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DATE: November 7, 2017

TO: Commissioner, Ike Kwon, President
Commissioner, Vince Courtney, Vice President
Commissioner, Ann Moller Caen
Commissioner, Francesca Vietor
Commissioner, Anson Moran

FROM: Harlan L. Kelly, Jr., General Manager

RE: WSIP Regional Projects Quarterly Report
1st Quarter / Fiscal Year 2017-2018

Enclosed please find the Water System Improvement Program (WSIP) Regional Projects Quarterly Report for the 1st Quarter (Q1) of Fiscal Year (FY) 2017-2018. The primary intent of the report is to provide the San Francisco Public Utilities Commission ("Commission"), stakeholders, and the public with a status summary of the program's regional projects for the period of July 1, 2017 through September 30, 2017.

It should be noted that this report does not include all the expenditures accrued for the work completed from July 1 through September 30, 2017 due to challenges associated with the recent migration of the City financial system from FAMIS to PeopleSoft. We are working diligently to address these challenges.

STATUS AND PERFORMANCE SUMMARY

Overall, WSIP regional projects are 95.0% complete as of September 30, 2017, which is 0.2 % behind the Commission Approved Schedule.

As of the end of the reporting period, planning, environmental, design, and construction activities are 100.0%, 99.8%, 99.1%, and 95.0% complete, respectively. The following table shows the number of projects and the total approved value of these projects that are active in the WSIP's various phases.

Status of WSIP Regional Projects (as of September 30, 2017)

Project Phase	No. of Projects	Percent by No. of Projects	Total Project Value[1] ($M)	Percent by Project Value
Planning	0	0%	$0	0%
Design	3	6%	$39	1%
Bid & Award	0	0%	$0	0%
Construction	8	15%	$1,502	40%
Close-Out	0	0%	$0	0%
Completed	39	75%	$2,188	58%
Not Applicable[2]	2	4%	$32	1%
Total	**52**	**100%**	**$3,761**	**100%**

Notes: (1) "Total Project Value" for various phases includes proportional allocation of approved program management budget. Projects active in multiple phases are counted as being in the phase with the greatest amount of project activities.
(2) "Not Applicable" category is for projects that do not include construction, including the Watershed Environmental Improvement Program and the Long-Term Mitigation Endowment.

The following major milestone was reached during this reporting quarter: The construction final completion of New Irvington Tunnel Project was achieved.

PROGRAM UPDATE

As of the end of the reporting period, eight (8) regional projects with a total value of $1,502M are in construction and thirty-nine (39) projects with a total value of $2,188M are in close-out or have been completed. Forty (40) out of forty-three (43) Regional WSIP projects with specific Level of Service (LOS) goals have achieved their LOS goals to date. Besides the WSIP Closeout Projects, the only Regional project that remains in pre-construction is the Alameda Creek Recapture Project.

As of the end of the reporting period, the forecasted total program cost (regional and local projects) is $4,876.1M, which exceeds the Commission Approved Budget of $4,845.5M. As of the end of the reporting period, all approved change orders (COs) on active construction contracts total $396.33M, and the current remaining construction contingency is $72.04M. Also, as of the end of the reporting period, all pending and potential COs, and trends total $49.50M. Therefore, if all pending and proposed COs and trends become approved COs, the current forecasted remaining construction contingency is $22.54M.

The current forecasted date to complete the overall WSIP is May 2021 which is beyond the current approved date of December 2019.

Given that the current forecasts for the overall WSIP budget and schedule exceed the current approved budget and schedule, we anticipate requesting the Commission to re-baseline the WSIP in early 2018. The notification and approval process will be in accordance with AB 1823.

UPDATE ON PROJECTS IN PRE-CONSTRUCTION

Alameda Creek Recapture

During the previous quarter, the Planning Department certified the Final Environmental Impact Report (EIR). Subsequent to that certification, the Alameda County Water District (ACWD) filed an appeal to the San Francisco Board of Supervisors requesting that the Board overturn the certification of the EIR. In addition, the National Marine Fisheries Service (NMFS) filed a letter in support of the appeal. The San Francisco Board of Supervisors adopted findings reversing the Final EIR certification and directed the Planning Department to provide additional information and analysis on operational impacts on steelhead fish as a result of project-induced effects on streamflow in Alameda Creek, as well as to have an independent third party to review the EIR groundwater/surface water model. The Board determined that with respect to all other issues, the Final EIR is adequate. The Planning Department will re-circulate a limited portion of the EIR that will provide additional information and analysis on operational impacts on steelhead fish in the lower watershed as a result of project-induced effects on streamflow in Alameda Creek. A plan is being developed to revise the EIR. The bidding process was canceled, and the contract will be re-packaged and re-advertised after Final EIR approval. PG&E continued work on decommissioning and removing their gas line within the project site. The Team continued to work with Department of Water Resources on the encroachment permit to cross their ROW. The erosion repair work to Pond F3 East was removed from the design and added to the Job Order Contract (JOC) list.

WSIP Closeout Projects

Steady progress was made on WSIP Closeout Projects for each of the San Joaquin, Sunol Valley, Bay Division, and Peninsula Regions in the reporting Quarter. In the San Joaquin Region, the Tesla Portal slab and drainage improvement work was over 75% complete. The design of the Solar Panels for three sites is ongoing. In the Sunol Valley Region, SFPUC staff is revising the bid documents for the San Antonio Backup Pipeline (SABPL) Erosion Repairs at Pond F3 East, which is to be issued under a JOC contract due to the Alameda Creek Recapture project being delayed. The SVWTP Basin No. 5 design is ongoing. The portion of this project that is non-WSIP is being funded by another project under the Water Enterprise CIP. Other ongoing projects in design include SABPL Water Carrier System Modification, Alameda Siphon 4 Water Carrier Water System Modification, and New Irvington Tunnel (NIT) Portal Water Quality Equipment Relocation. The NIT/SABPL Security Doors, Cathodic Protection, and UPS racks are currently under construction. In the Bay Division Region, construction for the corrosion protection of the valve installed under the Bay Division Pipeline 5 (BDPL5) Peninsula Contract and the warranty inspection of Bay Tunnel are both ongoing. The Ventilation & Sump Pump Installation and V-Ditch under the BDPL 3&4 Seismic Upgrade are both currently in design.

In the Peninsula Region, the Crystal Springs Dam Stilling Basin, Dissipation Structure, and H53 Valve project is planned for re-advertisement in December 2017. The New Crystal Springs Bypass Tunnel modifications to address the electrical corrosion concerns have been completed.

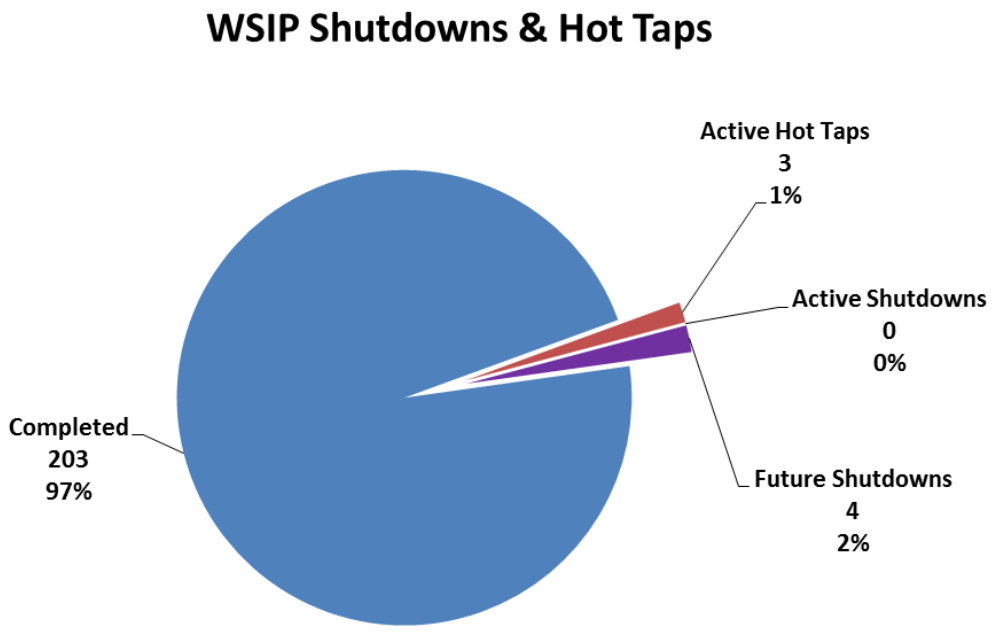
The Erosion Mitigation/Repairs sub-project includes the post construction environmental monitoring of sites associated with major WSIP projects. Two locations in Crystal Springs have been identified as requiring erosion mitigation. Several JOC task orders have been initiated for the Harry Tracy Water Treatment Plant facility: JOC 59-01 for electrical and mechanical piping modifications, JOC 59-17 for replacement of three ozone generator filters, and JOC 59-19 for leak repairs in the channels inside the filter gallery.

UPDATE ON PROJECTS IN CONSTRUCTION

Steady progress continued on the ongoing WSIP construction activities. As of the end of September 2017, WSIP regional construction contracts (including active, completed, and future contracts) are 96.2% complete overall, an increase of 0.5% during the quarter. Actual progress is above the Late Planned performance of 94.9% for the period.

A review of the construction work hours recorded over the last five years shows continued ramping down of construction activities, with monthly work hours peaking at 206,400 in August 2012, compared to a total of 65,668 work hours recorded in September 2017. The monthly average workhours in the reporting Quarter was 63,387, an increase compared to the 51,989 monthly average workhours for the same period in 2016.

As of the end of September 2017, monitored exposure hours on WSIP regional projects totaled 9.2 million construction person-hours. Since the implementation of the WSIP Safety Approach in April 2009, the total lost time incidence rate is at 0.55, compared to the U.S. Bureau of Labor Statistics (BLS) industry average rate (2015) of 1.5. There were two recordable injuries, and no lost time incidents, during this quarter.



During the Quarter, a major shutdown (CDR/6) at the Calaveras Dam Replacement Project was completed. To date, 203 out of 210 (97%) of the planned shutdowns & hot taps have been completed. Currently, there are 3 active hot taps and 4 future planned shutdowns.

The following is a brief summary of the progress made, issues encountered, and/or milestones achieved on the key WSIP regional projects currently active in construction.

Calaveras Dam Replacement

Overall progress on the Calaveras Dam Replacement current construction contract is reported at 89.1% as of the end of the quarter, which is an increase of 2.8% during the period. Progress is below the planned progress of 90.4% according to the late baseline curve.

During the Quarter, the City accepted a revised baseline schedule (RBL5) incorporating several impacts, including PCO 65 delay in downstream blanket and dam embankment, loss of access to Calaveras Road, loss of access to Borrow Area E, and other issues resulting from the heavy rains at the beginning of the year and various other differing site conditions. The Substantial Completion is projected for February 22, 2019. Significant achievements to date include the completion of the spillway, the 72-inch steel outlet conduit and concrete encasement, foundation excavation and grouting, intake tower, and electrical building structure. The dam embankment construction made substantial progress during the reporting quarter, with a top elevation of 640 feet at the end of the reporting quarter.

Regional Groundwater Storage and Recovery

Overall progress on the Regional Groundwater Storage and Recovery construction contract is reported at 98% as of the end of the quarter, which constitutes an increase of 2.2% during the Quarter.

The contractual Substantial Completion date of October 7, 2017 has been delayed by design changes to add/modify Sodium Hydroxide systems at SFPUC-managed well buildings; by the addition of remote sampling stations, or of a sample line routed back to the well station at the SFPUC-managed well buildings; by forecasts for the energizing of permanent power at the Serramonte and Treasure Island Sites; and/or by the implementation of Master PLC changes. The CM Team is assessing whether work completed to date meets the contract specifications for functionality of the well stations to determine if the Contractor has proceeded in good faith towards Substantial Completion, and will revise the contract based on this determination.

The major remaining challenge for this project that is unrelated to the current construction contract is the need to identify two additional viable well sites in the San Bruno area to meet the overall LOS water supply goal.

Fish Passage Facilities within the Alameda Creek Watershed (Sub-project to Calaveras Dam Replacement)

The Fish Passage Facilities within the Alameda Creek Watershed construction is 65% complete - an increase of 16% during the Quarter. The project has advanced to the point where the fish screens are going through shop testing and inspection, with the first two of four fish screen frames delivered to the site. The Contractor backfilled and compacted the downstream apron area and

counterfort wall area, and is now working on the downstream apron, sluice outlet, slab on grade, and transition structure, at the same time as intake gate installation.

MAJOR PROGRAM TRENDS AND RISKS

Actual and potential impacts on the cost and schedule of WSIP projects are identified and tracked using change orders (COs), trends, and risks. COs and trends are managed using the Construction Management Information System (CMIS), while risks are managed using Active Risk Manager (ARM). Active COs on the WSIP are categorized based on their status as follows: Approved COs are changes that have been negotiated, have been certified by the City Controller, and are now part of the contract (exact magnitude of change is known); Pending COs are changes that have been negotiated but have yet to be certified by the City Controller (exact magnitude of change is known); and Potential COs are changes that have been proposed by either the SFPUC or the contractor but are still being negotiated (magnitude of change is unknown). Any known issue with a probable impact to the approved schedule and/or contract amount that has yet to be proposed as a Potential CO is captured as a trend. In addition, project teams assess and quantify conceivable risks to their projects with the goal to mitigate the conditions which might cause them to materialize.

WSIP Management submits to the Commission on a quarterly basis a separate report on the status of Change Orders. This section summarizes the major program trends and risks being tracked as of September 30, 2017.

The trends for the WSIP Active Regional construction contracts totaled $19.2M as of the end of the reporting period, a decrease of $17.3M during the period. Approximately 54% of the total trends at the end of September 2017 belong to the Calaveras Dam Replacement Project. The following table lists the trend totals for active projects:

WSIP Active Regional Projects Trend Totals (as of September 30, 2017)

Project	Trends ($ Million)	Percent Completion[1]
Calaveras Dam	$10.3	89%
Fish Passage Facilities at ACDD	$6.3	65%
Regional Groundwater Storage & Recovery	$2.6	98%

1. Refers to percent completion of the current construction contract (including all Approved COs).

The WSIP Risk Management System ranks risks based on a combination of likelihood of occurrence and potential cost impact to the SFPUC. On that basis, and as of September 30, 2017, the Calaveras Dam Replacement Project has nine of the top ten program risks and the Fish Passage Facilities within the Alameda Creek Watershed project has the remaining one. The current highest risk in the program is at the Calaveras Dam project and addresses the potential

schedule impact on zone embankment placement related to Borrow Area B shale removal and slope stabilization. The following table lists the projects with the largest risks.

Top 10 Risks of WSIP Regional Projects (as of September 30, 2017)

Project	No. of Top 10 Risks	Percent Completion[1]
Risk Ranking Based on Likelihood of Occurrence and Potential Cost Impact		
Calaveras Dam	9	89%
Fish Passage Facilities at ACDD	1	65%

1. Refers to percent completion of the current construction contract (including all Approved COs).

Based on the risks summarized above, the two (2) construction contracts that carry the greatest potential to impact the Program's overall cost and schedule are Calaveras Dam Replacement and the Fish Passage Facilities within the Alameda Creek Watershed, while the Regional Groundwater Storage and Recovery contract remains unchanged from last quarter and has associated risk ranked below the top 20 risks to the Program.

Calaveras Dam Replacement

As of the end of September 2017, there are 20 active trends, totaling $10.3M, on this contract, a decrease of $13.4M during the quarter. The largest trend is related to the Right Abutment impact due to a differing site condition discovered during excavation of the downstream foundation for the Zone 4 shell material of the new dam. The second highest trend addresses the potential quantity overrun of zone embankment material above the outlet pipe bench. The third largest trend is the specialty restoration of the outflow creek downstream of the new dam which is currently pending design. Other trends include the right abutment swale restoration above the soldier pile wall, the left abutment erosion control during construction, the bird deterrent program, the access to permanent instrumentation required for long-term operations and maintenance, and other differing site conditions.

Nine of the current top ten risks for the active WSIP construction contracts, based on likelihood of occurrence and potential cost impact, belong to this contract. The estimated value of the 80% risk confidence level is $22.7M, a decrease of $2.2M from the value reported for the previous quarter.

Moving up from being the second largest risk last quarter, the current largest risk to the project concerns the potential schedule impact on zone embankment placement related to Borrow Area B shale removal and slope stabilization. The second highest risk is the risk associated with adverse weather in excess of contractual agreement. The third highest risk is the potential for overtopping of the existing dam during construction due to an extreme flood event while the spillway is out of service. A new risk added this Quarter is now the fourth highest risk on the project, the risk of not obtaining extension approval for road closure from Alameda County causing delays to the project.

Other top ten risks include the risk that there is not enough hard rock material on site (5E/5I) for the Zone 5 upstream part of the dam, the risk that local Zone 2 and 3 filter materials do not meet regulatory requirements, and both the risk of potential long term erosion for the right abutment and risk of water quality issues for the left abutment. Additional risks in the top ten highest risks of the project include the risk of encountering high levels of naturally occurring asbestos (NOA) beyond the contractor's control, the risk of encountering protected and endangered species, and the possibility that the foundation is not approved by the DSOD (Division of Safety of Dams) due to inadequate cleaning or excessive deterioration as a result of extended exposure from left and right abutment changes.

Fish Passage Facilities within the Alameda Creek Watershed (ACDD)

This project is currently reporting on 43 active trends that total $6.3M, a decrease of $2.8M from the value reported last quarter. The current largest trend covers the increase in the allowance for the storm-water pollution prevention plan (SWPPP). The second and third highest trends concern a dispute with the contractor regarding the volume of subterranean water flow beneath the creek for the first and second season respectively. Other large trends include the costs of the foam backfill at the fish ladder, changes at the soil nail wall, potential rock fall hazard on the left bank, headwall length increases, and several differing site conditions.

The 80% risk confidence level as of the end of September 2017 is estimated at $4.7M which is an increase of $1.6M during the quarter. The current highest risk addresses the potential for regulatory agencies to require shuttling of personnel at the job site due to multiple takes of snakes or salamanders. Other high risks include the potential for prolongation of out-of-stream drilling (including the new soldier pile wall) due to unforeseen conditions such as cobbles and boulders, the risk of excessive dewatering needed during the 3rd dry season (2018), failure to obtain environmental permits on time, and the risk of mishandling storm water runoffs leading to violation of the construction general permit. Other lower level risks include the potential for insufficient creek flow to test the system upon substantial completion, unexpected differing site conditions at the soil nail wall, the potential for in-channel construction completion being delayed due to higher than normal flows, the risk of fish ladders and screens not functioning as planned, and the risk of birds nesting in the active construction zone

Regional Groundwater Storage and Recovery

This project is currently reporting on 17 active trends that total $2.6M, a decrease of $1M during the quarter. The largest trend covers furnishing and installing sample lines at five well stations and automated sample stations at two other well stations. The second largest trend covers several items needed to address operational/safety needs, including sumps in the chemical containments, lower calibration columns, vent chemical tanks outside the building, ambient monitoring detector for ammonia, and other miscellaneous items. The third largest trend covers the cost of extended overhead due to the schedule extension beyond the contractual substantial completion date related to necessary changes in the chemical injection points for sodium hydroxide (NaOH) treatment.

Other significant trends include additional site restoration, furnishing and installing a revised flowmeter conduit and accessories, contractor alleged inefficiencies encountered at offsite utilities requiring demobilizations and remobilizations, and addressing access issues to the Serramonte,

Ben Franklin, and Treasure Island sites. Other trends include the rental of generators for temporary power to keep equipment warm due to delay in energization with PG&E, the cost to address the funeral home well pump issue, and other issues. Partially offsetting these trends is a potential credit for steel plates.

The 80% risk confidence level as of the end of the reporting period is estimated at $0.5M which remained unchanged during the last quarter. The current largest risk concerns the potential for delays in finalizing permanent easements. The second highest risk assesses the potential costs that would be caused by design errors and/or omissions. Additional risks include the potential impacts of turnover of key personnel, schedule delays caused by longer turnaround in submittals and RFIs, and the potential for encountering unforeseen underground utilities.

CLOSING

Despite the challenges described above, the WSIP team continues to make steady progress in the delivery of the program as described in the attached WSIP Quarterly Report. It should be noted that the challenges encountered in the field and reported herein are not unusual for infrastructure programs of the size and complexity of the WSIP.

The SFPUC continues to be committed to work collaboratively with other City departments, its Regional Wholesale customers, and all program stakeholders and partners to ensure the successful delivery of the WSIP.

Enclosure

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HETCH HETCHY
WATER SYSTEM IMPROVEMENT PROGRAM

QUARTERLY REPORT

Regional Projects
Q1 FY 2017 | 2018
July 2017 — September 2017

Rebuilding Today for a Better Tomorrow

Published: 11/07/2017

Quarterly Report - Q1 FY2017/2018

Water System Improvement Program - Regional Projects

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1. PROGRAM DESCRIPTION

The Water System Improvement Program (WSIP) is a $4.8 billion, multi-year capital program to upgrade the City of San Francisco's regional and local drinking water systems. The program will deliver improvements that enhance the City's ability to provide reliable, affordable, high quality drinking water to its 26 wholesale customers and regional retail customers in Alameda, Santa Clara, and San Mateo Counties, and to 800,000 retail customers in San Francisco, in an environmentally sustainable manner. The WSIP is structured to cost-effectively meet water quality requirements, improve seismic and delivery reliability, and achieve water supply goals.

Built in the early to mid-1900s, many components of the water system are nearing the end of their working life, with crucial facilities crossing or in close proximity to three major earthquake faults. The San Francisco Public Utilities Commission (SFPUC) initiated the WSIP to repair, replace, and seismically upgrade the system's deteriorating pipelines, tunnels, dams, reservoirs, pump stations, storage tanks, and treatment facilities.

The program consists of 35 local projects located within San Francisco and 52 regional projects spread over seven different counties from the Sierra foothills to San Francisco. Local projects only benefit San Francisco residents whereas regional projects benefit both City residents and the 26 wholesale agencies that receive water from the SFPUC. The management of regional projects is divided into 6 regions – San Joaquin, Sunol Valley, Bay Division, Peninsula, San Francisco Regional, and Support Projects.

The WSIP is funded through the issuance of revenue bonds. Local Measures A and E, which were approved by San Francisco voters in November 2002, allowed for the financing of improvements to the City's water system using revenue bonds and/or other forms of revenue financing. Increases in the water rates of retail and wholesale customers will be used to pay back the debt service on the bonds.

The program budget and schedule were originally adopted by the San Francisco Public Utilities Commission on March 1, 2003. The program at the time was referred to as the Capital Improvement Program (CIP). The scope of the CIP was changed significantly following the adoption of Level of Service (LOS) goals in early 2005. The program changes were so substantial that the program was renamed the WSIP and a new program budget and schedule were adopted on November 29, 2005. Since the scope of the 2005 Revised WSIP is in general representative of the program being implemented today, the 2005 budget and schedule are considered the "Baseline Budget and Schedule."

Subsequently, the WSIP Baseline Budget and Schedule were revised in 2007, 2009, 2011, 2013, 2014, 2015, 2016, and 2017, and these revisions were approved by the San Francisco Public Utilities Commission on February 26, 2008, July 28, 2009, July 12, 2011, April 23, 2013, April 22, 2014, December 8, 2015, April 26, 2016, and February 14, 2017, respectively. Refer to Appendix A for a scope description of all the regional projects included in the WSIP.

Program Revision	Commission Approval	Budget ($Million)	Schedule(*)
2003 (Original)	March 1, 2003	$3,628	03/15/16
2005 (Baseline)	November 29, 2005	$4,343	06/30/14
2007 (Revised)	February 26, 2008	$4,392	12/18/14
2009 (Revised)	July 28, 2009	$4,586	12/04/15
2011 (Revised)	July 12, 2011	$4,586	07/29/16
2013 (Revised)	April 23, 2013	$4,640	04/11/19
2014 (Revised)	April 22, 2014	$4,765	05/24/19
2015 (Revised)	December 8, 2015	$4,765	05/24/19
2016 (Revised)	April 26, 2016	$4,845	12/20/19
2017 (Latest Approved)	February 14, 2017	$4,845	12/20/19

* Final Program Completion Date

2. PROGRAM STATUS

This first (1st) Quarterly Report for Fiscal Year (FY) 2017-2018 presents the progress made on the WSIP regional projects between July 1, 2017 and September 30, 2017. The program's schedule and budget were last approved by the San Francisco Public Utilities Commission (SFPUC or Commission) on February 14, 2017. The progress made on the local projects of the WSIP is presented in a separate quarterly report.

Figure 2.1 shows the total Current Approved Budget for the regional projects remaining in each phase of the program as of September 30, 2017. The number of projects currently active in each phase is shown in parentheses.

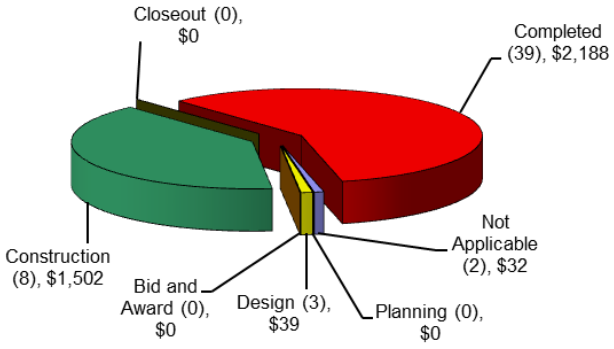

Figure 2.1 Total Current Approved Budget for Projects Active in Each Phase ($Million)

Figure 2.2 shows the number of regional projects in the following stages of the program as of September 30, 2017: Pre-construction, Construction, and Post-construction.

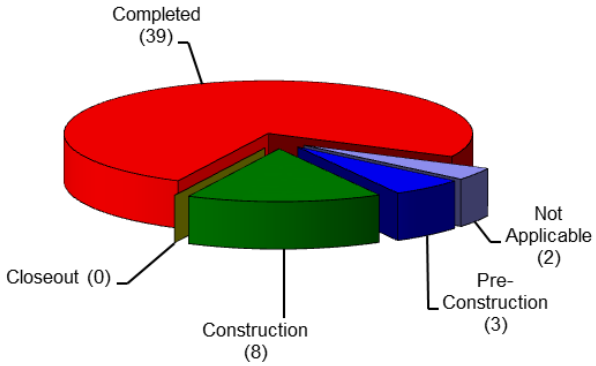

Figure 2.2 Number of Projects in Pre-construction, Construction, and Post-construction

Figure 2.3 summarizes the environmental review and permitting status of the WSIP 52 regional projects as of September 30, 2017.

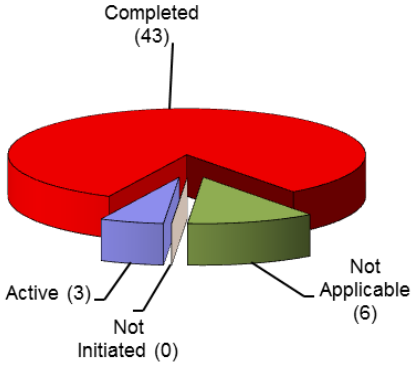

Figure 2.3 Program Environmental and Permitting Status

2.1 Progress Towards Meeting Level of Service (LOS) Goals

The scope of the WSIP is based on the following Level of Service (LOS) goals for the Regional Water System: Seismic Reliability, Delivery Reliability, Water Quality Reliability and Water Supply Reliability. Each project that reaches construction substantial completion contributes to increasing the overall reliability of the system and achieving progress towards meeting the overall LOS goals for the system.

Table 2.1 lists the projects with their individual Primary (P) and Secondary (S) contributions towards LOS goals, and indicates which projects have met their respective LOS goals. As can be seen in Table 2.1, the actual operational service start dates indicate that 40 of the 43 Regional WSIP projects with specific LOS goals have achieved their LOS goals to date. The other 9 Regional WSIP projects do not have specific LOS goals. The WSIP team remains committed to achieving the overall LOS goals established for the system.

