San José-Santa Clara Regional Wastewater Facility

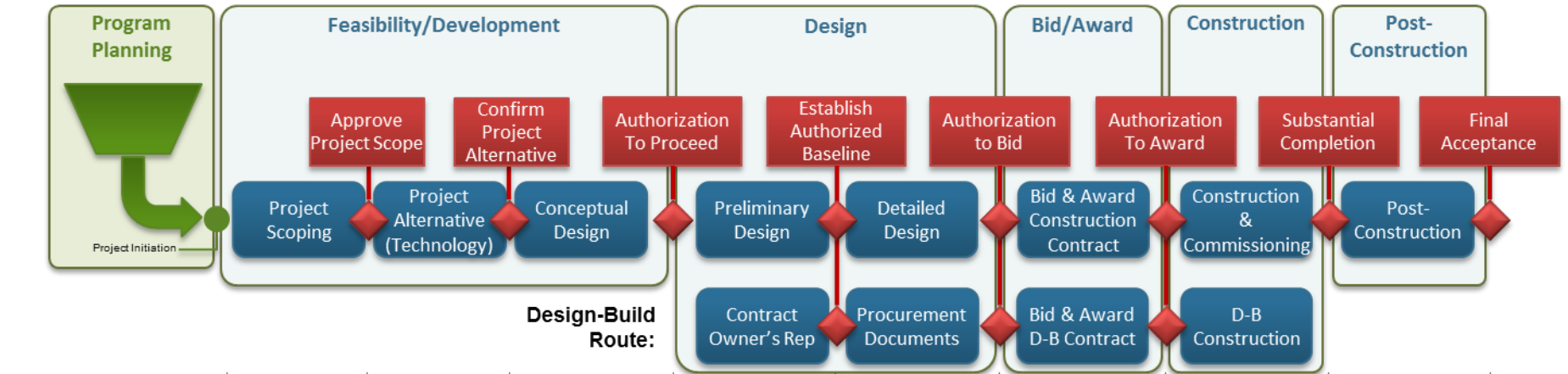
Capital Improvement Program
Monthly Status Report for December 2014

February 5, 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 December 2014.

Report Contents

Project Delivery Model



Active Projects

Design-Bid-Build

Feasibility/Development			Design			Bid/Award	Construction	Post-Construction
Adv. Facility Control and Meter Repl. ***Construction-Enabling Improvements*** Outfall Bridge and Levee Improvements	Facility Wide Water Systems ***Headworks Critical Improvements*** Headworks Improvement New Headworks ***Nitrification Clarifiers Rehab.***	Plant Instrument Air System Upgrade	Digester & Thickener Facilities Upgrade Iron Salt Feed Station				A5-A6 Nitrif. Mag. Meter & Valve Repl. BNR2 Clarifiers Guardrail Repl. DCS Upgrade/Repl. Digester Gas Storage Repl. Filtration Bldg.B2 & B3 Pipe & Valve Repl. Fire Main Repl. – Ph. III Handrail Repl. – Phase V Training Trailer Repl.	DCS Fiber Optics Exp. ***RWF Street Treatment – Phase III***

Design-Build

Biosolids Transition Projects	Digested Sludge Dewatering					Cogeneration Facility	Digester Gas Compressor Upgrade Emergency Diesel Generators	

Key
Stage Gates
Stages

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

Program Summary

December 2014

In 2008 the Wastewater Facility undertook a Plant Master Plan (PMP) effort which ultimately resulted in its adoption in November 2013. The Project Validation process held between October 2013 and January 2014 reviewed the projects identified in the Plant Master Plan in order to develop a five-year and ten-year CIP. This monthly report provides a summary of the progress and accomplishments of the CIP for the month of December 2014 within Fiscal Year 2014-2015.

In the month of December, the program team finished out 2014 strongly. 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 Nitrification Clarifier Rehabilitation project and Traffic Circulation and Impacts Study move forward through the "Approve Project Scope" stage gate. We continued work on estimating our staffing needs for FY 15-16, focusing on finalizing the required City staffing levels. We moved forward with the design consultant procurement for the Headworks Improvements and New Headworks projects. We began preparing procurement documents for the Facility-wide Water Systems Improvements project.

A number of studies proceeded, including significant efforts on the Odor and Corrosion Control Study and Architectural Guidelines Study. We finalized our Project Delivery Method memo, which we will use to recommend a delivery method (design-bid-build vs. design-build) for individual projects. We continued to develop our approach for program funding, including the use of the Clean Water State Revolving Fund (SRF).

