San José-Santa Clara Regional Wastewater Facility

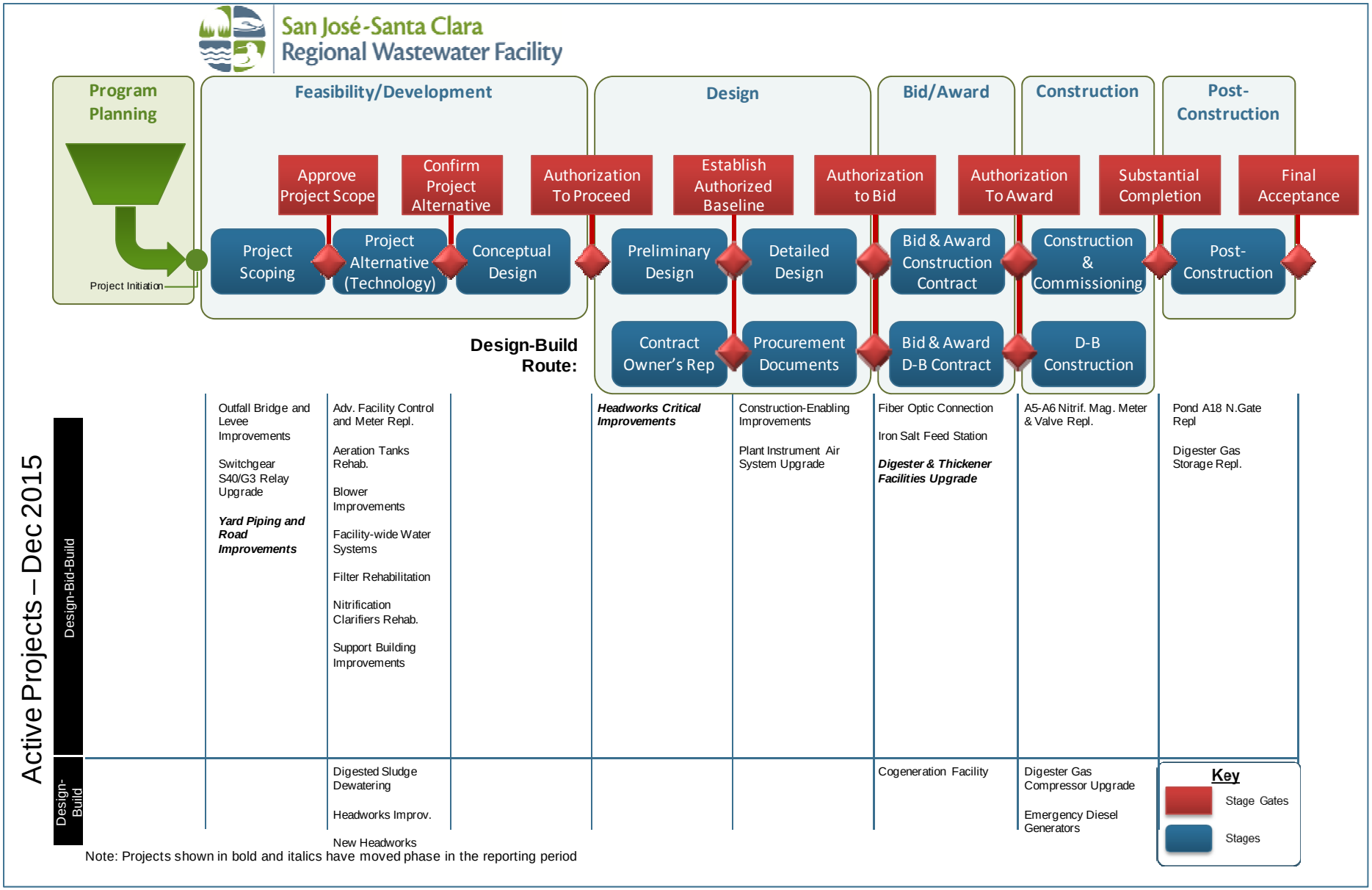
Capital Improvement Program
Monthly Status Report: December 2015

February 4, 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 (RWF) for December 2015.

