San José-Santa Clara Regional Wastewater Facility

Capital Improvement Program

Monthly Status Report for November 2014

January 8, 2015

This report provides a summary of the progress and accomplishments of the Capital Improvement Program (CIP) for the San José-Santa Clara Regional Wastewater Facility (Wastewater Facility or RWF) for the period of November 2014.

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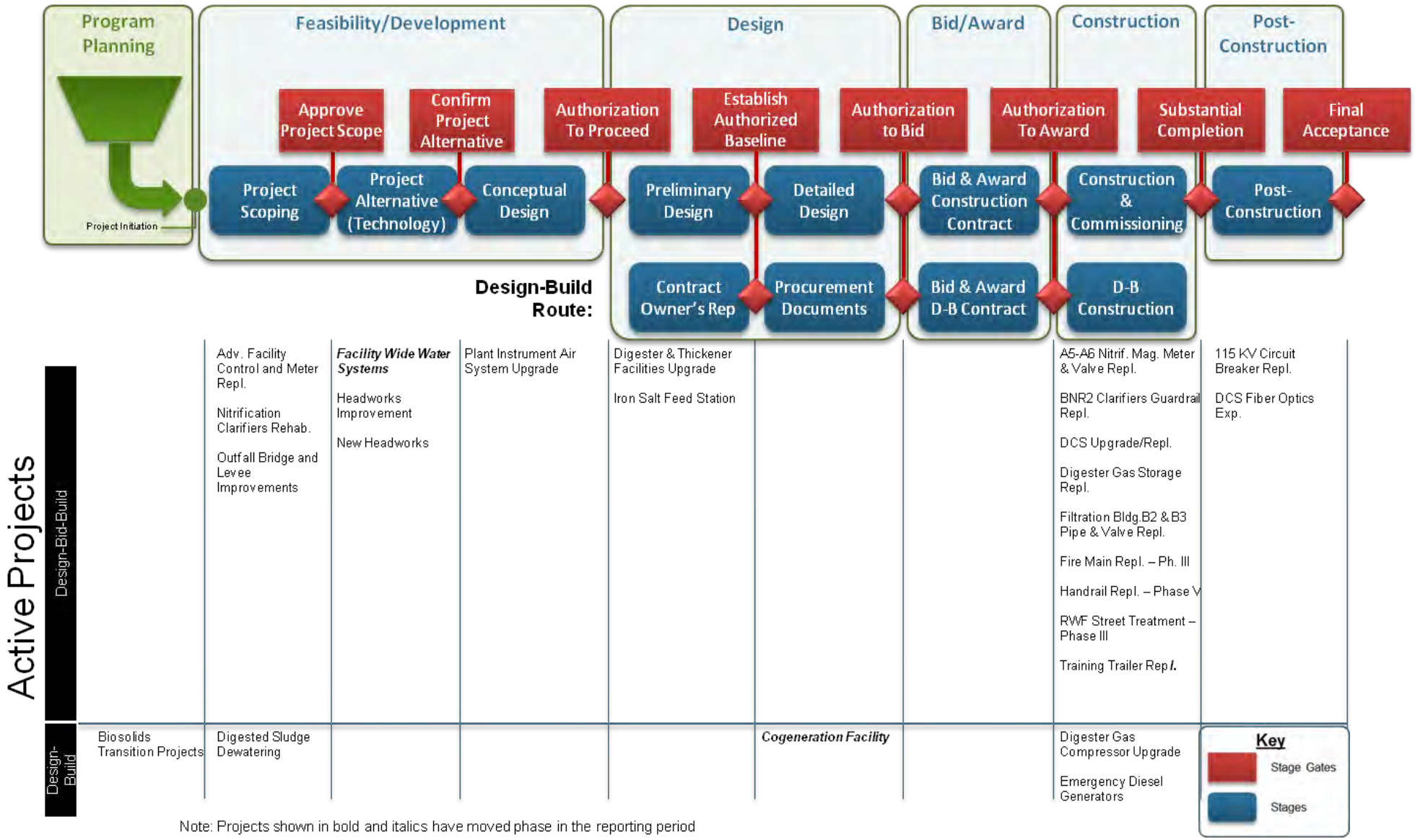
Project Delivery Model