Our environmental team continued to prepare 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. We continued to evaluate our overall CIP schedule, with a workshop held on December 3rd to analyze key steps (and associated schedule impacts) during the feasibility/development phase of project delivery (e.g., pilot testing, condition assessments). Updated schedules are being used as input to our 5 year CIP budget. Staff responded to questions from potential proposers regarding the Request for Qualifications to prequalify design-builders for the Cogeneration Facility.

We worked intensely with RWF O&M staff to draft a Facility Operations Plan (FOP). The FOP outlines how unit processes are operated within the RWF during normal and peak flow and loading conditions. It also contains a one year look-ahead, identifying how construction of capital and maintenance projects may impact operations.

At the December 2nd City Council meeting, we presented an update on the Biosolids Transition Strategy and Odor and Corrosion Control Study. Council approved implementing temperature-phased anaerobic digestion (TPAD) as part of the Digester and Thickener Facilities Upgrade project and deferring the Thermal Drying Facility and Greenhouse Demonstration projects. Council also concurred with TPAC recommendation to postpone the Digester Sludge Dewatering project until fall 2015 when the Odor and Corrosion Study has been completed. However, Council asked the staff to return with the recommendations earlier in spring 2015 when odor and cost information specific to the Biosolids transition would be available.

Look Ahead

In January, we will continue to move forward on numerous efforts related to design consultant procurement, including the Headworks Improvements and New Headworks projects. The Cogeneration Facility design-build procurement will also continue. Building on previous efforts, we will develop a "stage page" interface for our consultant procurement efforts. The stage page provides staff more intuitive access to our various PDM requirements and references. Stage gate meetings will be held for the Filter Rehabilitation and Iron Salt Feed Station projects.

Our resourcing work will continue, with a shift to analyzing overall staffing needs in FY 15-16 (City and consultant staff). We will finalize our interim guidance on plant automation and communicate that to all staff. This interim guidance will help align existing projects with the direction being developed in the on-going Automation Master Plan.

Our biosolids team will work on a revised Biosolids Transition Strategy, based on the input received from TPAC and City Council in December.

Program Highlight – Program Execution Plan

The Program Execution Plan (PEP) is the master guidebook that describes the processes and requirements for implementing the CIP. The PEP serves as the User Manual for all staff, including City, Consultant and Contractor staff working on the program team. It resides on the CIP Portal, the collaborative, web-based work environment that is used by the CIP team (see Figure 1).

Successful delivery of the CIP requires three key components--an organization with the right people in the right positions; defined, successful and repeatable processes that promote successful project implementation; and application of systems that support project implementation and provide for measurement of performance. The PEP is organized into six sections to align to these three components:

- Section 1 – About the Program: Summary information regarding the program, including overall mission, vision and goals, project lists, program schedule, budget and annual work plan information.
- Section 2 – People: Defines the program's organization structure, delineated roles and responsibilities, authority matrix and contact list.
- Section 3 – Plans and Procedures: Provides the plans and procedures for managing program-level activities.
- Section 4 – Project Delivery Procedures: Provides the plans and procedures for managing project-level activities.
- Section 5 – Systems: Summarizes systems and tools required on all CIP projects.
- Section 6 – Program Strategies: Program-wide strategy documents to guide the direction of the program and the decisions made during project execution.

The processes and systems outlined within the PEP are intended to provide for consistency in program activities and functions. While these processes and systems will retain some rigidity to provide for this consistency, the PEP will remain a "living" document, allowing for changes and enhancements as the program evolves.

Figure 1—Program Execution Plan page on the CIP Portal

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% (2/2)[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[2/3]	≥$95.8M	$97.6M			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[4]	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

