San José-Santa Clara Regional Wastewater Facility

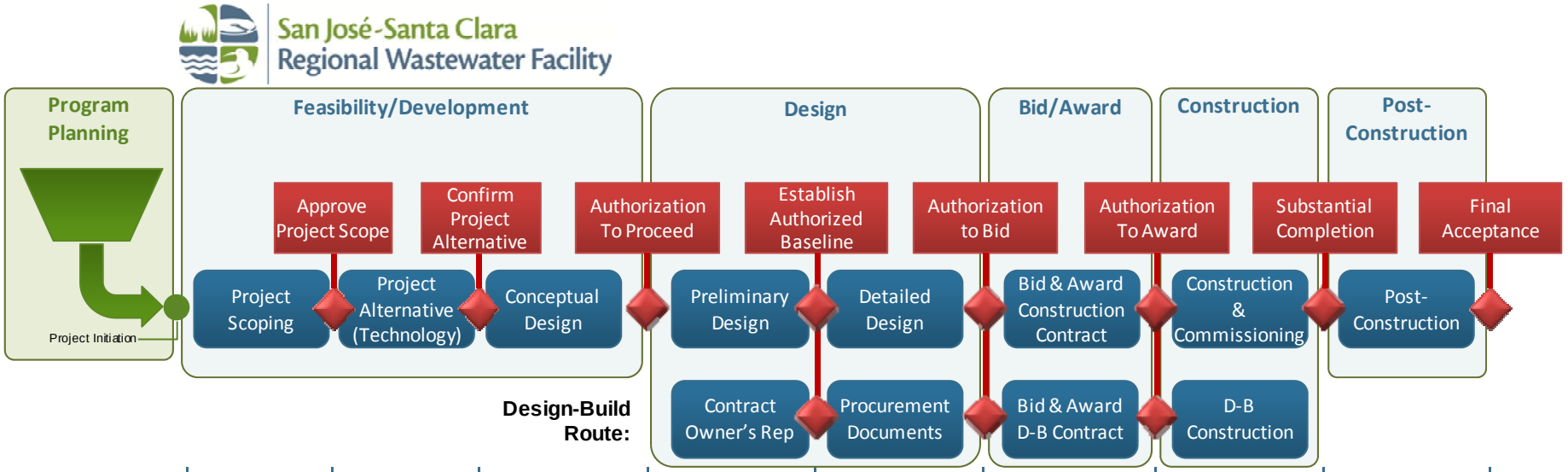
Capital Improvement Program **Monthly Status Report for November 2015**

January 7, 2016

This report provides a summary of the progress and accomplishments of the Capital Improvement Program (CIP) for the San José-Santa Clara Regional Wastewater Facility (Wastewater Facility or RWF) for the period of November 2015.

Report Contents

Project Delivery Model



Active Projects – Nov 2015

Design-Bid-Build

Feasibility/Development	Design	Bid/Award	Construction	Post-Construction
Outfall Bridge and Levee Improvements Switchgear S40/G3 Relay Upgrade	Adv. Facility Control and Meter Repl. Aeration Tanks Rehab. Blower Improvements Facility-wide Water Systems Filter Rehabilitation Headworks Critical Improvements Nitrification Clarifiers Rehab. ***Support Building Improvements***	Construction-Enabling Improvements Digester & Thickener Facilities Upgrade Plant Instrument Air System Upgrade	Fiber Optic Connection Iron Salt Feed Station	A5-A6 Nitrif. Mag. Meter & Valve Repl.	Pond A18 N.Gate Repl ***Digester Gas Storage Repl.***

Design-Build

Feasibility/Development	Design	Bid/Award	Construction	Post-Construction
	Digested Sludge Dewatering Headworks Improv. New Headworks	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

November 2015

In November, the CIP progressed on multiple fronts, including the successful advancement of two projects and two programmatic studies through the Project Delivery Model (PDM) stage gate process. The projects and studies that advanced were:

- Iron Salt Feed Station Project (Authorization To Award);
- Support Building Improvements Project (Project Scoping);
- Automation Master Plan Study (Final Acceptance); and
- Traffic Circulation and Impacts Study (Final Acceptance).

The CIP also met a number of key procurement milestones. Staff advertised a Request for Qualifications (RFQ) for Value Engineering and Peer Review Services, which will allow these services to be procured at a programmatic level for all future projects. Staff held a preproposal meeting and consultant site walk for the advertised Advanced Facility Control and Meter Replacement Project RFQ and received Statements of Qualifications (SOQ) for the project. Staff also received SOQs for the Nitrification Clarifiers Rehabilitation Project.