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

Program Summary

November 2014

In the month of November, the program team made significant progress. We continued to move studies and projects through stage gates of the Project Delivery Model (PDM) process (see figure, inside of front cover). In particular, we saw the Facility-wide Water Systems Improvements project complete the "Approve Scope" stage gate and proceed to procurement of a design consultant. Work progressed on our Design Guidelines Library, with a focus now on reviewing and approving our standard specifications. We began estimating our staffing needs for FY 15-16, with an initial focus on required City staffing levels. As an improvement to the PDM, we developed and launched a "stage page" interface for the Project Scoping stage. The stage page provides staff more intuitive access to our various PDM requirements and references. The Odor and Corrosion Control Study proceeded with a large workshop held with engineering and operations and maintenance (O&M) staff. We began defining in more detail the method we will use for individual projects to select a delivery method (design-bid-build vs. design-build). Our funding work also continued with staff analyzing the use of the State Revolving Fund (SRF) for financing projects. Our environmental team is preparing for increased levels of construction, including coordination of our mitigation monitoring and reporting program (MMRP), a requirement of the Plant Master Plan Environmental Impact Report. Staff released the Request for Qualifications to prequalify design-builders for the Cogeneration Facility. Finally, work on our Architectural Guidelines Study continued, with a workshop held with CIP and O&M staff to begin to define the future architectural look of the RWF.

On November 3rd, we presented an interim report on the biosolids transition work and an update on the flow study to the Transportation & Environment (T&E) committee.. On November 10th, we met with the Technical Advisory Committee (TAC) to continue discussions on the biosolids transition. Finally, on November 20th, we held a special Treatment Plant Advisory Committee (TPAC) session on the biosolids transition, where the committee recommended implementing temperature-phased anaerobic digestion (TPAD) as part of the Digester and Thickener Facilities Upgrade project and foregoing the Thermal Drying Facility and Greenhouse Demonstration projects. TPAC also recommended postponing the Digested Sludge Dewatering Facility project until fall 2015 when the Odor and Corrosion Control Study has been completed and we can return with additional information on the impact of the biosolids transition on odor in the community and associated costs for the various treatment and disposition alternatives.

Look Ahead

In December, we will move forward with the design consultant procurement for the Headworks Improvements and New Headworks projects. We will also begin preparing procurement documents for the Facility-wide Water Systems Improvements project. A number of projects and studies will also continue to progress through the PDM and Stage Gate process. At the December 2nd City Council meeting, we are scheduled to present an update on the odor control study and request approval of the biosolids transition strategy. Work will also continue on the odor control study, delivery method analysis, and architectural guidelines. In December, staff will continue drafting the Proposed FY 15-16 Capital Budget and FY 16-20 CIP.

Program Highlight – GIS Application on the CIP Portal

In November, a geographical information system (GIS) application, "Map Viewer," was launched on the CIP Portal. This application was developed by the CIP team, in coordination with the RWF GIS team, using GIS, database and web technologies. The application contains an interactive map, similar to Google Earth, showing the GIS layers relevant to the CIP Program. Layers that are available consist of existing and proposed project boundaries, planned utilities and pipelines, environmental layers showing features like wetlands, the City bombing range, burrowing owl preserve, process streams, piping systems and their associated isolation valves, manholes, fittings, photos, and much more. The user has the ability to select the layers to display and then print the map as shown on the computer screen. The Map Viewer is available to users through the CIP Portal when they are on the City network.

The Map Viewer application is very useful to project teams as it gives team members direct access to geographical information that can be used quickly and easily to find answers to questions such as whether the project boundary is next to sensitive habitat for which they might need an environmental permit, or what utility lines are running through which sections of the facility. With geographical data at their fingertips, the project team can make informed decisions on their project in a timely manner. The Map Viewer will be updated monthly to make sure that all of the data is current and relevant, and the plan is to add more layers in the future based on user feedback.

Figure 1—Sample of Map Viewer Display

Program Performance Summary

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

Program Key Performance Indicators – Fiscal Year 2014-2015

KPI Description	Target	Actual	Status	Trend	Measurement
Schedule	85%	100% (1/1)			Percentage of CIP projects delivered within 2 months of approved baseline Beneficial Use Milestone. ***Target: 85% of projects delivered within 2 months of approved baseline schedule or better.***
Budget	90%	0% (0/1)			Percentage of CIP projects that are completed within the approved baseline budget. ***Target: 90% of projects delivered are within 101% of the baseline budget.***
Expenditure[1/2]	≥$95.8M	$96.9M			Total CIP actual + forecast committed cost for the fiscal year compared to CIP fiscal year budget. ***Target: Forecast committed cost meets or exceeds 60% of budget for Fiscal Year 14/15 (60% of $159.7M= $95.8M)***
Procurement	100%	100% (7/7)			Number of actual + forecast consultant and contractor procurements compared to planned for the fiscal year. ***Target: Forecast /actual procurements for fiscal year meet or exceed planned.***
Safety	0	0			Number of OSHA reportable incidents associated with CIP construction for the fiscal year. ***Target: zero incidents.***
Environment/Permits	0	0			Number of permit violations caused by CIP construction for the fiscal year. ***Target: zero violations.***
Staffing Level[3]	TBD	TBD	TBD	TBD	Percentage of authorized staffing level ***Target: to be determined***