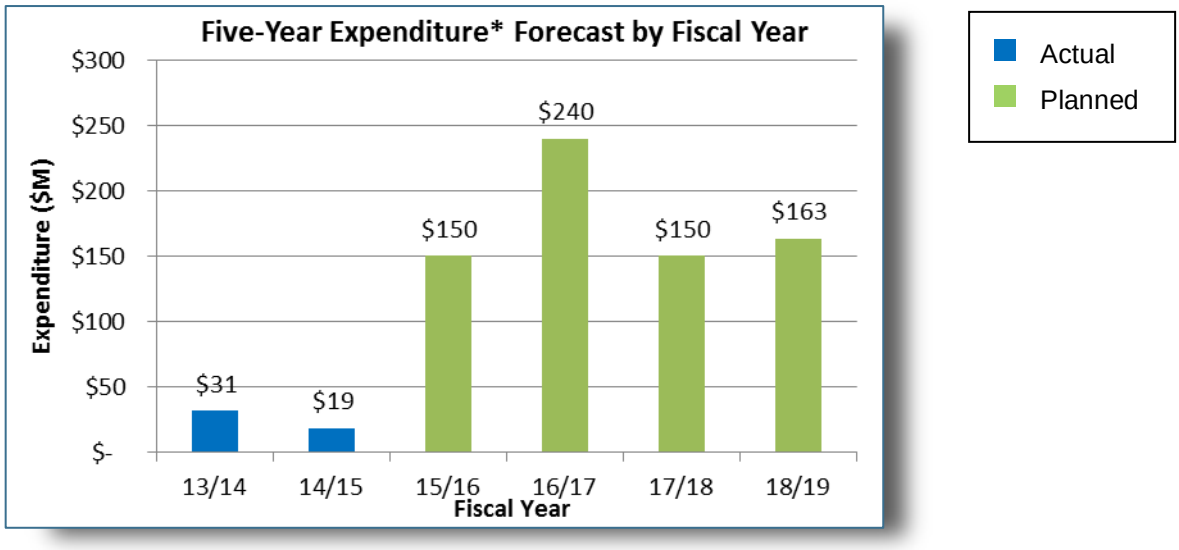
1. For the Schedule KPI, the number of delivered projects increased from 1 to 2. This count includes RWF Street Treatment – Phase III, which reached Beneficial Use on November 10, 2014.
2. FY14-15 budget excludes reserves, ending fund balance, South Bay Water Recycling, Public Art and Urgent and Unscheduled Rehabilitation items
3. 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).
4. Staffing level KPI measured quarterly; all other KPIs measured monthly.

Program Cost Performance

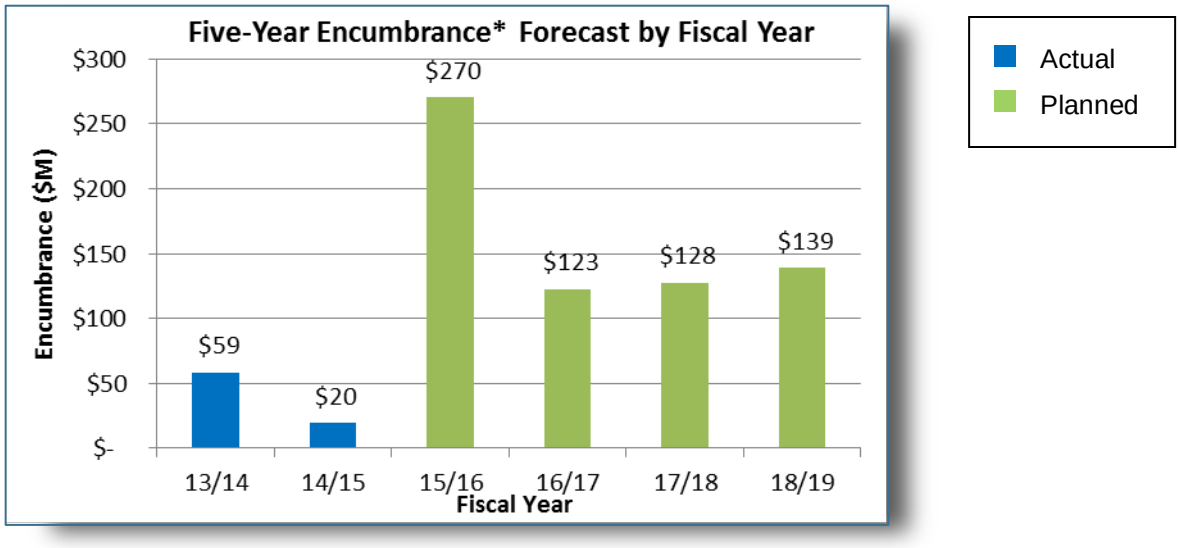
This section provides a summary of CIP cost performance for all construction projects and non-construction activities for FY14-15 and the Five-Year CIP.

