or travel. These changes have impacted the CIP in various ways.

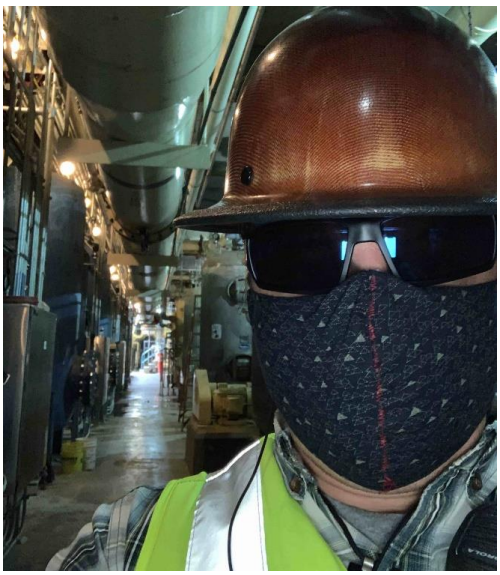


Figure 2: Digester and Thickener Facilities Upgrade Project worker in the Dissolved Air Flotation Tank gallery wearing face covering.

Projects in Construction

In April, the City declared CIP construction essential. Contractors have continued work after implementing required social distancing rules, face coverings, and other measures in accordance with the County order. They and the City have added signage around the RWF that informs workers of precautions they must take to protect themselves and others from exposure to the virus. Interactions between O&M staff and contractors have been restricted. O&M staff and contractors have reduced crew sizes and maintained independent work groups to minimize the potential for infection.

Pandemic-related impacts to construction schedules are still being determined. Both contractors and RWF staff are quickly learning how to operate under these new work conditions.

Projects in Design

Projects in design from Feasibility and Development through the Bid and Award Phases have been progressing with CIP project staff working remotely from home. This sudden transition to working from home has included various adjustments, with staff setting up home offices and working out family schedules since daycare and schools are closed.

Figure 3: CIP staff working from home

Despite these challenges, project teams have been adapting and continue to advance their projects. City staff are collaborating remotely with both the Program consultant and project design consultants using video and screen-sharing technology provided by Microsoft Teams and Zoom. Staff continues to use the CIP Portal online collaboration site to upload and share project files.

Program management staff have also been working remotely, continuing to hold project performance review meetings, processing contractor payments, and consultant contracts. Procurements of professional services and construction contracts has also continued with the City now accepting bid responses electronically.

A few exceptions have been made to the remote work rule. During early project development phases staff may visit project sites to assess existing conditions. O&M staff continue to provide design consultants access to site facilities for site evaluations; however, onsite interactions are restricted.

The City continues to develop policies and procedures in response to changing COVID-19 conditions. The CIP will continue to adapt and find creative solutions to ensure that these critical rehabilitation projects advance during this challenging time.

Program Performance Summary

Eight key performance indicators (KPIs) have been established to measure overall CIP success. Each KPI represents a metric that will be monitored on a regular basis. Through the life of the CIP, KPIs that best reflect the current program will be selected and measured. KPIs are reset each fiscal year.

Program Key Performance Indicators – Fiscal Year 2019-2020

KPI	Target	Fiscal Year to Date			Fiscal Year End		
		Actual	Status	Trend	Forecast	Status	Trend
Stage Gates	90%	95% 18/19[1]	●	↑	95% 19/20	●	→
Measurement: Percentage of initiated projects and studies that successfully pass each stage gate on their first attempt. Target: Green: >= 90%; Amber: 75% to 90%; Red: < 75%							
Schedule[2]	90%	N/A 0/0	N/A	N/A	N/A 0/0	N/A	N/A
Measurement: Percentage of CIP projects delivered within 2 months of approved baseline Beneficial Use Milestone.[3] Target: Green: >= 90%; Amber: 75% to 90%; Red: < 75%							
Budget[4]	90%	N/A 0/0	N/A	N/A	N/A 0/0	N/A	N/A
Measurement: Percentage of CIP projects that are accepted by the City within the approved baseline budget.[3] Target: Green: >= 90%; Amber: 75% to 90%; Red: < 75%							
Expenditure	$370M	$370M	●	↑	$403M	●	→
Measurement: CIP FY19-20 committed costs. Target: Committed costs meets or exceeds 70% of planned budget. 70% of $528M = $370M. Therefore Fiscal Year End Green: >=$370M; Red: < $370M							
Procurement	80%	83% 5/6	●	→	100% 6/6	●	→
Measurement: Number of consultant and contractor procurements advertised compared to planned for the fiscal year. Target: Green: >= 80%; Amber: 70% to 80%; Red: < 70%							
Safety	0	0	●	→	0	●	→
Measurement: Number of OSHA reportable incidents associated with CIP delivery for the fiscal year. Criteria: Green: zero incidents; Amber: 1 to 2; Red: > 2							
Environmental[5]	0	1	▲	→	0	●	→
Measurement: Number of permit violations caused by CIP delivery for the fiscal year. Target: Green: zero incidents; Amber: 1 to 2; Red: > 2							
Vacancy Rate[6]	10%	15% 13/86	▲	→	9% 8/86	●	→
Measurement: Ratio of the number of vacant approved positions to approved positions. Target: Green: <= 10%; Amber: 10% to 20%; Red: > 20%							