Report Contents

Project Delivery Model



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

Program Summary

December 2015

In December, the CIP progressed on multiple fronts, including the successful advancement of two projects through the Project Delivery Model (PDM) stage gate process. The Digester Gas Storage Replacement Project successfully completed the Substantial Completion stage gate, and the Digester and Thickener Facilities Upgrade Project successfully completed the Authorization to Bid stage gate.

The CIP also met a number of key procurement milestones and advertised two Requests for Qualifications (RFQ) for projects requiring consultant design services. In addition, a third RFQ was advertised for programmatic support to provide construction management services. The three RFQs advertised in December were:

- **Aeration Tanks and Blower Rehabilitation Project**. This project will result in improvements within the RWF's secondary and nitrification processes to ensure continued operation and adequate aeration for treatment.
- **Facility Wide Water Systems Improvements Project**. This project was re-advertised and will improve RWF's water supply reliability by rehabilitating, replacing, and optimizing piping, valves, pumps, controls, and other ancillary equipment across the RWF's four water systems.
- **Construction Management and Inspection Services.** This procurement will supplement existing City construction management (CM) staff by providing CM and inspection services for various capital projects.

Staff also completed the assessment of the Nitrification Clarifiers Rehabilitation Project procurement this month and notified the successful consultant. Negotiations on final scope and agreement terms will commence in January.

Council approved the following items that TPAC previously recommended for approval in November:

- Authorize the City Manager to negotiate a design-build contract with CH2M Hill for the Cogeneration Facility Project;
- Award a master consultant agreement with CDM Smith for the Headworks Project(s); and
- Provide direction to staff on proposed amendments to the RWF master agreements.

Staff presented the following recommendations to the Treatment Plant Advisory Committee (TPAC) and the City Council (Council) in December:

- Award a master consultant agreement to Kennedy/Jenks for the Filter Rehabilitation Project;
- Accept recommendations related to Clean Water State Revolving Fund (SRF) for the Digester and Thickener Facilities Upgrade project.

The 100 percent design review for the Digester and Thickener Facilities Upgrade Project was completed and the project is scheduled to be advertised in January 2016. The 90 percent design review milestone was also reached on the Construction Enabling Improvements Project; this project is scheduled to be advertised in February 2016.

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 is now operational.

Look Ahead

In January, 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. Procurements for a number of programmatic services will also continue to advance, including General Engineering Services; Design and Construction Management Software (DCMS); Value Engineering and Peer Review Services; and Audit Services.

Also next month, staff will present recommendations to TPAC and Council to award a construction contract to Anderson Pacific Engineering Construction, Inc. for the Iron Salt Feed Station Project, and to accept the proposed 2015-2016 Mid-Year Budget review strategy. The Plant Instrument Air System Upgrade Project will reach the 90 percent design review milestone in January, and the Construction-Enabling Improvements Project will seek to advance through the PDM Authorization to Bid stage gate. In addition, all CIP project managers and project engineers will continue formal staff training in January with a session planned on Project Scheduling.

Program Highlight – Project Management Training

The CIP Project Management (PM) training program helps staff develop their professional skills by:

- Increasing CIP staff understanding and knowledge of PM practices;
- Creating a common platform for CIP project management execution;
- Building staff project management skills;
- Aligning CIP staff practices with industry project management practices;
- Sharing practical experiences and lessons learned across the CIP team; and
- Training current staff who aspire to move into project management roles.

The program is based on the project management structure endorsed by the Project Management Institute (PMI). Certified Project Management Professionals (PMPs), who work as part of the CIP team, present the program to CIP staff.

Each month, using 90-minute modules of direct instruction and practical exercises, up to three PMPs involve participants and provide examples of key principles. Additionally, a 30-minute session focuses on one project manager who presents lessons learned from a current project and invites discussion of specific issues. This session brings important issues to the attention of all project staff and serves as a valuable opportunity to share experiences. Staff find the training relevant to their work. "I like the practical exercises we are given because they apply directly to our project work," said Helena Choi, a Senior Engineer in the Department of Public Works. As an added benefit, the training time counts towards PM experience required to qualify for the PMP exam or continued education credits for active PMPs.