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



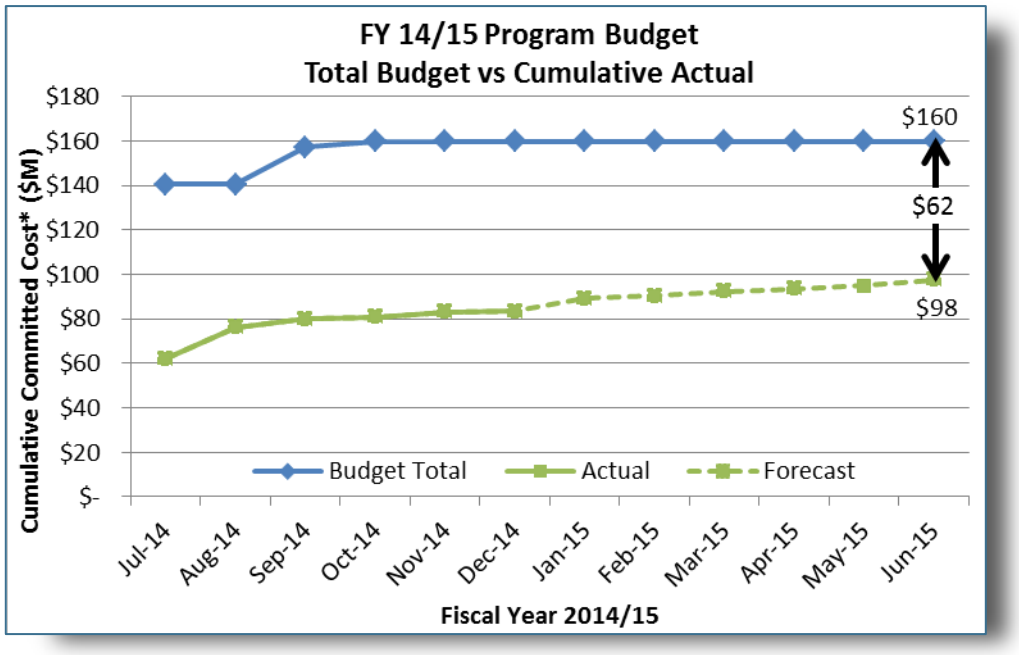
*Encumbrance defined as: Financial commitments, such as purchase orders or contracts, which are chargeable to an appropriation and for which a portion of the appropriation is reserved

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 $62 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 12 active projects in the construction or post-construction phase with a further 13 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	●	●
RWF Street Rehabilitation - Phase III	Post-Construction	Nov 2014	●	●
A5-A6 Nitrification Mag. Meter & Valve Replacement	Construction	Mar 2015	◆	◆
Filtration Building B2 & B3 Pipe & Valve Replacement	Construction	Mar 2015	●	●
BNR-2 Clarifier Guardrail Replacement	Construction	Apr 2015	●	●
Fire Main Replacement - Phase III	Construction	Apr 2015	●	●
Handrail Replacement - Phase V	Construction	May 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 10.

Project Performance – Pre-Baselined Projects

Project Name	Phase	Estimated Beneficial Use Date[1]
Cogeneration Facility	Procurement	Sep 2018
Iron Salt Feed Station	Design	Apr 2017
Digester & Thickener Facilities Upgrade	Design	Sep 2018
Construction-Enabling Improvements	Feasibility/Development	Aug 2016
Headworks Critical Improvements	Feasibility/Development	Feb 2017
Plant Instrument Air System Upgrade	Feasibility/Development	Feb 2017
Adv. Facility Control & Meter Repl. Ph. 2	Feasibility/Development	Jun 2019
Digested Sludge Dewatering Facility	Feasibility/Development	Jun 2020
Headworks Improvements	Feasibility/Development	Jun 2020
Outfall Bridge and Levee Improvements	Feasibility/Development	Jul 2020
Facility-wide Water Systems Improvements	Feasibility/Development	Jul 2021
Nitrification Clarifiers Rehabilitation	Feasibility/Development	Feb 2022
New Headworks	Feasibility/Development	Mar 2022

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

Cogeneration Facility

The Request for Prequalification of Design-builders was issued in November. A Pre-Bid conference was held on December 2, and attracted more than 40 interested parties. Submissions are due February 3, 2015.

Digester and Thickener Facilities Upgrade

The project team conducted design review workshops in November and December. The 30% design review comments and recommendations on the draft Preliminary Design Report were submitted to Brown and Caldwell. Additional workshops will be conducted in January to further define supporting facilities (e.g. biogas piping, screening facility layout, and waste gas burner upgrades). In addition, the project team received approval to proceed with TPAD at December 2nd Council meeting, as noted in the Program Summary section.