Staff presented recommendations to the Treatment Plant Advisory Committee (TPAC) to award a master consultant agreement to CDM Smith for the Headworks Project and to authorize the City Manager to negotiate a design-build contract with CH2M Hill for the Cogeneration Facility Project. Staff also presented to TPAC recommendations related to Clean Water State Revolving Fund (SRF) loan applications and proposed amendments to the tributary agency master agreements to secure SRF funding and short-term financing. Staff will present these recommendations to City Council (Council) next month.

The RWF held the third annual open house for prospective vendors on Wednesday, November 4. This major outreach effort increased the awareness of upcoming CIP procurements to approximately 80 consultants, contractors, material and equipment suppliers. The open house consisted of a presentation and tour of the RWF for all participants. Previous CIP open house events were held in 2012 and 2014.

In addition, construction continued on the Emergency Diesel Generators Project and the Digester Gas Compressor Upgrades Project. The new digester gas holder constructed as part of the Digester Gas Storage Replacement Project was successfully commissioned and placed into service this month.

Look Ahead

Next Month, staff will continue to move forward with efforts related to consultant procurements, including the Nitrification Clarifiers Rehabilitation Project and the Advanced Facility Control and Meter Replacement Project. Staff will advertise new RFQs for the Aeration Tanks Rehabilitation Project and the Blower Improvements Project and re-advertise the RFQ for the Facility-wide Water Systems Improvements Project.

Procurements for a number of programmatic services are also expected to advance, including General Engineering Services; Design and Construction Management Software (DCMS); Value Engineering and Peer Review Services; System Integration Services; and Audit Services. Staff will advertise a new RFQ next month for Construction Management and Inspection Services.

Also next month, staff will present recommendations to Council to:

- Authorize the City Manager to negotiate a design-build contract for the Cogeneration Facility Project;
- Award a consultant agreement for the Headworks Project;
- Award a consultant agreement for the Filter Rehabilitation Project; and
- Provide direction to staff on proposed amendments to the RWF master agreements.

Two projects will seek to advance through stage gates in December:

- Digester Gas Storage Replacement Project (Substantial Completion) and
- Digester and Thickener Facilities Upgrade Project (Authorization to Bid). The Digester and Thickener Facilities Upgrade Project is scheduled to be advertised in January.

All CIP project managers and project engineers will continue formal Staff training with a session on Air Permit Regulations planned for December.

Program Highlight – Project Interface Management

The Capital Improvement Program (CIP) projects at the RWF are developed and implemented on different schedules in an operational environment with numerous interconnected and interdependent processes and systems. For example, digesters, which treat solids removed in the primary and secondary liquid treatment processes, produce methane gas as a byproduct. This gas is used as fuel for engine generators that produce both electrical power and heat. The electrical power is then used to run pumps and other plant equipment; the heat is used to heat the digesters and RWF buildings. As projects are designed and constructed to update the RWF, they often impact or connect to current processes and systems, as well as other planned CIP or Operation and Maintenance (O&M) projects. These impacts, or *project interfaces*, must be carefully managed to minimize disruptions to the RWF and ensure that design and construction activities between the various projects are coordinated, tracked, and appropriately managed to achieve optimal results.

The goal of Project Interface Management is to minimize:

- Unnecessary or unplanned disruption to the processes and systems that enable the RWF to meet its regulatory environmental commitments; and
- Gaps and/or overlaps between projects that could result in construction inefficiencies and additional costs.

To achieve this goal, the CIP has developed an Interface Management Process that consists of an Interface Log and Decision Log, both maintained on the CIP Portal. The Interface Log identifies project interfaces and involved stakeholders to facilitate and coordinate between CIP projects, and between CIP and O&M projects, as well as track and manage related actions and responsibilities. Decisions flow from the Interface Log to the Decision Log to ensure that interface decisions are made at the appropriate levels, are visible to all stakeholders, and provide historical accounts of decisions. The interface process also includes periodic project level interface reviews, interface information within the PDM at stage gates, and stakeholder meetings to work out details between project teams.

Our Project Interfaces Tool Box Includes:

1. Interface Management Resources
2. A Project Interface Log
3. Focused Project Interface Reviews
4. Program Delivery Model Stage Gate Interface Components
5. Decision Log Interface tracking

The CIP is currently migrating the Excel-based Interface Log to the newly-developed and enhanced SharePoint-based log. Next steps include:

- Augmenting ongoing interface management activities with focused project-level interface management reviews beginning in December;
- Launching a Portal interface management dashboard by spring 2016; and
- Developing an interface project manager training module by summer 2016.

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 which best reflect the current maturity of the program.