KEY:

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

Notes

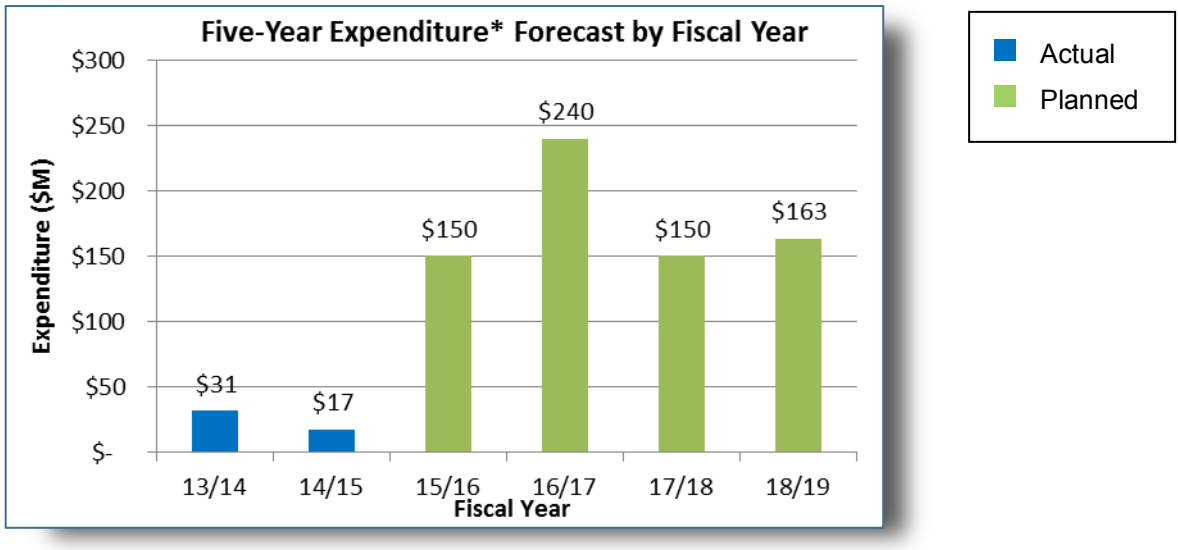
1. FY14-15 budget excludes reserves, ending fund balance, South Bay Water Recycling, Public Art and Urgent and Unscheduled Rehabilitation items
2. The Expenditure KPI Target Forecast percentage has been adjusted to reflect the decision to report against the total program budget including contingency (previously the total budget did not include contingency allowance).
3. Staffing level KPI measured quarterly; all other KPIs measured monthly.

Program Cost Performance

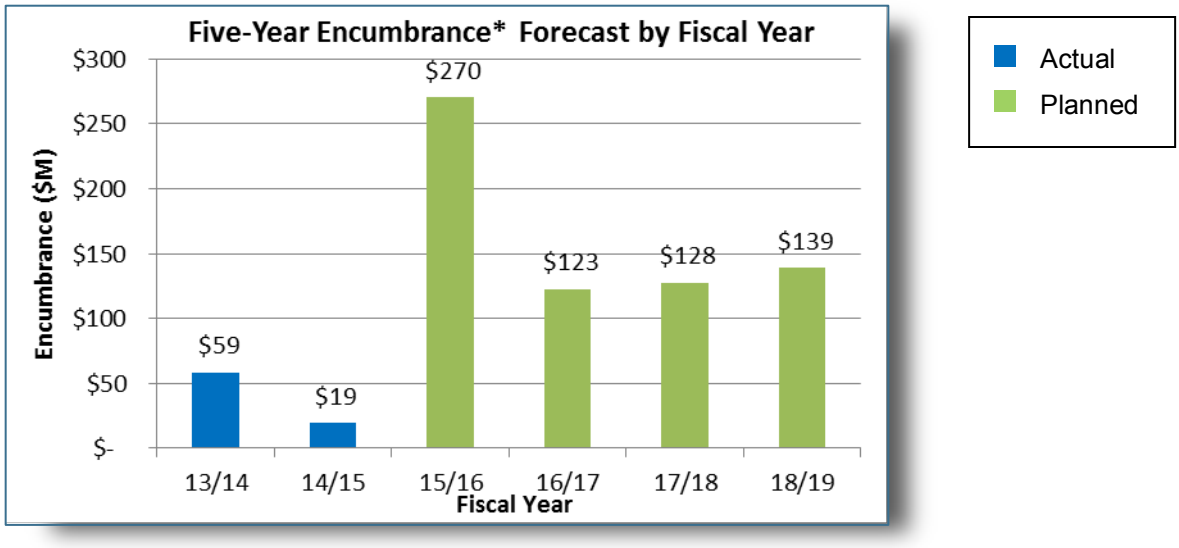
This section provides a summary of CIP cost performance for all construction projects and non-construction activities for FY14-15 and the Five-Year CIP.