Table 2.1 Progress Towards Meeting LOS Goals [1]

Project No.	Project Name / Construction Contract	Actual / Approved Substantial Completion Date	LOS Goals (P =Primary, S =Secondary)				Actual Operational Service Start	Construction Progress Toward LOS Goals
			Water Quality	Seismic Reliability	Delivery Reliability	Water Supply		
San Joaquin Projects								
CUW36401	Lawrence Livermore Water Quality Improvement *(Completed)*	08/31/10	P				08/31/10	100%
CUW37301	San Joaquin Pipeline System *(Completed)* (A) HH935A Crossovers (B) HH935B Western Segment (C) HH935C Eastern Segment	(A) 01/06/12 (B) 05/27/13 (C) 06/21/13			P		(A) 01/06/12 (B) 05/27/13 (C) 06/21/13	100%
CUW37302	Rehabilitation of Existing San Joaquin Pipelines (Roselle Crossover; *Completed*)	05/13/11			P		05/13/11	100%
CUW38401	Tesla Treatment Facility *(Completed)* (A) DB116 Tesla Treatment Facility Design-Build Contract (B) HH953 Tesla Portal Protection	(A) 06/24/11 (B) 08/05/13	P	S	S		(A) 06/24/11 (B) 08/05/13	100%
Sunol Valley Projects								
CUW35201	Alameda Creek Recapture	12/31/18				P		0%
CUW35501	Standby Power Facilities - Various Locations *(Completed)* (A) WD-2553 East Bay - Standby Power Facilities (B) WD-2511 Peninsula - Standby Power Facilities	(A) 09/11/08 (B) 04/15/10		P	S		(A) 09/11/08 (B) 04/15/10	100%
CUW35901	New Irvington Tunnel	09/19/15		S	P		02/27/15	100%
CUW35902	Alameda Siphon #4 *(Completed)*	12/16/11		P	S		12/16/11	100%
CUW37001	Pipeline Repair & Readiness Improvements *(Completed)* (A) WD-2530 Phase A 8 Pipe Storage Sites (B) WD-2530 Phase B Pipe Rolling Machine Facility @ Sunol Yard	(A) 02/09/07 (B) 07/14/08		P	S		(A) 02/09/07 (B) 07/14/08	100%
CUW37401	Calaveras Dam Replacement (A) WD-2551 Calaveras Dam Replacement[2] (B) WD-2729 Alameda Creek Diversion Dam	(A) 10/12/18 (B) 09/17/18		S	P	S		(A) 89% (B) 64%
CUW37402	Calaveras Reservoir Upgrades *(Completed)*	10/06/05	P				10/06/05	100%
CUW37403	San Antonio Backup Pipeline *(Completed)*	12/31/14			P		12/31/14	100%
CUW38101	SVWTP Expansion & Treated Water Reservoir *(Completed)*	05/17/13	P		P		05/17/13	100%
CUW38601	San Antonio Pump Station Upgrade *(Completed)*	06/30/11			P		06/30/11	100%

Project No.	Project Name / Construction Contract	Actual / Approved Substantial Completion Date	LOS Goals (P =Primary, S =Secondary)				Actual Operational Service Start	Construction Progress Toward LOS Goals
			Water Quality	Seismic Reliability	Delivery Reliability	Water Supply		
Bay Division Projects								
CUW35301	BDPL Nos. 3 & 4 Crossover/Isolation Valves *(Completed)*	11/15/07		P			11/15/07	100%
CUW35302	Seismic Upgrade of BDPL Nos. 3 & 4	10/26/15		P			06/20/14	100%
CUW36301	SCADA System - Phase II *(Completed)*	11/29/10			P		11/29/10	100%
CUW36801	BDPL Reliability Upgrade - Tunnel	05/20/15		P	S		10/15/14	100%
CUW36802	BDPL Reliability Upgrade – Pipeline *(Completed)* (A) WD-2541 East Bay (B) WD-2542 Peninsula (C) WD-2665 Cordilleras	(A) 12/09/11 (B) 06/13/12 (C) 03/05/13		P	S		(A) 12/09/11 (B) 06/13/12 (C) 03/05/13	100%
CUW36803	BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2 *(Completed)*	05/28/10			P		05/28/10	100%
CUW38001	BDPL Nos. 3 & 4 - Crossovers *(Completed)*	08/15/12		P	S		08/15/12	100%
CUW38901	SFPUC/EBMUD Intertie *(Completed)*	09/07/07			P		09/07/07	100%
CUW39301	BDPL No. 4 Condition Assessment PCCP Sections *(Completed)*	02/06/09		P	S		02/06/09	100%
Peninsula Projects								
CUW35401	Lower Crystal Springs Dam Improvements *(Completed)*	11/20/11			P	S	11/20/11	100%
CUW35601	New Crystal Springs Bypass Tunnel *(Completed)*	07/14/11		P	S		07/14/11	100%
CUW35701	Adit Leak Repair - Crystal Springs/Calaveras *(Completed)*	11/30/07			P		11/30/07	100%
CUW36101	Pulgas Balancing - Inlet/Outlet Work *(Completed)*	02/02/06	P		S		02/02/06	100%
CUW36102	Pulgas Balancing - Discharge Channel Modifications *(Completed)*	10/23/09			P		10/23/09	100%
CUW36103	Pulgas Balancing - Structural Rehabilitation & Roof Replacement *(Completed)*	07/26/11	P		S		07/26/11	100%
CUW36105	Pulgas Balancing - Modifications of the Existing Dechloramination Facility *(Completed)*	08/27/12	P		S		08/27/12	100%
CUW36501	Cross Connection Controls *(Completed)*	11/26/08	P				11/26/08	100%
CUW36601	HTWTP Short-Term Improvements - Demo Filters *(Completed)*	01/11/06		P	S		01/11/06	100%
CUW36603	HTWTP Short-Term Improvements - Coagulation & Flocculation/Remaining Filters *(Completed)*	12/21/09		P	S		12/21/09	100%
CUW36701	HTWTP Long -Term Improvements *(Completed)*	09/08/15		P	S		09/08/15	100%
CUW36702	Peninsula Pipelines Seismic Upgrade *(Completed)*	10/30/15		P			10/30/15	100%
CUW36901	Capuchino Valve Lot Improvements *(Completed)*	02/14/08			P		02/14/08	100%
CUW37101	Crystal Springs/San Andreas Transmission Upgrade *(Completed)*	06/30/14		P	S		09/02/14	100%
CUW37801	Crystal Springs Pipeline No. 2 Replacement *(Completed)*	01/31/13		P	S		01/31/13	100%
CUW37901	San Andreas Pipeline No. 3 Installation *(Completed)*	03/29/11		P	S		03/29/11	100%
CUW39101	Baden & San Pedro Valve Lots Improvements *(Completed)*	03/31/11		P	S		03/31/11	100%

Project No.	Project Name / Construction Contract	Actual / Approved Substantial Completion Date	LOS Goals (P =Primary, S =Secondary)				Actual Operational Service Start	Construction Progress Toward LOS Goals
			Water Quality	Seismic Reliability	Delivery Reliability	Water Supply		
San Francisco Regional Projects								
CUW30103	Regional Groundwater Storage and Recovery (A) WD-2600 Test Well Drilling (B) WD-2668 Regional Groundwater Storage and Recovery (Phase 1) (C) Regional Groundwater Storage and Recovery (Phase 2)	(A) 07/23/12 (B) 10/08/17 (C) 10/31/18				P	(A) 07/23/12	(A) 100% (B) 98% (C) 0%
CUW35801	Sunset Reservoir - North Basin *(Completed)*	09/19/08		P	S		09/19/08	100%
CUW37201	University Mound Reservoir - North Basin *(Completed)*	05/25/11		P	S		05/25/11	100%

Notes:

1 Support projects and WSIP Closeout projects are not listed in the table above since these projects do not have specific Level of Service (LOS) goals.

2 The Approved Substantial Completion Date for this contract was extended to 4/12/19 per Commission meeting on 4/26/16, but a contract change order has not yet been issued to the Contractor to extend the date.

3. PROGRAM COST SUMMARY

Table 3.1 provides an overall program-level cost summary of the WSIP Regional Program. It shows the Expenditures to Date; the 2005 Baseline, 2016 Approved, Current Approved and Q1/FY17-18 Forecasted Budgets; and the Cost Variance between the Current Approved and Forecasted Budgets.

The total Current Approved WSIP Budget (including Regional and Local Programs, Local Water Supply Projects, and Financing Costs) and Current Forecasted Cost at completion are $4,845.5 million and $4,876.1 million, respectively ($30.6 million over Current Approved Budget). The Current Approved WSIP Budget and 1Forecasted Cost at completion for the Regional Program (including construction contingency) are $3,761.1 million are $3,791.7 million, respectively ($30.6 million over the Current Approved Budget). The Current Approved WSIP Budget and Forecasted Cost at completion for the Local Improvement Projects are $331.4 million. Refer to Appendix B for a graphical representation of how the WSIP budget and actual expenditures have changed over time.

Table 3.1 Program Cost Summary

Cost Categories	Expenditures To Date ($ Million) (A)	2005 Baseline Budget ($ Million) (B)	2016 Approved Budget ($ Million) (C)	Current Approved Budget[7] ($ Million) (D)	Q1/FY17-18 Forecasted Costs ($ Million) (E)	Cost Variance ($ Million) (F = D - E)
Regional Improvement Projects	**$2,882**	**$3,181**	**$3,053.5**	**$3,053.5**	**$3,061.8**	**($8.3)**
Construction Costs[1]	$1,955	$2,322	$2,047.8	$2,047.8	$2,055.7	($7.9)
Program Delivery Costs[2]	$901	$758	$946.4	$946.4	$975.6	($29.3)
Other Costs[3]	$26	$101	$59.4	$59.4	$30.4	$28.9
Support Projects[4]	**$209**	**$33**	**$256.0**	**$256.0**	**$260.0**	**($4.0)**
Construction Contingency for Regional & Support Projects [5]	**$378**	**$193**	**$451.5**	**$451.5**	**$469.9**	**($18.4)**
REGIONAL PROGRAM WITH CONTINGENCY	**$3,469**	**$3,407**	**$3,761.1**	**$3,761.1**	**$3,791.7**	**($30.6)**
Local Improvement Projects	$331	**$383**	**$331.4**	**$331.4**	**$331.4**	**-**
Local Water Supply Projects[6][8]	**$88**	**-**	**$281.3**	**$281.3**	**$281.3**	**-**
Finance	**$462**	**$552**	**$471.7**	**$471.7**	**$471.7**	**-**
PROGRAM TOTAL	**$4,351**	**$4,343**	**$4,845.5**	**$4,845.5**	**$4,876.1**	**($30.6)**

Notes:

1. **Construction Costs** include the Construction Base Bid and owner-provided equipment/material for all regional and support projects. Those costs do not include any construction contingency. That contingency is reflected as a separate cost category.
2. **Delivery Costs** include project management, planning, environmental (CEQA, permitting, construction compliance), design, construction management, and engineering support during construction.
3. **Other Costs** include environmental mitigation, art enrichment, security improvements, and real estate expenses.
4. **Support Projects** include (1) System Security Upgrades, (2) Programmatic EIR, (3) Bioregional Habitat Restoration, (4) Vegetation Restoration of WSIP Construction Sites, (5) Long Term Mitigation Endowment, (6) Program Management, and (7) Watershed Environmental Improvement Program. Please note that the cost reflected above for support projects only includes "Delivery" and "Other" costs, and "Construction" cost for these projects is included in "Construction Costs" under the Regional Improvement Projects.
5. Expenditures to Date for Construction Contingency for Regional and Support projects correspond to the Total Approved Change Orders on those projects. For projects with ongoing or completed construction, the 2016 Approved Budget for construction contingency includes all change orders and trends as identified at the time of the March 2016 Revised WSIP, as well as additional contingency funding allocated to cover the 80% confidence level risks identified at the time of the March 2016 Revised WSIP. For projects in pre-construction, the 2016 Approved Budget for construction contingency includes 10% of the estimated construction base bid.

6. Local Water Supply Projects managed as part of the Water Enterprise Capital Improvement Program (CIP) are (1) Lake Merced Water Level Restoration, (2) San Francisco Groundwater Supply, (3) San Francisco Westside Recycled Water, (4) Harding Park Recycled Water, and (5) San Francisco Eastside Recycled Water.
7. The budget approved as part of the March 2016 Revised WSIP, plus any additional budget changes approved by the Commission as part of additional contingencies on construction contract.
8. The WSIP Local Water Supply projects underwent a September 2013 re-baseline. Only the original WSIP portion of the re-baselined costs is reported here. The remaining budget is funded under the Water Enterprise CIP and will be managed outside the purview of the WSIP.

Table 3.2 provides the current remaining construction contingency. For each region, it shows the 2016 Approved Construction Contingency; the Total Approved Change Orders prior to the reporting quarter; Change Orders Approved during the reporting quarter; Total Approved Change Orders through the reporting quarter; Project Savings Moved to Contingency/ Funds Moved out of Contingency during the Reporting Quarter; the Q1/FY17-18 Forecasted Construction Contingency; and the Remaining Contingency as of the end of the reporting quarter. As of September 30, 2017, the Forecasted Construction Contingency is $468.4 million and the Current Remaining Contingency is $72.0 million.

The Change Orders Approved in Q1/FY17-18 are shown in Table 3.2. Table 3.3 provides further information at the construction contract level for all subsequent approved change orders.

Table 3.2 Current Remaining Construction Contingency

Region	Q4/FY16-17 Forecasted Construction Contingency [1] ($ Million) (A)	Total Approved Change Orders as of Q4/FY16-17[2,3] ($ Million) (B)	Change Orders Approved in Q1/FY17-18[2] ($ Million) (C)	Total Approved Change Orders as of Q1/FY17-18 ($ Million) (D = B+C)	Project Savings or Director's Reserves (+) Moved to Contingency/ Funds (--) Moved out of Contingency during Q1/FY17-18 [4] ($ Million) (E)	Q1/FY17-18 Forecasted Construction Contingency ($ Million) (F = A + E)	Q1/FY17-18 Remaining Contingency ($ Million) (G = F - D)
San Joaquin Region	$0.13	-	-	-	-	$0.13	$0.13
Sunol Valley Region	$385.59	$320.43	$7.92	$328.35	$4.72	$390.30	$61.95
Bay Division Region	$8.50	$7.14	-	$7.14	-	$8.50	$1.36
Peninsula Region	$57.02	$56.79	-	$56.79	-	$57.02	$0.23
San Francisco Regional Region	$9.13	$3.81	($0.00)	$3.81	$2.65	$11.78	$7.97
Support Projects	$0.64	$0.04	$0.20	$0.24	-	$0.64	$0.39
Regional Total	**$461.01**	**$388.22**	**$8.12**	**$396.33**	**$7.37**	**$468.37**	**$72.04**

Notes:

1. Construction Contingency approved as part of the March 2016 Revised WSIP, plus any regional projects' savings moved to contingency.
2. Approved Change Orders are changes that have received all required approvals, including that of the City Controller.
3. This table only reports change orders for the active construction contracts as of this reporting cycle.
4. Values only reflect savings realized following the Commission's adoption of the March 2016 Revised WSIP.

Table 3.3. Details on Transactions Out of and Into Contingency

Project No. - Contract	Transactions Out of Contingency			Transactions Into Contingency		
	Approved Change Orders ($ Million) (A)	Budget Underrun at Project Completion / Director's Reserve Moved Out of Project ($ Million) (B)	Sub Total ($ Million) (C = A + B)	Savings Due to Low Bid ($ Million) (D)	Budget Overrun at Project Completion / Director's Reserve Moved to Project ($ Million) (E)	Sub Total ($ Million) (F = D + E)
Sunol Valley Region	**$7.92**	**$1.00**	**$8.92**	**-**	**$5.71**	**$5.71**
CUW35901 New Irvington Tunnel	$7.00	$0.23	$7.23	-	-	-
CUW37401 Calaveras Dam Replacement WD-2551	-	-	-	-	$5.71	$5.71
CUW37401 Calaveras Dam Other Construction WD-2729	$0.92	$0.77	$1.68	-	-	-
San Francisco Regional	**-**	**-**	**-**	**-**	**$2.65**	**$2.65**
CUW30103 Regional Groundwater Storage and Recovery (WD-2668)	-	-	-	-	$2.65	$2.65
Regional Total	**$7.92**	**$1.00**	**$8.92**	**-**	**$8.36**	**$8.36**

Table 3.4 Forecasted Remaining Construction Contingency

Region	Q1/FY17-18 Remaining Construction Contingency [1] ($ Million) (A)	Pending Change Orders as of Q1/FY17-18 [2] ($ Million) (B)	Potential Change Orders as of Q1/FY17-18 [3] ($ Million) (C)	Trends as of Q1/FY17-18 [4] ($ Million) D	Q1/FY17-18 Forecasted Remaining Construction Contingency ($ Million) (E =A-B-C-D)
San Joaquin Region	$0.13	-	-	-	$0.13
Sunol Valley Region	$61.95	$22.88	$2.21	$16.63	$20.24
Bay Division Region	$1.36	$1.52	($0.60)	-	$0.44
Peninsula Region	$0.23	-	-	-	$0.23
San Francisco Regional Region	$7.97	$1.65	$2.96	$2.60	$0.76
Support Projects	$0.39	($0.14)	-	($0.20)	$0.73
Regional Total	**$72.04**	**$25.91**	**$4.57**	**$19.03**	**$22.54**

Notes:
1. Same as Column G in Table 3.2.
2. Pending Change Orders are changes that have been negotiated and approved by the SFPUC but have to be approved by the City Controller.
3. Potential Change Orders are changes that have been requested and entered into CMIS but are still being negotiated.
4. Trends are any expected impact that the CM team believes has a high probability of becoming a change but are yet to be entered into CMIS as a Potential Change

Table 3.4 provides the forecasted remaining construction contingency. For each region as of Q1/FY17-18, it shows the Remaining Construction Contingency, Pending Change Orders, Potential Change Orders, Trends, and Forecasted Remaining Construction Contingency. As of September 30, 2017, the Total Forecasted Remaining Construction Contingency is $22.5 million. This amount does not include funds that are currently held in Director's Reserve.

The Program Management project includes programmatic activities that span multiple regions and benefit several WSIP projects (Table 3.5). The project provides funding for the following functions and resources: SFPUC Staff assigned to the management of the overall program; consultants supporting SFPUC staff at the program level (program, project and pre-construction management consultant, program construction management consultant, program control consultant); labor relations, including management of the project labor agreement; communication and public outreach; programmatic legal support; real estate acquisitions; program controls, including the tracking and reporting of all WSIP efforts; and program-level construction management activities associated with quality assurance, risk management, the Supplier Quality Surveillance (SQS) Program, operations assistance, safety, and training.

The activities under the Program Management project are organized into five categories that are tracked and monitored on a monthly basis. These categories are Management Support, Project Labor Agreement, Planning and Project Development, Program Control, and Program Construction Management.

Table 3.5 Status of Program Management Project Cost Breakdown

Category	Expenditures To Date ($ Million) (A)	2016 Approved Budget ($ Million) (B)	Current Approved Budget ($ Million) (C)	Q1/FY17-18 Forecasted Cost* ($ Million) (D)	Cost Variance ($ Million) (E = C-D)
Management Support	$35.4	$41.3	$41.3	$42.8	($1.5)
Project Labor Agreement	$3.5	$3.8	$3.8	$3.8	-
Planning and Project Development	$17.8	$18.3	$18.3	$18.3	-
Program Controls	$18.6	$19.8	$19.8	$19.8	-
Program Construction Management	$27.0	$27.0	$27.0	$28.0	($1.0)
Program Management Total	**$102.3**	**$110.3**	**$110.3**	**$112.8**	**($2.5)**

The spending pattern for the project is very similar from month to month as the project primarily funds program-level positions occupied by both SFPUC staff and consultants. The forecasted total Program Management cost is $112.8 million, which is $2.5 million over the Current Approved Budget of $110.3 million.

4. PROGRAM SCHEDULE SUMMARY

Figure 4.1 and Table 4.1 compare the 2005 Baseline, 2016 Approved, Current Approved, and Q1/FY17-18 Forecasted Schedules for the WSIP Regional Program. Refer to the "Cost and Schedule Status" notes in Section 5 for the criteria associated with the three color-coded Forecast Status levels in Figure 4.1 – Meet Requirements, Need Attention, and Exceed Limits. The Approved Schedule completion for the overall WSIP (including Regional and Local Programs) and for the Regional Program is in December 2019. The overall WSIP and WSIP Regional Program are currently forecasted to be completed in May 2021 (17 month behind Current Approved schedule). Refer to Appendix C for a graphical presentation of the WSIP Approved Project-Level Schedule.

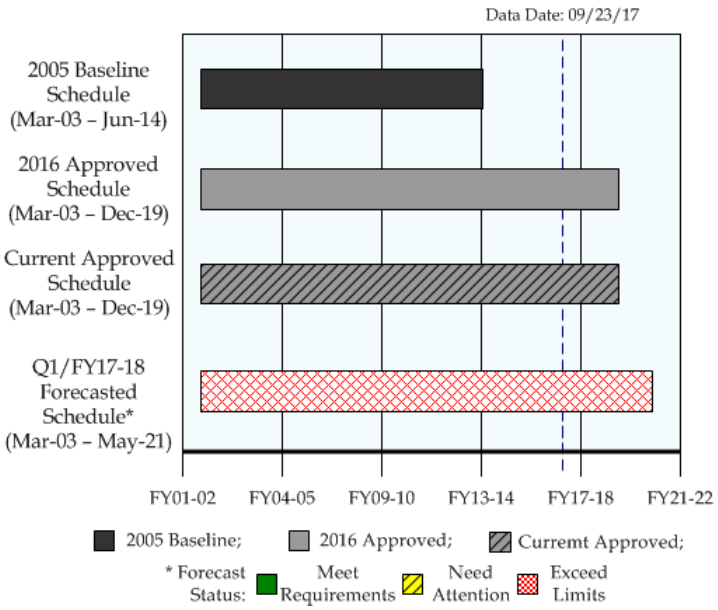

Figure 4.1 Program Schedule Summary

Table 4.1 2016 Approved vs. Q1/FY17-18 Forecasted Schedule Dates

Category	2005 Baseline Start	2016 Approved Start	Current* Approved Start	Actual Start	2005 Baseline Finish	2016 Approved Finish	Current* Approved Finish	Q1/FY17-18 Forecasted Finish	Schedule Variance (Months)
Regional Program	03/01/03	03/31/03	03/31/03	03/01/03✓	06/30/14	12/20/19	12/20/19	05/15/21	16.8 (Late)
Local** Program	03/01/03	03/31/03	03/31/03	03/01/03✓	06/28/13	12/30/16	12/30/16	03/30/18	15.0 (Late)
Overall WSIP	03/01/03	03/01/03	03/01/03	03/01/03✓	06/30/14	12/20/19	12/20/19	05/15/21	16.8 (Late)

* The budget and schedule approved as part of the March 2016 Revised WSIP, plus any additional budget and schedule changes approved by the Commission as part of additional contingencies on construction contracts.

** Excluding Local Water Supply Projects

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5. PROJECT PERFORMANCE SUMMARY*

All costs are shown in $1,000s as of 09/23/17

Project Name	Active Phase (**)	2005 Baseline Budget (a)	2016 Approved Budget (b)	Current Approved Budget (c)	Q1/FY17-18 Forecasted Cost (d)	Expenditures To Date (e)	Cost Variance (f= c - d)	Cost Status (+)	2005 Baseline Completion (g)	2016 Approved Completion (h)	Current Approved Completion (i)	Q1/FY17-18 Forecasted Completion (j)	Schedule Variance (k = i - j)	Schedule Status (+)	Project Data Sheet
San Joaquin Region															
CUWSJI0101 - WSIP Closeout - San Joaquin	CN		$ 1,640	$ 1,640	$ 4,373	$ 130	($2,733)	●		12/20/19	12/20/19	12/20/19	-	★	See Section 6
Sunol Valley Region															
CUW35201 - Alameda Creek Recapture Project	DS	$ 18,809	$ 29,411	$ 29,411	$ 34,000	$ 11,119	($4,589)	●	05/25/12	06/28/19	06/28/19	05/15/21	22.6 mo. Late	●	See Section 6
CUW35901 - New Irvington Tunnel	CN	$ 214,650	$ 347,128	$ 347,128	$ 340,406	$ 336,487	$ 6,722	★	09/17/13	12/30/16	03/31/18	03/31/18	-	★	See Appendix E
CUW37401 - Calaveras Dam Replacement	CN	$ 256,511	$ 810,024	$ 810,024	$ 823,092	$ 654,814	($13,068)	⚠	05/25/12	12/20/19	12/20/19	12/20/19	-	★	See Section 6
CUWSVI0101 - WSIP Closeout - Sunol Valley	DS		$ 3,245	$ 3,245	$ 5,986	$ 130	($2,741)	●		12/20/19	12/20/19	12/20/19	-	★	See Section 6
Bay Division Region															
CUW35302 - Seismic Upgrade of BDPL Nos. 3 & 4	CN	$ 66,793	$ 76,980	$ 76,980	$ 73,623	$ 69,885	$ 3,357	★	10/15/12	12/30/16	03/31/18	03/31/18	-	★	See Appendix E
CUWBDP0101 - WSIP Closeout - Bay Division	CN		$ 1,095	$ 1,095	$ 4,399	$ 901	($3,304)	●		12/20/19	12/20/19	12/20/19	-	★	See Section 6
Peninsula Region															
CUWPWI0101 - WSIP Closeout - Peninsula	DS		$ 4,890	$ 4,890	$ 13,580	$ 536	($8,690)	●		12/20/19	12/20/19	03/24/20	3.1 mo. Late	⚠	See Section 6
San Francisco Regional Region															
CUW30103 - Regional Groundwater Storage and Recovery	CN	$ 39,233	$ 113,580	$ 113,580	$ 127,421	$ 84,946	($13,841)	●	02/27/14	07/30/19	07/30/19	11/27/19	3.9 mo. Late	⚠	See Section 6

* Excludes projects with completed construction and projects that are no longer active (i.e., deleted projects, closed projects, and projects combined with other projects)

**** Phase Status Legend**

PL Planning DS Design BA Bid & Award

CN Construction NA Not Applicable

For projects active in multiple phases, the table shows the phase in which a majority of the works is taking place.

+ Cost and Schedule Status

★ Meet Requirements: Forecasted Cost/Schedule is within Current Approved Budget/Schedule.

⚠ Need Attention: Forecasted Cost is over Current Approved Budget by greater than 1% and less than 10%. Or Forecasted Schedule is over Current Approved Schedule by greater than 2 months and less than 6 months and less than 10%.

● Exceed Limits: Forecasted Cost is over Current Approved Budget by 10% or more. Or Forecasted Schedule is over Current Approved Schedule by greater than 6 months or 10% or more.

All costs are shown in $1,000s as of 09/23/17

Project Name	Active Phase (**)	2005 Baseline Budget (a)	2016 Approved Budget (b)	Current Approved Budget (c)	Q1/FY17-18 Forecasted Cost (d)	Expenditures To Date (e)	Cost Variance (f= c - d)	Cost Status (+)	2005 Baseline Completion (g)	2016 Approved Completion (h)	Current Approved Completion (i)	Q1/FY17-18 Forecasted Completion (j)	Schedule Variance (k = i - j)	Schedule Status (+)	Project Data Sheet
Support Projects															
CUW36302 - System Security Upgrades	CN		$ 15,201	$ 15,201	$ 15,201	$ 12,792	-	★		12/31/16	03/31/18	09/28/18	6.0 mo. Late	●	See Section 6
CUW38802 - Bioregional Habitat Restoration	CN		$ 91,801	$ 91,801	$ 93,342	$ 81,260	($1,541)	⚠		05/31/18	05/31/18	12/20/18	6.7 mo. Late	●	See Section 6
CUW38804 - Long Term Mitigation Endowment ++	NA		$ 12,000	$ 12,000	$ 12,000	$ 0	-	★		08/31/18	08/31/18	08/31/18	-	★	NA
CUW39401 - Watershed Environmental Improvement Program +++	NA	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 4,302	-	★	06/28/13	04/26/19	04/26/19	04/26/19	-	★	See Appendix E

∗ Excludes projects with completed construction and projects that are no longer active (i.e., deleted projects, closed projects, and projects combined with other projects)

∗∗ Phase Status Legend

PL Planning DS Design BA Bid & Award

CN Construction NA Not Applicable

For projects active in multiple phases, the table shows the phase in which a majority of the works is taking place.

+ Cost and Schedule Status

★ Meet Requirements: Forecasted Cost/Schedule is within Current Approved Budget/Schedule.