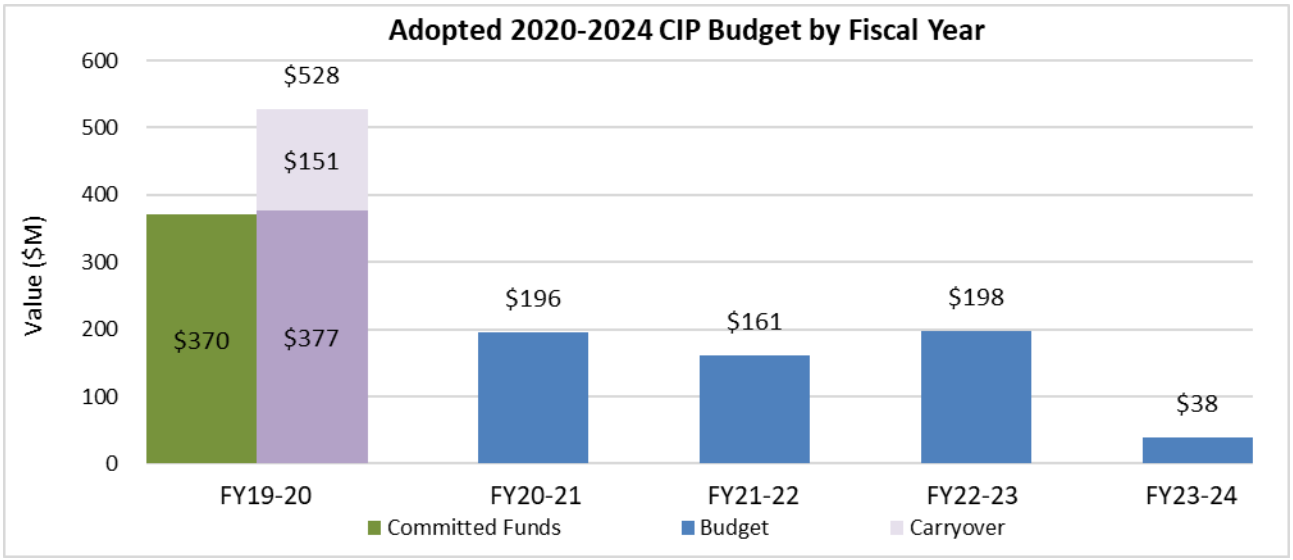
Notes

1. The RWF Energy Management Strategic Plan Update Study, the Process Optimization Study, and the Flood Protection Project all passed Stage Gate 1: Approve Project Scope. The Yard Piping Improvements – Phase 1 Project passed Stage Gate 3: Authorization to Proceed.
2. The CIP does not anticipate any projects reaching Beneficial Use this fiscal year.
3. The baseline Beneficial Use date and the baseline budget for each project are established at construction contract award and execution.
4. The CIP does not anticipate accepting any projects this fiscal year.
5. The program fiscal-year-end value decreased as encumbrance timing on several projects shifted.
6. The City has appealed a BAAQMD notice of violation related to permitting procedures and is awaiting a response.
7. The vacancy rate KPI measures CIP-approved positions, including ESD, Public Works, and program management consultant full-time staff.

Program Budget Performance Summary

This section summarizes the cumulative monthly budget performance for fiscal year (FY)19-20 based on the Adopted 2020-2024 CIP.