Program Key Performance Indicators – Fiscal Year 2015-2016

KPI	Target	Year to Date			Fiscal Year End		
		Actual	Status	Trend	Forecast	Status	Trend
Stage Gates	80%	100% (13/13)[1]			100% (28/28)		
Measurement: Percentage of initiated projects and studies that successfully pass each stage gate. Criteria: Red: < 70%; Amber: 70% to 80%; Green: >=80%							
Schedule	85%	33% (1/3)[2]			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	$154M	71M			$192M[3]		
Measurement: CIP Fiscal Year 15/16 committed costs. Committed cost meets or exceeds 70% of planned Budget (70% of $220M = $154M							
Procurement	80%	100% (7/7)[4]			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							
Staffing[5]	80%	100% (1/0)			86% (25/29)		
Measurement: Number of planned positions filled for the fiscal year. Criteria: Red: < 70%; Amber: 70% to 79%; Green: >=80%							

Notes

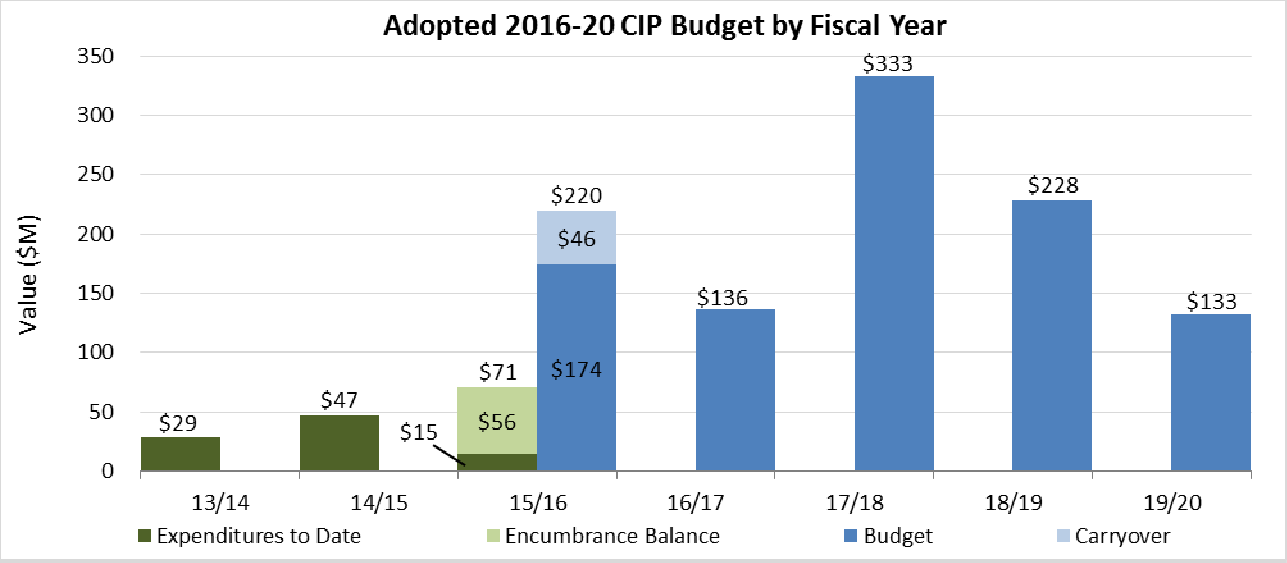
1. For the Stage Gate KPI Year to Date (YTD), the number of completed stage gates increased from 9 to 13. The following projects/studies successful completed their stage gates in November – Iron Salt Feed Station, Study 4 – Automation Master Plan and Process Control Approach, Study 12 – Traffic Circulation and Impacts, and Support Building Improvements.
2. For the Schedule KPI YTD, one out of three projects was completed within the approved baseline schedule. This is a slip from one of two projects last month as Digester Gas Storage Replacement Project reached Beneficial Use this month, instead of June 2015.
3. The FYE Forecast Expenditure decreased marginally due to lower November expenses and liquidation of carryover.
4. For the Procurement KPI Year to Date, the number of procurements increased from 6 to 7. The Request for Qualifications for Value Engineering and Peer Review Services was advertised in November 2015.
5. The City Staffing level KPI for planned recruitments for positions that are vacant at the start of the fiscal year, KPI measured quarterly; all other KPIs measured are monthly. KPI measurement does not account for staff turnover throughout the fiscal year.

Program Cost Performance Summary

This section provides a summary of CIP cost performance for all construction projects and non-construction activities for FY15-16 and the 2016-2020 CIP.

Adopted 2016-2020 CIP Expenditure and Encumbrances

To accommodate the proposed increase in expenditures and encumbrances over the next five years, the City is implementing a long-term financial strategy to fund needed, major capital improvements while minimizing the impact to ratepayers. FY13-14 and FY14-15 expenditures have been adjusted to reflect the CIP portion of the Treatment Plant Capital Fund, Fund 512, excluding South Bay Water and Urgent and Unscheduled Cost ($2.6M and $1.5M, respectively).