⚠ Need Attention: Forecasted Cost is over Current Approved Budget by greater than 1% and less than 10%. Or Forecasted Schedule is over Current Approved Schedule by greater than 2 months and less than 6 months and less than 10%.

● Exceed Limits: Forecasted Cost is over Current Approved Budget by 10% or more. Or Forecasted Schedule is over Current Approved Schedule by greater than 6 months or 10% or more.

++ The Long Term Mitigation Endowment (LTME) fund provides an initial deposit to secure a source of funds for perpetual monitoring and maintenance of the Bioregional Habitat Restoration sites constructed in the SFPUC watershed, as required by the United States Army Corps of Engineers and California Department of Fish and Wildlife permits. The LTME fund does not involve construction activities.

+++ The Watershed Environmental Improvement Program does not involve construction activities. A majority of its activities involve planning, environmental, and right-of-way activities to secure land purchases.

6. PROJECTS NOT WITHIN BUDGET AND/OR SCHEDULE

CUWSJI0101 - WSIP Closeout - San Joaquin

Project Description: This project includes miscellaneous improvements to ensure the WSIP Level of Service (LOS) goals and objectives are fully achieved in the San Joaquin region. The work will be completed by means of two sub-projects: (1) addition of new solar panels to supplement existing solar panels for existing onsite equipment operations at San Joaquin No.4 Junction, at the Throttling Station at Knight's Ferry, and at Oakdale Portal, eliminating the need for propane generators at these sites; and (2) the installation of an interior concrete slab and drainage improvements at Tesla Portal as the original slab was deleted during the portal construction to allow access for repairs of existing corroded pipelines beneath the slab.

Region: San Joaquin	**Project Status:** Construction	**Environmental Status:** Not Applicable

Project Cost:		**Project Schedule:**	
Approved	$1.64 M	Approved Jul-16	Dec-19
Forecast*	$4.37 M	Forecast* Jun-16	Dec-19
Actual	$0.13 M	Project Percent Complete: 3.6%	

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	**Environmental Approval**	**Bid Advertisement**	**Construction NTP**	**Construction Final Completion**
Current Forecast	N/A	N/A	Various	08/30/19

Progress and Status:

The contractor (Sierra Mountain Construction) will resume work for JOC-49-21 in October 2017. Outstanding items to be completed are installation of the drainage system and the ladders. A supplemental task order was issued to cover the cost of additional materials that will be needed for the drainage system. For the Solar Panels Project, the design consultant (AECOM) has been retained to perform a shadow analysis to determine the effects of shadows from the constructed microwave antennae on the existing photo-voltaic electrical system at three different sites.

Issues and Challenges:

The cost variance from the approved baseline budget is due to change in scope for the new solar panels project. When the design team first started on this closeout project, it was found that a new microwave antennae was installed at each of the three sites, which was not known when the scope was first developed. Additional power capacity may be needed to address the changes in conditions. A shadow analysis is currently being performed to re-evaluate the conditions.

Oakdale Portal Site

CUW35201 - Alameda Creek Recapture Project

Project Description: The scope of this project includes conveyance of the water to various existing storage sites within the Sunol Valley or the Sunol Valley Water Treatment Plant by addition of the following:

- Four vertical turbine pumps mounted on floating barges located in existing Pond F2.
- Flexible discharge pipelines which are connected between the new pipe manifold and the existing Sunol Pipeline to discharge the recaptured water to the SFPUC system.
- Throttling valves, a flow meter, and other electrical and general site improvements.

Region: Sunol Valley	**Project Status:** Design	**Environmental Status:** Active (EIR)

Project Cost:		**Project Schedule:**	
Approved	$29.41 M	Approved Sep-03	Jun-19
Forecast*	$34.00 M	Forecast* Sep-03	May-21
Actual	$11.12 M	Project Percent Complete: 38.0%	

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	**Environmental Approval**	**Bid Advertisement**	**Construction NTP**	**Construction Final Completion**
Current Forecast	09/11/18	10/22/18	03/15/19	11/15/20

Progress and Status:

During the previous quarter, the Planning Department certified the Final Environmental Impact Report (EIR). Subsequent to that certification, the Alameda County Water District (ACWD) filed an appeal to the San Francisco Board of Supervisors requesting that the Board overturn the certification of the EIR. In addition, the National Marine Fisheries Service (NMFS) filed a letter in support of the appeal that contained comments the Planning Department considered to be "significant new information" under CEQA, which relates to the evaluation of operational impacts of the project on Central California steelhead. The San Francisco Board of Supervisors adopted findings reversing the Final EIR certification and directed the Planning Department to provide additional information and analysis regarding whether the proposed project would result in operational impacts on steelhead fish as a result of project-induced effects on streamflow in Alameda Creek, as well as to have an independent third party to review the EIR groundwater/surface water model. The Board determined that with respect to all other issues, the Final EIR is adequate. The Planning Department will re-circulate a limited portion of the EIR that will provide additional information and analysis on operational impacts on steelhead fish in the lower watershed as a result of project-induced effects on streamflow in Alameda Creek. A plan is being developed to revise the EIR. The bidding process was cancelled, and the contract will be re-packaged and re-advertised after Final EIR approval. PG&E continued work on decommissioning and removing their gas line within the project site. The Team continued to work with Department of Water Resources on the encroachment permit to cross their ROW. The erosion repair work to Pond F3 East was removed from the design and added to the Job Order Contract list.

Existing Access Road to Pond F2

Issues and Challenges:

The cost and schedule variances from the approved baseline are due to required revisions to the EIR, revisions to the design and re-advertising the contract.

CUW37401 - Calaveras Dam Replacement

Project Description: The project provides for construction of a new 210-foot-high earth and rock fill dam, spillway, stilling basin, and intake tower and shaft to replace the existing facilities. A fish ladder will be added on the right abutment (looking downstream) of the Alameda Creek Diversion Dam (ACDD), a dam which acts to divert water through the Alameda Creek Diversion Tunnel (ACDT) to Calaveras Reservoir.

Region: Sunol Valley	**Project Status:** Construction	**Environmental Status:** Completed (EIR)

Project Cost:		**Project Schedule:**	
Approved	$810.02 M	Approved Sep-02	Dec-19
Forecast*	$823.09 M	Forecast* Sep-02	Dec-19
Actual	$654.81 M	Project Percent Complete: 85.3%	

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	**Environmental Approval**	**Bid+ Advertisement**	**Construction+ NTP**	**Construction+ Final Completion**
Current Forecast	01/27/11✓	(A) 01/31/11✓ (B) 01/04/16✓	(A) 08/15/11✓ (B) 04/19/16✓	(A) 06/19/19 (B) 12/16/18

\+ Project includes multiple construction contracts.
(A) Calaveras Dam Replacement (WD-2551); (B) Alameda Creek Diversion Dam (WD-2729)

Progress and Status:

WD-2551 CDRP: The contractor continued to make progress in the placement of the dam embankment, reaching approximate elevation 640 feet at the end of the reporting period. Installation of the Stream Maintenance Facility, Weir Building, and Valve Vault is complete, and the Calaveras outlet works have been entirely turned over to Operations.

WD-2729 ACDD: Work on the soil nail wall, fish ladder, and fish inlet structure continued in the downstream area, and work on the intake structure and fish screens continued in the upstream area. Planning started for preparing the site for winter and demobilizing from the creek by November 15th.

Placement of Dam Embankment

Issues and Challenges:

WD-2551 CDRP: The cost variance from the approved baseline budget is due to the following reasons: 1) Additional resources to cover the extended hours and eight (8) months extended duration between the March 2014 rebaseline and current forecast for the CDRP, which include mainly Construction Management and Design support staff; and 2) Additional resources for the ACDD project to meet extensive regulatory requirements and extended hours to address the differing site conditions in the field, which include additional Quality Assurance (QA) Inspectors, Biologists and Field Contract Administrators.

WD-2729 ACDD: The City continues to negotiate with the contractor on various change orders. Additional construction contingency was authorized for change orders. The contractor is working extended hours to complete all in-creek work by November 15, 2017.

CUWSVI0101 - WSIP Closeout - Sunol Valley

Project Description: The project includes miscellaneous improvements to ensure WSIP Level of Service (LOS) goals and objectives are fully achieved in the Sunol Valley Region and consists of one design/bid contract and two Job Order Contracts (JOCs):
Sunol Valley Water Treatment Plant Basin 5 Optimization – This design/bid subproject will add and develop a range of flocculation aid polymer doses for the no. 5 sedimentation basin of the plant to enable the basin to meet a water production goal of 40 mgd consistently.
SABPL Erosion Repairs at Pond F3 East – This JOC subproject will repair the existing outfall pipe erosion at Quarry Pond F3 East with grouted riprap rockfill and restore the drain pipe. The outfall drainage system was originally installed as part of the San Antonio Backup Pipeline.
AS4 Carrier Water System Modifications – This JOC subproject will modify the chemical injection system of the Alameda Siphons No.4 Pipeline to overcome lack of water system volume and pressure needed to inject water treatment chemicals.

Region: Sunol Valley	**Project Status:** Design	**Environmental Status:** Not Applicable

Project Cost:		**Project Schedule:**	
Approved	$3.25 M	Approved Jul-16	Dec-19
Forecast*	$5.99 M	Forecast* Jul-16	Dec-19
Actual	$0.13 M	Project Percent Complete: 12.2%	

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	**Environmental Approval**	**Bid Advertisement**	**Construction NTP**	**Construction Final Completion**
Current Forecast	N/A	N/A	Various	06/20/19

Progress and Status:
•SVWTP Basin No.5 Optimization will be funded by WSIP and the 10-year water CIP. The WSIP scope includes chemical feed for only Basin 5, and the CIP scope includes the polymer feed building and the chemical facilities for Basins 1 through 4. A task order for the CER and Design Phase awaits the new EMB As-Needed Engineering Services Contract expected in early 2018.
•NIT security doors, cathodic protection, UPS rack and enclosures, and other miscellaneous items will be done under JOC-54-02. The contractor, Mitchell Engineering, started work for the UPS panels on September 2017. The tentative schedule for the cathodic protection work is October 2017 whereas the security doors will be installed by December 2017.
•Relocation of the NIT's water quality equipment will be done under JOC-47R-36. Due to additional equipment that needs to be relocated and additional programming work to complete testing and startup of the system, the engineering team will issue additional drawings for pricing by Yerba Buena (JOC contractor).
•Construction for the SABPL Erosion Repairs of Pond F3 East will be done under JOC-59-20. The project team is preparing drawings and specifications for pricing by Power Engineering (JOC contractor).
•Two (2) JOC projects, AS4 and SABPL Carrier Water System Modifications Projects, are in the planning and early design phase.

Issues and Challenges:
The cost variance from the approved baseline budget is due to an increase in soft cost and construction cost for the refined scope of work for each of the closeout projects. With the scope refinement, the number of JOCs has been increased from two to five. Added items include 1) NIT security doors, cathodic protection, UPS rack and enclosures; 2) Relocation of NIT's water quality equipment; and 3) San Antonio Backup Pipeline Carrier Water System Modification Projects.

CUWBDP0101 - WSIP Closeout - Bay Division

Project Description: This project includes miscellaneous improvements to ensure the WSIP Level of Service (LOS) goals and objectives are fully achieved in the Bay Division region. The work will be completed by means of several sub-projects, including: developing an agreement with Caltrans for a drainage system across SFPUC ROW between the Caltrans storm-water invert and an open field associated with the construction of the Seismic Upgrades of BDPL Nos. 3 and 4 and decommissioning of the existing BDPL Nos. 1 and 2 as required by the EIR; and uncovering of previously installed valve E50U to provide for removal, cleaning, and re-installation of bolts; testing; and possible installation of new bolt sleeves for corrosion protection purposes.

Region: Bay Division	**Project Status:** Construction	**Environmental Status:** Not Applicable

Project Cost:		**Project Schedule:**	
Approved	$1.10 M	Approved Jul-16	Dec-19
Forecast*	$4.40 M	Forecast* Jul-16	Dec-19
Actual	$0.90 M	Project Percent Complete: 65.9%	

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	**Environmental Approval**	**Bid Advertisement**	**Construction NTP**	**Construction Final Completion**
Current Forecast	N/A	N/A	Various	06/20/19

Progress and Status:

For the Caltrans V-ditch within the BDPL ROW, Caltrans has not responded to requests for information on their drainage system. A decision was made to reconfigure the v-ditch within our ROW and not encroach into Caltrans ROW. Union Sanitary District has expressed interest in the solution as the erosion is impacting their sewer manhole within our ROW. The Team is finalizing the v-ditch design and will share it with Union Sanitary District once completed. Additional scope was added to the Closeout project to address ventilation, sump pump and corrosion issues within the BDPL 3X Articulated Vault and BDPL 4 vault. The plans and specs were submitted to the JOC contractor and the initial estimate for the work was higher than the engineer's estimate. Contractor is providing a detailed estimate for the team to review The Team is working the Health and Safety on Confined Space Entry requirements.

Issues and Challenges:

Caltrans has been slow at responding to requests related to the erosion issue. It was decided to design a fix for the erosion problem within our ROW and avoid impacting Caltrans ROW. The ventilation, sump pump, coating repair and erosion repair Job Order Contract (JOC) work will be transferred to the CUWBDP0101 – WSIP Closeout – Bay Division project.

Erosion Across ROW Due to Caltrans Drainage Pipe

The construction management services for the JOC work will be handled by the CM consultant under a new WSIP Closeout – Bay Division project Task Order. The forecast for CM services is $150,000. The cost variance is due to the change in CM services for the JOC work.

CUWPWI0101 - WSIP Closeout - Peninsula

Project Description: This project consists of miscellaneous improvements to ensure the WSIP Level of Service (LOS) goals and objectives are fully achieved in the Peninsula region. The work will be completed by means of several sub-projects, including the Lower Crystal Springs Dam (LCSD) stilling basin modifications, valve modifications for fish passage at the same site, New Crystal Springs Bypass Tunnel electrical modifications, closeout of California Division of Safety of Dams permit applications, and coordination with San Mateo County for bridge construction over LCSD.

Region: Peninsula	**Project Status:** Design	**Environmental Status:** Not Applicable

Project Cost:		**Project Schedule:**	
Approved	$4.89 M	Approved Jul-16	Dec-19
Forecast*	$13.58 M	Forecast* Jul-16	Mar-20
Actual	$0.54 M	Project Percent Complete: 8.5%	

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	**Environmental Approval**	**Bid Advertisement**	**Construction NTP**	**Construction Final Completion**
Current Forecast	N/A	Various	Various	09/25/19

Progress and Status:

Crystal Springs / San Andreas Items:

1. WD-2822R – Crystal Springs Dam Stilling Basin, Dissipation Structure, and H53 Valve - is planned for re-advertisement in December 2017.
2. The New Crystal Springs Bypass Tunnel modifications to deal with electrical corrosion concerns have been completed.
3. Lower Crystal Springs Dam Bridge Replacement- is a joint project between San Mateo County (SMC) and SFPUC – The project consists of the replacement of the concrete bridge atop Lower Crystal Springs Dam. Bridge opening is forecasted for late 2018.
4. Erosion Mitigation/Repairs – This sub-project includes the post construction environmental monitoring of sites associated with major WSIP projects. Two locations in Crystal Springs were investigated in August 2017 due to erosion. A technical memorandum will be prepared to mitigate erosion. Construction forecast is scheduled for summer 2018.

Harry Tracy Water Treatment Plant Items:

1. JOC 59-01 – Electrical & Mechanical Piping Modifications – Power Engineering has been solicited to propose on the following work scope: CAT-ISO training and programming modifications, diesel fuel double containment piping, automated valve at filter to waste manhole, and sludge tank No. 1 piping modifications. Currently waiting for the contractor's pricing.
2. JOC-59-17 - Three Ozone Generator Filters – The construction work has been assigned to Power Engineering. Drawings and specifications are being prepared. Two indoor filters and an outdoor filter will be purchased as no substitution method.
3. Leak at Channels –A new Job Order Contract project was initiated to fix the leaks in the channels inside the filter galleria. Design has started. This work requires a two week shutdown to patch the leaks.
4. Variable Frequency Drives (VFDs) – 5 out of 6 VFDs for washwater pumps and all 3 VFDs for sludge transfer pumps have failed. The project team continues to look into the permanent fix. For short term fix, four will be replaced with new VFDs.
5. Washwater Pump Piping Modifications – Scope of work includes the installation of flare fitting on the intakes of washwater supply pumps, and installation of the piping spool on the suction piping.
6. Vibration Control Panel and Circuit Breakers – The SFPUC staff conducted a site reconnaissance in September 2017. A site analysis memo is being prepared.

Issues and Challenges:

The cost forecast for this project has been increased to include closeout items from the Harry Tracy Long Term Improvements Project (HTLTIP). This transfer is also reflected as forecasted savings in the HTLTIP. Cost forecast has increased to address erosion issues associated with various WSIP projects completed in the Peninsula region, and an increase in the construction estimates to complete the Crystal Springs Dam Stilling and H53 Valve Work. In preparation for the Mountain tunnel shutdown for November 2018, JOC-59-17 has a tight deadline to purchase and install three (3) filters for the emergency ozone generators at HTWTP.

CUW30103 - Regional Groundwater Storage and Recovery

Project Description: The project entails the construction of up to 16 groundwater wells and well stations with a total capacity of 7.2 mgd to be used as a regional dry-year water supply. The wells will be connected to three wholesale customer water systems on the Upper Peninsula (the Cities of Daly City and San Bruno, and California Water Service Company) and to the SFPUC transmission system. Disinfection will be required for all wells and treatment may be required at some of the wells for the removal of manganese.

Region: San Francisco Regional	**Project Status:** Construction	**Environmental Status:** Active (Various)

Project Cost:		**Project Schedule:**	
Approved	$113.58 M	Approved Jun-03	Jul-19
Forecast*	$127.42 M	Forecast* Jun-03	Nov-19
Actual	$84.95 M	Project Percent Complete: 74.9%	

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	Environmental Approval	Bid+ Advertisement	Construction+ NTP	Construction+ Final Completion
Current Forecast	(A) 09/07/09✓ (B) 08/07/14✓ (C) 07/16/18	(A) 09/07/11✓ (B) 09/22/14✓ (C) 08/15/18	(A) 01/30/12✓ (B) 04/06/15✓ (C) 12/03/18	(A) 09/05/12✓ (B) 03/06/19 (C) 08/31/19

\+ Project includes multiple construction contracts.
(A) Test well drilling; (B) Well station construction; (C) Test well drilling for 3 sites in Millbrae & South San Francisco

Progress and Status:

For Contract B, construction at all twelve well sites with new wells and buildings is progressing and is reported to be 98% complete. The 5-day test of the first well sites was completed. The next major construction milestone is to perform the 7-day test for the well station which is expected to start this winter.

Issues and Challenges:

The significant increase to variance between the Approved and Forecast Cost is based on contractor input for the installation of additional hot taps, piping, flow meters, water quality samplers, electrical conduit and wiring, and security system; rehabilitation of existing wells; inspection of wells; service connection fees; modification to the caustic soda system; making access improvement to the well stations; furnishing and installing automated samplers, flow meter conduits, and sample lines; leasing generators for well tests; and performing site restoration. The cost variance increased by $8.1M since the last quarter, and this is due to the contractor's input for installation as well as a re-evaluation of some of the cost items listed above.

Identifying well sites for Phase 2 in the San Bruno area (to serve as alternates to the Golden Gate National Cemetery proposed wells) has been challenging. SFPUC senior management is engaged in soliciting the City of San Bruno's help to identify viable sites. To date, three sites have been considered. Once these have been finalized, the impact on the project schedule will be determined. The first drilling of a test well is expected to start this Fall 2017 at the Ludeman North site located in Millbrae.

Exterior of completed Linear Park well station, undergoing testing

CUW36302 - System Security Upgrades

Project Description: The project includes the identification, planning, design, and construction of all necessary security components associated with WSIP facilities. Phase A design consists of security appurtenances such as conduit routing incorporated into the overall design of projects. This work provides for the security infrastructure and is bid as part of the specific WSIP construction project. Phase B design consists of completion of project security system components which will be purchased, installed, and tested by a Security Integrator specialist.

Region: Support Projects	**Project Status:** Construction	**Environmental Status:** Completed (CatEx)

Project Cost:

Approved		$15.20 M
Forecast*		$15.20 M
Actual		$12.79 M

Project Schedule:

Approved Jan-06		Mar-18
Forecast* Jan-06		Sep-18

Project Percent Complete: 88.9%

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	Environmental Approval	Bid+ Advertisement	Construction+ NTP	Construction+ Final Completion
Current Forecast	03/28/12✓	01/07/06✓ - 08/15/13✓	11/13/06✓ - 05/08/14✓	07/13/07 ✓ - 12/29/17

\+ Date range for the first and last project among the 28 WSIP projects that require security improvements.

Progress and Status:

The project team continued working on close out documents for the Second As-Needed Security Integration Construction Contract, WD-2661.

At Sunol Valley Treatment Plant, the contacts were installed on the 2nd tank. The JOC for New Irvington Tunnel requires installation of 7 doors under another contract prior to commencing work.

Construction continued for Task Order 2 (Harry Tracy). The project team completed final testing for Task Order 4 (Crystal Springs / San Andreas) of the Third As-Needed Security Integration Services Construction Contract, WD-2707.

Security Panel recently installed

Issues and Challenges:

Completion of the security work at New Irvington Tunnel is dependent on installation of 7 doors by others. Since these have not been installed yet, the project team has been delayed in commencing the work.

CUW38802 - Bioregional Habitat Restoration

Project Description: Bioregional Habitat Restoration (BHR) provides a coordinated and consolidated approach to compensate for WSIP construction impact to the environment of the construction site. BHR includes projects to preserve, enhance, restore, or create tidal marsh, vernal pools, sycamore and oak riparian woodland, oak woodland and savannah, and serpentine and annual grasslands to benefit threatened and endangered species. BHR includes design, environmental permitting, construction, construction management, and three years of performance monitoring and maintenance.

Region: Support Projects	**Project Status:** Construction	**Environmental Status:** Completed (Permitting Only)

Project Cost:		**Project Schedule:**	
Approved	$91.80 M	Approved Sep-06	May-18
Forecast*	$93.34 M	Forecast* Sep-06	Dec-18
Actual	$81.26 M	Project Percent Complete: 94.8%	

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	Environmental Approval	Bid+ Advertisement	Construction+ NTP	Construction+ Final Completion
Current Forecast	12/08/14✓	(A) 08/20/10✓ - 05/23/12✓ (B) 03/16/11✓ - 02/02/15✓	(A) 06/27/11✓ - 09/19/12✓ (B) 01/30/12✓ - 02/01/16✓	(A) 01/06/12 - 05/01/17 ++ (B) 05/07/18++

\+ Date range for the first and last contracts in each region.
(A) BHR Alameda Contracts - 7 compensation sites (B) BHR Peninsula Contracts - 11 compensation sites
++ Includes plant establishment, maintenance, and monitoring period.

Progress and Status:

There are 18 total compensation sites in the Alameda and the Peninsula Watershed. Construction work is complete at 10 of those sites, and those 10 sites are currently in the maintenance phase. The last BHR contract, WD-2654R Peninsula Vegetation Removal, contains the remaining 8 sites and is currently 85% complete.

Issues and Challenges:

Closeout for WD-2652, San Antonio Creek is delayed until February 2018 when an outstanding stop notice can be released. Closeout of WD-2641R is delayed because Contract Monitoring Division (CMD) forms have not been submitted by the contractor Yerba Buena Engineering. The cost variance is due to environmental issues on Contract WD-2654R that may require more biological monitors than anticipated during construction, potentially impacting the CM costs; and also for the change order due to the discovery of naturally occurring asbestos and the addition of paving at Sawyer Camp Trail to the contract.

WD-2654R: Adobe Gulch Site with erosion control and flags to mark acorn planting locations

7. On-Going Construction

Construction Contract	Schedule			Budget		Variance (Approved - Forecast)		Actual % Complete
	NTP Date	Approved Construction Final Completion*	Q1/FY17-18 Forecasted Construction Final Completion**	Approved Contract Cost +	Q1/FY17-18 Forecasted Cost++	Schedule (Cal. Days)	Cost	
Sunol Valley Region								
CUW35901 - New Irvington Tunnel	08/26/10	11/19/15	09/30/17	$ 266,642,045	$ 265,518,301	(681)	$ 1,123,744	98.5%
CUW37401 - Calaveras Dam Replacement (Contract A)	08/15/11	04/08/19	06/19/19	$ 544,753,180	$ 569,666,574	(72)	($24,913,394)	89.1%
CUW37401 - Alameda Creek Diversion Dam (Contract B)	04/19/16	12/16/18	12/16/18	$ 31,358,771	$ 32,659,284	-	($1,300,513)	63.6%
Bay Division Region								
CUW35302 - Seismic Upgrade of BDPL Nos.3 & 4	09/04/12	03/24/15	04/28/17	$ 36,138,296	$ 37,057,634	(766)	($919,338)	98.3%
San Francisco Regional Region								
CUW30103 - Regional GW Storage and Recovery (Contract B)	04/06/15	01/06/18	03/06/19	$ 46,787,351	$ 51,398,202	(424)	($4,610,851)	98.0%

Program Total for On-Going Construction	Approved Contract Cost	Q1/FY17-18 Forecasted Cost*	Variance	
			Cost	Percent
	$ 925,679,643	**$ 956,299,996**	**($30,620,353)**	**(3.3%)**

Note:
* Approved Construction Final Completion Date includes approved change orders.
** The Forecasted Construction Final Completion Date includes all approved, pending, and potential change orders and trends.
\+ Approved Contract Cost includes awarded contract amount and approved change orders.
++ The Forecasted Cost includes awarded contract amount and all approved, pending, and potential change orders.

8. PROJECTS IN CLOSE-OUT

No projects are currently in close-out.