Digester Gas Compressor Upgrade

Anderson Pacific Engineering Construction has completed the installation of the 42 drilled piers for the new compressor building. The City has completed the review of the gas compressor package submittal. In January 2015, the contractor will begin the construction of the base foundation for the new gas compressor building.

Studies

Several key programmatic study workshops and meetings were conducted with Facility and CIP staff this month on the Aeration and Biosolids Assessment, Odor and Corrosion Control Assessment, Automation Master Plan, Yard Piping Condition Assessment, Heating and Cooling System Evaluation, Architectural Guidelines, and Facility Wide Process Risk Assessment. A number of Draft and Final Technical Memoranda were issued on these studies this month.

A major wastewater sampling exercise was successfully carried out at the Facility over a two week period in December as part of the Aeration and Biosolids Assessment. The results from the sampling will be used to accurately characterize the wastewater characteristics and facility operation to allow a full process model of the treatment plant to be built and calibrated.

Recommendations on the Biosolids Transition Strategy were made to City Council on December 2, 2014.

Traffic Circulation and Impacts passed through CIP Scoping Stage Gate 1 and award is anticipated next month. Flood Protection Study continued through contractual negotiations and is anticipated to pass through Stage Gate 1 and commence within the next two months.

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. Beneficial use is expected by the end of March 2015.

Handrail Replacement - Phase V

For safety reasons, handrail replacement to date has been accomplished with empty aeration basins. November through April is designated as the rainy season during which O&M staff need to have aeration basins available in the event of heavy rains. As a result, handrail replacement work around the aeration basins has been suspended until the end of April 2015. The contractor is expected to resume the work when additional basins can be made available. Beneficial Use is expected by late May, 2015.

Project Profile

Headworks

The headworks process is the first treatment process raw sewage encounters at a wastewater facility. The purpose of the headworks is to remove large objects (screenings), heavy inorganic material (grit), and to pump or direct the sewage so it can flow through subsequent processes. Since it is at the beginning of the treatment process and its effectiveness can have an impact to downstream treatment processes, it is one of the most critical processes at a wastewater facility.

The RWF currently has two functioning headworks, Headworks 1 and Headworks 2. Headwork 1 was built in several phases in the 1960's and 1970's. Headworks 2 was completed in 2008 and was originally intended to handle wet weather (storm) flows into the RWF. Headworks 2 is now also being used to supplement Headworks 1 during wet weather periods or when needed during dry weather periods to allow maintenance crews to perform maintenance on Headworks 1. However, Headworks 2 is still in need of additional improvements to enable it to be relied upon for duty operation. Together, the current headworks system is designed to handle up to 400 million gallons per day of sewage.

Headworks 1 is nearing the end of its useful life and the RWF will replace Headworks 1 with a new headworks (Headworks 3), as recommended by the Plant Master Plan and further evaluated in the 2014 Headworks Expansion Feasibility and Operational Review Report. Additionally, the project will "de-clutter" portions of the complicated pipe network at the front end of the RWF, provide comprehensive flow management planning to accommodate future increases in sewage and stormwater flows and include odor control technologies as needed. Currently, there are three headworks projects budgeted and scheduled for design and construction to accomplish the needed headworks improvements. These projects include:

1. Headworks Critical Tasks – This project includes installation of critical improvements to Headworks 2 and the Emergency Basin Overflow Structure (EBOS) to resolve immediate safety and operational reliability issues. This project is scheduled to be complete in February 2017.
2. Headworks Improvements – This project includes construction of; 1) non-critical reliability improvements to enable Headworks 2 to be reliably used as a duty headworks, 2) re-route flows that directly feed into Headworks 1 to other receiving locations to enable Headworks 1 to be completely dewatered for any repairs and eventual decommissioning of Headworks 1 and 3) perform improvements needed to Headworks 1 to keep is functioning adequately until the new headworks is effectively operating. The Headworks Improvements project is scheduled to be completed in June of 2020.
3. New Headworks – This project includes developing new and evaluating the existing Headworks 3 layout alternatives (currently four alternatives), assisting the City with selection of an alternative and performing design and assistance to the City during construction of the chosen alternative. The project also includes the preparation of a Flow Management Plan for the entire RWF. Headworks 3 is scheduled to be commissioned in March of 2022.

The project team is working to procure a planning and design consultant for the project. The design consultant award is anticipated in September 2015. Project Budget: $120,900,000.