Notes

Expenditure: Actual cost expended, either by check to a vendor or through the City's Financial System for expense such as Payroll or non-personal expenses that do not require a contract.

Encumbrance: Financial commitments, such as purchase orders or contracts, which are committed to a vendor, consultant, or contractor. The encumbrance reserves the funding within the appropriation and project.

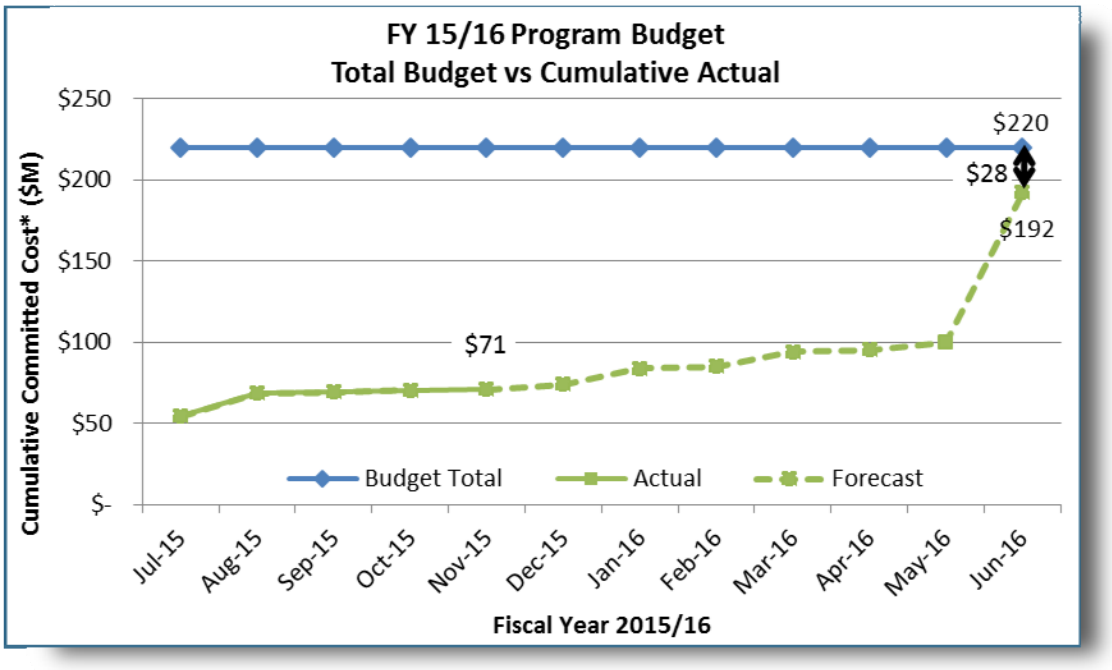
Encumbrance Balance: The amount of the remaining encumbrance committed after payments.

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

Carryover: Encumbrance Balances at the end of a FY become Carryover Funding. This is different from rebudgets, in that this is done automatically in order to utilize the funding previously committed, but not yet paid.

Fiscal Year 2015-2016 Program Budget Performance

The fiscal year program budget is $220 million. The budget amount of $220 million represents the 2015-2016 budget of $174 million plus carryover of $46 million. The budget amount excludes Reserves, Ending Fund Balance, South Bay Water Recycling, Public Art, and Urgent and Unscheduled Rehabilitation items.



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

Project Performance Summary

There are currently five active projects in the construction or post-construction phase with a further 19 projects in feasibility/development, design or bid and award phases (see PDM graphic 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 Staff System (CPMS). Green/red icons are included in the table below to indicate whether these projects are on budget and schedule, using the CPMS data as a source.

Project Performance – Baselined Projects

Project Name	Phase	Estimated Beneficial Use Date[1]	Cost Performance[2]	Schedule Performance[2]
Pond A18 Northern Gate Structure	Post-Construction	Aug 2015[3]	*N/A*[4]	*N/A*[4]
Digester Gas Storage Replacement	Post-Construction	Nov 2015[3]		
A5-A6 Nitrification Mag. Meter & Valve Replacement	Construction	Mar 2016		
Emergency Diesel Generators	Construction	Aug 2016		
Digester Gas Compressor Upgrade	Construction	Sep 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 12.
3. Actual Beneficial Use Date
4. Due to the emergency nature of the Pond A18 Northern Gate Replacement project, cost and schedule performance measurement criteria have not been applied.