9. COMPLETED PROJECTS

Project Title	2005 Baseline Project Completion	2016 Approved Project Completion	Current Approved Project Completion	Actual Project Completion	2005 Baseline Project Budget	2016 Approved Project Budget	Current Approved Project Budget	Project Expenditures To Date
San Joaquin Region								
CUW36401 - Lawrence Livermore Water Quality Improvement	11/07/11	07/31/13	07/31/13	07/31/13	$ 4,235,258	$ 4,198,480	$ 4,198,480	$ 4,198,247
CUW37301 - San Joaquin Pipeline System	03/25/14	03/31/16	03/31/16	03/31/16	$ 352,732,000	$ 202,886,020	$ 202,886,020	$ 203,178,015
CUW37302 - Rehabilitation of Existing San Joaquin Pipelines	06/30/14	10/31/14	10/31/14	10/31/14	$ 80,000,000	$ 21,153,438	$ 21,153,438	$ 21,153,622
CUW38401 - Tesla Treatment Facility	07/01/11	01/30/15	01/30/15	01/30/15	$ 101,643,001	$ 113,225,946	$ 113,225,946	$ 113,211,607
Sunol Valley Region								
CUW35501 - Standby Power Facilities - Various Locations	12/06/10	12/22/10	12/22/10	12/22/10	$ 9,949,735	$ 12,950,566	$ 12,950,566	$ 12,950,566
CUW35902 - Alameda Siphon #4	04/14/11	06/28/13	06/28/13	06/28/13	$ 78,577,000	$ 65,093,582	$ 65,093,582	$ 64,950,507
CUW37001 - Pipeline Repair & Readiness Improvements	03/30/07	04/16/09	04/16/09	04/16/09	$ 5,591,770	$ 5,195,381	$ 5,195,381	$ 5,195,381
CUW37402 - Calaveras Reservoir Upgrades	02/17/06	07/28/06	07/28/06	07/28/06	$ 1,740,055	$ 1,690,552	$ 1,690,552	$ 1,690,552
CUW37403 - San Antonio Backup Pipeline	06/29/12	03/31/16	03/31/16	06/30/16	$ 7,677,000	$ 53,688,450	$ 53,688,450	$ 53,594,683
CUW38101 - SVWTP Expansion & Treated Water Reservoir	07/09/13	10/31/14	10/31/14	10/31/14	$ 133,108,002	$ 129,593,674	$ 129,593,674	$ 129,593,674
CUW38601 - San Antonio Pump Station Upgrade	12/12/11	06/29/12	06/29/12	06/29/12	$ 41,854,000	$ 12,905,415	$ 12,905,415	$ 12,894,592
Bay Division Region								
CUW35301 - BDPL Nos. 3 & 4 Crossover/Isolation Valves	09/30/08	07/31/09	07/31/09	07/31/09	$ 27,600,158	$ 27,045,627	$ 27,045,626	$ 27,039,149
CUW36301 - SCADA System - Phase II	02/24/12	05/28/13	05/28/13	05/28/13	$ 36,098,999	$ 9,470,922	$ 9,470,922	$ 9,470,923
CUW36801 - BDPL Reliability Upgrade / Tunnel	01/31/14	08/30/16	08/30/16	08/30/16	$ 572,022,634	$ 275,931,544	$ 275,931,544	$ 271,660,844
CUW36802 - BDPL Reliability Upgrade - Pipeline	-	03/31/16	03/31/16	03/31/16	-	$ 217,262,675	$ 217,262,675	$ 216,719,335
CUW36803 - BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2	-	05/28/10	05/28/10	05/28/10	-	$ 3,046,981	$ 3,046,981	$ 3,046,981
CUW38001 - BDPL Nos. 3 & 4 Crossovers	04/24/13	06/30/14	06/30/14	06/30/14	$ 36,616,911	$ 29,910,448	$ 29,910,449	$ 29,910,449
CUW38901 - SFPUC/EBMUD Intertie	02/07/07	03/20/14	03/20/14	03/20/14	$ 8,598,851	$ 9,167,306	$ 9,167,306	$ 9,167,306
CUW39301 - BDPL No. 4 Condition Assessment PCCP Sections	05/01/08	02/06/09	02/06/09	02/06/09	$ 2,000,000	$ 1,937,599	$ 1,937,599	$ 1,937,599
Peninsula Region								
CUW35401 - Lower Crystal Springs Dam Improvements	08/16/11	12/28/12	12/28/12	12/28/12	$ 27,752,222	$ 34,859,039	$ 34,859,040	$ 34,859,040
CUW35601 - New Crystal Springs Bypass Tunnel	10/28/10	08/17/12	08/17/12	08/17/12	$ 83,222,790	$ 81,435,610	$ 81,435,610	$ 81,466,732
CUW35701 - Adit Leak Repair - Crystal Springs/Calaveras	07/03/08	07/31/08	07/31/08	07/31/08	$ 3,748,452	$ 2,787,322	$ 2,787,322	$ 2,787,322
CUW36101 - Pulgas Balancing - Inlet/Outlet Work	05/11/06	05/11/06	05/11/06	05/11/06	$ 1,667,532	$ 1,765,938	$ 1,765,938	$ 1,765,938
CUW36102 - Pulgas Balancing - Discharge Channel Modifications	08/05/13	07/30/10	07/30/10	07/30/10	$ 8,111,422	$ 2,910,007	$ 2,910,007	$ 2,910,007
CUW36103 - Pulgas Balancing - Structural Rehabilitation and Roof Replacement	01/29/13	12/28/12	12/28/12	12/28/12	$ 36,712,846	$ 20,232,215	$ 20,232,215	$ 20,238,716

Project Title	2005 Baseline Project Completion	2016 Approved Project Completion	Current Approved Project Completion	Actual Project Completion	2005 Baseline Project Budget	2016 Approved Project Budget	Current Approved Project Budget	Project Expenditures To Date
Peninsula Region								
CUW36105 - Pulgas Balancing - Modifications of the Existing Dechloramination Facility	-	03/20/13	03/20/13	03/20/13	-	$ 5,390,031	$ 5,390,031	$ 5,390,031
CUW36501 - Cross Connection Controls	05/15/09	04/30/09	04/30/09	04/30/09	$ 6,111,779	$ 3,948,944	$ 3,948,944	$ 3,948,944
CUW36601 - HTWTP Short-Term Improvements (Demo Filters)	07/03/06	11/14/06	11/14/06	11/14/06	$ 4,381,375	$ 3,067,903	$ 3,067,903	$ 3,067,903
CUW36603 - HTWTP Short-Term Improvements - Coagulation & Flocculation/ Remaining Filters	09/08/10	07/28/10	07/28/10	07/28/10	$ 9,741,617	$ 18,604,938	$ 18,604,937	$ 18,604,937
CUW36701 - HTWTP Long-Term Improvements	04/08/14	12/30/16	12/30/16	12/30/16	$ 167,570,000	$ 280,238,337	$ 280,238,337	$ 273,804,405
CUW36702 - Peninsula Pipelines Seismic Upgrade	-	07/06/16	07/06/16	07/06/16	-	$ 40,298,944	$ 40,298,944	$ 38,767,424
CUW36901 - Capuchino Valve Lot Improvements	07/24/09	08/19/08	08/19/08	08/19/08	$ 3,573,782	$ 2,803,153	$ 2,803,153	$ 2,803,153
CUW37101 - Crystal Springs/San Andreas Transmission Upgrade	04/01/14	06/30/15	06/30/15	06/30/15	$ 148,582,655	$ 190,740,623	$ 190,740,623	$ 189,816,066
CUW37801 - Crystal Springs Pipeline No. 2 Replacement	04/27/12	12/31/14	12/31/14	12/31/14	$ 93,926,000	$ 56,152,026	$ 56,152,026	$ 56,070,509
CUW37901 - San Andreas Pipeline No. 3 Installation	06/09/11	08/30/12	08/30/12	08/30/12	$ 42,029,941	$ 27,495,558	$ 27,495,558	$ 27,495,558
CUW39101 - Baden and San Pedro Valve Lots Improvements	10/12/11	03/29/13	03/29/13	03/29/13	$ 47,319,999	$ 24,990,803	$ 24,990,803	$ 24,990,803
San Francisco Regional Region								
CUW35801 - Sunset Reservoir - North Basin	05/06/09	09/10/10	09/10/10	09/10/10	$ 61,975,999	$ 64,271,570	$ 64,271,570	$ 64,270,725
CUW37201 - University Mound Reservoir - North Basin	03/10/11	03/29/13	03/29/13	03/29/13	$ 102,882,610	$ 43,420,000	$ 43,420,000	$ 43,266,552
Support Projects								
CUW38801 - Programmatic EIR	06/20/07	06/30/09	06/30/09	06/30/09	$ 9,271,001	$ 10,730,307	$ 10,730,307	$ 10,730,684
CUW38803 - Vegetation Restoration of WSIP Construction Sites	-	06/30/16	06/30/16	06/30/16	-	$ 2,200,000	$ 2,200,000	$ 2,099,755
TOTAL					$ 2,358,627,396	$ 2,114,697,876	$ 2,114,697,875	$ 2,100,719,238

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APPENDICES

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APPENDIX A. PROJECT DESCRIPTIONS

SAN JOAQUIN REGION

CUW36401 - Lawrence Livermore Water Quality Improvement (Completed)
The project consists of:
• Ultraviolet (UV) disinfection, including two 150-gallon-per-minute, parallel UV units and ancillary facilities. The units will be installed in the existing Thomas Shaft building.
• Two pumps that will pump water from the Coastal Range Tunnel to the new disinfection system.

CUW37301 - San Joaquin Pipeline System (Completed)
The project consists of:
• Pipeline crossover facilities at Emery Road (including 10 valves) and Pelican Road (including 12 valves).
• Installation of a portion of new pipeline, the Western Segment, from the San Joaquin River to the Tesla Portal. The pipeline will be 78-inches in diameter, approximately 10.3 miles in length and will include tunneled crossings of several highways, a railroad, and an irrigation canal. The pipeline will cross over the top of the California Aqueduct.
• Installation of a portion of new pipeline, the Eastern Segment, from the Oakdale Portal to a new connection point approximately 6.7 miles downstream on SJPL No. 3. This segment will also be 78-inches in diameter.
• Installation of valve facilities on SJPL Nos. 3 and 4 along the Eastern Segment to provide for operational needs to divide and isolate segments of these lines for maintenance and to regulate flow and control pressure in the system.
• Security related site improvements at Oakdale Portal.

CUW37302 - Rehabilitation of Existing San Joaquin Pipelines (Completed)
The project scope is to assure that existing San Joaquin Pipelines will meet Delivery Reliability LOS goals by establishing a program of routine maintenance, repair, and replacement activities for long-term implementation and by addressing the highest priority rehabilitation measures identified during the timeframe of the WSIP:
• Rehabilitation of and security-related site improvements at the existing Roselle Crossover.
• Establishment of a program of pipelines conditions assessment, including upgrading and renewal as required, of pipe coating and lining systems.
• Upgrade of the existing SJPL cathodic protection system.
• Upgrade of the existing SJPL Supervisory Control and Data Acquisition (SCADA) system.

CUW38401 - Tesla Treatment Facility (Completed)
The project consists of:
• Isolation valves and piping to divert SJPL flow to the new treatment facility, large-diameter piping and valves located within the treatment facilities, and a single discharge pipeline to tie back into the existing SJPLs.
• A disinfection building housing 12 UV reactors, cleaning equipment, and ancillary equipment.
• A chemical storage and feed facility for sodium hypochlorite, hydrofluorsilicic acid (i.e., fluoride), and carbon dioxide.
• Office, laboratory, and control facilities, emergency engine generators, and security related site and access road improvements.

CUW38701 - Tesla Portal Disinfection Station
The Tesla Portal Disinfection Facility is located where the San Joaquin Pipelines (SJPLs) converge into the Coast Range Tunnel and provides primary disinfection of the Hetch Hetchy water supply. The facility is one of the key water quality monitoring and compliance locations for the San Francisco Public Utilities Commission (SFPUC). The Tesla Portal Disinfection Station Project includes the planning of a new disinfection facility that will provide reliable disinfection to the Hetch Hetchy water supply.
This project has been combined with the "CUW38401 - Tesla Treatment Facility Project"; therefore, the respective budgets for the Environmental, Design, Bid & Award, Construction, Construction Management, and Close-out Phases have been transferred to the "CUW38401 - Tesla Treatment Facility Project".

Note that this project has been terminated and the remaining scope & budget has been combined with the "CUW38401 - Tesla Treatment Facility" project.

CUWSJI0101- WSIP Closeout - San Joaquin

• Supplemental Solar Panel Installations – The CUW37301 San Joaquin Pipeline System, including the western segment, eastern segment and facilities, and crossover pipeline projects, achieved final completion in 2013, 2014 and 2015, respectively. During the initial course of operations it was noted the solar panel arrays designed to provide power for the facility equipment were not sufficient to meet all modes of operational demands. This sub-project will provide additional solar panels to cover power shortfalls and allow the facility to better meet its water delivery reliability LOS goal. This sub-project consists of three job order contracts at three sites: Oakdale, Knight Ferry Throttling Station, and San Joaquin Junction No. 4. The scope of work includes:

o Minor site preparation and grading work,
o Furnishing and installing new supplemental solar arrays mounted on concrete pads within security fence enclosures,
o Connection to and integration of the new solar panels into the existing power system and controls, and
o Installation of batteries for solar power storage on-site.

• Tesla Portal Facility Interior Floor Slab – The Tesla Portal Facility, a sub-project of the CUW38401 Tesla Treatment Facility, was completed in January 2015. During construction, the concrete interior floor slab was deleted from the project construction documents to allow easier access to repair corrosion of the existing pipelines discovered during construction beneath the new Tesla Portal Facility. Due to drainage issues at the site, the Operations staff at the facility has now requested the interior slab be incorporated into the structure with a small access opening for future maintenance and corrosion repairs of the existing buried pipelines. This sub-project will be constructed through use of a job order contract including:

o A new interior concrete slab slope to drain to a new catch basin,
o A new catch basin with grating and sump, and
o A small sump pump and drain through the slab or existing concrete wall to a discharge point.

SUNOL VALLEY REGION

CUW35201 - Alameda Creek Recapture Project

The planned facilities for this project are based on Alternative 4-1 from the Updated Alternatives Analysis Report (AAR) dated January 30, 2009, with some refinements described below. The planned facilities include the following components: four identical vertical turbine pumps mounted on floating barges located in existing Pond F2 (including a mooring system); four flexible discharge pipelines extending from each pump to a new pipe manifold located on shore; approximately 100-feet of 36-inch pipeline connection between the new pipe manifold and the existing Sunol Pipeline to discharge the recaptured water to the SFPUC system; throttling valves and a flow meter; electrical control building; 1,600 feet of power lines from the existing Hetch Hetchy Water & Power Calaveras Electrical Substation installed on 10 new power poles; and general site improvements. In addition, the scope includes conveyance of the water to various existing storage sites within the Sunol Valley or the Sunol Valley Water Treatment Plant, as necessary. Some minor refinements were made in the March 2016 Notice of Changes to eliminate on-shore booster pumps in favor of a single set of pumps located on barges in Pond F2 and the elimination of the flexibility to allow multiple sources of water from Pond F2 and Calaveras Reservoir to be blended and sent to San Antonio Reservoir (SAR) in the future.

CUW35501 - Standby Power Facilities - Various Locations (Completed)

The project consists of installing standby electrical power facilities at six sites in the East Bay and on the Peninsula. Each site is either provided with an emergency generator or electrical receptacles to accommodate a portable emergency generator. The five sites are: Alameda West Portal, and San Antonio Reservoir & Dam; Harry Tracy Water Treatment Plant; Millbrae Yard; San Pedro Valve

Lot; and Capuchino Valve Lot.

CUW35901 - New Irvington Tunnel
This project consists of an 18,660-foot long tunnel in a horseshoe shape with excavated dimensions of approximately 13 feet by 14 feet. The final tunnel lining will be mortar-lined, welded steel pipe, resulting in a finished diameter of 8.5 feet. Extra thick steel liner segments will also be used at low cover areas near the portals and beneath Interstate 680 where the tunnel intersects inactive fault zones, and where the tunnel passes through areas of poor ground conditions.
Major project elements include:
• Conventional mining methods are being used in a westward direction from the Alameda West Portal, in both an eastward and westward direction from an intermediate shaft located near Vargas Road just off Interstate 680, and in an eastward direction from Irvington Portal. Tunneling is being completed by multiple road header tunneling machines and limited, controlled detonation in areas of hard rock. Spoils disposal is being taken to fill sites just north of the San Antonio Pump Station (SAPS) near the intersection of Calaveras Road and Interstate 680. When completed the spoils fills will create a visual barrier to a new quarry operation located near Calaveras Road. Potentially contaminated spoils will be screened, separated, and, if found to contain contaminants, hauled to a permitted landfill.
• At the Irvington Portal, the tunnel connections to Bay Division Pipelines (BDPL) will include control valves directly buried with instrumentation and electrical gear in a small control building. At the Alameda West Portal, the tunnel will be connected to the discharge of the new mixing manifold to be constructed as part of the Alameda Siphons # 4 Project and to the existing overflow shaft. The project includes a new isolation valve between the mixing manifold and the portal.
• The NIT Project will include construction of a new access bridge across Alameda Creek to accommodate temporary construction traffic and on-going SFPUC Alameda West Portal operations.
• A Groundwater Management Program has been developed that includes two years of pre-construction monitoring of wells, springs, creeks, ponds, and wetlands; environmental habitat construction mitigation measures; and two years of monitoring after construction to minimize the impact to the local groundwater.
• At both the existing Irvington and Alameda West Portal facilities, other security-related site improvements will be constructed, including undergrounding of portal structures and new card access controlled gates and security fences.

CUW35902 - Alameda Siphon #4 (Completed)
This project consists of a 66-inch diameter welded steel pipeline; a 96-inch diameter "blending structure" near the Alameda West Portal that will blend SVWTP and Hetch Hetchy water; new isolation/throttling valves on Alameda Siphons Nos. 3 and 4; new isolation valves on Alameda Siphons Nos. 1 and 2; ventilation improvements at Alameda East Portal; new chemical injection facilities on Siphon No. 4; relocation and extension of the overflow pipe; and road improvements at the intersection with Calaveras Road.

CUW37001 - Pipeline Repair & Readiness Improvements (Completed)
The project consists of three phases for implementation: Phase A (completed) involves the procurement of varied lengths and sizes of welded steel pipe and fitting for stockpiling at seven locations west of the Coast Range Tunnel; Phase B (completed) includes procurement and installation of a pipe rolling facility at the Sunol Yard; Phase C (completed) involves the development of a pipeline repair prioritization plan as well as on-call emergency repair procedures, contracts, and mutual assistance agreements.

CUW37401 - Calaveras Dam Replacement
Project elements primarily include:
• Constructing a new 210-foot high earth and rock fill dam designed to accommodate a maximum credible earthquake on the Calaveras Fault. The dam will be constructed immediately downstream of the existing dam and will have a crest length of 1,210 feet, a base thickness of 1,180

feet, and a crest thickness of 80 feet. The total volume of the dam will be approximately 2.8 million cubic yards.

• The materials for construction will primarily originate from onsite sources, while surplus excavated material will be placed at disposal sites around the rim of the Calaveras Reservoir, including two in-water disposal sites and several upland disposal sites.

• The existing spillway will be removed, and a new spillway and stilling basin will be constructed. The overflow weir of the new spillway will be 307 feet long. The spillway will vary from 60 to 80 feet wide and will be 1,100 feet long. The stilling basin below the spillway will be 80 feet wide and 155 feet long.

• A new intake tower and shaft will be constructed. The drain line and three adits from the existing facility will be connected to the new shaft. The existing outlet conduit from the tower will be extended 1,250 feet downstream (beneath the replacement dam) and will be equipped with a high capacity fixed-cone discharge valve (relocated from the existing facility) to accommodate water releases from the reservoir. Fish screens will be added to the existing adits of the intake tower.

• The existing dam will largely remain in place. The downstream face will, however, be partially removed and re-graded, and a channel will be excavated through the dam to form the approach to the new spillway.

• A new 525-foot long fish ladder and flow bifurcation systems at Alameda Creek Diversion Dam (ACDD) will be used in conjunction with new low-flow capacity valves to be added at the base of the replacement Calaveras Dam to provide flows downstream of these facilities to support native aquatic resources and future populations of steelhead trout that are being restored to the Alameda Creek Watershed.

• The fish ladder and a total of four new fish protection screens will be added on the right abutment (looking downstream) of the ACDD. In addition, conveyance pipes will be installed to allow water from Alameda Creek to be delivered to the Calaveras Reservoir via the Alameda Creek Diversion Tunnel (ACDT).

• Landslide A removal beneath the northern half of the left abutment slope located on the left side of the valley (when looking downstream) as well as other associated changes as previously noted in the March 2013 Notice of Change.

• Landslide B removal within the lower left abutment slope as well as other associated changes as previously noted in the March 2014 Notice of Change.

• Additional slope reinforcement in Borrow Area B and import of offsite rockfill to supplement rockfill mined from Borrow Area B to mitigate schedule impacts as noted in the March 2016 Notice of Change.

CUW37402 - Calaveras Reservoir Upgrades (Completed)

The project consists of a new hypolimnetic oxygenation system and cryogenic equipment installed near the dam to help maintain reservoir water quality.

CUW37403 - San Antonio Backup Pipeline (Completed)

The SABPL consists of 6,600 feet of 66-inch-diameter steel pipe and extends from the Alameda Siphons at the SAPS to Sunol quarry, SMP-24, near the intersection of Calaveras Road and San Antonio Creek. There are three tie-in facilities with air gap provisions from the SABPL: one connecting to Alameda Siphon No. 3, a second to the SAPL near SAPS, and a third to the SAPL on the west side of Calaveras Road before the SAPL alignment turns and heads west to quarry SMP-24. The alignment of the SABPL parallels that of the existing SAPL, terminating with a control valve and concrete energy dissipation structure in quarry SMP-24. The project includes new chemical storage, feed, and water-quality-monitoring facilities for de-chlorination and pH adjustment of any discharges through the SABPL, the existing SAPL, and the Alameda East Portal overflow pipe. Water discharged into the SMP-24 quarry pond will be recovered with two submersible pumps and a short section of 24-inch diameter steel pipe which will connect to the existing SAPL to convey water to San Antonio Reservoir. Power to the water recovery pumps will be supplied from the nearby Calaveras Substation, which is owned and

operated by Hetch Hetchy Water & Power. Construction of a slurry wall around the quarry pond to minimize groundwater intrusion and to ensure slope stability is also included.

CUW38101 - SVWTP Expansion & Treated Water Reservoir (Completed)

The project consists of a plant expansion which will increase the sustainable capacity to 160 mgd by adding a new flocculation/sedimentation basin, by retrofitting some of the existing filters, by adding a new 17.5-million gallon (MG) circular treated water reservoir (TWR) with a new 3.5-MG rectangular chlorine contact tank on the northern portion of the existing plant site, by adding new chemical storage and feed facilities for disinfection, and by construction of approximately 2,700 feet of 78-in pipe to connect the new TWR to the existing plant.

CUW38102 - SVWTP Calaveras Road

The project consists of safety related improvements to Calaveras Road near the SVWTP access road. The project was deleted because it does not contribute to the WSIP Level of Service goals. This project deletion was approved by the Commission in February of 2008.

CUW38201 - SVWTP Treated Water Reservoir

The project consists of providing improvements to the SVWTP disinfection facilities, including new chemical feed equipment and a 5 MG chlorine contact tank. Additionally, two 8.75 MG balancing reservoirs are planned. These improvements were determined in response to a DOHS requirement.

NOTE THAT THIS PROJECT WAS TERMINATED AND THE REMAINING SCOPE & BUDGET WAS COMBINED WITH PROJECT "CUW38101 - SVWTP EXPANSION & TREATED WATER RESERVOIR."

CUW38601 - San Antonio Pump Station Upgrade (Completed)

The project consisted of:

• Replacement of three 1,000-horsepower electrical pumps.

• Addition of two 1.5-megawatt emergency generators. The generators are sized to power the three electric pumps.

• Seismic retrofit of the pump station, including reinforcement of the walls, foundation improvements, and connection of the roof to the walls.

CUWSVI0101- WSIP Closeout - Sunol Valley

• AS4 Carrier Water System Modifications – The CUW35902 Alameda Siphon No. 4 Project was completed in 2013. Since that time, new facilities being brought on-line as well as other changes occurring in water operations have resulted in an apparent drop in water pressure and volume at the Sunol Valley Chloramination Facility. This has reduced the available water needed for the current system to pump the necessary water treatment chemicals into the system. This new sub-project is designed to resolve the deficiency and allow the facility to meet its water delivery reliability LOS goal. This sub-project will be constructed by a job order contract including:

o Modifications of the current chemical injection system of overcome lack of water system pressure and volume,

o New supplemental water facilities, including possible new storage tanks, and monitoring and regulating equipment as needed, and

o Plumbing and control connections between the new facilities and the current system.

• Erosion Repair at Pond F3 East – The recently completed CUW37403 San Antonio Backup Pipeline Project included drainage improvements on the east side bank of Quarry Pond F3 East. After completion of construction, it was noted that the rock riprap below a 12-inch drainage pipe had eroded away and undermined the downstream section of the pipe. This sub-project will repair the erosion with grouted riprap and restore the drainage pipe through a job order contract including:

o Grouted riprap on the east back of the quarry pond from the current drain pipe to the toe of the bank,

o Grading to remove loose bank debris and prepare the subgrade slope to receive the riprap,

o Extension of the existing drain pipe downslope to the water line of the pond, and

o Temporary access improvements at the side

bank of the pond for a crane and other equipment to deliver and place rock riprap and other materials into the repair area.

• Sunol Valley Water Treatment Plant Basin 5 Optimization – The CUW38101 Sunol Valley Water Treatment Plant Expansion and Treated Water Reservoir Project was completed in 2014. The project added a new fifth flocculation sedimentation basin (Basin 5) to the existing four basins at the plant. During operations after completion, it was noted that Basin 5 was not able to achieve the optimal water production goal of 40 million gallons per day consistently. Subsequent jar testing and analysis of different flocculation aid polymers determined a more optimal composition of additives would achieve the desired water production rate. This sub-project will change the flocculation aid composition for Basin 5, and possibly the four older basins, to optimize plant water production, and allow this facility to better meet its water quality and delivery reliability LOS goals. This sub-project will be constructed by a bid contract including:
o Addition of new flocculant aid polymer to Basin 5;
o Water testing to develop a range of polymer doses for the range of different water quality expected at the plant;
o Construction of new structures and facilities to store, monitor, and control the application of the new polymer; and
o Possible extension of the new polymer to optimize water production from the four older basins.

BAY DIVISION REGION

CUW35301 - BDPL Nos. 3 & 4 Crossover/ Isolation Valves (Completed)
This project is 100 percent complete and has been closed out. The project consists of:
• Two large vaults that are primarily below-ground installations with only the top 30 inches of the structure exposed. Above-ground facilities include security fencing and satellite communication dishes. The vaults are approximately 2,400 feet apart along the BDPL Nos. 3 and 4.
• Each vault includes four mainline isolation valves and a crossover valve. The isolation valves are hydraulically operated, while the crossover valves are electrically operated.
• The existing BDPL No. 3 is a 78-inch-diameter reinforced concrete pipe, and BDPL No. 4 is a 96-inch-diameter PCCP. At each vault, approximately 170 feet of each pipeline will be replaced with welded steel pipe.
• Each facility will be equipped with connections for portable electric generators, and a battery system will provide immediate emergency power to operate the hydraulic system.
• Valve actuators will have remote monitoring and operating capability through the SFPUC SCADA system.

CUW35302 - Seismic Upgrade of BDPL Nos. 3 & 4
The project primarily consists of:
BDPL No. 3:
• A new 300-foot-long concrete vault will be constructed under Mission Boulevard near the I-680 Interchange where Fault Trace B is located. A new 300-foot segment of 72-inch welded steel BDPL No. 3 will be installed inside the vault. Within the vault and on either end of the fault trace zone, 72-inch-diameter ball joints and slip joints will be installed that will accommodate pipeline displacement during a seismic event.
• For the crossing under I-680 at Trace A, about 400 feet of 78-inch-diameter welded steel pipe will be installed in an existing, unused corrugated metal pipe.
• About 1,450 feet of additional new 78-inch diameter welded steel pipe will connect the existing and new segments between the two vaults, and will be buried.
BDPL No. 4:
• About 400 feet of new 80-inch steel liner will be installed inside BDPL No. 4 at Hayward Fault Trace C.
• BDPL No. 4 will be encased with concrete outside the existing slip joint vault at Hayward Fault Trace B.
• Modifications to the existing slip joint vault will be made including enlarging BDPL No. 4 pipe penetrations in the vault, new drainage systems,

new roof panels, and adjustments to the existing slip joint.
• Modifications to the existing BDPL No. 3 (to be abandoned in place) to collect and divert water from the area and prevent the undermining of the new BDPL No. 3.
• About 400 feet of new 90-inch diameter welded steel pipe will be installed at Trace A of the Hayward Fault.
• Relocation of the following utilities: two Alameda County Water District water pipelines, one Union Sanitary District sewer pipeline, one conduit of AT&T phone lines, and one six-inch diameter PG&E gas pipeline.

CUW36301 - SCADA System - Phase II (Completed)
The project primarily consists of:
• Establish a common software platform and migrate all elements to this platform.
• Connect existing flow meters and new pressure transmitters, and provide communication to SCADA master station at five major Bay Area Water Supply and Conservation Agency (BAWSCA) customer sites.
• Install pressure transmitters, perform piping modifications, and provide communication to SCADA master station at seven existing regulating valves in the City of San Francisco distribution system.
• Install new flow and pressure monitoring devices at 23 key locations in the City distribution system.

CUW36801 - BDPL Reliability Upgrade – Tunnel (Completed)
• The tunnel extends 5 miles under San Francisco Bay and is adjacent to the marshlands between the vicinity of the Ravenswood Valve Lot and the Newark Valve Lot. The tunnel will be constructed with a Tunnel Boring Machine (TBM). The final tunnel lining will consist of a 9-foot diameter welded steel pipeline. The tunnel will terminate on each end with vertical shafts and a connection to the BDPL Nos. 1, 2, and 5 piping manifolds. The two piping manifolds are provided under the BDPL Reliability Upgrade - Pipeline Project. The tunnel spoils are anticipated to be used as part of the conversion of adjacent salt ponds to marshland. The portion of the existing BDPL Nos. 1 and 2 that are replaced by the tunnel will be capped on each end and will be abandoned in place.
• Two facilities are proposed to be added to the original scope of work and are necessary to ensure the project will meet LOS goals:
1) SCADA Communications system at Newark Valve Lot
This added scope provides for the installation of a SCADA communications system and integrating such system into the existing water quality monitoring equipment located in the Newark Valve Lot Control Building. The work consists of installing communications equipment, telephone line, wires, conduits, and electrical cabinets.
2) 42–inch diameter Bay Division Pipeline No. 2 (BDPL2) Bypass
The supply from the Newark Valve Lot to the City of Hayward is currently being fed from both Bay Division Pipelines (BDPL) No. 1 and No. 2. Upon the completion of the Bay Tunnel Project, Hayward supply will be fed only by BDPL2. BDPL2, built in the mid-1930s, is a mixture of reinforced concrete cylinder pipe and wrought steel pipe. Thus, with the current scope of the Bay Tunnel project, the reliability of the Hayward service line could be reduced when the project is completed.
The scope of work for this change will provide for the installation of 640 linear feet of new 42-inch diameter welded steel pipe, replacing a portion of BDPL2, thereby increasing the reliability of the Hayward service.