Program topics cover a wide range of issues that are essential to project management and CIP success. Topics covered to date include:

- Duties and expectations of a project manager;
- Project scope definition;
- QA/QC planning and implementation;
- Budgets, estimates, and cost control;
- Reports, accruals, and use of project data;
- Scope and time management; and
- Project schedule baselines and network diagrams.

	Project Management Process Groups				
Knowledge Areas	Initiating	Planning	Executing	Monitoring & Controlling	Closing
Integration	✓	✓	✓	✓	✓
Scope	✓	✓		✓	
Time	✓	✓		✓	
Cost	✓	✓		✓	
Quality	✓	✓	✓	✓	✓
Human Resources	✓	✓	✓	✓	
Communications	✓	✓	✓	✓	
Risk	✓	✓		✓	
Procurement	✓	✓	✓	✓	✓
Stakeholder	✓	✓	✓	✓	

✓ Knowledge Area applicable to Project Management Process Group

Figure 1 – The PM Training aligns to PMI Knowledge Areas and Project Management Process Groups

Program Performance Summary

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

Program Key Performance Indicators – Fiscal Year 2015-2016

KPI	Target	Year to Date			Fiscal Year End		
		Actual	Status	Trend	Forecast	Status	Trend
Stage Gates	80%	100% (15/15)[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)			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		
Measurement: CIP Fiscal Year 15/16 committed costs. Committed cost meets or exceeds 70% of planned Budget (70% of $220M = $154M							
Procurement	80%	90% (9/10)[2]			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[3]	80%	86% (6/7)[4]			86% (25/29)		
Measurement: Number of planned positions filled for the fiscal year. Criteria: Red: < 70%; Amber: 70% to 79%; Green: >=80%							

Notes

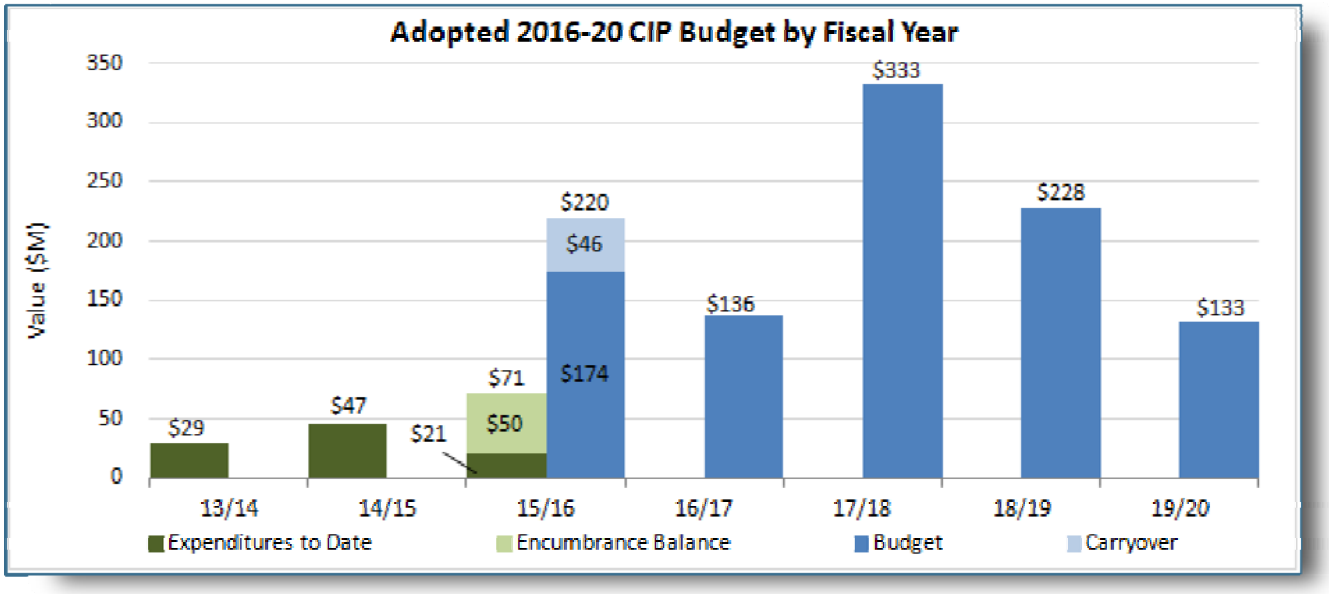
1. For the Stage Gate KPI Year to Date (YTD), the number of completed stage gates increased from 13 to 15. The following projects successful completed their stage gates in December – Digester Gas Storage Replacement and Digester & Thickener Facilities Upgrade.
2. For the Procurement KPI Year to Date, the number of procurements increased from 7 to 9. The Consultant Services for the Aeration Tanks & Blower Rehabilitation Project and Program-Wide Construction Management Consultant Services was advertised in December 2015. The Program-Wide Audit Consultant Services procurement has slipped to February.
3. 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.
4. Five positions have been filled this quarter: two Senior Engineers, two Associate Engineers, and one Analyst.