Adopted 2020-2024 CIP Expenditure and Encumbrances



Notes:

Committed Funds: Total of expenditures and encumbrances.

Expenditure: Actual cost expended, either by check to a vendor or through the City's financial system, for expenses such as payroll or for 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. An encumbrance reserves the funding within the appropriation and project.

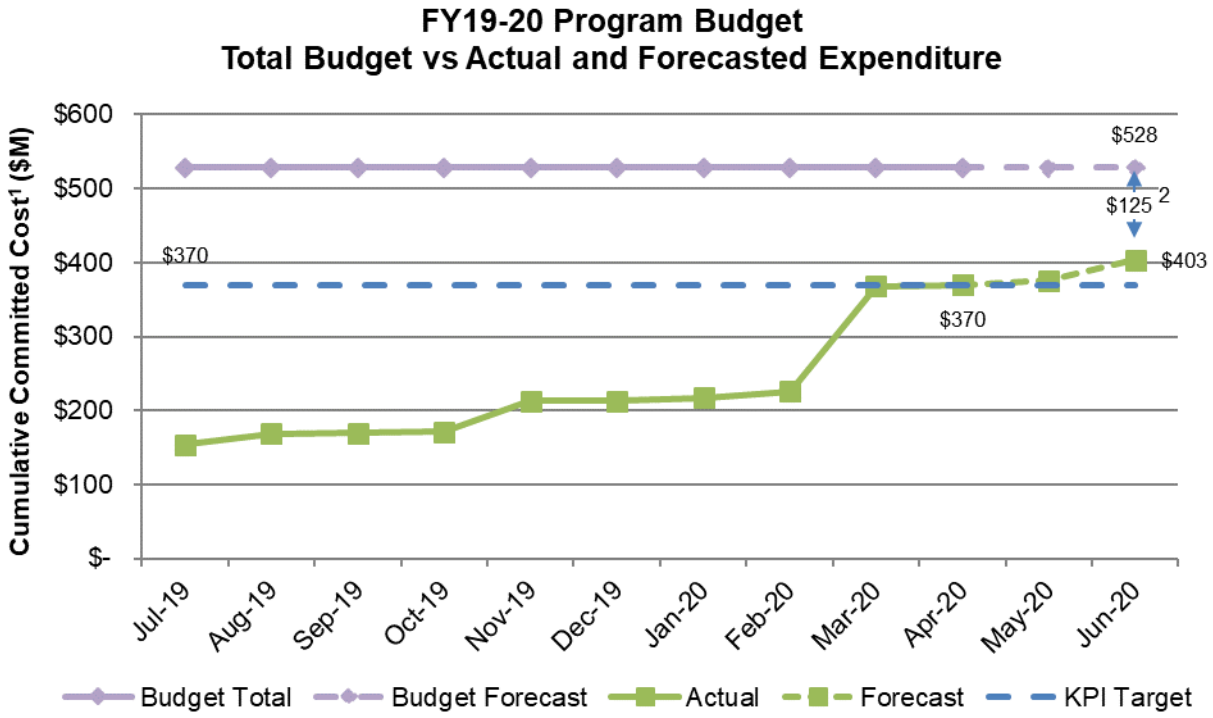
The FY19-20 budget is $401.5 million, which consists of $339.6 million in new funds and $61.9 million in rebudgets. For purposes of this monthly report, the adopted FY19-20 budget is adjusted from $401.5 million to $377.2 million due to the exclusion of certain appropriations that are not measured as part of the expenditure KPI. Excluded appropriations include City Hall Debt Service Fund; Clean Water Financing Authority Debt Service Payment Fund; Debt Service Repayment for Plant Capital Improvement Projects (San José only debt service); Equipment Replacement Reserve; Ending Fund Balance; Public Art; City Facilities Emergency Power; and Urgent and Unscheduled Treatment Plant Rehabilitation. Similar adjustments have been made to the budgets for FY20-21 through FY23-24.

Carryover: Encumbrance balances at the end of the previous fiscal year are automatically carried forward to the current fiscal year as carryover funding to pay invoices for approved construction contracts and consultant agreements. FY19-20 carryover is $151.0 million.

Budget of $377.2 million and carryover of $151.0 million totals $528.2 million for FY19-20.