CUW36802 - BDPL Reliability Upgrade – Pipeline (Completed)
The project primarily consists of:
• In the East Bay, 7 miles of 72-inch-diameter pipe will be constructed between the Irvington Portal and the Newark Portal of the new Bay Tunnel. On the Peninsula, 9 miles of 60-inch diameter pipe will be constructed between the Ravenswood Portal of the new Bay Tunnel and the portal of the Pulgas Tunnel.
• A seismically resistant crossing of the Hayward Fault will be constructed. The crossing will include a new crossover valve vault on each side of the fault. The valves will be hydraulically

actuated and will include emergency batteries. The pipe between the vaults will be higher strength and will be installed on a special foundation or trench section.

• Isolation valves and an interconnecting pipe manifold will be constructed at each portal of the new Bay Tunnel. The facilities will include new or rehabilitated control buildings with new emergency generators.

• New crossover valves between BDPL Nos. 2 and 5 will be installed at a location in Redwood City. The crossover facility will include a new or rehabilitated control building and connections for a portable emergency generator.

• A new throttling valve will also be added on BDPL No. 5 at the Pulgas Valve Lot. The throttling valve will include a new or rehabilitated control building.

• The project originally included underground concrete vaults for crossover facilities at Newark, Ravenswood, and Redwood City Valve Lots. The current project eliminates the concrete vaults and directly buries the valves with full access to valve actuators at these facilities.

CUW36803 - BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2 (Completed)

This project is 100 percent complete and has been closed out. The project includes relocation of approximately 600 feet of each pipeline (BDPL Nos. 1 and 2) at the BART/railroad crossings. The pipe segments to be relocated will be installed inside new casings that will be placed by the construction contractor doing the other development work in the area. The encased pipes are being installed in accordance with a utility agreement between the City of Fremont and the SFPUC.

CUW38001 - BDPL Nos. 3 & 4 Crossovers (Completed)

The three proposed crossover facilities are located near the Guadalupe River in Santa Clara, near Barron Creek in Palo Alto, and near Bear Gulch in Atherton. The facilities include vaults that are largely below-ground, with only the top 30 inches exposed. They are very similar to one another, consisting of four mainline valves and a crossover valve. Emergency engine generators will be included as an optional bid item.

CUW38901 - SFPUC/EBMUD Intertie (Completed)

The project primarily consists of:

• Providing new 36-inch-diameter piping and valving at the Newark Turnout to provide an additional connection between BDPL Nos. 1 and 2 to the existing City of Hayward system.

• Using the existing City of Hayward system for conveyance and providing six new valves for isolation.

• Providing 1.3 miles of new 36-inch-diameter pipe to connect the City of Hayward system to the EBMUD system and providing a new pump station along this alignment.

CUW39301 - BDPL No. 4 Condition Assessment PCCP Sections (Completed)

• This project is 100 percent complete and has been closed out. This project includes a detailed condition assessment of the two PCCP segments along BDPL No. 4. The first reach of concern (Reach 1) is 8.6 miles long and 96-inches in diameter. The second reach of concern (Reach 4) is 8.0 miles long and 84-inches in diameter. The condition assessment consists of an electromagnetic survey, seismic risk analysis, corrosion survey, visual inspection, and field investigations.

• The assessment identified six reaches of pipe (144 feet total out of 16 miles) that are potentially distressed. During initial investigations, the condition of one distressed pipe segment (Pipe 1558) was determined visually to be particularly deteriorated, and immediate emergency repair was recommended. The project funded and completed emergency repair using post-tension exterior tendon repair for this segment. For the other five potentially distressed pipe segments that were identified using electromagnetic survey, and determined to be of lower priority, recommendations were made for future excavation to confirm pipe condition in these areas, and repair if needed. A number of future follow-up investigations were recommended, including monitoring of groundwater acidity for a period of one year in the area of Edgewood Road and additional excavations of lower priority pipe

pieces. Any additional required repairs will be scheduled based on urgency and funded through the Water Enterprise's Repair and Replacement (R&R) Program.

CUWBDP0101- WSIP Closeout - Bay Division

• Caltrans V-Ditch Across SFPUC Right-of-Way – This sub-project provides for coordinating and working with Caltrans on an agreement and design for a drainage system across SFPUC ROW between the Caltrans storm-water invert and an open field associated with the construction of the CUW35302 Seismic Upgrades of BDPL Nos. 3 and 4. The sub-project includes design, construction, and management of the drainage system work.

• Bay Tunnel Warranty Inspection and BDPL 1 & 2 EIR Mitigation – This sub-project provides for the various mitigations required by the Environmental Impact Report (EIR) that cannot be completed by the time the CUW36801 BDPL Reliability Upgrade - Tunnel Project (Bay Tunnel Project) is scheduled to close out. Design work will be completed within the Bay Tunnel Project, but the Contractor procurement will go beyond the Bay Tunnel closeout date. The work that is proposed under this sub-project includes the warranty inspection of the new Bay Tunnel near the end of the warranty period, decommissioning of the existing BDPL Nos. 1 and 2 by punching holes in the pipe to prevent buoyancy during extreme future high tides and storm events, and covering those holes with wire mesh to prevent entrapment of wildlife, and installation of historical panels for public education.

• Hydro-seeding at Bay Tunnel Project - Due to the drought conditions and timing of hydro-seeding performed for the Bay Tunnel Project outside of the typical seasonal window, it may not be possible to file the Notice of Termination (NOT) to close out the storm water permit prior to the Bay Tunnel Project closeout date, as the 70% growth take requirement, with less than 10% noxious weeds, may not be achieved by that time. Accordingly, the scope of this sub-project provides for monitoring of the hydro-seeded areas, removal of noxious weeds, and potentially re-seeding some of the areas at the tunnel portals in Menlo Park and Newark if the storm water performance objectives are not met.

• Newark Valve Lot Additional Gravel Placement - The Bay Tunnel Project design plans call for a portion of the Newark Valve Lot to be landscaped and hydro-seeded. However, based on recent discussions, Operations staff are requesting that gravel be placed in this area since it will be a high traffic area during shutdowns and other maintenance work. Accordingly, this sub-project provides for the purchase and placement of the gravel.

• Corrosion Protection for Valve E5OU – The E50U Valve was installed in 2011 as part of the CUW36802 BDPL Reliability Upgrade – Pipeline Project. Immediately prior to the Bay Tunnel Project in-service/commissioning date in early Fall 2015, the Bay Tunnel Contractor completed the flanged connection of the manifold to the existing E50U Valve. However, during the installation and testing of the new flanged connection, the Bay Tunnel Contractor discovered an inconsistency in the corrosion protection isolation system of the existing valve E50U (high corrosion potential). It was decided to not authorize a Change Order to fix the corrosion problem of the E50U Valve at that time due to the risk of high cost delays to the Bay Tunnel Project, if leaks were to occur after the solution was implemented. Accordingly, this sub-project includes excavating and shoring the area around the valve, and removal of one bolt at a time for testing, and replacement if necessary. A gasket will be purchased and may be installed if there are leaks that develop after the bolts are removed, cleaned, and replaced. The proposed work on the valve will be done during the shutdown of the Bay Tunnel for warranty inspection in Winter 2016/2017.

PENINSULA REGION

CUW35401 - Lower Crystal Springs Dam Improvements (Completed)

The project consists of:

• Spillway modifications that include widening the spillway, constructing two bridge piers within the spillway to accommodate rebuilding of a San Mateo County Bridge, removing the existing timber stop-log system, constructing a new weir system within the spillway, installing access

cat-walks for operation and maintenance, and eliminating water ponding on top of the dam.
• Parapet wall modifications that include increasing the height of the wall that is located on top of the upstream face of the dam and increasing the height of the approach walls to the spillway.
• Stilling basin modifications at the base of the spillway that include removing the existing basin, constructing a new larger basin, and adding downstream riprap protection at the toe of the basin.

CUW35601 - New Crystal Springs Bypass Tunnel (Completed)
The project consists of:
• A 4,200-foot long tunnel with 8-foot diameter welded steel liner.
• Vertical shafts on each end of the tunnel to accommodate a tunnel boring machine and future maintenance. The southern shaft will include a connection to the existing Crystal Springs Bypass Pipeline; the northern shaft will tie into the southern ends of both Crystal Springs Pipeline No. 2 and Sunset Supply Line.
• New isolation valves and valve vaults.
• Standby power near valve vault G40.

CUW35701 - Adit Leak Repair - Crystal Springs/Calaveras (Completed)
The project consists of :
• Crystal Springs Outlet Tower No. 1: repairing leaks inside the tower, blasting and recoating piping and valves, replacing roof, structurally retrofitting the access footbridge, and installing a marine hatch at the tower drain.
• Crystal Springs Outlet Tower No. 2: installing a marine hatch at the tower drain.
• Calaveras Outlet Tower: installing a dewatering pump, replacing a deteriorated valve actuator, and providing ladder fall protection.
• San Antonio Outlet Tower: installing a dewatering pump and repairing leaks inside the tower.

CUW36101 - Pulgas Balancing - Inlet/Outlet Work (Completed)
The project consists of new inlet and outlet piping designed to direct the path of the water in such a manner as to promote better mixing. The shutdowns associated with construction of these improvements provided an opportunity to perform a condition assessment of the reservoir interior that has been used to help identify work associated with CUW36103 - Pulgas Balancing Reservoir - Structural Rehabilitation and Roof Replacement project. This project was successfully completed in May 2006.

CUW36102 - Pulgas Balancing - Discharge Channel Modifications (Completed)
The project consists of raising the channel walls, repairing concrete cracks and exposed reinforcing steel, strengthening and interconnecting the channel floor sections, and strengthening the wall near the Pulgas Tunnel as needed. The project will restore the Discharge Channel capacity for accommodating flow up to 250 mgd.

CUW36103 - Pulgas Balancing - Structural Rehabilitation and Roof Replacement (Completed)
The project consists of the seismic retrofit of the walls, installation of a new steel frame roof, and repair of concrete cracks and exposed reinforcing steel. The project scope also includes installing a new ventilation system and sampling ports, replacing utility piping, and upgrading the electrical system.

CUW36104 - Pulgas Balancing - Laguna Creek Sedimentation (Completed)
This project consists of the execution of the Laguna Creek Habitat Management and Revegetation Plan. This is a mitigation measure for the Non-WSIP Pulgas Dechlorination Facility Project, which involves the restoration of the Laguna Creek Sedimentation Basin, a 6-8 acre catchment basin that provides habitat for the San Francisco Garter Snake and the California Red Legged Frog. In coordination with regulatory agencies, a strategy was developed to accomplish this habitat restoration, and to have it measured under the Habitat Reserve Program (HRP). This project was closed in December 2007 and combined with Project CUW38802-Habitat Reserve Program (HRP).

CUW36105 - Pulgas Balancing - Modifications of the Existing Dechloramination Facility (Completed)
The project consists of various improvements to the dechloramination and pH control facilities that are necessary to address immediate compliance issues. Anticipated improvements include modifications to the flow measurement and control systems, and to the various process control and chemical feed systems.

CUW36501 - Cross Connection Controls (Completed)
The project consists of providing improvements at 304 different sites to address potential cross connections. The work varies from site to site due to specific site conditions. The major work elements typically include: Install air gaps at blow-off locations and at air valves; install backflow prevention devices; reconstruct or raise existing vaults; install new vault covers; replace existing air valves; and/or modify, relocate, or remove existing blow-off facilities.

CUW36601 - HTWTP Short-Term Improvements (Demo Filters) (Completed)
The project consists of retrofitting two filters and performing full-scale performance demonstration testing of the retrofitted filters. The project was successfully completed in November 2006.

CUW36602 - HTWTP Short-Term Improvements - Remaining Filters (Completed)
This project consists of filtration modification to eight of the ten existing filters, replacement of effluent control valves and backwash supply valves, provision for a filter to waste system, installation of new underdrains and media, and seismic retrofit of basin walls. Combined with CUW36603 - HTWTP Short-term Improvements - Coagulation & Flocculation project.

CUW36603 - HTWTP Short-Term Improvements - Coagulation & Flocculation/ Remaining Filters (Completed)
The project consists of improvements to both the coagulation and flocculation systems. The coagulation improvements include restoring and improving operation of the pumped-jet flash-mix system, increasing capacity of the flash-mix pumps, providing the pumps with variable speed controls to improve efficiency, providing an automated dilution water system, and reconfiguring the chemical injectors to improve performance. Flocculation improvements include reconfiguring the baffling system, adding new mechanical mixers with variable speed controls, and seismically retrofitting the walkways and basin walls.

CUW36701 - HTWTP Long-Term Improvements (Completed)
The project consists of seismic and hydraulic improvements in various treatment units and expansion of the filtration process capacity by the addition of five new filters. In addition, a new 11 million gallon Treated Water Reservoir will be built to replace the two existing treated water reservoirs. The project also includes improvements to the sludge handling and washwater systems and provides a new additional washwater tank to enhance the plant's performance. Additional improvements are also planned for the electrical system, including a new substation, switchgear, and motor control center. The project also includes improvement to key valves and pipelines conveying the raw water supply to the Plant and treated water to the distribution system.

CUW36702 - Peninsula Pipelines Seismic Upgrade (Completed)
The scope of this project includes geotechnical investigations to characterize the Serra Fault in the vicinity of the pipelines and to confirm assumptions about sub-surface conditions along the length of the pipelines (SAPL2 and SAPL3 from HTWTP to San Pedro Valve Lot, SSBPL from HTWTP to Capuchino Valve Lot, and Sunset Supply Pipeline (SSPL) from Capuchino Valve Lot to San Pedro Valve Lot). In addition, hydraulic modeling has been performed to review system/facility requirements to meet system goals. The objectives of the investigations were: 1)to determine the potential fault offset at the Serra Fault crossings and the potential response from the three pipelines to these offsets, and 2) to determine potential for pipeline rupture due to

displacement from liquefaction, landslides, and other seismically-triggered hazards along the pipeline alignments. The extensive geotechnical and modeling analyses performed to date have been carefully reviewed to identify specific project recommendations.

The refined project scope (Phase 1) currently includes the following components at five locations on the San Francisco Peninsula:

- Colma Site – Replacement of an approximately 700-ft segment of SAPL2
- South San Francisco Site – Replacement of an approximately 720-ft segment of SAPL2
- San Bruno North Site – Stabilization of SAPL2 where it extends through a tunnel
- San Bruno South Site – Replacement of an approximately 1,170-ft segment of SAPL2 and an approximately 1,050-ft segment of SAPL3; and
- Millbrae Site – Replacement of an approximately 900-ft segment of SSBPL

A common staging area is planned to be located at SFPUC Baden Valve Lot in South San Francisco on El Camino Real.

Phase 2 of the project will include installation of two new isolation valves near the Baden Valve Lot on SAPL No. 2 and No. 3 in the City of South San Francisco. The WSIP construction contract will include both Phases 1 and 2.

Phase 3 has been identified as a non-WSIP project, and includes condition assessment and improvements to SAPL2, installation of new isolation valves, and the potential addition of flexible connections along the alignment within the City of San Francisco.

CUW36901 - Capuchino Valve Lot Improvements (Completed)

The project consists of replacing two existing isolation valves, providing new electric actuators for valve operation, performing concrete crack repair to prevent water leakage into the vault, providing new instrumentation and control systems for valve operation and pressure monitoring, and relocating the existing electrical and instrumentation systems outside the vault.

CUW37101 - Crystal Springs/San Andreas Transmission Upgrade (Completed)

The project consists of improvements to facilities necessary to transport water from Upper Crystal Springs Reservoir, through the lower Crystal Springs Reservoir to San Andreas Reservoir, and ultimately, to the Harry Tracy Water Treatment Plant (HTWTP) Raw Water Pump Station. Specifically, improvements will be made to the Upper Crystal Springs Dam discharge culverts, the Lower Crystal Springs outlet structures, the Crystal Springs Pump Station (CSPS), the Crystal Springs/San Andreas Pipeline, and the San Andreas outlet structures.

CUW37801 - Crystal Springs Pipeline No. 2 Replacement (Completed)

The project consists of:

- Seismic reliability improvements, which include replacing or relocating a total of 1.7 miles of pipe at 12 locations, sliplining 3.5 miles of pipe, retrofitting pipe bridge pier supports at two creek crossings, providing a new connection at the Crystal Springs Pump Station, and providing a connecting segment with a blind flange for later connection to the New Crystal Springs Bypass Tunnel.
- Facility improvements, which include installing fences and enclosures for exposed facilities, and concealing exposed portions of pipe.
- Upgrading the cathodic protection system along the length of the pipeline.

CUW37901 - San Andreas Pipeline No. 3 Installation (Completed)

The project consists of installation of 4.4 miles of 36-inch-diameter pipe from San Pedro Valve Lot in Daly City to Merced Manor Reservoir in San Francisco. There will be three jack and bore crossings along 19th Avenue and John Daly Boulevard. Work will also include installation of five customer service connections, a new cathodic protection system along the length of the new pipeline, three interconnections to the San Andreas Pipeline No.2, various valves, and a flow meter.

CUW39101 - Baden and San Pedro Valve Lots Improvements (Completed)

This project consists of upgrades to valve vaults, valves, and piping in the Baden Valve Lot and the San Pedro Valve Lot. It also includes the

installation of a pressure reducing valve and associated system valving to allow transfer of a portion of the flow from the HTWTP high-pressure zone to the low- pressure zone during emergencies.

CUWPWI0101- WSIP Closeout - Peninsula

• LCSD Stilling Basin Modifications & Dissipation Structure Riprap – This sub-project is provided in response to concerns that fish may be "trapped" in the Lower Crystal Springs Dam (LCSD) stilling basin during low flow summer periods, and that high flow discharges from the new LCSD dissipation structure and potential high water levels in Pool 2 may cause erosion of the bank adjacent to the dissipation structure. The dissipation structure includes 60-inch diameter pipes with a maximum flow of 600 cubic feet per second (cfs) each and two 8-inch diameter pipes with maximum flow of 7 cfs each. During flow testing of the dissipation structure, released water could be observed flowing over the dissipation structure, potentially eroding the bank adjacent to the structure. It was also observed that during summer periods, of low flow in the channel downstream of the stilling basin, fish trapped in the basin were dying due to warm water temperatures. The purposes of this sub-project are to hydraulically connect the stilling basin with Pool 2 in order to allow fish to escape the basin in summer, and to add rip-rap behind the dissipation structure to prevent erosion. Specifically, this sub-project consists of:

o A new deeper channel between the dissipation structure and the Pool 2, which would prevent fish from being trapped in the stilling basin,

o Installation of a new SCADA controls to the existing 8-in discharge pipeline and re-routing one line to the stilling basin,

o Installation of additional rip-rap around the dissipation structure, and

o Installation of landscaping around the new Crystal Springs Pump Station, per the approved re-vegetation plan.

• LCSD Valve H53 / Pipeline Investigation & Fisheries Release Valve – As stipulated by the US Army Corps of Engineers 404 permit and the associated biological opinion by NOAA's National Marine Fisheries Service (NMFS) covering the SFPUC activities at the Crystal Springs Pump Station (CSPS), the SFPUC is to take measures to protect the threatened Central California Coast (CCC) steelhead present in San Mateo Creek at CSPS site. One measure requires the release of fresh water at a rate of 3 to 17 cubic feet per second (cfs) depending on the season in recorded dry and wet years. This sub-project will utilize modification of an existing pipeline to release the required flows to the LCSD stilling basin feeding San Mateo Creek. Specifically, this sub-project consists of:

o Condition assessment of the existing 60-in diameter pipeline from Valve H-53 to the stilling basin. In addition, valve H-53 will be exposed and visually inspected to determine its condition, requiring excavation and shoring of a pit approximately 20 feet long by 20 feet wide by 20 feet deep.

o Depending on the verified condition, viable alternatives, including abandonment of the option to use H-53 pipeline, will be evaluated.

o The approved option will include a SCADA controlled 12-inch valve installed at the discharge end of the pipeline. Depending on the condition of the pipeline, the approved option may also include repairs to the pipeline lining. Options may also include slip-lining the existing line with a smaller diameter pipeline such as 12 to 24-in diameter flexible polypropylene pipe.

• New Crystal Springs Bypass Tunnel Electrical Modifications – The New Crystal Springs Bypass Tunnel (CUW35601) was commissioned in July 2011, and the project administratively closed in August 2012. Various inspections of the above ground facilities discovered excessive groundwater intrusion and resultant corrosion of equipment and electrical components. This sub-project will develop a thorough documentation of the above ground facilities at the north and south shafts, and design and implement repairs as warranted. Possible repairs may include replacement of damaged equipment and electrical components, water proofing of the affected vaults, and rechanneling of surface runoff as necessary. Preliminary inspections identified the following in the South Shaft:

groundwater seepage into the venturi meter and valve G32 vaults through pipe/conduit wall penetrations, resulting in coating failure and localized corrosion. In the North Shaft, preliminary investigations identified surface runoff is entering electrical boxes. In addition, groundwater is seeping through wall penetrations into G36 and G38 vaults. Due to the high moisture, some electrical switches and two actuators failed and required replacement.

• Closeout of DSOD Permit Applications for LCSDI and CSSA Projects – California Department of Water Resources, Division of Safety of Dams (DSOD) issued Alteration Permits allowing the start of construction of CUW35401, Lower Crystal Springs Dam Improvements (LCSDI) Project (Application No. 10-6) and the construction of CUW37101, Crystal Springs / San Andreas Transmission Upgrade (CSSA) Project (Application No.10-10). In June 2015, DSOD issued an approval of the completed work and requested the SFPUC to submit the final documentation of each project. Under this sub-project, the following information and documents will be extracted from the project files and submitted in a format acceptable to DSOD: affidavit of actual costs of construction and design; full size as-built drawings stamped and signed by a California registered Civil Engineer; and final concrete testing summary reports.

• Coordination with San Mateo County Bridge Construction over LCSI - The implementation of the CUW35401 Lower Crystal Springs Dam Improvement (LCSDI) Project required the demolition of an existing San Mateo County (SMC) Bridge that spanned over the LCSD crest. With the completion of the LCSDI Project, SMC awarded the construction contract for the new bridge and gave notice-to-proceed to the construction contractor in January 2016. To support this, SMC and the SFPUC executed a Memorandum of Understanding outlining the roles and responsibilities and expectations of both organizations. Accordingly, this sub-project will support the coordination between the SFPUC and SMC Bridge Project team. Typical activities may include response to relevant Requests for Information (RFI) such as existing site conditions, existing dam design, coordination with SFPUC Operations and Watershed groups; field inspection of placement of the bridge piers over the dam and the construction of the SFPUC funded catwalk; attendance at construction meetings; and activities concerning the water quality in Lower Crystal Springs Reservoir, security measures, and other aspects of SFPUC assets.

SAN FRANCISCO REGIONAL REGION

CUW30103 - Regional Groundwater Storage and Recovery

The project is to develop a groundwater supply in the South Westside Basin for use during dry years. In normal and wet years, the SFPUC will supply supplemental surface water to three wholesale customers on the Upper Peninsula (the Cities of Daly City and San Bruno, and the California Water Service Company - South San Francisco District) to be used in place of groundwater pumping. The reduced pumping during normal and wet years will thereby increase the volume of groundwater in storage that can be pumped in dry years. The project consists of the construction of up to 16 groundwater wells and well stations with a total capacity of 7.2 mgd to be used as a regional dry-year water supply. The wells will be connected to the three wholesale customers' water systems and to the SFPUC transmission system. Disinfection will be required for all wells and treatment may be required at some of the wells for the removal of manganese.

CUW35801 - Sunset Reservoir - North Basin (Completed)

This project consists of:

• Seismic rehabilitation, which includes stabilization of the soil dam embankment; a retrofit of the walls and roof using seismic joints, shear walls, diagonal bracing, and struts; and foundation improvements.

• General rehabilitation, which includes repairing deteriorated concrete, replacing part of the reservoir lining material, replacing inlet piping, installing security fencing, upgrading the

landscaping, and other miscellaneous site improvements.

CUW37201 - University Mound Reservoir - North Basin (Completed)
This project consists of:
• Seismic rehabilitation of the reservoir walls and roof using seismic joints, shear walls, diagonal bracing, and struts and foundation improvements. A geotechnical investigation was conducted that verified that the reservoir embankments are not subject to seismically induced failure.
• General rehabilitation, which includes repairing deteriorated concrete; replacing the reservoir lining material; replacing inlet/outlet, drain, and overflow piping; replacing outlet and drain valves; and performing landscaping and other miscellaneous site improvements.

SUPPORT PROJECTS

CUW36302 - System Security Upgrades
The purpose of this project is to develop and integrate security components at critical water system facilities including those identified in previous vulnerability assessments and to ensure that security functions such as deterrence, detection, assessment, delay, and response will be effective. As part of this project, SFPUC Security has evaluated all WSIP projects. The project includes the identification of all necessary security components including security fencing, intrusion detection, and vehicle barriers for applicable WSIP projects. The project provides for the necessary planning and design of these facilities, while the individual WSIP projects will fund the installation and construction of civil security work such as conduit lay out, fencing, and gate installation. This project will fund the furnishing and installation of Access Control and Alarm Monitoring System (ACAMS) and Digital Video Surveillance System (DVSS) equipment, and necessary security systems.

CUW38801 - Programmatic EIR (Completed)
A Program Environmental Impact Report (PEIR) has been prepared for the WSIP under the California Environmental Quality Act (CEQA). The WSIP includes a number of projects that will improve the Regional Water System with respect to water quality, seismic reliability, delivery reliability, and water supply. The PEIR will (1) identify and analyze, at a programmatic level, the potential environmental impacts of proposed system improvements, (2) describe and evaluate feasible alternatives to the proposed program, and (3) propose mitigation measures.

CUW38802 - Bioregional Habitat Restoration
The Bioregional Habitat Restoration project was created to provide a coordinated and consolidated approach to compensate for habitat impacts that may result from implementation of the WSIP projects in the San Joaquin, Sunol Valley, Bay Division, and Peninsula Regions of the SFPUC Regional Water System. The previously approved scope of the Bioregional Habitat Restoration project included projects to preserve, enhance, restore, or create approximately 2,350 acres of tidal marsh, vernal pools, white alder riparian forest, sycamore alluvial woodland, arroyo willow riparian habitat, oak woodland and savannah, sage scrub habitat, serpentine grasslands, coastal live oak woodland, annual grasslands, and oak riparian forest.
The project includes design, environmental permitting, construction, construction management, maintenance and performance monitoring during a 3-year plant establishment period.
The wide variety of the types of impacts from WSIP projects resulted in the need for development of 18 compensation sites on SFPUC property and for contracting with 7 property owners to secure compensation on property outside the Alameda and Peninsula watersheds. There are 7 compensation sites on SFPUC property in the Alameda watershed with an average size of 250 acres, demonstrating a significant commitment to the continued protection of species habitat. Although the average size of the 11 Peninsula compensation sites is 15 acres, the projects have been strategically placed to best benefit the San Francisco garter snake and the fountain thistle. The increase in habitat compensation addresses mitigation for the fountain thistle and for changes

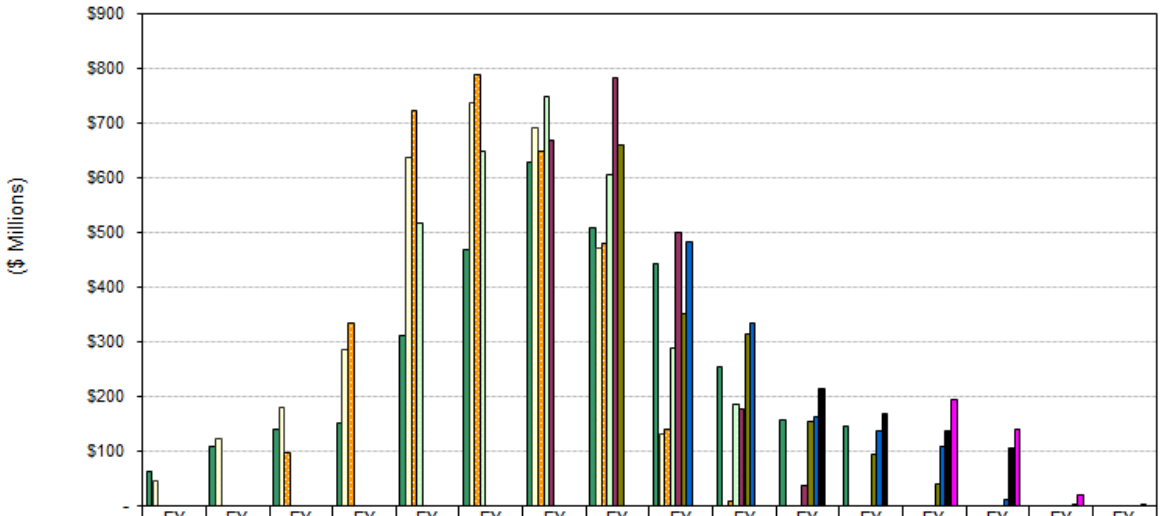
in the Calaveras Dam Replacement Project.
Under the March 2014 Revised WSIP, some scope for the Bioregional Habitat Restoration project associated with Lower Crystal Springs Dam and long term monitoring and maintenance of the compensation sites was reduced. The remaining wetland development at Upper San Mateo Creek and Boat Ramp and most of the oak woodland compensation for the Lower Crystal Springs Dam Improvement Project has been deferred until the operating elevation of the reservoir has increased, estimated to be around 2020. This work will be completed in the future by SFPUC Water Enterprise.