Project Performance – Pre-Baselined Projects

Project Name	Phase	Estimated Beneficial Use Date[1]
Fiber Optic Connection	Bid & Award	Jul 2016
Iron Salt Feed Station	Bid & Award	Mar 2017
Cogeneration Facility	Procurement	Mar 2019
Construction-Enabling Improvements	Design	Nov 2016
Plant Instrument Air System Upgrade	Design	Jan 2018
Digester & Thickener Facilities Upgrade	Design	Jun 2019
Headworks Critical Improvements	Feasibility/Development	May 2017
Blower Improvements	Feasibility/Development	Jan 2019
Switchgear S40/G3 Relay Upgrade	Feasibility/Development	Sept 2020
Adv. Facility Control & Meter Replacement	Feasibility/Development	May 2020
Headworks Improvements	Feasibility/Development	Jan 2021
Outfall Bridge and Levee Improvements	Feasibility/Development	Nov 2021
Facility-wide Water Systems Improvements	Feasibility/Development	Jan 2022
Digested Sludge Dewatering Facility	Feasibility/Development	Dec 2021
Filter Rehabilitation	Feasibility/Development	Feb 2022
New Headworks	Feasibility/Development	Jun 2022
Nitrification Clarifiers Rehabilitation	Feasibility/Development	Aug 2022
Aeration Tanks Rehabilitation	Feasibility/Development	Sep 2023
Support Building Improvements	Feasibility/Development	Jan 2027

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

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

- The design consultant is completing final plans and specifications.
- Staff reviewed the 90 percent design submittal documents.

Digester Gas Storage Replacement

- The digester gas storage tank was placed into service this month.
- The contractor was issued substantial completion after 10 days of successful run time.
- The contractor is addressing outstanding "punch list" construction items.

Facilities Package

Cogeneration Facility

- TPAC recommended that Council approve staff recommendations to negotiate a design-build contract with the top-ranked proposer, CH2M Hill.

Support Building Improvements

- The Support Building Improvements Project successfully passed the Approve Scope stage gate. This project will be divided into four component parts: (1) Fire Life Safety Improvements, (2) HVAC Improvements, (3) New Warehouse and Shop Facilities, and (4) Public Art and Landscape Improvements. Parts (1) and (2) will commence Project Alternatives stage in December.

Liquids Package

Headworks Improvements and New Headworks

- Staff recommended to TPAC award of a consultant agreement for owner's representative and construction management services.

Nitrification Clarifiers Rehabilitation

- Staff received the Statement of Qualifications (SOQs) and issued invitations to two qualified firms to participate in an interview scheduled next month.

Advanced Facility Control and Meter Replacement

- Staff received SOQs and began review.

Power and Energy

Digester Gas Compressor Upgrade

- Construction of compressor building and cooling equipment pads was completed.
- The chillers and cooling tower equipment arrived on site.
- Construction is 40 percent complete.

Programmatic Studies

Automation Master Plan (AMP) and Process Control Approach

- Staff approved the final stage gate at which the AMP was presented laying out a vision for the RWF 10 year plan for data acquisition and management, automation, and advanced facility control.

Traffic Circulation and Impacts

- Staff approved the final stage gate for the Traffic Circulation and Impacts Study. This study has developed a traffic management plan for addressing aniticipated increased traffic related to construction activities at the RWF.

Flood Protection Study

- Staff completed review of the draft Flood Protection Guidelines for future RWF projects and published the final guidelines.
    - One additional alternative will be evaluated, which will move study completion to February 2016.

Explanation of Project Performance Issues

A5-A6 Nitrification Magnetic Meter & Valve Replacement

In September 2014, during startup, the project team discovered that the actuators that had been specified and installed were incompatible with the available power supply. Engineering staff determined it would cost more to modify the electrical system than to order and install compatible actuators. O&M staff requested that the actuators match the custom actuators used in the other 14 clarifiers. The City pursued various options to resolve the issue and has recently received a proposal from the contractor to install new actuators based on a revised specification. Upper management expects to soon achieve a negotiated agreement to include all outstanding contract issues. The existing funding will not likely be sufficient and the project will need Council approval for additional funds. Lead time of between 14 to 16 weeks will be required for ordering custom-built actuators. Contractor mobilization, actuator installation, wiring, troubleshooting, and "punch list" sign off will take a minimum of three weeks. Beneficial Use is expected by March 2016.

Digester Gas Compressor Upgrade

During the course of the design portion of this design-build project, it was determined that some of the equipment for this project would need to meet the explosion-proof classification of Class 1, Division 1 of the National Electric Code. This classification was more stringent than what was originally called for in the bid documents. Cost and schedule impacts were received from contractor, Anderson Pacific. In June, Council approved additional project funding and a three-month time extension due to a motor upgrade. Beneficial Use is expected by September 2016.