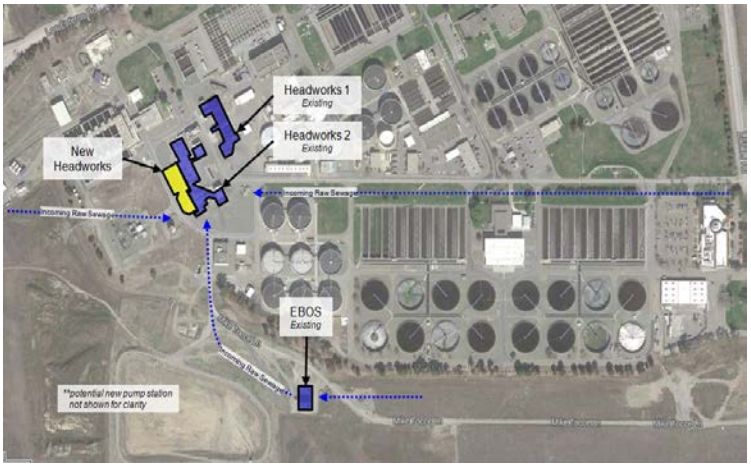


Figure 2— Headworks Location Plan

Figure 3 – Existing Headworks 2 Facility

Regional Wastewater Facility Treatment – Current Treatment Process Flow Diagram