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.

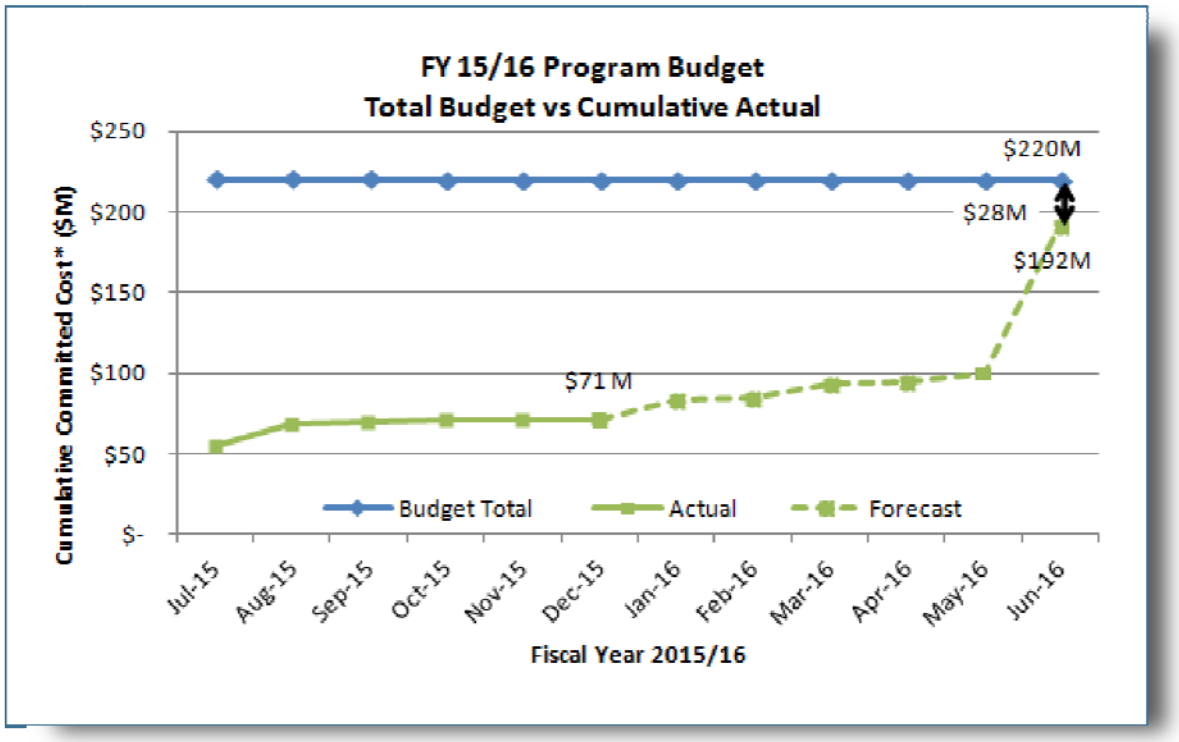
Encumbrance Balance: The amount of the remaining encumbrance committed after payments.