Digester Gas Storage Replacement

During a comprehensive review of the gas storage tank design submitted by the design consultant, Brown and Caldwell, it was noted that the removable piston legs used in the subcontractor's proposed design did not meet design standards and could cause problems with the tank's intended use. The contractor was granted a three-month, no-cost time extension to September 28 to complete design modifications to the gas holder support structure. Several owner-requested changes were evaluated during the prestartup period, resulting in three additional change orders for additional minor work. All work requiring welding or other spark-producing activities was completed prior to the introduction of gas. The tank has successfully passed its required leakage test and was successfully commissioned this month. The tank is in use, the project is within budget, and final contract close out activities are expected to be completed by February 2016.

Project Profile

Plant Instrument Air System Upgrade

The RWF has a high pressure instrument air supply system used for pneumatic operations and valve and instrument controls. Three existing water-cooled air compressors are currently located in the basement of the Secondary Blower Building in a location that is vulnerable to power loss and flooding. The current system is dependent on cooling water from the RWF absorption chillers. This cooling water will become unavailable in the next two to three years once the Cogeneration Facility Project is commissioned.

The new Plant Instrument Air System will replace the existing plant air compressors. The primary goal of the new system is to improve overall reliability. The new system will be located above grade in a new building protected from flooding and other vulnerabilities. The three new air compressors will be air cooled, eliminating the dependency on an external cooling source. In addition, the new system will have the capability to be remotely powered up from both the existing electrical distribution center in the Secondary Blower Building and an electrical distribution center in the Sludge Control Building.

The project will be delivered using a design-bid-build approach. The design consultant, CH2M, is scheduled to complete the 100 percent bid plans and specifications in April 2016. The construction contractor is expected to receive the Notice-to-Proceed in September 2016. This project should be substantially completed and ready for Beneficial Use by January 2018.