Fiscal Year 2019-2020 Program Budget Performance

The FY19-20 CIP budget is comprised of approximately $377.2 million in new and rebudgeted funds, plus encumbered carryover of $151.0 million, for a total of $528.2 million. This excludes City Hall Debt Service Fund; Clean Water Financing Authority Debt Service Payment Fund; Debt Service Repayment for Plant Capital Improvement Projects (San José only debt service); Equipment Replacement Reserve; Ending Fund Balance; Public Art; City Facilities Emergency Power; and Urgent and Unscheduled Treatment Plant Rehabilitation items. Overall, the forecast fiscal year-end committed funds exceed the fiscal year-end target by $33 million.



Notes:

1. Committed costs are expenditures and encumbrance balances, including carryover (encumbrance balances from the previous fiscal year).
2. The variance between budget and commitments can be primarily attributed to the following factors:
    a. Three construction contracts are now anticipated to be awarded in FY20-21 instead of FY19-20, based on updated schedules:
        i. Filter Rehabilitation Project
        ii. HVAC Improvements
        iii. Outfall Bridge and Instrumentation Improvements Project
    b. Several consultant service orders are not anticipated to be awarded in FY19-20:
        i. Aeration Tank Rehabilitation Project conceptual through final design
        ii. Facility Wide Water Systems Improvements Project preliminary engineering and value engineering
        iii. Flood Protection Project alternatives analysis and conceptual design
    c. The Yard Piping and Road Improvements Project was divided into multiple design-bid-build phases, resulting in different encumbrance points and values.
    d. Construction bids for the Nitrification Clarifiers Rehabilitation – Phase 1 and Advanced Facility Control and Meter Replacement - Phase 2 projects came in under budget.
    e. Several other minor encumbrances for consultant services are either lower than budgeted or are not anticipated to be awarded in FY19-20.
    f. Several authorized positions remain vacant, resulting in lower personal services expenses than budgeted.

Project Performance Summary

There are currently seven projects in the construction and post-construction phases and an additional 11 projects in feasibility/development, design, bid and award, or design and construction phases (see PDM, page 2). 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.

Project Performance – Baselined Projects

Project Name	Phase	Estimated Beneficial Use Date[1]	Cost Performance[2]	Schedule Performance[2]
1. Cogeneration Facility	Design & Construction	Sep 2020	●	●
2. 96-Inch and 87-Inch Settled Sewage Pipe Rehabilitation	Construction	Jan 2021	●	●
3. Digester and Thickener Facilities Upgrade	Construction	Mar 2021	◆	◆
4. Advanced Facility Control & Meter Replacement - Phase 1	Construction	June 2021	◆	●
5. Blower Improvements	Construction	Sep 2022	●	●
6. Switchgear M4 Replacement and G3 & G3A Removal	Construction	Jan 2023[3]	●	●
7. Nitrification Clarifiers Rehabilitation – Phase 1	Construction	Jan 2023[3]	●	●

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 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. The project construction Beneficial Use date will be baselined once the City issues the construction contract NTP letter.

Project Performance – Pre-Baselined Projects

Project Name	Phase	Estimated Beneficial Use Date[1]
1. Headworks	Design and Construction	Jun 2023
2. Digested Sludge Dewatering Facility	Design and Construction	Nov 2023
3. Advanced Facility Control & Meter Replacement - Phase 2	Bid/Award	Jan 2023
4. Fire Life Safety Upgrades	Design	Nov 2022
5. Outfall Bridge and Instrumentation Improvements	Design	Jan 2023
6. Filter Rehabilitation	Design	Jan 2024
7. HVAC Improvements	Design	Apr 2024
8. Yard Piping Improvements – Phase 1	Feasibility/Development	Oct 2021
9. Storm Drain System Improvements	Feasibility/Development	Sep 2023
10. Facility Wide Water Systems Improvements	Feasibility/Development	Jan 2025
11. Final Effluent Pump Station and Stormwater Channel Improvements	Feasibility/Development	May 2026

Notes

1. Beneficial Use is defined as work that is sufficiently complete, in accordance with contract documents, that it can be used or occupied by the City. Beneficial Use dates are reviewed as part of project schedule reviews.