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 20 projects in feasibility/development, design, or bid and award phases (see PDM graphic, page 2). 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	Sept 2016
Iron Salt Feed Station	Bid & Award	Mar 2017
Cogeneration Facility	Bid & Award	Mar 2019
Construction-Enabling Improvements	Design	Nov 2016
Headworks Critical Improvements	Design	May 2017
Plant Instrument Air System Upgrade	Design	Jan 2018
Digester & Thickener Facilities Upgrade	Design	Jun 2019
Blower Improvements	Feasibility/Development	Mar 2019
Adv. Facility Control & Meter Replacement	Feasibility/Development	May 2020
Switchgear S40 Upgrade, M4 Replacement, G3 & G3A Removal	Feasibility/Development	Sept 2020
Headworks Improvements	Feasibility/Development	Feb 2021
Outfall Bridge and Levee Improvements	Feasibility/Development	Nov 2021
Digested Sludge Dewatering Facility	Feasibility/Development	Dec 2021
Facility Wide Water Systems Improvements	Feasibility/Development	Feb 2022
Filter Rehabilitation	Feasibility/Development	Feb 2022
New Headworks	Feasibility/Development	July 2022
Nitrification Clarifiers Rehabilitation	Feasibility/Development	Aug 2022
Yard Piping and Road Improvements	Feasibility/Development	Aug 2022
Aeration Tanks Rehabilitation	Feasibility/Development	Nov 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 completed final plans and specifications. The final design includes more than 700 design drawings and 1400 pages of specifications.
- Staff is currently preparing the bid documents for final signoff. The bid period is planned for January to March 2016.

Facilities Package

Cogeneration Facility

- On December 1, Council approved the design-builder ranking and authorized staff to begin negotiations with the top-ranked firm. Negotiations began on December 2, with a target for Council approval of spring 2016.

Construction-Enabling Improvements

- The project reached the 90 percent design review milestone. Staff anticipates bid advertisement in February 2016.

Facility Wide Water Systems Improvements

- The RFQ for consultant engineering services was re-advertised on December 23 and proposals are due on February 3.

Yard Piping and Road Improvements

- The project was initiated on December 4. Staff has begun to develop the scope and expects to proceed to the Approve Scope stage gate in May 2016.

Liquids Package

Aeration Tanks and Blower Rehabilitation

- The RFQ for consultant engineering services was advertised on December 23 and proposals are due on February 19.

Filter Rehabilitation

- On December 15, Council awarded a consultant agreement for engineering services to Kennedy/Jenks.
- The consultant's first task will be to perform a comprehensive condition assessment of the filters. Staff expects the assessment to be completed in summer 2016.

Headworks Improvements and New Headworks

- Council awarded a consultant agreement for engineering services to CDM Smith on December 1.
- Design of the first phase of the project is expected to begin in spring 2016.

Iron Salt Feed Station

- Staff met with representatives of the Bay Area Air Quality Management District (BAAQMD) to discuss the Authority to Construct (ATC) permit, and received the ATC on December 24. Staff anticipates the construction contract award will be recommended to TPAC and Council in January 2016.

Power and Energy

Digester Gas Compressor Upgrade

- The gas compressor motors have been shipped from Hyundai in Korea; staff expects they will be delivered to Unison Solutions (Gas Skid Packager) at the end of January.
- The chillers and cooling tower equipment has been partially installed in the cooling equipment area.
- The Motor Control Center has been installed in the electrical room.

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. Operations and Maintenance (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 received a proposal from the contractor to install new actuators based on a revised specification. A counterproposal was provided to the contractor in December and discussions between senior management from both sides have been productive. A negotiated agreement to resolve all outstanding contract issues is expected in January. 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 forecasted for late 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 in November. The tank is in use, the project is within budget, and final contract closeout activities are expected to be completed no later than March 2016.

Project Profile

Digester Gas Storage Replacement Project

The RWF's previous digester gas holding tank, built in 1984, experienced a mechanical failure in 2012 and was taken out of service. A new digester gas storage project was commenced to replace the existing tank with a reliable facility.

The Digester Gas Storage Replacement Project included the design and construction of a new, 50,000 cubic feet digester gas storage tank with a construction value of $1.8 million. Successfully put into service November 28, the new facility allows the digester gas management system to reliably utilize digester gas in the RWF's combined heat and power system.

The Consultant and O&M staff met to discuss standard operating procedures (SOPs) for the gas holder. As a result, four SOPs were written covering:

- Startup of gas holder;
- Taking the gas holder out of service;
- Preventative maintenance on pressure relief valves; and
- Preventative maintenance of the flame arrestors.

All final deliverables were received, including as-built drawings and the O&M Manual.