CUW38803 - Vegetation Restoration of WSIP Construction Sites (Completed)
The Vegetation Restoration of WSIP Construction Sites is a WSIP project that received Commission approval on October 9, 2012. This project is required to comply with the CEQA and resource agency permit requirements to restore and re-vegetate habitat areas temporarily impacted by construction at the various WSIP sites to preconstruction condition.

CUW38804 - Long Term Mitigation Endowment
The scope of work and budget for this Long Term Mitigation Endowment was previously included and reported within the WSIP Regional project CUW38802 Bioregional Habitat Restoration; however, the office of the City Controller has established a separate project, specific for this endowment fund, in project CUW38804 Long Term Mitigation Endowment. This perpetual endowment fund, was required by the United States Army Corps of Engineers and California Department of Fish and Wildlife permits issued for WSIP projects. It provides a secure source of funds for the perpetual monitoring and maintenance of the Bioregional Habitat Restoration sites constructed in the SFPUC watershed.

CUW39401 - Watershed Environmental Improvement Program
The Watershed Environmental Improvement Program (WEIP) includes the comprehensive identification and protection of critical watershed lands and ecosystem restoration needs within the hydrologic boundaries of the Alameda Creek, Peninsula (San Mateo and Pilarcitos Creeks) and Tuolumne River watersheds, and prioritizes the protection and/or restoration of these lands. Projects under this program will protect source water quality, native species, and their habitat as well as identifying critical watershed lands for protection through purchase of fee title or perpetual conservation easement. The program also supports projects that enhance public awareness and provide education opportunities related to water quality, water supply, conservation, and environmental stewardship. These projects include construction of the proposed Alameda Creek Watershed Center and improved public access (e.g., trail connections) compatible with watershed management plans and policies.
Initially, specific projects were identified, including the Repair or Replacement of Niles Gage and Watershed Road Management Plan and Improvements – both in the Alameda Creek watershed. After further research and planning, the program's focus has shifted towards permanently protecting Alameda Creek watershed lands through conservation easements and/or fee title purchase of property from willing landowners and providing education opportunities that will further the goals of the Water Enterprise Environmental Stewardship Policy. Opportunities that are consistent with the WEIP description and purpose in the Peninsula and Tuolumne watersheds will be considered as well.

APPENDIX B. BUDGET AND EXPENDITURE HISTOGRAM*



	FY 05-06	FY 06-07	FY 07-08	FY 08-09	FY 09-10	FY 10-11	FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21
Actual Total Cost	$62	$108	$140	$151	$312	$468	$628	$509	$444	$253	$158	$145				
2005 Approved Budget	$46	$123	$180	$287	$638	$738	$692	$473	$133	$1						
2007 Approved Budget			$99	$335	$724	$790	$649	$481	$140	$10						
2009 Approved Budget					$519	$651	$751	$606	$290	$186	$5					
2011 Approved Budget							$669	$784	$501	$176	$38	$0				
2013 Approved Budget								$662	$352	$314	$156	$94	$41	$4		
2014 Approved Budget									$484	$335	$164	$138	$109	$11		
2016 Approved Budget											$215	$168	$138	$106	$3	
Current Forecast													$194	$139	$21	$4
Percentage Spent**	136%	88%	142%	45%	60%	72%	94%	77%	92%	76%	73%	86%				

All costs are shown in $ Millions.

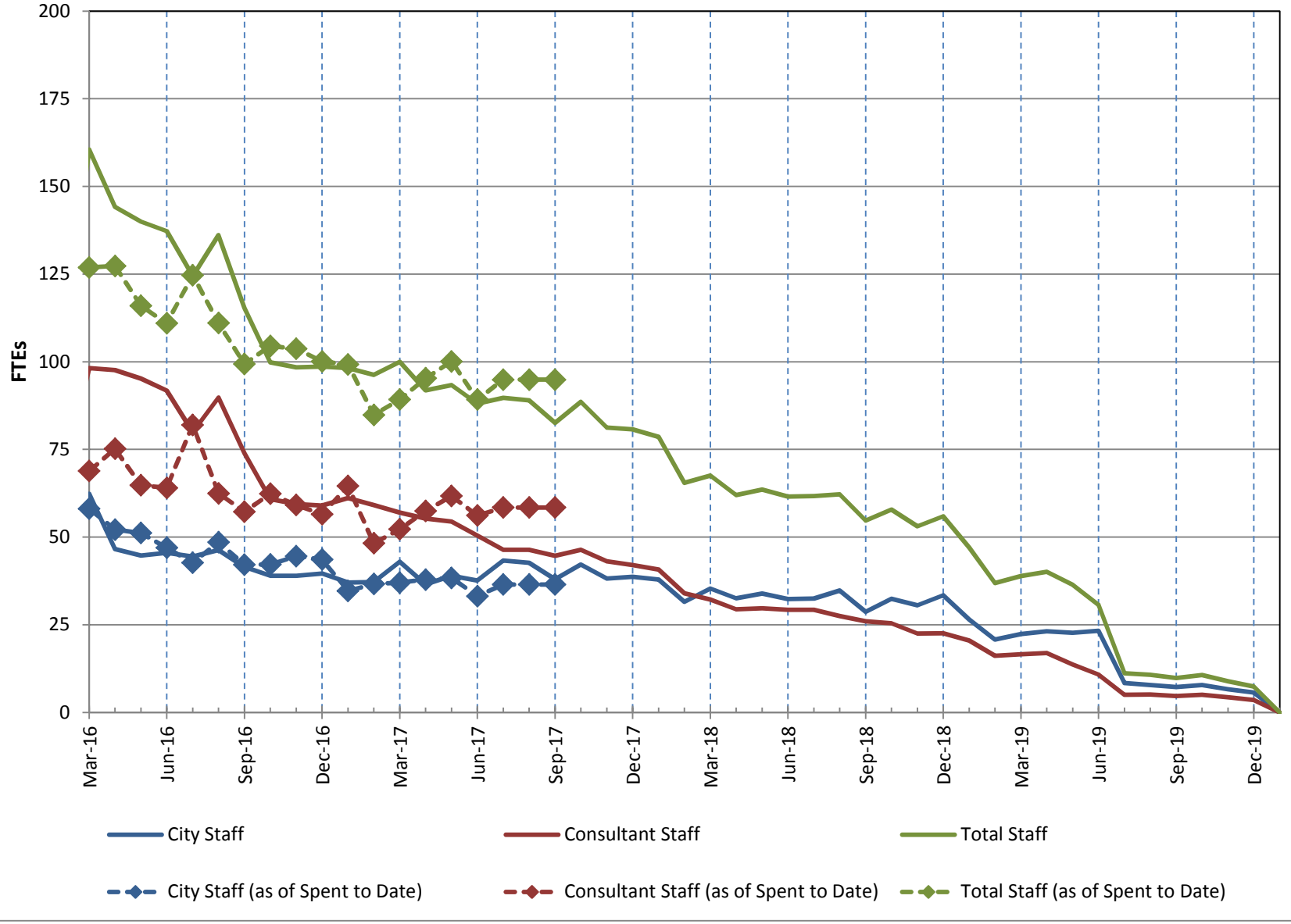
* The histogram does not reflect budget and expenditures prior to FY 2005-2006.

** Percentage Spent calculated as Actual Expenditures over the most current Approved Budget for each individual Fiscal Year.

Figure B1 Annual Budgeted Spending Plans vs. Actual Expenditures

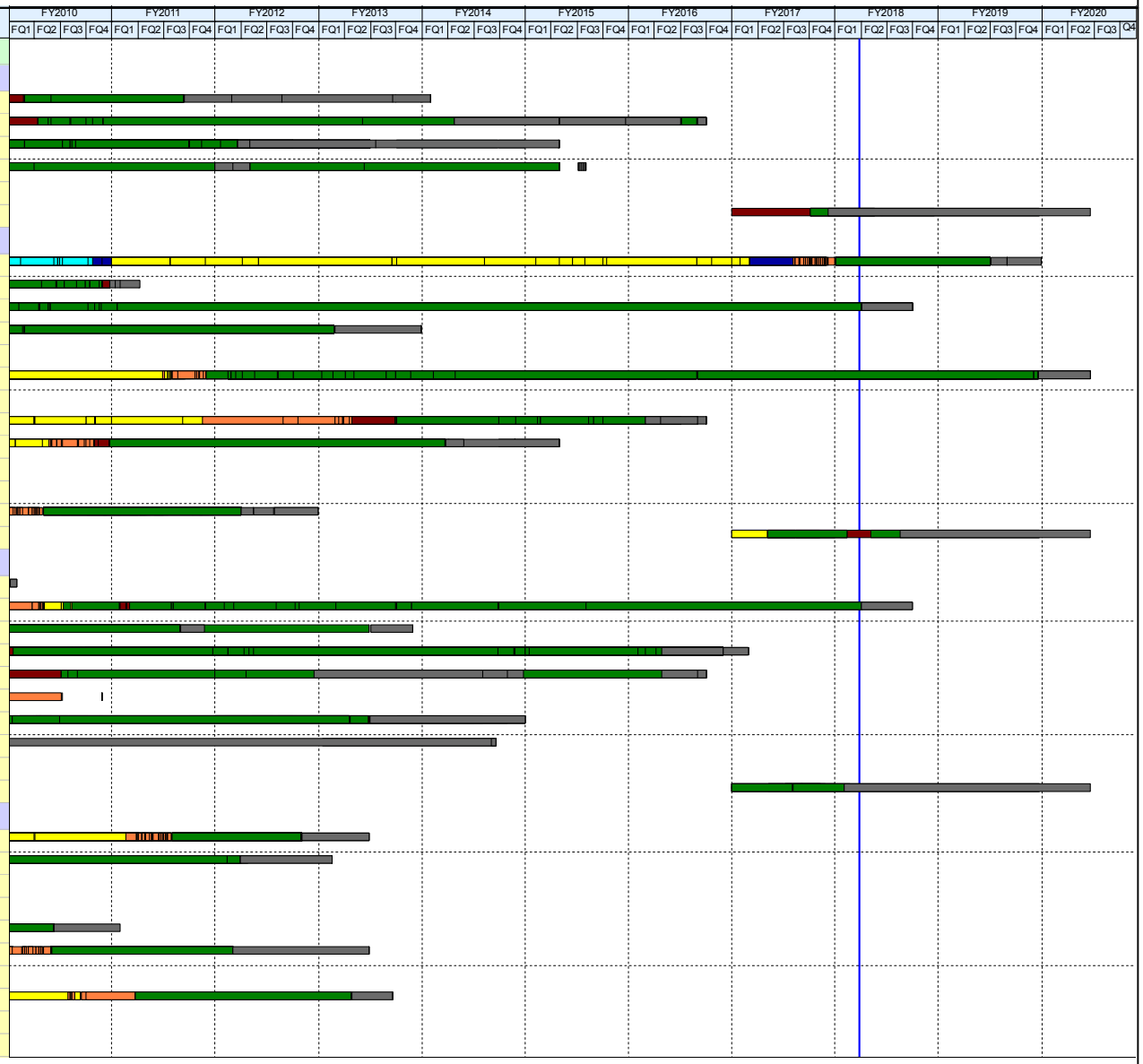
Figure B compares the spending plans associated with the various WSIP Approved Budgets to Actual Expenditures. It shows total annual expenditures from FY05-06 through FY16-17 and cost projections (Current Forecast) from FY17-18 through program completion in May 2021. Actual annual expenditures have ranged from 45% to 142% of planned expenditures.

Appendix C. WSIP Regional Program
Staffing Plan



APPENDIX D. WSIP Approved Project-Level Schedule

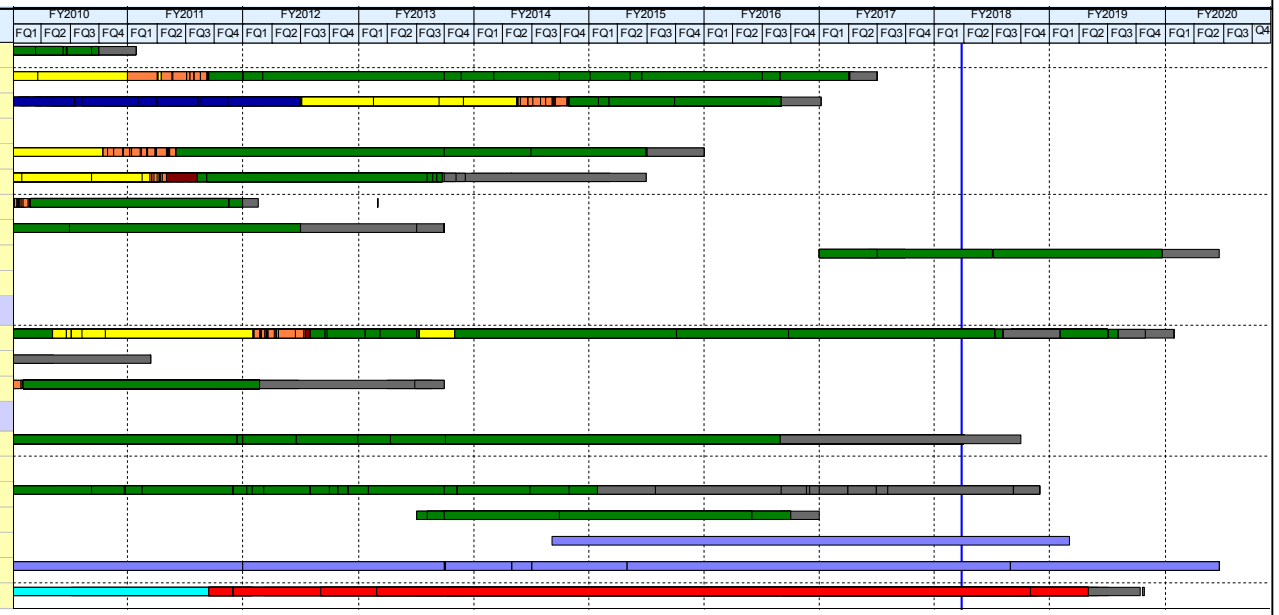
Project Name	Start	Finish
Regional Improvement Projects	31-Mar-00	20-Dec-19
San Joaquin Region	01-Jul-02	20-Dec-19
CUW36401 Lawrence Livermore Water Quality Impr	02-Feb-04	31-Jul-13
CUW37301 San Joaquin Pipeline System	19-Aug-02	31-Mar-16
CUW37302 Rehabilitation of Existing San Joaquin Pi	03-Jul-06	31-Oct-14
CUW38401 Tesla Treatment Facility	01-Jul-02	30-Jan-15
CUW38701 Tesla Portal Disinfection Station	01-Jul-02	29-Jun-07
CUWSJI0101 WSIP Closeout - San Joaquin	01-Jul-16	20-Dec-19
Sunol Valley Region	19-Dec-01	20-Dec-19
CUW35201 Alameda Creek Recapture Project	30-Sep-03	28-Jun-19
CUW35501 Standby Power Facilities - Various Locat	11-Jul-02	22-Dec-10
CUW35901 New Irvington Tunnel	19-Dec-01	31-Mar-18
CUW35902 Alameda Siphon #4	19-Dec-01	28-Jun-13
CUW37001 Pipeline Repair & Readiness Improveme	21-Apr-03	16-Apr-09
CUW37401 Calaveras Dam Replacement	03-Sep-02	20-Dec-19
CUW37402 Calaveras Reservoir Upgrades	19-Nov-03	28-Jul-06
CUW37403 San Antonio Backup Pipeline	17-Dec-03	31-Mar-16
CUW38101 SVWTP Expansion & Treated Water Re	22-Apr-05	31-Oct-14
CUW38102 SVWTP Calaveras Road	01-Feb-07	14-Dec-07
CUW38201 SVWTP Treated Water Reservoir	15-Sep-03	02-Mar-07
CUW38601 San Antonio Pump Station Upgrade	01-Jul-04	29-Jun-12
CUWSVI0101 WSIP Closeout - Sunol Valley	01-Jul-16	20-Dec-19
Bay Division Region	19-Dec-01	20-Dec-19
CUW35301 BDPL Nos. 3 & 4 Crossover/Isolation Va	06-Jan-03	31-Jul-09
CUW35302 Seismic Upgrade of BDPL Nos. 3 & 4	22-Oct-04	31-Mar-18
CUW36301 SCADA System - Phase II	22-Apr-05	28-May-13
CUW36801 BDPL Reliability Upgrade / Tunnel	19-Dec-01	30-Aug-16
CUW36802 BDPL Reliability Upgrade - Pipeline	19-Dec-01	31-Mar-16
CUW36803 BDPL Reliability Upgrade - Relocation o	24-Apr-06	28-May-10
CUW38001 BDPL Nos. 3 & 4 Crossovers	17-Feb-04	30-Jun-14
CUW38901 SFPUC/EBMUD Intertie	24-Jun-02	20-Mar-14
CUW39301 BDPL No. 4 Condition Assessment PCC	04-Aug-06	06-Feb-09
CUWBDP0101 WSIP Closeout - Bay Division	01-Jul-16	20-Dec-19
Peninsula Region	01-Nov-00	20-Dec-19
CUW35401 Lower Crystal Springs Dam Improvement	01-Nov-00	28-Dec-12
CUW35601 New Crystal Springs Bypass Tunnel	07-Jan-02	17-Aug-12
CUW35701 Adit Leak Repair - Crystal Springs/Calav	01-Apr-05	31-Jul-08
CUW36101 Pulgas Balancing - Inlet/Outlet Work	15-May-02	11-May-06
CUW36102 Pulgas Balancing - Discharge Channel M	01-Apr-05	30-Jul-10
CUW36103 Pulgas Balancing - Structural Rehabilitati	03-Apr-06	28-Dec-12
CUW36104 Pulgas Balancing - Laguna Creek Sedim	31-Mar-06	31-Dec-07
CUW36105 Pulgas Balancing - Modifications of the E	02-Apr-07	20-Mar-13
CUW36501 Cross Connection Controls	01-Jul-03	30-Apr-09
CUW36601 HTWTP Short-Term Improvements (Der	04-Sep-02	14-Nov-06



Planning
Design
Bid & Award
Construction
Program Management
Environmental
Right-of-Way
Construction Management
Closeout

APPENDIX D. WSIP Approved Project-Level Schedule

Project Name	Start	Finish
CUW36603 HTWTP Short-Term Improvements - Co	03-Jul-06	28-Jul-10
CUW36701 HTWTP Long-Term Improvements	01-Jul-03	30-Dec-16
CUW36702 Peninsula Pipelines Seismic Upgrade	01-Jul-09	06-Jul-16
CUW36901 Capuchino Valve Lot Improvements	22-Apr-05	19-Aug-08
CUW37101 Crystal Springs/San Andreas Transmissi	18-Aug-03	30-Jun-15
CUW37801 Crystal Springs Pipeline No. 2 Replacem	15-Jan-04	31-Dec-14
CUW37901 San Andreas Pipeline No. 3 Installation	15-Jan-04	30-Aug-12
CUW39101 Baden and San Pedro Valve Lots Impro	03-Oct-05	29-Mar-13
CUWPWI0101 WSIP Closeout - Peninsula	01-Jul-16	20-Dec-19
CUW36602 HTWTP Short-Term Improvements - Re	12-Jan-06	22-Feb-08
San Francisco Regional Region	31-Mar-00	30-Jul-19
CUW30103 Regional Groundwater Storage and Rec	01-Jun-03	30-Jul-19
CUW35801 Sunset Reservoir - North Basin	31-Mar-00	10-Sep-10
CUW37201 University Mound Reservoir - North Basin	24-Oct-05	29-Mar-13
Support Projects	13-Apr-04	20-Dec-19
CUW36302 System Security Upgrades	07-Jan-06	31-Mar-18
CUW38801 Programmatic EIR	13-Apr-04	30-Jun-09
CUW38802 Bioregional Habitat Restoration	06-Sep-06	31-May-18
CUW38803 Vegetation Restoration of WSIP Constru	02-Jan-13	30-Jun-16
CUW38804 Long Term Mitigation Endowment	05-Mar-14	31-Aug-18
CUW39201 Program Management Project	01-Aug-05	20-Dec-19
CUW39401 Watershed Environmental Improvement	02-Jan-07	26-Apr-19



Planning
Design
Bid & Award
Construction
Program Management
Environmental
Right-of-Way
Construction Management
Closeout

APPENDIX E. PROJECTS WITHIN BUDGET AND SCHEDULE

CUW35901 - New Irvington Tunnel

Project Description: The project includes a new tunnel that is parallel to and just south of the existing Irvington Tunnel, and provides the ability to take the existing tunnel out of service for maintenance. The new tunnel has a minimum diameter of 8.5 feet and is approximately 3.5 miles long.

Region: Sunol Valley	**Project Status:** Construction	**Environmental Status:** Completed (EIR)

Project Cost:

Approved	$347.13 M
Forecast*	$340.41 M
Actual	$336.49 M

Project Schedule:

Approved Dec-01	Mar-18
Forecast* Dec-01	Mar-18

Project Percent Complete: 99.1%

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	Environmental Approval	Bid+ Advertisement	Construction+ NTP	Construction+ Final Completion
Current Forecast	11/05/09✓	01/13/10✓	08/26/10✓ 09/07/10✓	09/30/17

+ Construction contract includes multiple NTPs.

Progress and Status:

The project achieved final construction completion on September 30, 2017. Administrative Closeout will be completed by March 31, 2018. All submittals, equipment data sheets, and warranties are complete. The AutoCAD as-builts have been completed and will go through final checking as part of the closeout.

Issues and Challenges:

The contractor has encountered delays in subcontractors verifying that they were paid in full. This is causing delay in going to the Commission to request acceptance of the work performed by the contractor and approval of the final payment to the contractor. The Commission action is currently scheduled for the November 14, 2017 Commission meeting.

Site restoration was completed at Irvington Portal staging area

CUW35302 - Seismic Upgrade of BDPL Nos. 3 & 4

Project Description: This project provides for a new seismically resistant pipeline and vault system located between the two new valve vaults on either side of the Hayward Fault. This pipeline and vault system will lie across the fault for BDPL No. 3. The project also provides for a partial upgrade of BDPL No. 4, to control water that may be released from BDPL No. 4 during a major seismic event.

Region: Bay Division	**Project Status:** Construction	**Environmental Status:** Completed (EIR)

Project Cost:

Approved		$76.98 M
Forecast*		$73.62 M
Actual		$69.88 M

Project Schedule:

Approved Oct-04		Mar-18
Forecast* Oct-04		Mar-18

Project Percent Complete: 97.9%

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	Environmental Approval	Bid Advertisement	Construction NTP	Construction+ Final Completion
Current Forecast	01/20/11✓	02/21/12✓	09/04/12✓	12/29/17

+ The date refers to the completion of the ventilation fan, pipe and pipe support recoating and BDPL 4 sump pump JOC work.

Progress and Status:

The Contractor continues to work on final as-builts and corrosion repair warranty items. The negotiated change orders and progress payments are being prepared. The JOC contractor is working on a cost proposal for a permanent ventilation fan and for recoating the pipe supports inside the articulated box and BDPL 4 sump pump. The team is coordinating the confined space entry requirements with the Health and Safety Department. The Team is designing a fix to the Caltrans drainage issue, and will add it to the JOC work.

Issues and Challenges:

Caltrans has been slow at responding to requests related to the erosion issue. It was decided to design a fix for the erosion problem within our ROW and avoid impacting the Caltrans ROW. The ventilation, sump pump, coating repair and erosion repair Job Order Contract (JOC) work will be transferred to the CUWBDP0101 – WSIP Closeout – Bay Division project. The construction management services for the JOC work will be handled by the CM consultant under a new WSIP Closeout – Bay Division project Task Order. The forecast for CM services is $150,000. The cost variance is due to the change in CM services for the JOC work.

Erosion Across ROW from Caltrans Drainage Linet

CUW39401 - Watershed Environmental Improvement Program

Project Description: The Watershed Environmental Improvement Program (WEIP) includes the comprehensive identification of critical watershed lands and ecosystem restoration needs within the hydrologic boundaries of the Alameda Creek, Peninsula (San Mateo and Pilarcitos Creeks), and Tuolumne River watersheds, and prioritizes the protection and/or restoration of these lands. This program will manage watershed activities and resources to protect source water quality, native species, and their habitat and to identify critical watershed lands, key ecosystem restoration needs, and restoration priorities. The program also supports projects that enhance public awareness and provide educational opportunities related to water quality, water supply, conservation, and environmental stewardship issues. These projects include construction of the proposed Alameda Creek Watershed Center and improvements to public access (e.g., trail connections) compatible with watershed management plans and policies.

Region: Support Projects	**Project Status:** Not Applicable	**Environmental Status:** Active (TBD)

Project Cost:

Approved		$20.00 M
Forecast*		$20.00 M
Actual		$4.30 M

Project Schedule:

Approved Jan-07		Apr-19
Forecast* Jan-07		Apr-19

Project Percent Complete: 21.4%

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	Environmental Approval	Bid+ Advertisement	Construction+ NTP	Construction+ Final Completion
Current Forecast	10/31/18	N/A	N/A	N/A

\+ Project includes Planning, Environmental, Right-of-Way, and Close-out Phases only.

Progress and Status:

The Alameda Creek Watershed Center continued to be on hold pending resolution of funding issues. The design of the SFPUC Southern Skyline Boulevard Ridge Trail Extension (Bay Area Ridge Trail Extension) is completed and the project is now undergoing environmental review. The Federal environmental review process will be completed in spring 2018; the state process (CEQA) will be completed in fall 2018. Project construction will occur in 2019.

Issues and Challenges:

None at this time.