Project Significant Accomplishments

Biosolids Package

Digested Sludge Dewatering Facility Project

- Design-builder Walsh Construction Company II (Walsh) held a concept refinement and phasing workshop at which the alternatives for both the digested storage and dewatered sludge cake storage designs were presented.

Digester and Thickener Facilities Upgrade Project

- Contractor Walsh worked with O&M staff on 12 process shutdowns for portions of the wastewater treatment process that make it possible to connect new pipes, electrical, and controls into the existing system.
- Walsh placed new concrete pads for sludge cooling equipment west of Digesters 5 and 7.
- San Jose Fire Department personnel inspected and approved installation of the waterless dry agent fire suppression system in the two electrical buildings and in the electrical room of the new primary sludge screening building.

Facilities Package

Yard Piping Improvements – Phase 1 Project

- The team will inspect six pipes with the ROV for major defects and crown corrosion this summer. The team completed the ROV inspection of the 77-inch by 121-inch secondary effluent (SE) pipe. The ROV assessed nearly all of the SE pipe alignment from the A-B isolation structure to upstream of the filtration influent pump station wet well – a distance of about 2,200 feet. The pipe appeared to be in good condition with no major defects and no evidence of crown corrosion. The results of the pipe assessments will be used to inform scope and determine rehabilitation method.

Liquids Package

Advanced Facility Control and Meter Replacement – Phase 1 Project

- Contractor Overaa completed functional testing for 25 out of 53 flow meters in the Secondary Battery B area using treated RWF effluent. In May, Overaa will begin the functional testing of process control instrumentation and clarifier effluent flow meters in the Secondary Battery B area with process water.

Blowers Improvements Project

- Contractor Monterey Mechanical Company completed the move-out of the existing locker rooms in Building 40.
- The contractor also installed reduced-voltage soft starters at the Tertiary Blower Building.

Filter Rehabilitation Project

- In light of the COVID-19 restrictions, the bid period for the construction contract was extended to June 18. The contract award is expected in October 2020.

Final Effluent Pump Station and Stormwater Channel Improvement Project

- Staff held a workshop in April to score the four shortlisted alternatives. Staff then held a follow-up meeting with stakeholders to review the alternative scoring results and select a preferred alternative.

Headworks Project

- The City and owner's advisor reviewed Early Design Package 1 (EDP1) plans and specifications which include utility relocation, supply of temporary fiber and power, and mass excavation, and returned their comments to CH2M, the design-builder. Mobilization began with installation of the construction trailers. Approvals to begin construction were received from BAAQMD and the Santa Clara Valley Habitat Agency. EDP1 construction is scheduled to start in June 2020.

Nitrification Clarifier Rehabilitation - Phase 1 Project

- The City accepted contractor Overaa's baseline schedule and critical equipment flow meter submittals.
- Overaa submitted a process shutdown request for performing the construction work in the Nitrification Clarifier Battery B area beginning this summer.

Power and Energy Package

Cogeneration Facility Project

- Design-builder CH2M connected the compressed digester gas (CDG) line from the Cogeneration Building to the CDG line of the Digester and Thickener Facilities Upgrade Project. The line was purged and inerted.

Explanation of Project Performance Issues

Digester and Thickener Facilities Upgrade Project

This project encountered numerous unforeseen conditions at the beginning of construction in 2016, including corroded underground pipe and other obstructions for new building foundations. A temporary reroute system was installed to enable replacement of a 78-inch settled sewage pipeline and junction structure during the 2018 dry season.

In 2017, design modifications were required to address seismic risks, control system changes, additional underground obstructions, pipe anchorage, and new fire department requirements. Discovery of hazardous materials required submittal of an extensive cleanup proposal to the federal EPA for approval. Once mitigation was completed in 2019, the City submitted another report to the EPA that detailed how it met each EPA cleanup permit requirement.

To pay for the additional work to address unforeseen conditions, Council approved a construction contingency increase of $15 million in November 2017 and another contingency increase of $25 million in June 2018.

Delays for these conditions have amounted to 273 working days. The original construction completion and Beneficial Use date of September 2019 has been delayed and rescheduled to November 2020. Currently, the City is evaluating Walsh's request for additional delays due to numerous design related change orders. This may delay the project an additional 71 working days, moving completion to March 2021.