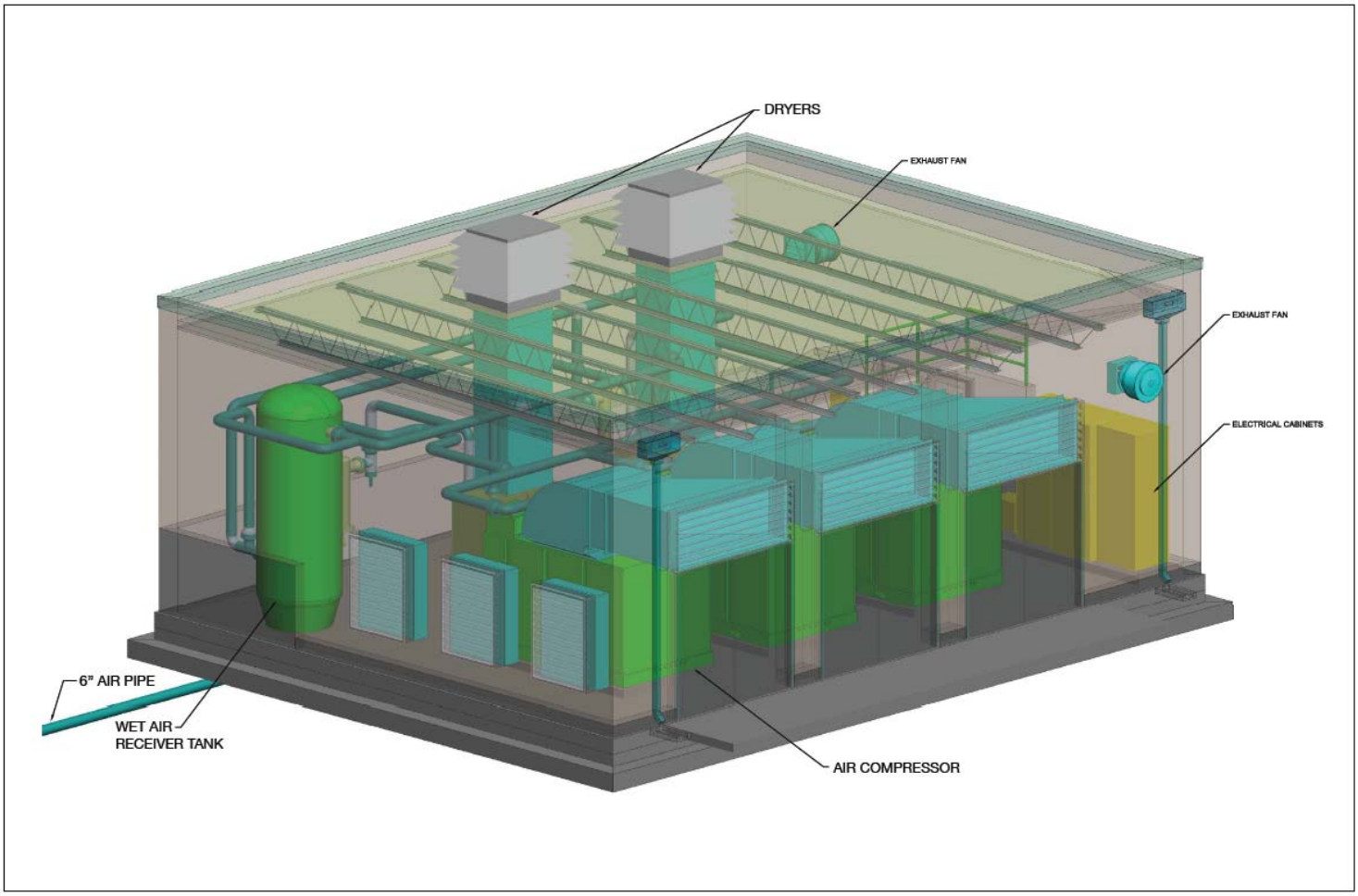


Figure 2 – Plant Instrument Air System Conceptual Building Isometric Rendering

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Regional Wastewater Facility Treatment – Current Treatment Process Flow Diagram