Sulfur Creek in the Alameda Creek Watershed

APPENDIX F. LIST OF ACRONYMS

AAR	Alternative Analysis Report
AB	Assembly Bill
ACAMS	Access Control and Alarm Monitoring System
ACDD	Alameda Creek Diversion Dam
ACDT	Alameda Creek Diversion Tunnel
BART	Bay Area Rapid Transit
BAWSCA	Bay Area Water Supply and Conservation Agency
BDPL	Bay Division Pipeline
BHR	Bioregional Habitat Restoration
BO	Biological Opinion
CATEX	Categorical Exemption
CCSF	City and County of San Francisco
CDD	City Distribution Division
CDRP	Calaveras Dam Replacement Project
CEQA	California Environmental Quality Act
CER	Conceptual Engineering Report
CIP	Capital Improvement Program
CM	Construction Management
CMB	Construction Management Bureau
CMD	Contract Monitoring Division
CMIS	Construction Management Information System
CO	Change Order
CPI	Cost Performance Index
CSPS	Crystal Springs Pump Station
CSSA	Crystal Springs/San Andreas
DB	Design, Build
DBO	Design, Build, Operate
DSOD	Division of Safety of Dams (State of California)
DVSS	Digital Video Surveillance System
EBMUD	East Bay Municipal Utility District
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EV	Earned Value
EVM	Earned Value Management
FY	Fiscal Year
GM	General Manager
HH	Hetch Hetchy
HTLTIP	Harry Tracy Long Term Improvements Project
HTWTP	Harry Tracy Water Treatment Plant
IS	Initial Study
LCSD	Lower Crystal Springs Dam
LCSDI	Lower Crystal Springs Dam Improvements
LMPS	Lake Merced Pump Station
LOS	Levels of Service
MG	Million Gallons
MGD	Million Gallons per Day
MND	Mitigated Negative Declaration
NEG DEC	Negative Declaration (also shown as ND)
NEPA	National Environmental Policy Act
NIT	New Irvington Tunnel
NMFS	National Marine Fisheries Service (under NOAA)
NOAA	National Oceanic and Atmospheric Agency
NOP	Notice of Preparation
NOT	Notice of Termination
NTP	Notice to Proceed
PCCP	Pre-stressed Concrete Cylinder Pipe
PCE	Project Controls Engineer
PE	Project Engineer
PEIR	Program Environmental Impact Report
PG&E	Pacific Gas and Electric Company
PPSU	Peninsula Pipeline Seismic Upgrade
QA	Quality Assurance
RFI	Request For Information
RFQ	Request For Qualifications
ROW	Right-of-Way
SABPL	San Antonio Backup Pipeline
SAPL	San Antonio Pipeline
SAPS	San Antonio Pump Station
SCADA	Supervisory Control and Data Acquisition
SFPUC	San Francisco Public Utilities Commission
SJPL	San Joaquin Pipeline
SMC	San Mateo County
SMP	Surface Mining Permit
SPI	Schedule Performance Index
SQS	Supplier Quality Surveillance
SSBPL	Sunset Supply Branch Pipeline
SSPL	Sunset Supply Pipeline
SVWTP	Sunol Valley Water Treatment Plant

SWPPP	Stormwater Pollution Prevention Plan
TBD	To be determined
TBM	Tunnel Boring Machine
TWR	Treated Water Reservoir
UM	University Mound
UV	Ultra Violet
VFD	Variable Frequency Drive
WEIP	Watershed Environmental Improvement Program
WSIP	Water System Improvement Program

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San Francisco
Water Power Sewer
Services of the San Francisco Public Utilities Commission

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DATE: February 6, 2018

TO: Commissioner, Ike Kwon, President
Commissioner, Vince Courtney, Vice President
Commissioner, Ann Moller Caen
Commissioner, Francesca Vietor
Commissioner, Anson Moran

FROM: Harlan L. Kelly, Jr., General Manager

RE: WSIP Regional Projects Quarterly Report
2nd Quarter / Fiscal Year 2017-2018

Enclosed please find the Water System Improvement Program (WSIP) Regional Projects Quarterly Report for the 2nd Quarter (Q2) of Fiscal Year (FY) 2017-2018. The primary intent of the report is to provide the San Francisco Public Utilities Commission ("Commission"), stakeholders, and the public with a status summary of the program's regional projects for the period of October 1, 2017 through December 31, 2017.

It should be noted that this report does not include all the expenditures accrued for the work completed from July 1 through December 31, 2017 due to challenges associated with the migration as of July 1, 2017 of the City financial system from FAMIS to PeopleSoft. We are working diligently to address these challenges.

STATUS AND PERFORMANCE SUMMARY

Overall, WSIP regional projects are 95.6% complete as of December 31, 2017, which is 0.6 % behind the Commission Approved Schedule.

As of the end of the reporting period, planning, environmental, design, and construction activities are 100.0%, 99.8%, 99.2%, and 95.7% complete, respectively. The following table shows the number of projects and the total approved value of these projects that are active in the WSIP's various phases.

Status of WSIP Regional Projects (as of December 31, 2017)

Project Phase	No. of Projects	Percent by No. of Projects	Total Project Value[1] ($M)	Percent by Project Value
Planning	0	0%	$0	0%
Design	3	6%	$39	1%
Bid & Award	0	0%	$0	0%
Construction	7	13%	$1,144	30%
Close-Out	1	2%	$358	10%
Completed	39	75%	$2,188	58%
Not Applicable[2]	2	4%	$32	1%
Total	**52**	**100%**	**$3,761**	**100%**

Notes: (1) "Total Project Value" for various phases includes proportional allocation of approved program management budget. Projects active in multiple phases are counted as being in the phase with the greatest amount of project activities.
(2) "Not Applicable" category is for projects that do not include construction, including the Watershed Environmental Improvement Program and the Long-Term Mitigation Endowment.

The following major milestone was reached during this reporting quarter: The construction final completion of the New Irvington Tunnel Project was achieved and is now in the final administrative closeout phase.

PROGRAM UPDATE

As of the end of the reporting period, seven (7) regional projects with a total value of $1,144M are in construction and forty (40) projects with a total value of $2,546M are in close-out or have been completed. Forty (40) out of forty-three (43) Regional WSIP projects with specific Level of Service (LOS) goals have achieved their LOS goals to date. Besides the WSIP Closeout Projects, the only Regional project that remains in pre-construction is the Alameda Creek Recapture Project.

As of the end of the reporting period, the forecasted total program cost (regional and local projects) is $4,887.5M, which exceeds the Commission Approved Budget of $4,845.5M. As of the end of the reporting period, all approved change orders (COs) on active construction contracts total $409.81M, and the current remaining construction contingency is $62.47M. Also, as of the end of the reporting period, all pending and potential COs, and trends total $39.98M. Therefore, if all pending and proposed COs and trends become approved COs, the current forecasted remaining construction contingency is $22.49M.

The current forecasted date to complete the overall WSIP is December 2021 which is beyond the current approved date of December 2019.

Given that the current forecasts for the overall WSIP budget and schedule exceed the current approved budget and schedule, we will be requesting the Commission to re-baseline the WSIP. The notification and approval process will be in accordance with AB 1823, and is anticipated the first quarter of 2018.

UPDATE ON PROJECTS IN PRE-CONSTRUCTION

Alameda Creek Recapture

During this quarter, the team continued to work on the Environmental Impact Report (EIR) recirculation. A meeting was held with National Marine Fisheries Service and California Department of Fish and Wildlife on their comment letters. The EIR Recirculation Scoping meeting was held in December 2017. The Planning Department secured an independent third party specialist to review the modeling methodology used in the EIR. The Team continued to work with Department of Water Resources on the encroachment permit to cross their right-of-way.

WSIP Closeout Projects

Steady progress was made on WSIP Closeout Projects for each of the San Joaquin, Sunol Valley, Bay Division, and Peninsula Regions in the reporting Quarter. In the San Joaquin Region, the Tesla Portal slab and drainage improvement work is over 75% complete. The planning/design of the Solar Panels for three sites is ongoing. In the Sunol Valley Region, SFPUC staff is revising the bid documents for the San Antonio Backup Pipeline (SABPL) Erosion Repairs at Pond F3 East, which is to be issued under a job order contract (JOC) due to the Alameda Creek Recapture project being delayed. The SVWTP Basin No. 5 design is on hold, currently awaiting the Engineering Management Bureau (EMB) As-Needed Consultant Contract to be issued for design. Other ongoing projects in design include SABPL Water Carrier System Modification, Alameda Siphon 4 Water Carrier Water System Modification, and New Irvington Tunnel (NIT) Portal Water Quality Equipment Relocation. Construction for the NIT/SABPL Security Doors and uninterruptable power supply (UPS) racks were completed. However, the NIT/SABPL Cathodic Protection is still underway. In the Bay Division Region, all the closeout projects are still under design. The Ventilation & Sump Pump Installation will be performed under one JOC contract, while the construction for the corrosion protection of the valve installed under the Bay Division Pipeline 5 (BDPL5) Peninsula Contract and the installation of a V-Ditch under the BDPL 3&4 Seismic Upgrade will be performed under another JOC contract.

In the Peninsula Region, the Crystal Springs Dam Stilling Basin, Dissipation Structure, and H53 Valve project were advertised in December 2017. Several JOC task orders have been initiated for the Harry Tracy Water Treatment Plant facility: JOC 59-01 – Electrical & Mechanical Piping Modifications – NTP issued in December. JOC-59-17 – Emergency Generators Filters Upgrades – drawings and specifications are being prepared for the JOC contractor to price. Two active indoor filters and an outdoor filter will be pre-purchased. JOC-59-19 – Leak at Filter Gallery Channels – design is being developed and a JOC task order was initiated to repair the leaks in the filter gallery channels. Variable Frequency Drives (VFDs) controllers – 5 out of 6 VFDs for wash water pumps and all three VFDs for sludge transfer pumps have failed. The five failed VFDs for wash water pumps were replaced and relocated to allow for greater air flow and ventilation. These will be monitored and temperature readings taken periodically to determine if the fix is the final solution. Alternatives for the three VFDs for the sludge transfer pumps are

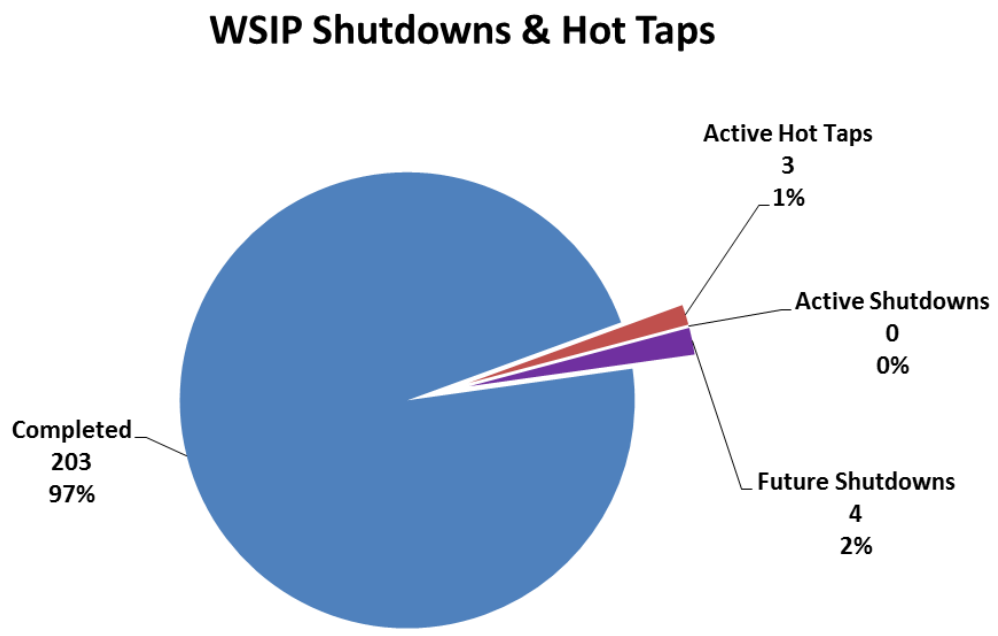
being developed. Vibration Control Panel and Circuit Breakers – the SFPUC staff conducted a site reconnaissance in September 2017. A site analysis memo is being prepared.

UPDATE ON PROJECTS IN CONSTRUCTION

Steady progress continued on the ongoing WSIP construction activities. As of the end of December 2017, WSIP regional construction contracts (including active, completed, and future contracts) are 97.2% complete overall, an increase of 1.0% during the quarter. Actual progress is above the Late Planned performance of 95.6% for the period.

A review of the construction work hours recorded over the last five years shows continued ramping down of construction activities, with monthly work hours peaking at 206,400 in August 2012, compared to a total of 50,012 work hours recorded in December 2017. The monthly average workhours in the reporting Quarter was 55,196, a decrease compared to the 56,987 monthly average workhours for the same period in 2016.

As of the end of December 2017, monitored exposure hours on WSIP regional projects totaled 9.3 million construction person-hours. Since the implementation of the WSIP Safety Approach in April 2009, the total lost time incidence rate is at 0.54, compared to the U.S. Bureau of Labor Statistics (BLS) industry average rate (2015) of 1.5. There were no recordable injuries, and no lost time incidents, during this quarter. However, there was a significant near miss at Calaveras Dam Replacement Project where a piece of equipment slid into the plunge pool and was completely submerged. Fortunately, the operator was able to escape the enclosed cab and swim to safety. Safety protocols have since been reviewed and appropriate changes made to avoid a future similar occurrence.



There were no changes to the status of Shutdowns and/or Hot-taps during the quarter. To date, 203 out of 210 (97%) of the planned shutdowns & hot taps have been completed. Currently, there are 3 active hot taps and 4 future planned shutdowns.

The following is a brief summary of the progress made, issues encountered, and/or milestones achieved on the key WSIP regional projects currently active in construction.

Calaveras Dam Replacement

Overall progress on the Calaveras Dam Replacement current construction contract is reported at 91.8% as of the end of the quarter, which is an increase of 2.7% during the period. Dam embankment placement activities are ahead of schedule, and therefore progress is above the planned progress of 85.3% according to the late baseline curve.

Significant achievements to date include the completion of the spillway, the 72-inch steel outlet conduit and concrete encasement, foundation excavation and grouting, intake tower, and electrical building structure. The dam embankment construction made substantial progress during the reporting quarter, with a top elevation of 693 feet at the end of the reporting quarter.

Regional Groundwater Storage and Recovery

Overall progress on the Regional Groundwater Storage and Recovery construction contract is reported at 99% as of the end of the quarter, which constitutes an increase of 0.1% during the Quarter.

The contractual Substantial Completion date of October 7, 2017 has been delayed by design changes to add/modify Sodium Hydroxide systems at SFPUC-managed well buildings; by the addition of remote sampling stations; by forecasts for the energizing of permanent power at the Serramonte and Treasure Island Sites; and/or by the implementation of Master PLC changes. The CM Team is assessing whether work completed to date meets the contract specifications for functionality of the well stations to determine if the Contractor has proceeded in good faith towards Substantial Completion, and will revise the contract based on this determination.

The major remaining challenge for this project that is unrelated to the current Phase 1 construction contract is the need to identify two additional viable well sites in the San Bruno area to meet the overall LOS water supply goal (future Phase 2).

Fish Passage Facilities within the Alameda Creek Watershed (Sub-project to Calaveras Dam Replacement)

The Fish Passage Facilities within the Alameda Creek Watershed construction is 82% complete - an increase of 14% during the Quarter. The project has achieved the major milestone of completing all the work within the creek by November 15, 2017. Work includes completing the new Sluiceway #3; installation of the upstream debris boom, debris screens, and fish screens; completion of the downstream apron and fish inlet; and installation of the main gate valves.

The Contractor is currently working on backfilling the downstream slope at the retaining wall, continuing concrete work on the weir walls within the fish ladder, installing weir gate and lamprey ramp, installing support angles for the fish ladder grating, and concrete finishing along the fish ladder, wet well, and fish intake.

MAJOR PROGRAM TRENDS AND RISKS

Actual and potential impacts on the cost and schedule of WSIP projects are identified and tracked using change orders (COs), trends, and risks. COs and trends are managed using the Construction Management Information System (CMIS), while risks are managed using Active Risk Manager (ARM). Active COs on the WSIP are categorized based on their status as follows: Approved COs are changes that have been negotiated, have been certified by the City Controller, and are now part of the contract (exact magnitude of change is known); Pending COs are changes that have been negotiated but have yet to be certified by the City Controller (exact magnitude of change is known); and Potential COs are changes that have been proposed by either the SFPUC or the contractor but are still being negotiated (magnitude of change is unknown). Any known issue with a probable impact to the approved schedule and/or contract amount that has yet to be proposed as a Potential CO is captured as a trend. In addition, project teams assess and quantify conceivable risks to their projects with the goal to mitigate the conditions which might cause them to materialize.

WSIP Management submits to the Commission on a quarterly basis a separate report on the status of Change Orders. This section summarizes the major program trends and risks being tracked as of December 31, 2017.

The trends for the WSIP Active Regional construction contracts totaled $13.6M as of the end of the reporting period, a decrease of $5.6M during the period. Approximately 45% of the total trends at the end of December 2017 belong to the Calaveras Dam Replacement Project. The following table lists the trend totals for active projects:

WSIP Active Regional Projects Trend Totals (as of December 31, 2017)

Project	Trends ($ Million)	Percent Completion[1]
Calaveras Dam	$6.1	92%
Fish Passage Facilities at ACDD	$5.3	82%
Regional Groundwater Storage & Recovery	$2.1	99%

1. Refers to percent completion of the current construction contract (including all Approved COs).

The WSIP Risk Management System ranks risks based on a combination of likelihood of occurrence and potential cost impact to the SFPUC. On that basis, and as of December 31, 2017, the Calaveras Dam Replacement Project has seven of the top ten program risks and the Fish Passage Facilities within the Alameda Creek Watershed project has the remaining three. The current highest risk in the program is at the Calaveras Dam project and addresses the potential schedule impact on zone embankment placement related to Borrow Area B shale removal and slope stabilization. The following table lists the projects with the largest risks.

Top 10 Risks of WSIP Regional Projects (as of December 31, 2017)

Project	No. of Top 10 Risks	Percent Completion[1]
Risk Ranking Based on Likelihood of Occurrence and Potential Cost Impact		
Calaveras Dam	7	92%
Fish Passage Facilities at ACDD	3	82%

1. Refers to percent completion of the current construction contract (including all Approved COs).

Based on the risks summarized above, the two (2) active construction contracts that carry the greatest potential to impact the Program's overall cost and schedule are Calaveras Dam Replacement and the Fish Passage Facilities within the Alameda Creek Watershed, while the Regional Groundwater Storage and Recovery Phase 1 construction contract has associated risk ranked below the top 20 risks to the Program.

Calaveras Dam Replacement

As of the end of December 2017, there are 20 active trends, totaling $6.1M, on this contract, a decrease of $4.2M during the quarter. The largest trend is related to the potential quantity overrun of zone embankment materials. The second largest trend covers the overrun quantities for other items accumulated through the end of 2017. The third largest trend covers the right abutment swale restoration above the soldier pile wall.

Other trends concern the left abutment erosion control during construction, the bird deterrent program, the access to permanent instrumentation required for long-term operations and maintenance, and other differing site conditions.

Seven of the current top ten risks for the active WSIP construction contracts, based on likelihood of occurrence and potential cost impact, belong to this contract. The estimated value of the 80% risk confidence level is $17.9M, a decrease of $4.8M from the value reported for the previous quarter.

The current largest risk to the project concerns the potential schedule impact on Zone 5 and Zone 6 embankment material yield related to Borrow Area B shale/talus removal and slope stabilization. The second highest risk is associated with insufficient hard rock material on site (5E/5I) for the Zone 5 upstream part of the dam. The third highest risk is the potential for overtopping of the existing dam during construction due to an extreme flood event while the spillway is out of service.

Other top ten risks include the risk that local Zone 2 and 3 filter materials do not meet regulatory requirements, the risk of potential long term erosion for the right abutment, and risk of water quality issues for the left abutment. Additional significant risks include the risk of adverse weather in excess of contractual agreement, encountering high levels of naturally occurring asbestos (NOA) beyond the contractor's control, the risk of encountering protected and endangered species, the risk of the causing inundation of the West Haul Road, and the risk that the foundation

is not approved by the DSOD (Division of Safety of Dams) due to inadequate cleaning or excessive deterioration as a result of extended exposure from left and right abutment changes.

Fish Passage Facilities within the Alameda Creek Watershed (ACDD)

This project is currently reporting on 40 active trends that total $5.3M, a decrease of $1M from the value reported last quarter. The current largest trend covers the increase in the allowance for the storm-water pollution prevention plan (SWPPP). The second and third highest trends relate to the volume of subterranean water flow beneath the creek for the first and second season respectively. Other large trends concern the costs of the foam backfill at the fish ladder, repairs to the wildlife exclusion fence, headwall length increases, potential rock fall hazard on the left bank, and several differing site conditions.

The 80% risk confidence level as of the end of December 2017 is estimated at $4.8M which is an increase of $0.4M from the last quarter. The current highest risk addresses the costs associated with the accelerated schedule due to delays. Other high risks include the risk of potential for prolongation of out-of-stream drilling (including the new soldier pile wall) due to unforeseen conditions such as cobbles and boulders, additional downstream apron repairs, backfill material change, mishandling stormwater runoffs leading to violation of the construction general permit, failure to obtain environmental permits for the improvement work along Camp Ohlone/Geary Road on time, the risk of the access road becoming impassable due to heavy rains, and the risk of excessive dewatering needed during the third dry season (2018).

Other lower level risks include the potential for insufficient creek flow to test the system upon substantial completion, the potential for regulatory agencies to require shuttling of personnel at the job site due to multiple takes of snakes or salamanders, unexpected differing site conditions at the soil nail wall, the risk of fish ladders and screens not functioning as planned, and the risk of birds nesting in the active construction zone.

Regional Groundwater Storage and Recovery

This project is currently reporting on 14 active trends that total $2.1M, a decrease of $0.5M during the quarter. The largest trend covers the cost of extended overhead due to the schedule extension beyond the contractual substantial completion date related to necessary changes in the chemical injection points for sodium hydroxide (NaOH) treatment. The second largest trend addresses several items needed to address operational/safety needs, including sumps in the chemical containments, lower calibration columns, vent chemical tanks outside the building, ambient monitoring detector for ammonia, and other miscellaneous items. The third largest trend covers furnishing and installing a remote automated pH analyzer and sample lines at seven well stations.

Other significant trends include contractor alleged inefficiencies encountered at offsite utilities requiring demobilizations and remobilizations; the rental of generators for temporary power to keep equipment warm due to delay in energization with PG&E; the cost to address the funeral home well pump issue; addressing access issues to the Serramonte, Ben Franklin, and Treasure Island sites; and additional site restoration. Partially offsetting these trends is a potential credit for steel plates.

The 80% risk confidence level as of the end of the reporting period is estimated at $0.8M which is an increase of $0.3M during the quarter. The current largest risk addresses the challenges in meeting regulatory and operational requirements due to taste and odor parameters for blending. The second highest risk considers the potential costs that would be caused by design errors and/or omissions. Additional risks include the potential for delays in finalizing permanent easements, the risk of project impacts due to turnover of key personnel, schedule delays caused by longer turnaround in submittals and RFIs, and the potential for encountering unforeseen underground utilities.

CLOSING

Despite the challenges described above, the WSIP team continues to make steady progress in the delivery of the program as described in the attached WSIP Quarterly Report. It should be noted that the challenges encountered in the field and reported herein are not unusual for infrastructure programs of the size and complexity of the WSIP.

The SFPUC continues to be committed to work collaboratively with other City departments, its Regional Wholesale customers, and all program stakeholders and partners to ensure the successful delivery of the WSIP.

Enclosure

HETCH HETCHY
WATER SYSTEM IMPROVEMENT PROGRAM

QUARTERLY REPORT

Regional Projects
Q2 FY 2017 | 2018
October 2017 — December 2017

Rebuilding Today for a Better Tomorrow

Published: 02/06/2018

Quarterly Report - Q2 FY2017/2018

Water System Improvement Program - Regional Projects

TABLE OF CONTENTS

1. PROGRAM DESCRIPTION

The Water System Improvement Program (WSIP) is a $4.8 billion, multi-year capital program to upgrade the City of San Francisco's regional and local drinking water systems. The program will deliver improvements that enhance the City's ability to provide reliable, affordable, high quality drinking water to its 26 wholesale customers and regional retail customers in Alameda, Santa Clara, and San Mateo Counties, and to 800,000 retail customers in San Francisco, in an environmentally sustainable manner. The WSIP is structured to cost-effectively meet water quality requirements, improve seismic and delivery reliability, and achieve water supply goals.

Built in the early to mid-1900s, many components of the water system are nearing the end of their working life, with crucial facilities crossing or in close proximity to three major earthquake faults. The San Francisco Public Utilities Commission (SFPUC) initiated the WSIP to repair, replace, and seismically upgrade the system's deteriorating pipelines, tunnels, dams, reservoirs, pump stations, storage tanks, and treatment facilities.

The program consists of 35 local projects located within San Francisco and 52 regional projects spread over seven different counties from the Sierra foothills to San Francisco. Local projects only benefit San Francisco residents whereas regional projects benefit both City residents and the 26 wholesale agencies that receive water from the SFPUC. The management of regional projects is divided into 6 regions – San Joaquin, Sunol Valley, Bay Division, Peninsula, San Francisco Regional, and Support Projects.

The WSIP is funded through the issuance of revenue bonds. Local Measures A and E, which were approved by San Francisco voters in November 2002, allowed for the financing of improvements to the City's water system using revenue bonds and/or other forms of revenue financing. Increases in the water rates of retail and wholesale customers will be used to pay back the debt service on the bonds.

The program budget and schedule were originally adopted by the San Francisco Public Utilities Commission on March 1, 2003. The program at the time was referred to as the Capital Improvement Program (CIP). The scope of the CIP was changed significantly following the adoption of Level of Service (LOS) goals in early 2005. The program changes were so substantial that the program was renamed the WSIP and a new program budget and schedule were adopted on November 29, 2005. Since the scope of the 2005 Revised WSIP is in general representative of the program being implemented today, the 2005 budget and schedule are considered the "Baseline Budget and Schedule."

Subsequently, the WSIP Baseline Budget and Schedule were revised in 2007, 2009, 2011, 2013, 2014, 2015, 2016, and 2017, and these revisions were approved by the San Francisco Public Utilities Commission on February 26, 2008, July 28, 2009, July 12, 2011, April 23, 2013, April 22, 2014, December 8, 2015, April 26, 2016, and February 14, 2017, respectively. Refer to Appendix A for a scope description of all the regional projects included in the WSIP.

Program Revision	Commission Approval	Budget ($Million)	Schedule(*)
2003 (Original)	March 1, 2003	$3,628	03/15/16
2005 (Baseline)	November 29, 2005	$4,343	06/30/14
2007 (Revised)	February 26, 2008	$4,392	12/18/14
2009 (Revised)	July 28, 2009	$4,586	12/04/15
2011 (Revised)	July 12, 2011	$4,586	07/29/16
2013 (Revised)	April 23, 2013	$4,640	04/11/19
2014 (Revised)	April 22, 2014	$4,765	05/24/19
2015 (Revised)	December 8, 2015	$4,765	05/24/19
2016 (Revised)	April 26, 2016	$4,845	12/20/19
2017 (Latest Approved)	February 14, 2017	$4,845	12/20/19

* Final Program Completion Date

2. PROGRAM STATUS

This second (2nd) Quarterly Report for Fiscal Year (FY) 2017-2018 presents the progress made on the WSIP regional projects between October 1, 2017 and December 31, 2017. The program's schedule and budget were last approved by the San Francisco Public Utilities Commission (SFPUC or Commission) on February 14, 2017. The progress made on the local projects of the WSIP is presented in a separate quarterly report.

Figure 2.1 shows the total Current Approved Budget for the regional projects remaining in each phase of the program as of December 31, 2017. The number of projects currently active in each phase is shown in parentheses.

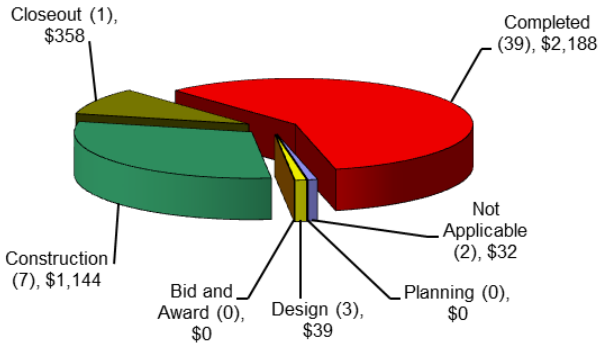


Figure 2.1 Total Current Approved Budget for Projects Active in Each Phase ($Million)

Figure 2.2 shows the number of regional projects in the following stages of the program as of December 31, 2017: Pre-construction, Construction, and Post-construction.