Adopted 2015-2019 CIP Expenditure and Encumbrances

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



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



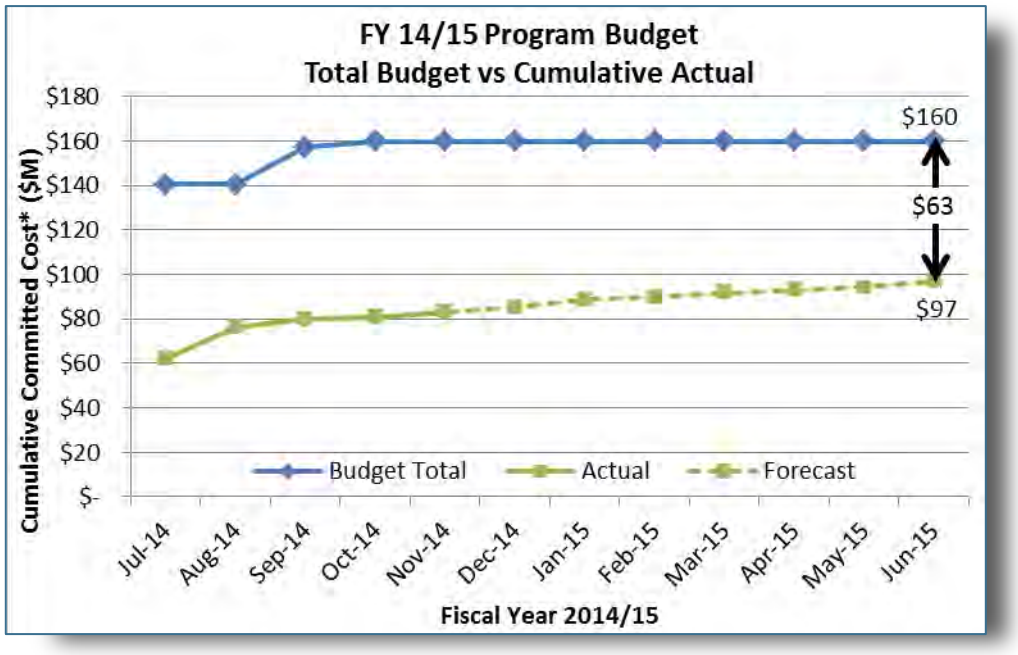
*Encumbrance defined as: Financial commitments, such as purchase orders or contracts, which are chargeable to an appropriation and for which a portion of the appropriation is reserved

Fiscal Year 2014-2015 Program Budget Performance

The fiscal year program budget is $160 million. The budget amount of $160 million represents the 2014-2015 budget of $107 million plus carryover of $53 million. The budget amount excludes reserves, ending fund balance, South Bay Water Recycling, Public Art and Urgent and Unscheduled Rehabilitation items. The budget now includes contingency allowance, which had been excluded from the amount shown in the August report.

The projected year-end variance of approximately $63 million is primarily due to the following activities that are now expected to occur in FY15-16:

- Award of the Cogeneration Facility design-build contract
- Award of construction contracts for the Iron Salt Feed Station, Plant Instrument Air System Upgrade, and Switchgear S40/G3 Relay Upgrade projects
- Award of design contracts for critical rehabilitation work in the Headworks Improvements and Nitrification Clarifier Rehabilitation projects



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

Project Performance

There are currently 13 active projects in the construction or post-construction phase with a further 11 projects in feasibility/development, design or bid and award phases (see PDM graphic at the front of this report). All active projects are listed in the tables below. Projects in the construction phase have cost and schedule baselines established and are monitored using the City's Capital Project Management System (CPMS). These projects have green/red icons included in the table below to indicate whether they are on budget and schedule using the CPMS data as a source.

Project Performance – Baselined Projects

Project Name	Phase	Estimated Beneficial Use Date[1]	Cost Performance [2]	Schedule Performance [2]
Distributed Control System (DCS) Fiber Optics Network Expansion	Post-Construction	May 2014	●	●
115KV Circuit Breaker Replacement	Post-Construction	Jul 2014	●	●
RWF Street Rehabilitation - Phase III	Construction	Nov 2014	●	●
A5-A6 Nitrification Mag. Meter & Valve Replacement	Construction	Mar 2015	◆	◆
Filtration Building B2 & B3 Pipe & Valve Replacement	Construction	Mar 2015	●	●
Handrail Replacement - Phase V	Construction	Mar 2015	●	●
BNR-2 Clarifier Guardrail Replacement	Construction	Apr 2015	●	●
Fire Main Replacement - Phase III	Construction	Apr 2015	●	●
Training Trailer Replacement	Construction	May 2015	●	●
Digester Gas Storage Replacement	Construction	Jun 2015	●	●
DCS Upgrade/Replacement	Construction	Jun 2016	●	●
Digester Gas Compressor Upgrade	Construction	Jul 2016	●	●
Emergency Diesel Generators	Construction	Aug 2016	●	●

KEY:

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

Notes

1. Beneficial Use is defined as when the work is sufficiently complete, in accordance with the contract documents, so that the City can occupy or use the work. Beneficial use dates are being reviewed as part of project schedule reviews.
2. An explanation of cost and schedule variances on specific projects identified in this table is provided on page 9.
3. Beneficial use dates pending Contractor's Schedule.