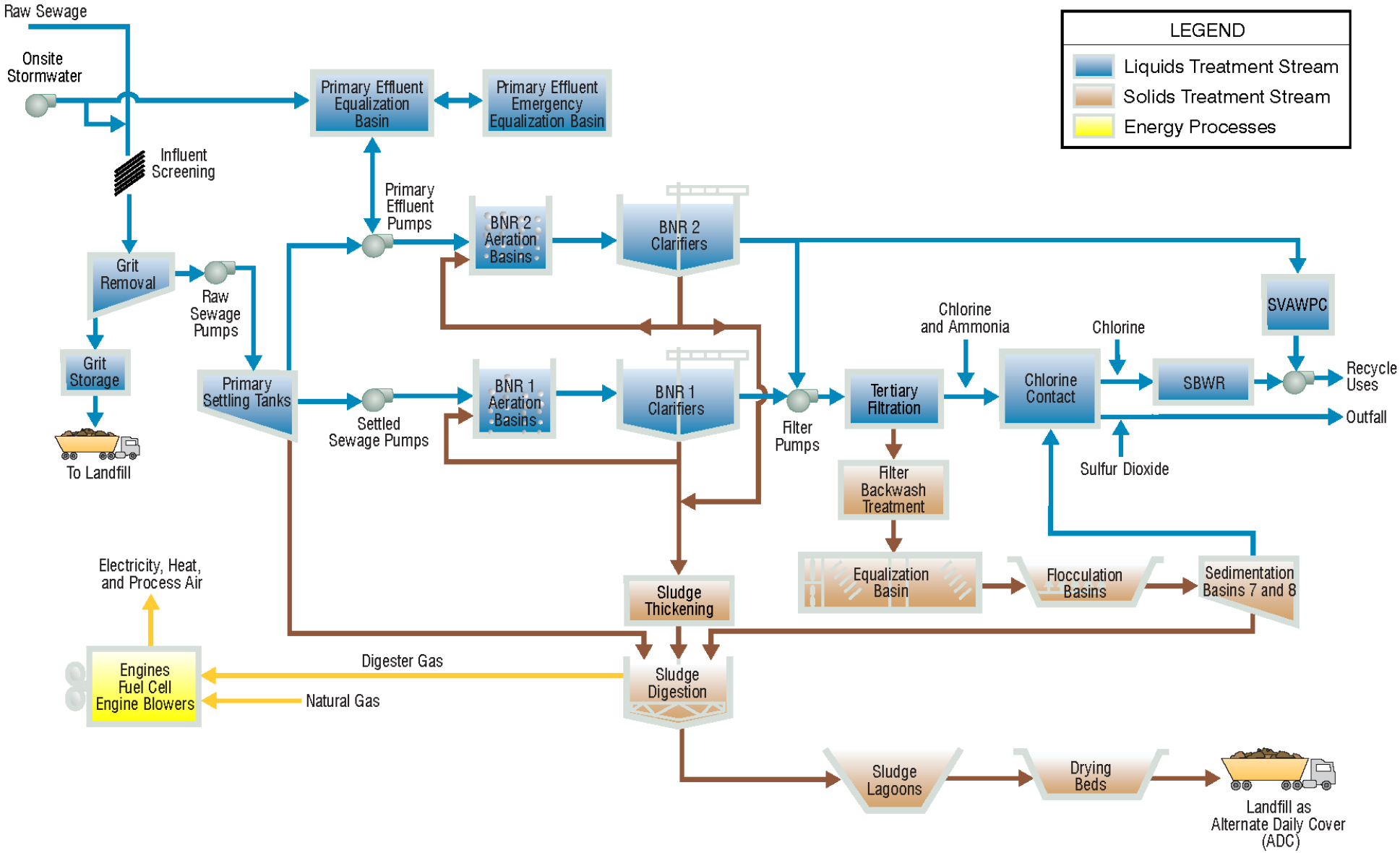


Figure 4—Current Treatment Process Flow Diagram

Regional Wastewater Facility Treatment – Proposed Treatment Process Flow Diagram