Advanced Facility Control and Meter Replacement – Phase 1 Project

In late 2018, the CIP identified the need for additional CM team resources to adequately manage the construction, testing, and startup challenges the project was experiencing as well as unforeseen conditions (see drain plate issue below). The project team subsequently added staff and increased budget hours for both the CM and project management teams to better support the project's construction and post-construction phases.

Additional staff time and consultant engineering services were required in late 2019 to resolve an unforeseen corroded drain plates and other obstructions for the new flowmeter equipment. A design modification was required to address the aging pipe flange connected to the drain plate. The project and construction teams were required to perform additional work to resolve the unforeseen conditions; this additional work has resulted in additional project delivery costs due to increased CM costs. Completion of this work has now been pushed to July 2020, with an additional cost of $530,000, but has not changed the overall construction completion date of December 2020.

Regional Wastewater Facility Treatment – Current Treatment Process Flow Diagram

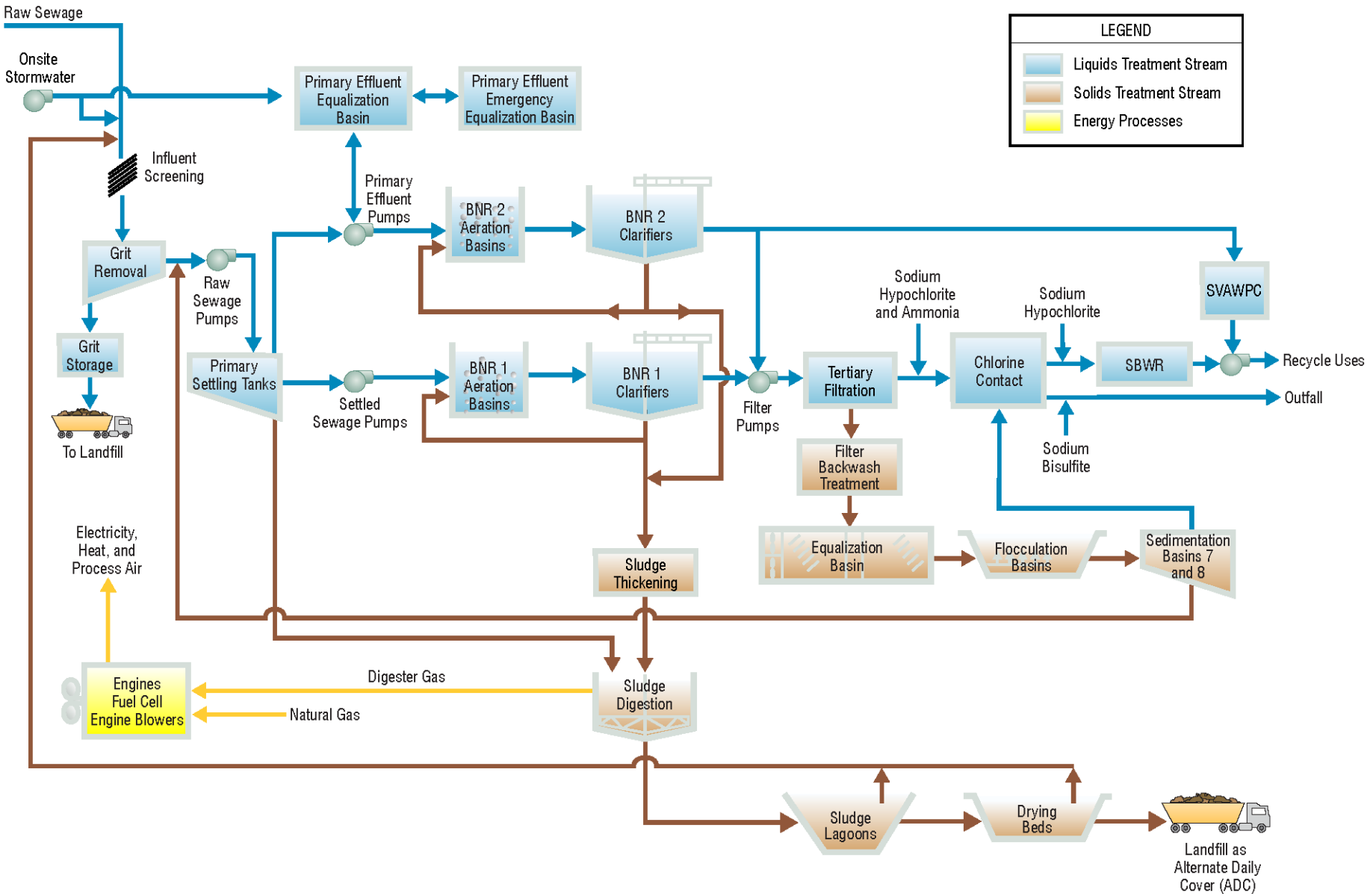


Figure 4 – Current Treatment Process Flow Diagram

Regional Wastewater Facility Treatment – Proposed Treatment Process Flow Diagram

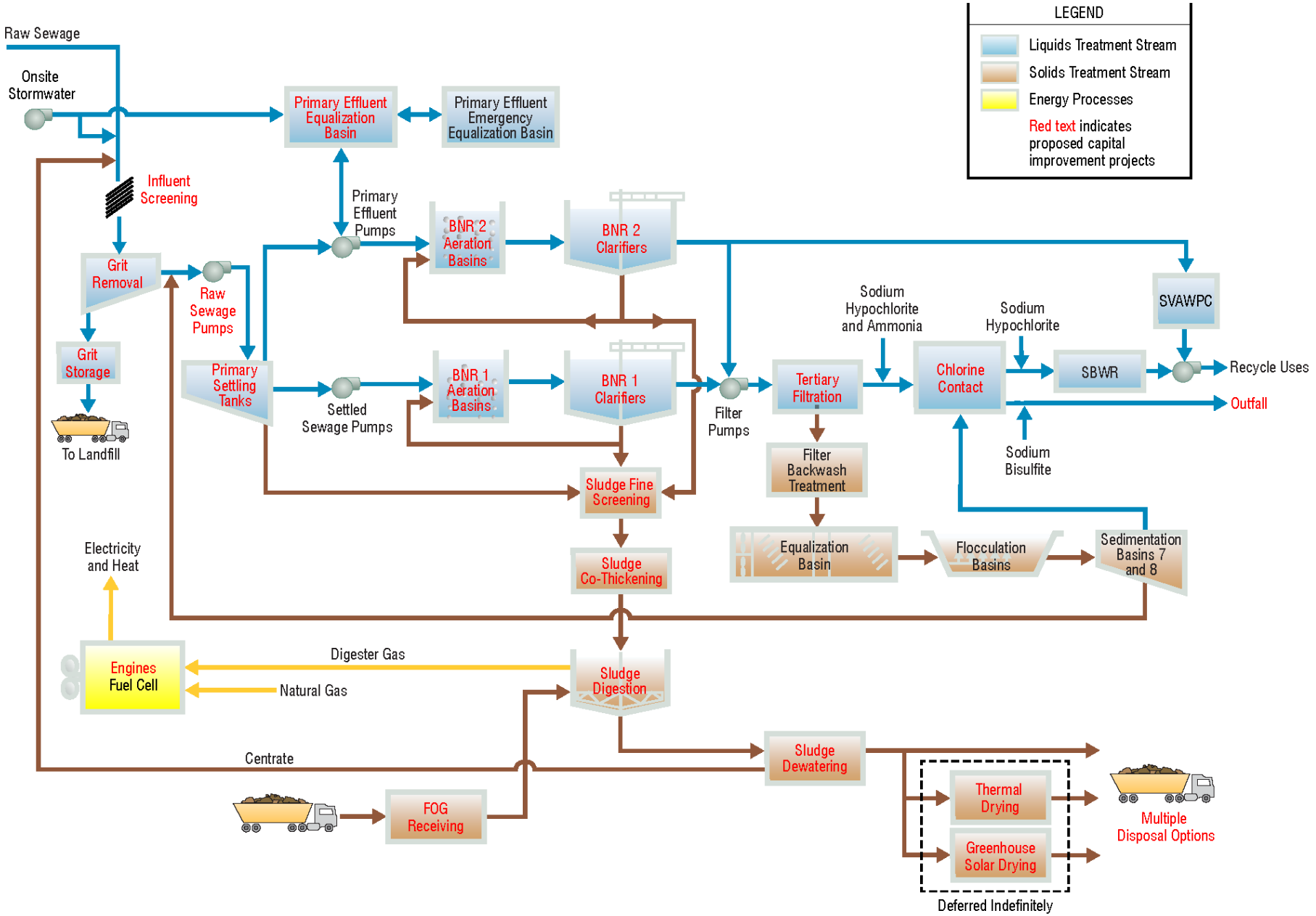


Figure 5 – Proposed Treatment Process Flow Diagram

Active Construction Projects – Aerial Plan

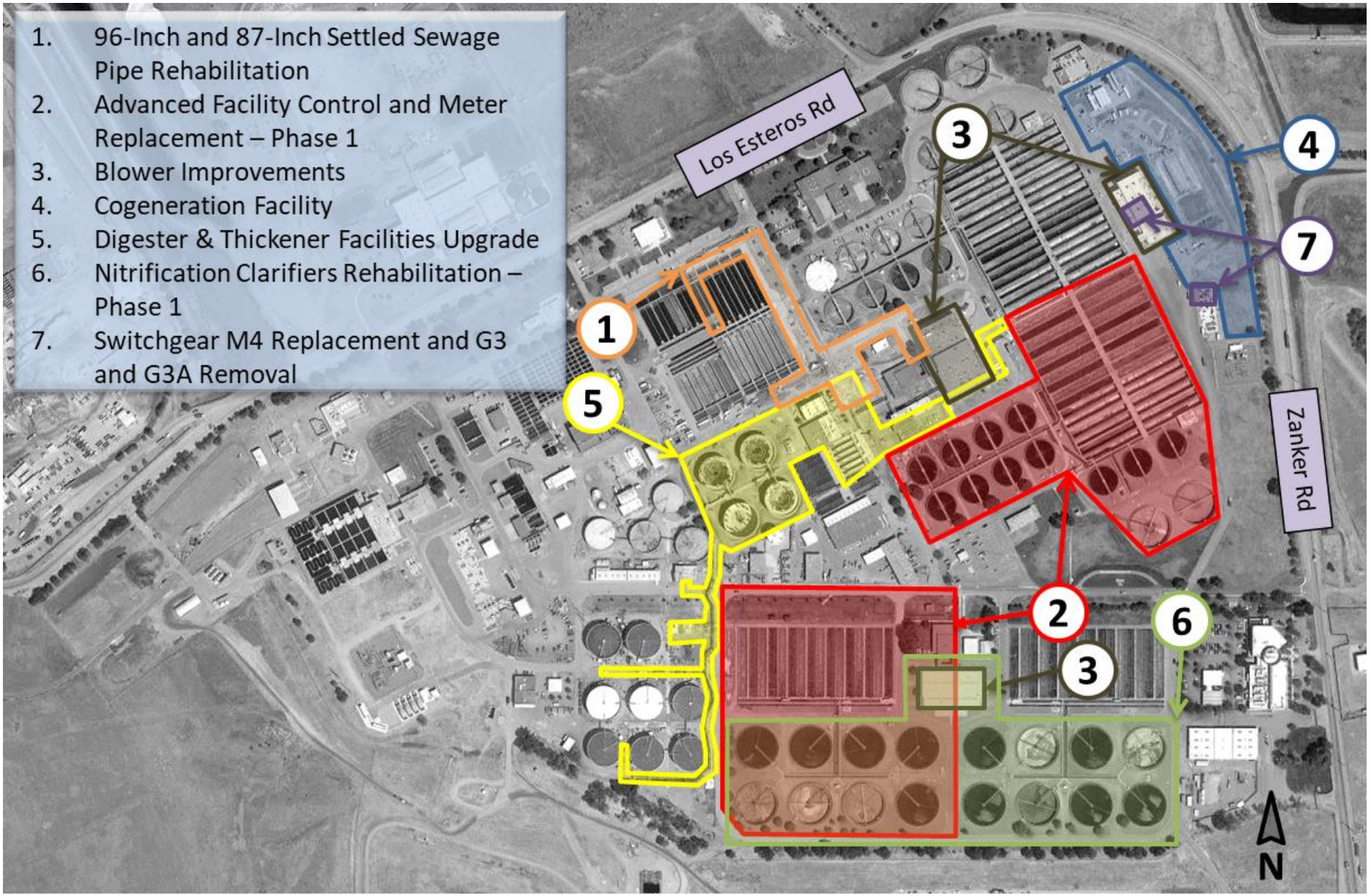


Figure 6: Active Construction Projects