Currently, the project team is working on completing minor "punch list" items, such as painting touchups and equipment adjustments. Staff anticipates that final acceptance will be issued in mid-February. This project will be completed under budget.

Figure 2 – Digester Gas Storage Tank

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Regional Wastewater Facility Treatment – Current Treatment Process Flow Diagram

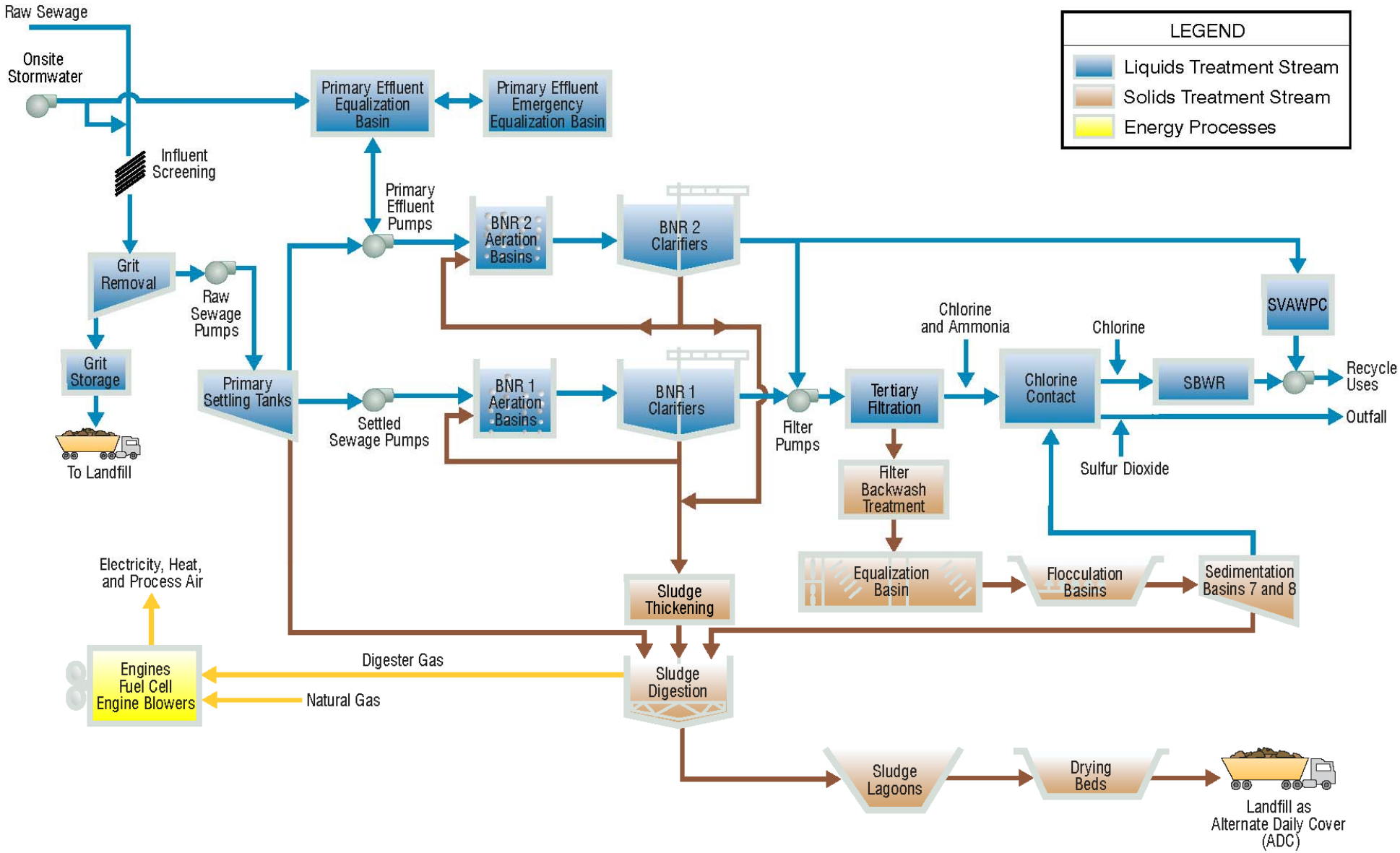

Figure 4 — Current Treatment Process Flow Diagram

Regional Wastewater Facility Treatment – Proposed Treatment Process Flow Diagram

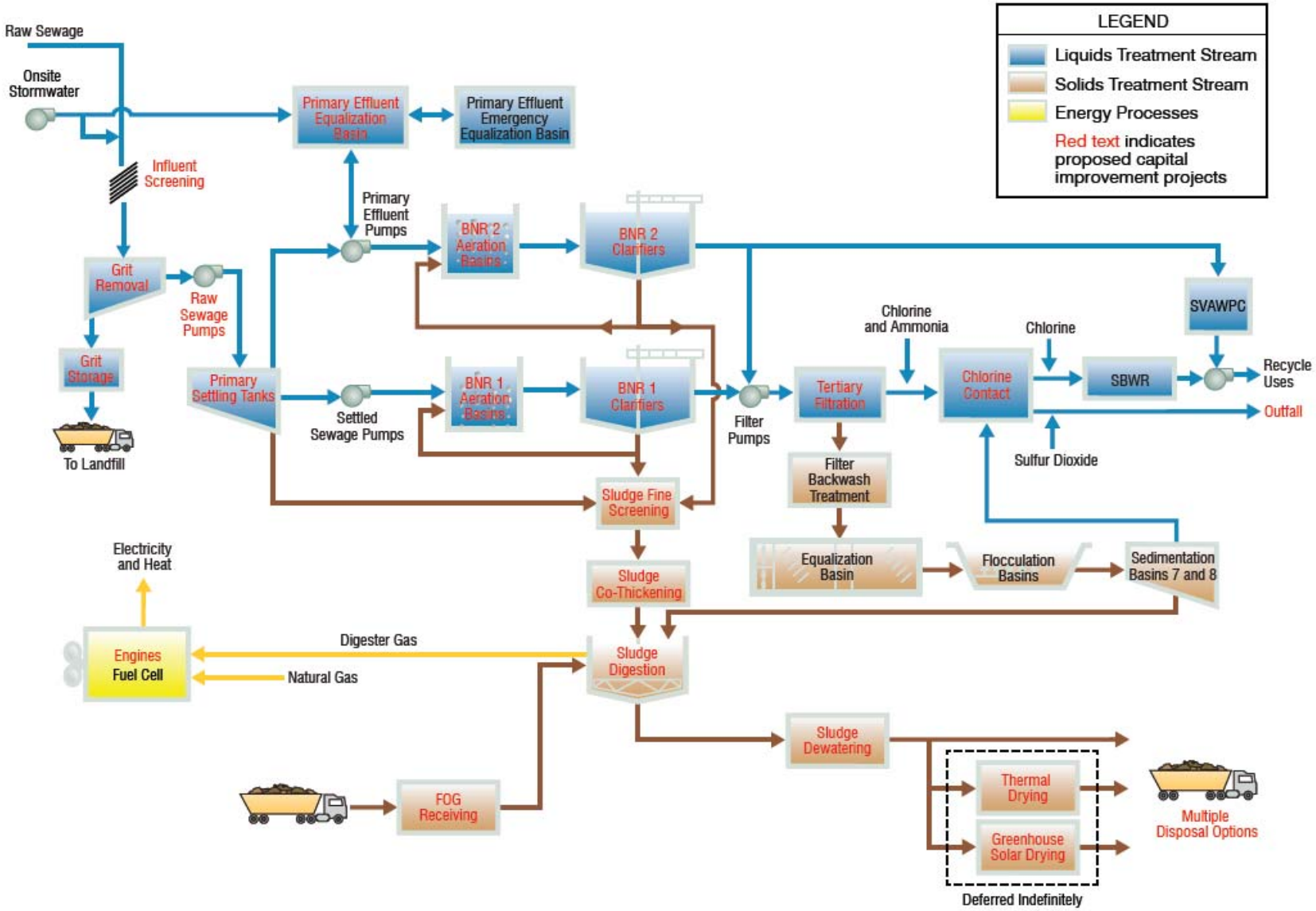

Figure 5 — Proposed Treatment Process Flow Diagram

Active Construction Projects – Aerial Plan

Figure 6—Active Construction Projects