Project Performance – Pre-Baselined Projects

Project Name	Phase	Estimated Beneficial Use Date[1]
Iron Salt Feed Station	Design	Aug 2016
Digester & Thickener Facilities Upgrade	Design	Jun 2018
Cogeneration Facility	Design	Jul 2018
Adv. Facility Control & Meter Repl. Ph. 1	Feasibility/Development	Feb 2016
Plant Instrument Air System Upgrade	Feasibility/Development	Feb 2018
Headworks Improvements	Feasibility/Development	Aug 2019
Digested Sludge Dewatering Facility	Feasibility/Development	Aug 2019
Outfall Bridge and Levee Improvements	Feasibility/Development	Apr 2020
Facility-wide Water Systems Improvements	Feasibility/Development	Jan 2021
Nitrification Clarifiers Rehabilitation	Feasibility/Development	Oct 2021
New Headworks	Feasibility/Development	Oct 2021

Notes

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

Significant Accomplishments

Nitrification Clarifier Rehabilitation

The project team held a successful Scope Verification workshop to finalize the scope, which is scheduled to be presented at the Approve Project Scope Stage Gate in early December.

Filters Rehabilitation

The project team convened a focus group to investigate the various shutdown restrictions associated with a comprehensive condition assessment of the filter complex. The findings from this group will be presented to the stage gate panel, at the Approve Project Scope Stage Gate in January 2015.

Biosolids Transition Strategy

The biosolids transition strategy and report were finalized and presented to TAC and TPAC (see Program Summary for more specific information).

Digester and Thickener Facilities Upgrade

The project team conducted design review workshops in November and completed the 30% design review. City comments on the draft Preliminary Design Report were submitted to Brown and Caldwell.

Digester Gas Compressor Upgrade

The City has reviewed and approved the submittals for the gas compressor building foundation. Anderson Pacific Engineering Construction is scheduled to install the building's drilled pillars in mid-December. The City is in the process of reviewing the submittal from the gas compressor packager.

Cogeneration Facility

The Request for Prequalification was issued on November 14. This is the first step in selecting a design-build firm to collaborate with the City to build the new cogeneration facility. A Pre-Bid conference will be held on December 2, and submissions are due January 13, 2015

Programmatic Studies

A Council Report was prepared and presented to TPAC, outlining the odor control strategy for the RWF. This strategy will also be presented to the City Council in December. In addition, the consultant (CH2M HILL) conducted a workshop with City staff to present the sampling results, baseline dispersion model, and technology screening.

The wastewater sampling and characterization plan, which will be carried out at the Wastewater Facility in December as part of the Aeration Demand and Biosolids Production study), was also finalized this month.

Staff also held kick-off meetings for the Automation Master Plan and Yard Piping Condition Assessment Plan studies.

Explanation of Project Performance Issues

A5-A6 Nitrification Mag. Meter & Valve Replacement

In September 2014, during startup, the project discovered that the actuators that had been specified and installed were incompatible with the available power supply. Engineering staff determined it would be more costly to modify the system than to order and install compatible actuators. In addition, O&M staff requested that the actuators match those used in the other clarifiers. The contractor has submitted a proposal for the requested equipment. Because the cost will exceed the project's contingency, staff will need funding approval from Council, which is anticipated in January/February 2015. Beneficial use is expected by the end of March 2015.

Project Profile

Cogeneration Facility Project

Cogeneration equipment at the Wastewater Facility consists of engines which utilize available digester gas (produced by the on-site anaerobic digestion tanks) to produce power to meet a significant portion of the Wastewater Facility's power requirements, as well as producing heat required by the anaerobic digestion tanks. Existing cogeneration equipment at the Wastewater Facility ranges from 20 to 61 years of age, and has been subject to breakdowns of increasing frequency and severity. The acquisition of parts for equipment has also become problematic. The 2012 Energy Management Strategic Plan recommended that the existing cogeneration equipment be replaced in order to provide reliable on-site power and heat.