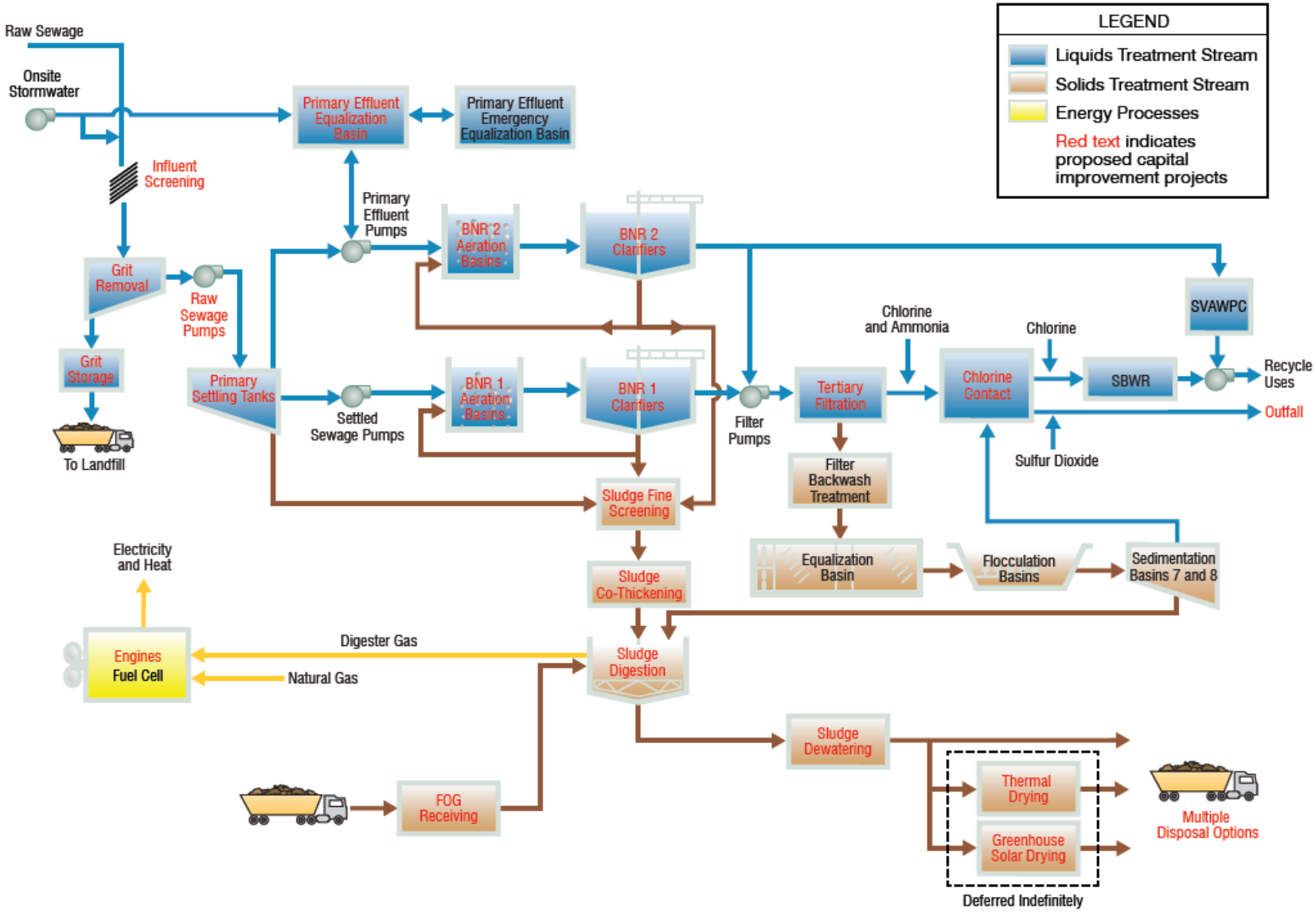


Figure 5—Proposed Treatment Process Flow Diagram

Active Construction Projects – Aerial Plan

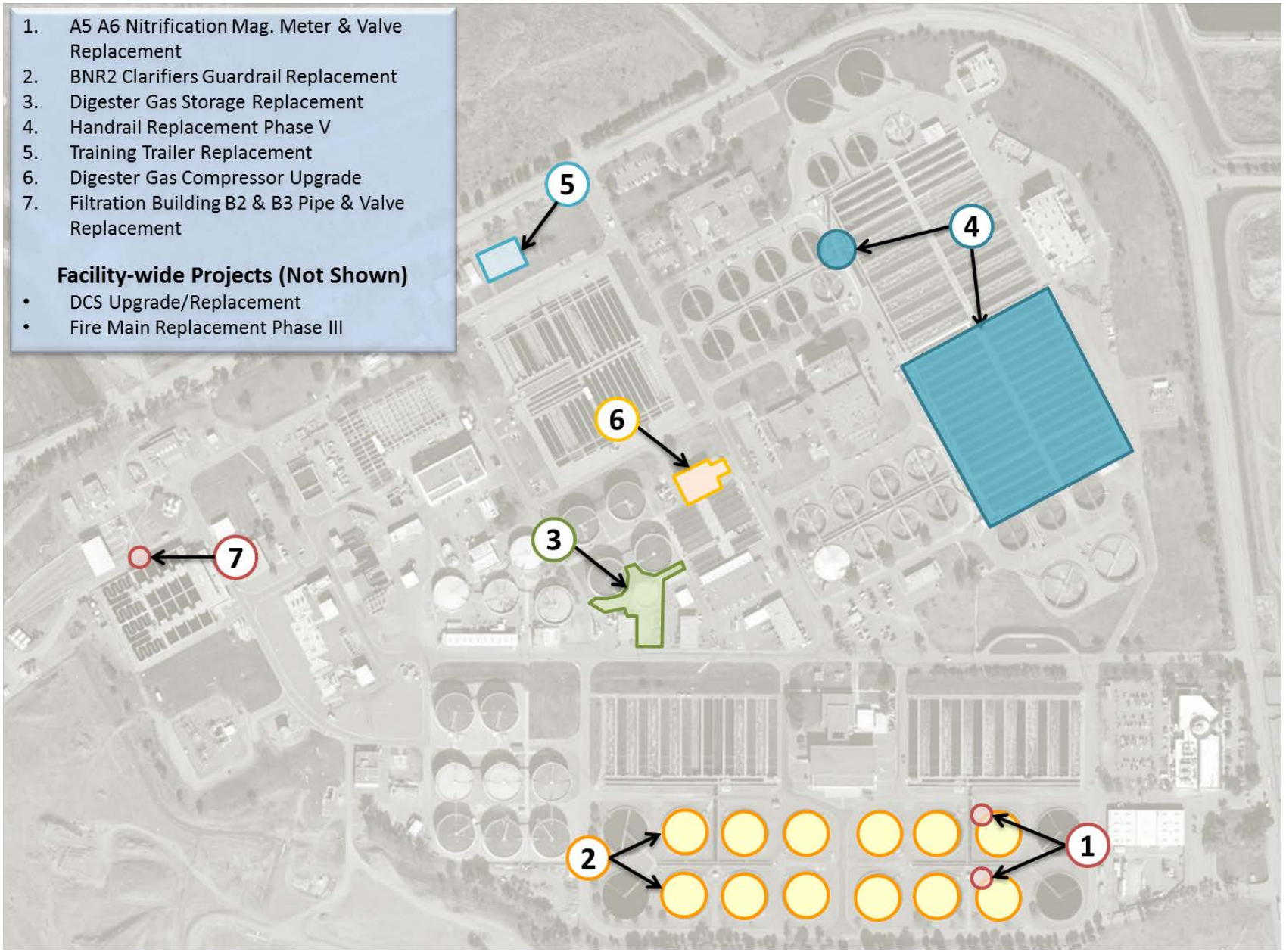


Figure 6—Active Construction Projects