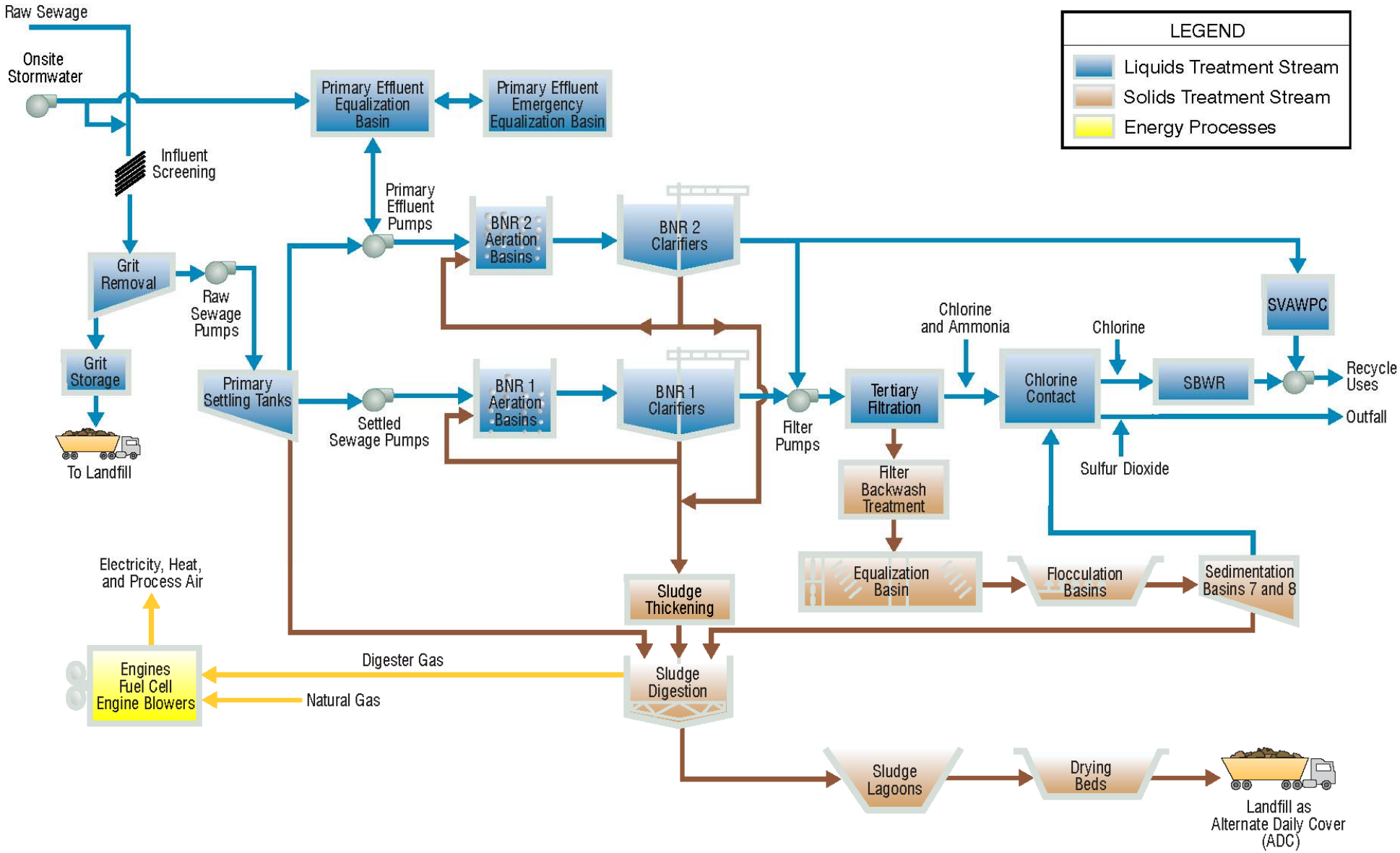

Figure 4 — Current Treatment Process Flow Diagram

Regional Wastewater Facility Treatment – Proposed Treatment Process Flow Diagram

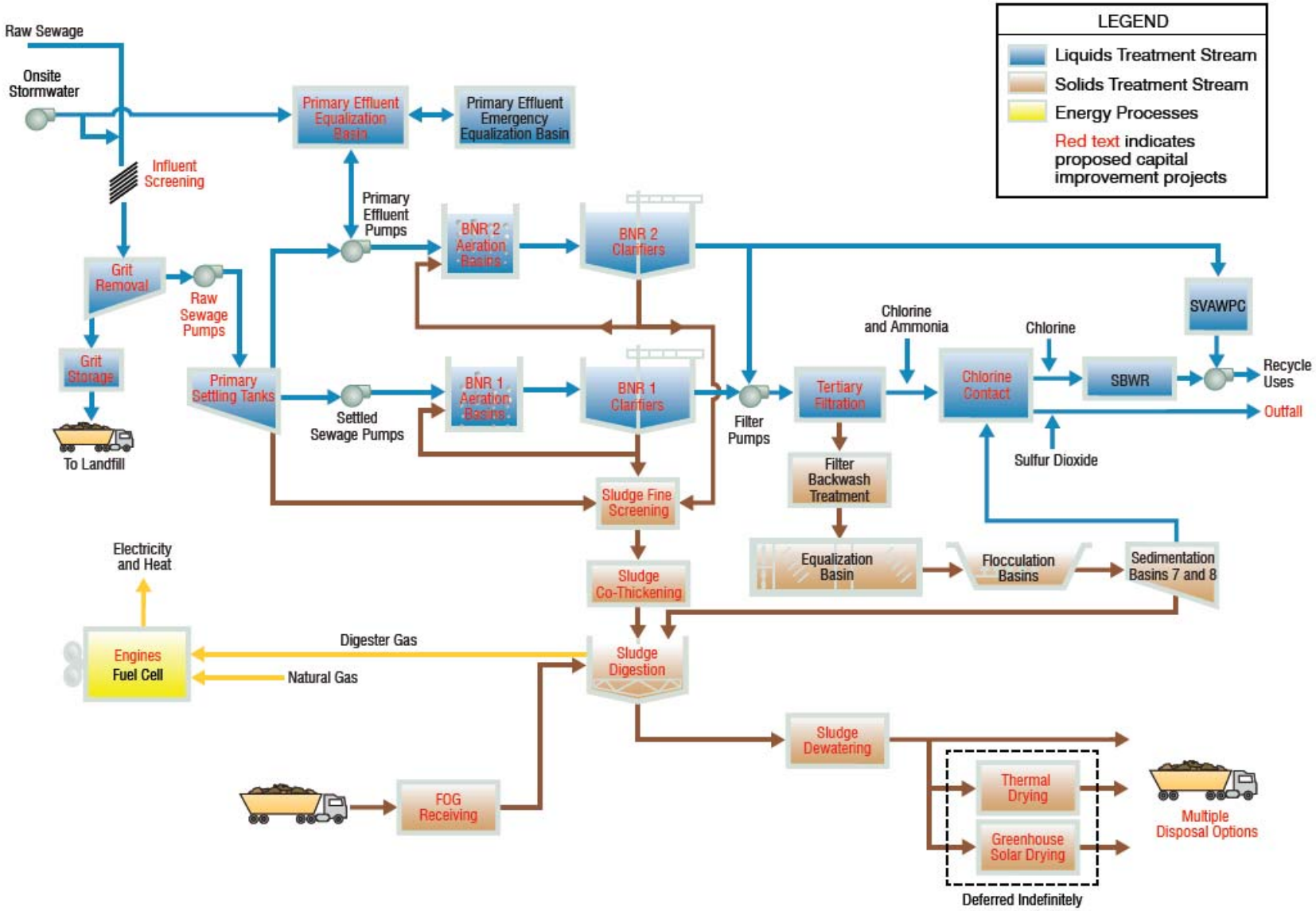

Figure 5 — Proposed Treatment Process Flow Diagram

Active Construction Projects – Aerial Plan

Figure 6—Active Construction Projects