The new Cogeneration Facility will consist of four to five advanced-generation internal combustion engines housed in a new building to the east of Building 40. The engine technology was selected based on its low capital cost, high electrical efficiency, and high availability of high-grade heat for the anaerobic digestion tanks and potential sludge drying processes. The new engines will replace all existing Wastewater Facility engines with the exception of the recently installed Fuel Cell. Accounting for the Fuel Cell, power output from the new Cogeneration Facility is expected to meet the Wastewater Facility's projected power demands through 2036 (currently estimated to be 13.4 megawatts). In addition, the Cogeneration Facility project scope will include a new digester gas treatment system, control system and monitoring system with connectivity to the Wastewater Facility's Distributed Control System (DCS), electrical switchgear, a new digester gas pipeline, a new natural gas pipeline, new heat recovery systems, and civil work including parking areas and utilities (water, stormwater and sanitary sewer lines).

This project will be the first design-build project at the Wastewater Facility under the new state design-build authority that takes effect January 1, 2015. Procurement for a Design-Build firm is currently underway. Design is projected to begin in August 2015, with construction proceeding from December 2015 through December 2017. Project Budget: $90,980,000.

Figure 2— Example Facility

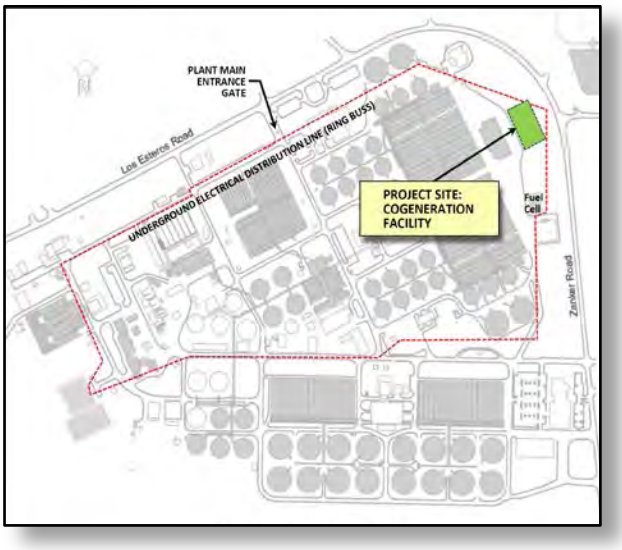


Figure 3 – Cogeneration Facility Location

Regional Wastewater Facility Treatment – Current Treatment Process Flow Diagram

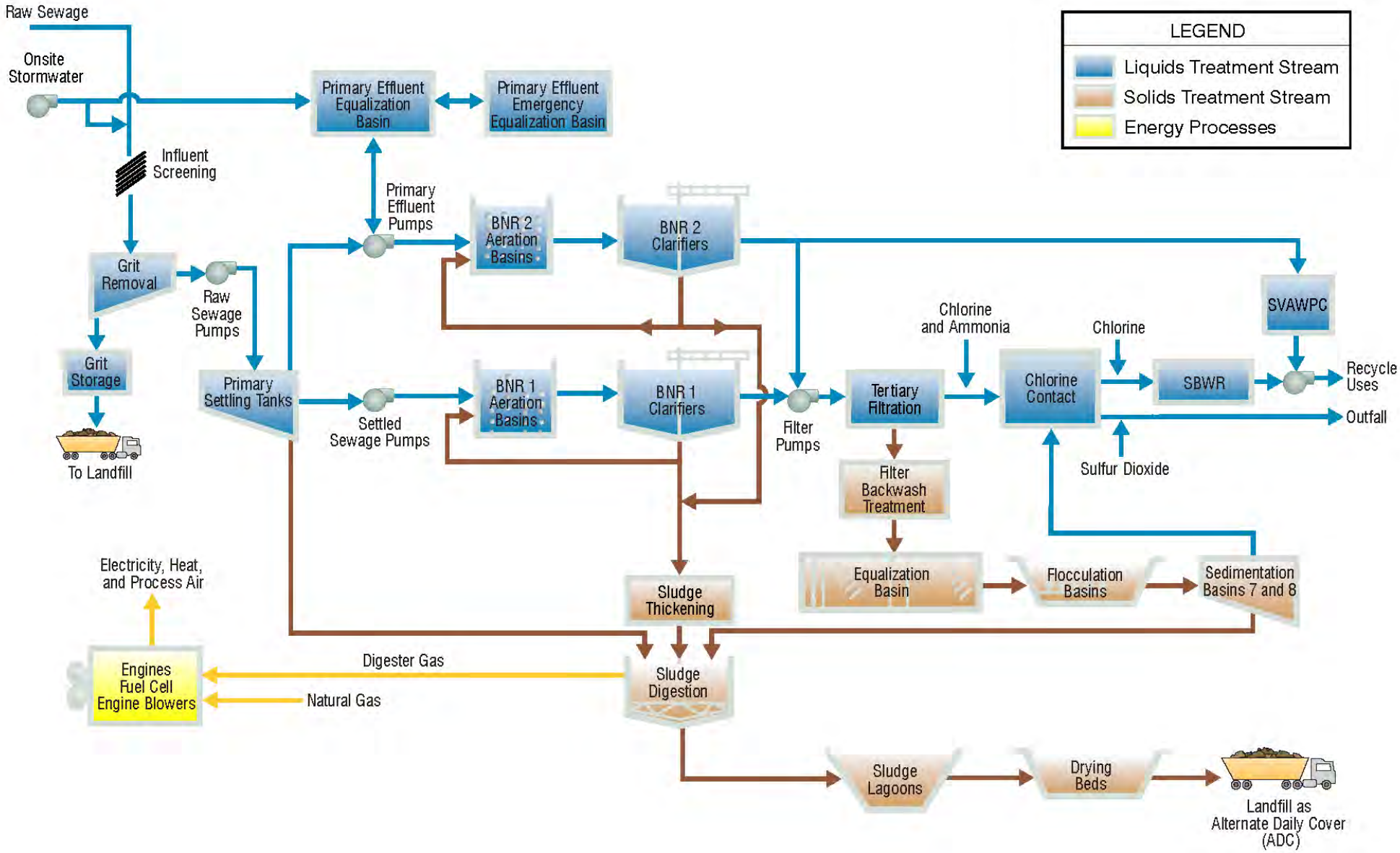


Figure 4—Current Treatment Process Flow Diagram

Regional Wastewater Facility Treatment – Proposed Treatment Process Flow Diagram

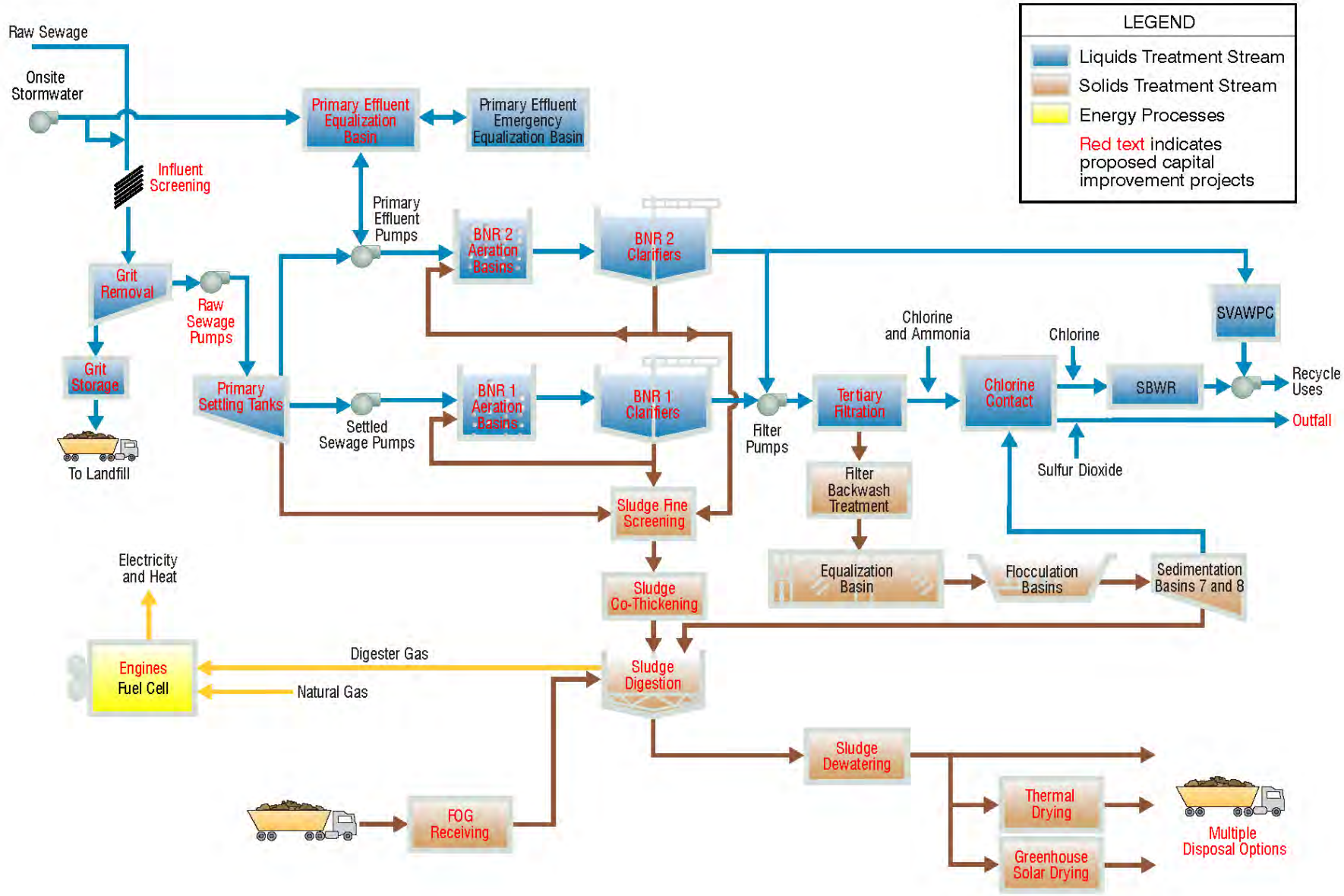


Figure 5—Proposed Treatment Process Flow Diagram

Active Construction Projects – Aerial Plan

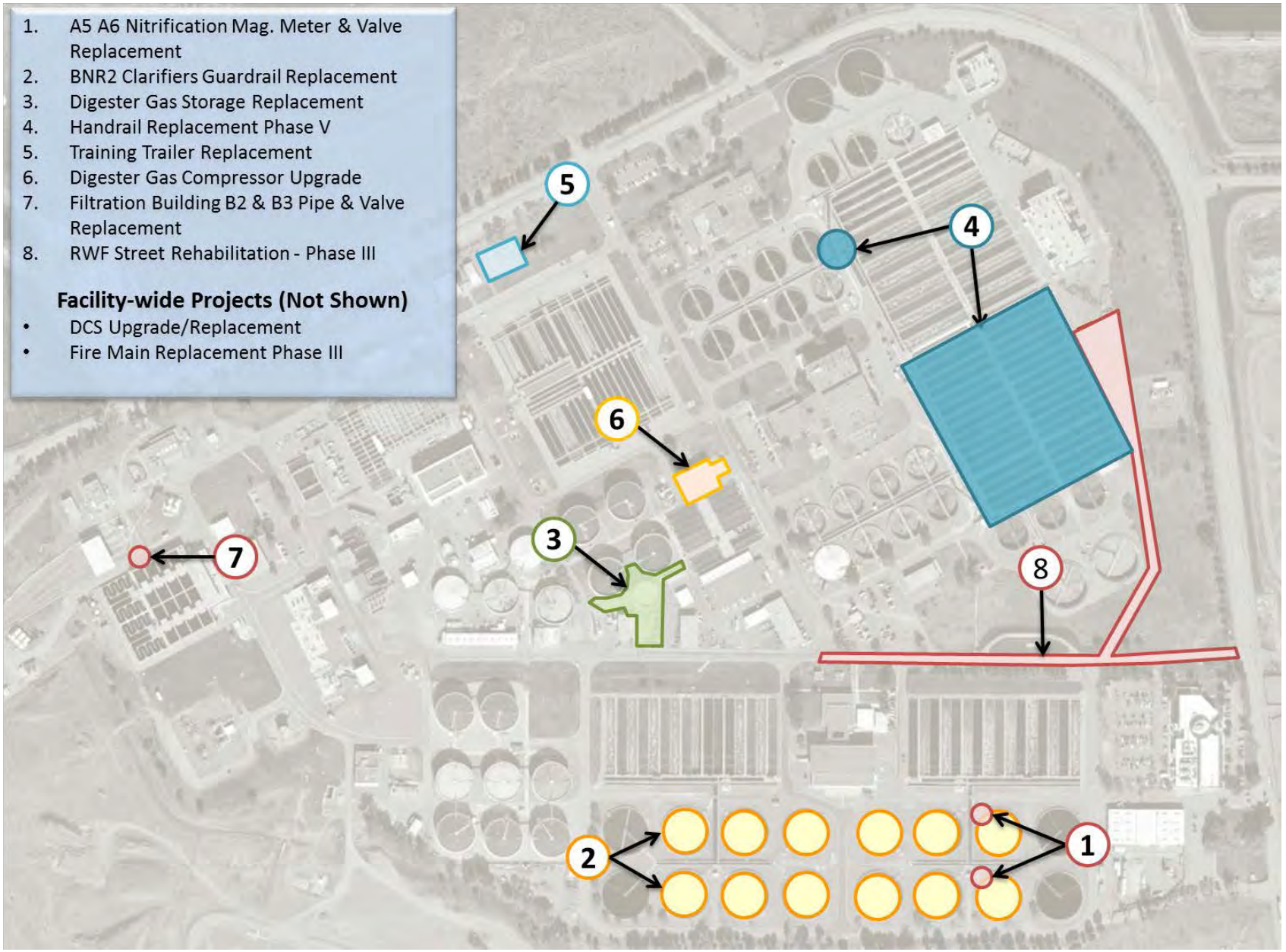


Figure 6—Active Construction Projects