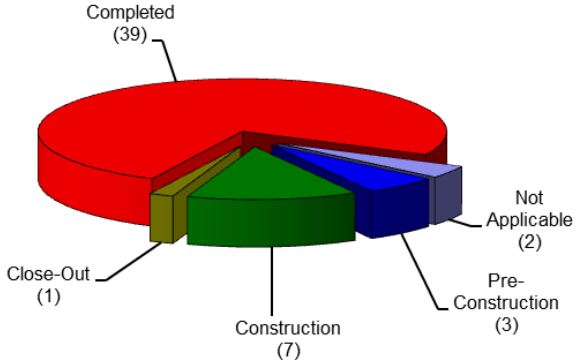


Figure 2.2 Number of Projects in Pre-construction, Construction, and Post-construction

Figure 2.3 summarizes the environmental review and permitting status of the WSIP 52 regional projects as of December 31, 2017.

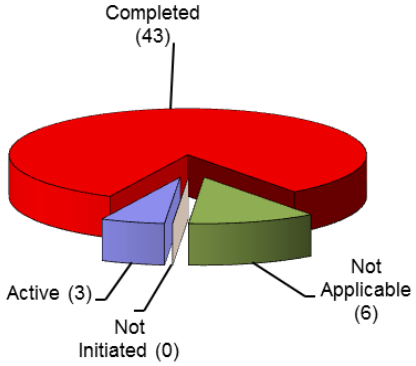


Figure 2.3 Program Environmental and Permitting Status

2.1 Progress Towards Meeting Level of Service (LOS) Goals

The scope of the WSIP is based on the following Level of Service (LOS) goals for the Regional Water System: Seismic Reliability, Delivery Reliability, Water Quality Reliability and Water Supply Reliability. Each project that reaches construction substantial completion contributes to increasing the overall reliability of the system and achieving progress towards meeting the overall LOS goals for the system.

Table 2.1 lists the projects with their individual Primary (P) and Secondary (S) contributions towards LOS goals, and indicates which projects have met their respective LOS goals. As can be seen in Table 2.1, the actual operational service start dates indicate that 40 of the 43 Regional WSIP projects with specific LOS goals have achieved their LOS goals to date. The other 9 Regional WSIP projects do not have specific LOS goals. The WSIP team remains committed to achieving the overall LOS goals established for the system.

Table 2.1 Progress Towards Meeting LOS Goals [1]

Project No.	Project Name / Construction Contract	Actual / Approved Substantial Completion Date	LOS Goals (P =Primary, S =Secondary)				Actual Operational Service Start	Construction Progress Toward LOS Goals
			Water Quality	Seismic Reliability	Delivery Reliability	Water Supply		
San Joaquin Projects								
CUW36401	Lawrence Livermore Water Quality Improvement *(Completed)*	08/31/10	P				08/31/10	100%
CUW37301	San Joaquin Pipeline System *(Completed)* (A) HH935A Crossovers (B) HH935B Western Segment (C) HH935C Eastern Segment	(A) 01/06/12 (B) 05/27/13 (C) 06/21/13			P		(A) 01/06/12 (B) 05/27/13 (C) 06/21/13	100%
CUW37302	Rehabilitation of Existing San Joaquin Pipelines (Roselle Crossover; *Completed*)	05/13/11			P		05/13/11	100%
CUW38401	Tesla Treatment Facility *(Completed)* (A) DB116 Tesla Treatment Facility Design-Build Contract (B) HH953 Tesla Portal Protection	(A) 06/24/11 (B) 08/05/13	P	S	S		(A) 06/24/11 (B) 08/05/13	100%
Sunol Valley Projects								
CUW35201	Alameda Creek Recapture	12/31/18				P		0%
CUW35501	Standby Power Facilities - Various Locations *(Completed)* (A) WD-2553 East Bay - Standby Power Facilities (B) WD-2511 Peninsula - Standby Power Facilities	(A) 09/11/08 (B) 04/15/10		P	S		(A) 09/11/08 (B) 04/15/10	100%
CUW35901	New Irvington Tunnel	09/19/15		S	P		02/27/15	100%
CUW35902	Alameda Siphon #4 *(Completed)*	12/16/11		P	S		12/16/11	100%
CUW37001	Pipeline Repair & Readiness Improvements *(Completed)* (A) WD-2530 Phase A 8 Pipe Storage Sites (B) WD-2530 Phase B Pipe Rolling Machine Facility @ Sunol Yard	(A) 02/09/07 (B) 07/14/08		P	S		(A) 02/09/07 (B) 07/14/08	100%
CUW37401	Calaveras Dam Replacement (A) WD-2551 Calaveras Dam Replacement[2] (B) WD-2729 Alameda Creek Diversion Dam	(A) 10/12/18 (B) 09/17/18		S	P	S		(A) 92% (B) 82%
CUW37402	Calaveras Reservoir Upgrades *(Completed)*	10/06/05	P				10/06/05	100%
CUW37403	San Antonio Backup Pipeline *(Completed)*	12/31/14			P		12/31/14	100%
CUW38101	SVWTP Expansion & Treated Water Reservoir *(Completed)*	05/17/13	P		P		05/17/13	100%
CUW38601	San Antonio Pump Station Upgrade *(Completed)*	06/30/11			P		06/30/11	100%

Project No.	Project Name / Construction Contract	Actual / Approved Substantial Completion Date	LOS Goals (P =Primary, S =Secondary)				Actual Operational Service Start	Construction Progress Toward LOS Goals
			Water Quality	Seismic Reliability	Delivery Reliability	Water Supply		
Bay Division Projects								
CUW35301	BDPL Nos. 3 & 4 Crossover/Isolation Valves *(Completed)*	11/15/07		P			11/15/07	100%
CUW35302	Seismic Upgrade of BDPL Nos. 3 & 4	10/26/15		P			06/20/14	100%
CUW36301	SCADA System - Phase II *(Completed)*	11/29/10			P		11/29/10	100%
CUW36801	BDPL Reliability Upgrade - Tunnel	05/20/15		P	S		10/15/14	100%
CUW36802	BDPL Reliability Upgrade – Pipeline *(Completed)* (A) WD-2541 East Bay (B) WD-2542 Peninsula (C) WD-2665 Cordilleras	(A) 12/09/11 (B) 06/13/12 (C) 03/05/13		P	S		(A) 12/09/11 (B) 06/13/12 (C) 03/05/13	100%
CUW36803	BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2 *(Completed)*	05/28/10			P		05/28/10	100%
CUW38001	BDPL Nos. 3 & 4 - Crossovers *(Completed)*	08/15/12		P	S		08/15/12	100%
CUW38901	SFPUC/EBMUD Intertie *(Completed)*	09/07/07			P		09/07/07	100%
CUW39301	BDPL No. 4 Condition Assessment PCCP Sections *(Completed)*	02/06/09		P	S		02/06/09	100%
Peninsula Projects								
CUW35401	Lower Crystal Springs Dam Improvements *(Completed)*	11/20/11			P	S	11/20/11	100%
CUW35601	New Crystal Springs Bypass Tunnel *(Completed)*	07/14/11		P	S		07/14/11	100%
CUW35701	Adit Leak Repair - Crystal Springs/Calaveras *(Completed)*	11/30/07			P		11/30/07	100%
CUW36101	Pulgas Balancing - Inlet/Outlet Work *(Completed)*	02/02/06	P		S		02/02/06	100%
CUW36102	Pulgas Balancing - Discharge Channel Modifications *(Completed)*	10/23/09			P		10/23/09	100%
CUW36103	Pulgas Balancing - Structural Rehabilitation & Roof Replacement *(Completed)*	07/26/11	P		S		07/26/11	100%
CUW36105	Pulgas Balancing - Modifications of the Existing Dechloramination Facility *(Completed)*	08/27/12	P		S		08/27/12	100%
CUW36501	Cross Connection Controls *(Completed)*	11/26/08	P				11/26/08	100%
CUW36601	HTWTP Short-Term Improvements - Demo Filters *(Completed)*	01/11/06		P	S		01/11/06	100%
CUW36603	HTWTP Short-Term Improvements - Coagulation & Flocculation/Remaining Filters *(Completed)*	12/21/09		P	S		12/21/09	100%
CUW36701	HTWTP Long -Term Improvements *(Completed)*	09/08/15		P	S		09/08/15	100%
CUW36702	Peninsula Pipelines Seismic Upgrade *(Completed)*	10/30/15		P			10/30/15	100%
CUW36901	Capuchino Valve Lot Improvements *(Completed)*	02/14/08			P		02/14/08	100%
CUW37101	Crystal Springs/San Andreas Transmission Upgrade *(Completed)*	06/30/14		P	S		09/02/14	100%
CUW37801	Crystal Springs Pipeline No. 2 Replacement *(Completed)*	01/31/13		P	S		01/31/13	100%
CUW37901	San Andreas Pipeline No. 3 Installation *(Completed)*	03/29/11		P	S		03/29/11	100%
CUW39101	Baden & San Pedro Valve Lots Improvements *(Completed)*	03/31/11		P	S		03/31/11	100%

Project No.	Project Name / Construction Contract	Actual / Approved Substantial Completion Date	LOS Goals (P =Primary, S =Secondary)				Actual Operational Service Start	Construction Progress Toward LOS Goals
			Water Quality	Seismic Reliability	Delivery Reliability	Water Supply		
San Francisco Regional Projects								
CUW30103	Regional Groundwater Storage and Recovery (A) WD-2600 Test Well Drilling (B) WD-2668 Regional Groundwater Storage and Recovery (Phase 1) (C) Regional Groundwater Storage and Recovery (Phase 2)	(A) 07/23/12 (B) 12/31/17 (C) 10/31/18				P	(A) 07/23/12	(A) 100% (B) 99% (C) 0%
CUW35801	Sunset Reservoir - North Basin *(Completed)*	09/19/08		P	S		09/19/08	100%
CUW37201	University Mound Reservoir - North Basin *(Completed)*	05/25/11		P	S		05/25/11	100%

Notes:

1 Support projects and WSIP Closeout projects are not listed in the table above since these projects do not have specific Level of Service (LOS) goals.

2 The Approved Substantial Completion Date for this contract was extended to 4/12/19 per Commission meeting on 4/26/16, but a contract change order has not yet been issued to the Contractor to extend the date.

3. PROGRAM COST SUMMARY

Table 3.1 provides an overall program-level cost summary of the WSIP Regional Program. It shows the Expenditures to Date; the 2005 Baseline, 2016 Approved, Current Approved and Q2/FY17-18 Forecasted Budgets; and the Cost Variance between the Current Approved and Forecasted Budgets.

The total Current Approved WSIP Budget (including Regional and Local Programs, Local Water Supply Projects, and Financing Costs) and Current Forecasted Cost at completion are $4,845.5 million and $4,887.5 million, respectively ($42.0 million over Current Approved Budget). The Current Approved WSIP Budget and 1Forecasted Cost at completion for the Regional Program (including construction contingency) are $3,761.1 million and $3,803.1 million, respectively ($42.0 million over the Current Approved Budget). The Current Approved WSIP Budget and Forecasted Cost at completion for the Local Improvement Projects are $331.4 million. Refer to Appendix B for a graphical representation of how the WSIP budget and actual expenditures have changed over time.

Table 3.1 Program Cost Summary

Cost Categories	Expenditures To Date ($ Million) (A)	2005 Baseline Budget ($ Million) (B)	2016 Approved Budget ($ Million) (C)	Current Approved Budget[7] ($ Million) (D)	Q2/FY17-18 Forecasted Costs ($ Million) (E)	Cost Variance ($ Million) (F = D - E)
Regional Improvement Projects	**$2,905**	**$3,181**	**$3,053.5**	**$3,068.9**	**$3,069.7**	**($0.8)**
Construction Costs[1]	$1,973	$2,322	$2,047.8	$2,063.2	$2,050.8	$12.4
Program Delivery Costs[2]	$906	$758	$946.4	$946.4	$978.1	($31.7)
Other Costs[3]	$26	$101	$59.4	$59.4	$40.8	$18.6
Support Projects[4]	**$213**	**$33**	**$256.0**	**$240.6**	**$260.0**	**($19.4)**
Construction Contingency for Regional & Support Projects [5]	**$389**	**$193**	**$451.5**	**$451.5**	**$473.4**	**($21.9)**
REGIONAL PROGRAM WITH CONTINGENCY	**$3,507**	**$3,407**	**$3,761.1**	**$3,761.1**	**$3,803.1**	**($42.0)**
Local Improvement Projects	$331	**$383**	**$331.4**	**$331.4**	**$331.4**	**-**
Local Water Supply Projects[6][8]	**$101**	**-**	**$281.3**	**$281.3**	**$281.3**	**-**
Finance	**$462**	**$552**	**$471.7**	**$471.7**	**$471.7**	**-**
PROGRAM TOTAL	**$4,402**	**$4,343**	**$4,845.5**	**$4,845.5**	**$4,887.5**	**($42.0)**

Notes:

1. **Construction Costs** include the Construction Base Bid and owner-provided equipment/material for all regional and support projects. Those costs do not include any construction contingency. That contingency is reflected as a separate cost category.
2. **Delivery Costs** include project management, planning, environmental (CEQA, permitting, construction compliance), design, construction management, and engineering support during construction.
3. **Other Costs** include environmental mitigation, art enrichment, security improvements, and real estate expenses.
4. **Support Projects** include (1) System Security Upgrades, (2) Programmatic EIR, (3) Bioregional Habitat Restoration, (4) Vegetation Restoration of WSIP Construction Sites, (5) Long Term Mitigation Endowment, (6) Program Management, and (7) Watershed Environmental Improvement Program. Please note that the cost reflected above for support projects only includes "Delivery" and "Other" costs, and "Construction" cost for these projects is included in "Construction Costs" under the Regional Improvement Projects.
5. Expenditures to Date for Construction Contingency for Regional and Support projects correspond to the Total Approved Change Orders on those projects. For projects with ongoing or completed construction, the 2016 Approved Budget for construction contingency includes all change orders and trends as identified at the time of the March 2016 Revised WSIP, as well as additional contingency funding allocated to cover the 80% confidence level risks identified at the time of the March 2016 Revised WSIP. For projects in pre-construction, the 2016 Approved Budget for construction contingency includes 10% of the estimated construction base bid.

6. Local Water Supply Projects managed as part of the Water Enterprise Capital Improvement Program (CIP) are (1) Lake Merced Water Level Restoration, (2) San Francisco Groundwater Supply, (3) San Francisco Westside Recycled Water, (4) Harding Park Recycled Water, and (5) San Francisco Eastside Recycled Water.
7. The budget approved as part of the March 2016 Revised WSIP, plus any additional budget changes approved by the Commission as part of additional contingencies on construction contract.
8. The WSIP Local Water Supply projects underwent a September 2013 re-baseline. Only the original WSIP portion of the re-baselined costs is reported here. The remaining budget is funded under the Water Enterprise CIP and will be managed outside the purview of the WSIP.

Table 3.2 provides the current remaining construction contingency. For each region, it shows the 2016 Approved Construction Contingency; the Total Approved Change Orders prior to the reporting quarter; Change Orders Approved during the reporting quarter; Total Approved Change Orders through the reporting quarter; Project Savings Moved to Contingency/ Funds Moved out of Contingency during the Reporting Quarter; the Q2/FY17-18 Forecasted Construction Contingency; and the Remaining Contingency as of the end of the reporting quarter. As of December 31, 2017, the Forecasted Construction Contingency is $472.3 million and the Current Remaining Contingency is $62.5 million.

The Change Orders Approved in Q2/FY17-18 are shown in Table 3.2. Table 3.3 provides further information at the construction contract level for all subsequent approved change orders.

Table 3.2 Current Remaining Construction Contingency

Region	Q1/FY17-18 Forecasted Construction Contingency [1] ($ Million) (A)	Total Approved Change Orders as of Q1/FY17-18[2,3] ($ Million) (B)	Change Orders Approved in Q2/FY17-18[2] ($ Million) (C)	Total Approved Change Orders as of Q2/FY17-18 ($ Million) (D = B+C)	Project Savings or Director's Reserves (+) Moved to Contingency/ Funds (--) Moved out of Contingency during Q2/FY17-18 [4] ($ Million) (E)	Q2/FY17-18 Forecasted Construction Contingency ($ Million) (F = A + E)	Q2/FY17-18 Remaining Contingency ($ Million) (G = F - D)
San Joaquin Region	$0.13	-	-	-	-	$0.13	$0.13
Sunol Valley Region	$390.30	$328.35	$11.73	$340.08	-	$390.30	$50.22
Bay Division Region	$8.50	$7.14	$1.52	$8.66	-	$8.50	($0.16)
Peninsula Region	$57.02	$56.79	-	$56.79	-	$57.02	$0.23
San Francisco Regional Region	$11.78	$3.81	$0.22	$4.03	$3.90	$15.68	$11.66
Support Projects	$0.64	$0.24	-	$0.24	-	$0.64	$0.39
Regional Total	**$468.37**	**$388.22**	**$13.47**	**$409.81**	**$3.90**	**$472.28**	**$62.47**

Notes:

1. Construction Contingency approved as part of the March 2016 Revised WSIP, plus any regional projects' savings moved to contingency.
2. Approved Change Orders are changes that have received all required approvals, including that of the City Controller.
3. This table only reports change orders for the active construction contracts as of this reporting cycle.
4. Values only reflect savings realized following the Commission's adoption of the March 2016 Revised WSIP.

Table 3.3. Details on Transactions Out of and Into Contingency

Project No. - Contract	Transactions Out of Contingency			Transactions Into Contingency		
	Approved Change Orders ($ Million) (A)	Budget Underrun at Project Completion / Director's Reserve Moved Out of Project ($ Million) (B)	Sub Total ($ Million) (C = A + B)	Savings Due to Low Bid ($ Million) (D)	Budget Overrun at Project Completion / Director's Reserve Moved to Project ($ Million) (E)	Sub Total ($ Million) (F = D + E)
Sunol Valley Region	**$11.73**	**-**	**$11.73**	**-**	**-**	**-**
CUW37401 Calaveras Dam Replacement WD-2551	$11.43	-	$11.43	-	-	-
CUW37401 Calaveras Dam Other Construction WD-2729	$0.30		$0.30	-	-	-
Bay Division Region	**$1.52**	**-**	**$1.52**	**-**	**-**	**-**
CUW35302 Seismic Upgrade of BDPL Nos. 3 & 4	$1.52	-	$1.52	-	-	-
San Francisco Regional	**$0.22**	**-**	**$0.22**	**-**	**$3.90**	**$3.90**
CUW30103 Regional Groundwater Storage and Recovery (WD-2668)	$0.22	-	$0.22	-	$3.90	$3.90
Regional Total	**$13.47**	**-**	**$13.47**	**-**	**$3.90**	**$3.90**

Table 3.4 Forecasted Remaining Construction Contingency

Region	Q2/FY17-18 Remaining Construction Contingency [1] ($ Million) (A)	Pending Change Orders as of Q2/FY17-18 [2] ($ Million) (B)	Potential Change Orders as of Q2/FY17-18 [3] ($ Million) (C)	Trends as of Q2/FY17-18 [4] ($ Million) D	Q2/FY17-18 Forecasted Remaining Construction Contingency ($ Million) (E =A-B-C-D)
San Joaquin Region	$0.13	-	-	-	$0.13
Sunol Valley Region	$50.22	$16.70	$1.88	$11.46	$20.19
Bay Division Region	($0.16)	-	($0.60)	-	$0.44
Peninsula Region	$0.23	-	-	-	$0.23
San Francisco Regional Region	$11.66	$3.80	$3.66	$3.43	$0.76
Support Projects	$0.39	($0.14)	-	($0.20)	$0.73
Regional Total	**$62.47**	**$20.36**	**$4.93**	**$14.69**	**$22.49**

Notes:
1. Same as Column G in Table 3.2.
2. Pending Change Orders are changes that have been negotiated and approved by the SFPUC but have to be approved by the City Controller.
3. Potential Change Orders are changes that have been requested and entered into CMIS but are still being negotiated.
4. Trends are any expected impact that the CM team believes has a high probability of becoming a change but are yet to be entered into CMIS as a Potential Change

Table 3.4 provides the forecasted remaining construction contingency. For each region as of Q2/FY17-18, it shows the Remaining Construction Contingency, Pending Change Orders, Potential Change Orders, Trends, and Forecasted Remaining Construction Contingency. As of December 31, 2017, the Total Forecasted Remaining Construction Contingency is $22.5 million. This amount does not include funds that are currently held in Director's Reserve.

The Program Management project includes programmatic activities that span multiple regions and benefit several WSIP projects (Table 3.5). The project provides funding for the following functions and resources: SFPUC Staff assigned to the management of the overall program; consultants supporting SFPUC staff at the program level (program, project and pre-construction management consultant, program construction management consultant, program control consultant); labor relations, including management of the project labor agreement; communication and public outreach; programmatic legal support; real estate acquisitions; program controls, including the tracking and reporting of all WSIP efforts; and program-level construction management activities associated with quality assurance, risk management, the Supplier Quality Surveillance (SQS) Program, operations assistance, safety, and training.

The activities under the Program Management project are organized into five categories that are tracked and monitored on a monthly basis. These categories are Management Support, Project Labor Agreement, Planning and Project Development, Program Control, and Program Construction Management.

Table 3.5 Status of Program Management Project Cost Breakdown

Category	Expenditures To Date ($ Million) (A)	2016 Approved Budget ($ Million) (B)	Current Approved Budget ($ Million) (C)	Q2/FY17-18 Forecasted Cost* ($ Million) (D)	Cost Variance ($ Million) (E = C-D)
Management Support	$36.0	$41.3	$41.3	$42.8	($1.5)
Project Labor Agreement	$3.5	$3.8	$3.8	$3.8	-
Planning and Project Development	$17.9	$18.3	$18.3	$18.3	-
Program Controls	$18.7	$19.8	$19.8	$19.8	-
Program Construction Management	$27.0	$27.0	$27.0	$28.0	($1.0)
Program Management Total	**$103.0**	**$110.3**	**$110.3**	**$112.7**	**($2.5)**

The spending pattern for the project is very similar from month to month as the project primarily funds program-level positions occupied by both SFPUC staff and consultants. The forecasted total Program Management cost is $112.7 million, which is $2.5 million over the Current Approved Budget of $110.3 million.

4. PROGRAM SCHEDULE SUMMARY

Figure 4.1 and Table 4.1 compare the 2005 Baseline, 2016 Approved, Current Approved, and Q2/FY17-18 Forecasted Schedules for the WSIP Regional Program. Refer to the "Cost and Schedule Status" notes in Section 5 for the criteria associated with the three color-coded Forecast Status levels in Figure 4.1 – Meet Requirements, Need Attention, and Exceed Limits. The Approved Schedule completion for the overall WSIP (including Regional and Local Programs) and for the Regional Program is in December 2019. The overall WSIP and WSIP Regional Program are currently forecasted to be completed in December 2021 (24 months behind Current Approved schedule). Refer to Appendix C for a graphical presentation of the WSIP Approved Project-Level Schedule.

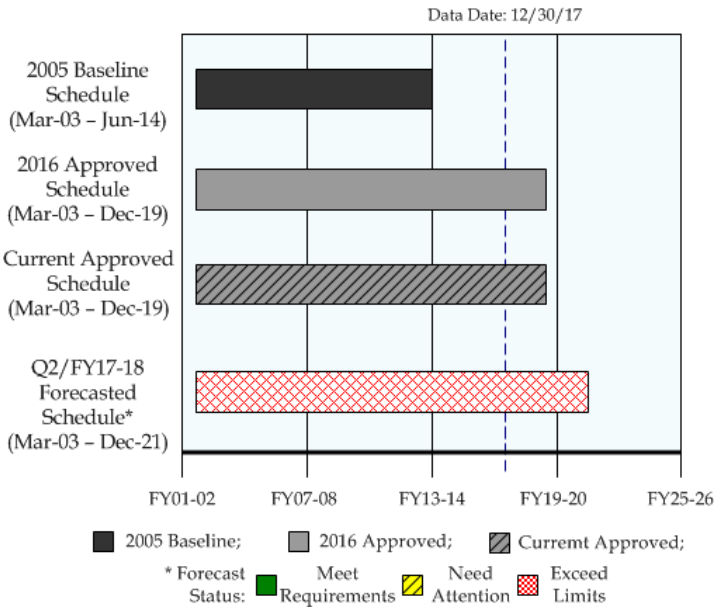


Figure 4.1 Program Schedule Summary

Table 4.1 2016 Approved vs. Q2/FY17-18 Forecasted Schedule Dates

Category	2005 Baseline Start	2016 Approved Start	Current* Approved Start	Actual Start	2005 Baseline Finish	2016 Approved Finish	Current* Approved Finish	Q2/FY17-18 Forecasted Finish	Schedule Variance (Months)
Regional Program	03/01/03	03/31/03	03/31/03	03/01/03✓	06/30/14	12/20/19	12/20/19	12/30/21	24.4 (Late)
Local** Program	03/01/03	03/31/03	03/31/03	03/01/03✓	06/28/13	12/30/16	12/30/16	06/29/18	18.0 (Late)
Overall WSIP	03/01/03	03/01/03	03/01/03	03/01/03✓	06/30/14	12/20/19	12/20/19	12/30/21	24.4 (Late)

* The budget and schedule approved as part of the March 2016 Revised WSIP, plus any additional budget and schedule changes approved by the Commission as part of additional contingencies on construction contracts.

** Excluding Local Water Supply Projects

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5. PROJECT PERFORMANCE SUMMARY*

All costs are shown in $1,000s as of 12/30/17

Project Name	Active Phase (**)	2005 Baseline Budget (a)	2016 Approved Budget (b)	Current Approved Budget (c)	Q2/FY17-18 Forecasted Cost (d)	Expenditures To Date (e)	Cost Variance (f= c - d)	Cost Status (+)	2005 Baseline Completion (g)	2016 Approved Completion (h)	Current Approved Completion (i)	Q2/FY17-18 Forecasted Completion (j)	Schedule Variance (k = i - j)	Schedule Status (+)	Project Data Sheet
San Joaquin Region															
CUWSJI0101 - WSIP Closeout - San Joaquin	CN		$ 1,640	$ 1,640	$ 4,376	$ 186	($2,736)	●		12/20/19	12/20/19	12/20/19	-	★	See Section 6
Sunol Valley Region															
CUW35201 - Alameda Creek Recapture Project	DS	$ 18,809	$ 29,411	$ 29,411	$ 34,000	$ 11,378	($4,589)	●	05/25/12	06/28/19	06/28/19	08/03/21	25.2 mo. Late	●	See Section 6
CUW37401 - Calaveras Dam Replacement	CN	$ 256,511	$ 810,024	$ 810,024	$ 823,092	$ 680,097	($13,068)	⚠	05/25/12	12/20/19	12/20/19	12/20/19	-	★	See Section 6
CUWSVI0101 - WSIP Closeout - Sunol Valley	DS		$ 3,245	$ 3,245	$ 5,990	$ 343	($2,745)	●		12/20/19	12/20/19	06/30/21	18.3 mo. Late	●	See Section 6
Bay Division Region															
CUW35302 - Seismic Upgrade of BDPL Nos. 3 & 4	CN	$ 66,793	$ 76,980	$ 76,980	$ 73,623	$ 72,109	$ 3,357	★	10/15/12	12/30/16	03/31/18	03/31/18	-	★	See Appendix E
CUWBDP0101 - WSIP Closeout - Bay Division	CN		$ 1,095	$ 1,095	$ 4,399	$ 1,027	($3,304)	●		12/20/19	12/20/19	06/30/20	6.3 mo. Late	●	See Section 6
Peninsula Region															
CUWPWI0101 - WSIP Closeout - Peninsula	DS		$ 4,890	$ 4,890	$ 13,580	$ 1,105	($8,690)	●		12/20/19	12/20/19	05/19/20	5.0 mo. Late	●	See Section 6
San Francisco Regional Region															
CUW30103 - Regional Groundwater Storage and Recovery	CN	$ 39,233	$ 113,580	$ 113,580	$ 138,793	$ 87,015	($25,213)	●	02/27/14	07/30/19	07/30/19	12/30/21	29.1 mo. Late	●	See Section 6

* Excludes projects with completed construction and projects that are no longer active (i.e., deleted projects, closed projects, and projects combined with other projects)

**** Phase Status Legend**

PL Planning DS Design BA Bid & Award

CN Construction NA Not Applicable

For projects active in multiple phases, the table shows the phase in which a majority of the works is taking place.

+ Cost and Schedule Status

★ Meet Requirements: Forecasted Cost/Schedule is within Current Approved Budget/Schedule.

⚠ Need Attention: Forecasted Cost is over Current Approved Budget by greater than 1% and less than 10%. Or Forecasted Schedule is over Current Approved Schedule by greater than 2 months and less than 6 months and less than 10%.

● Exceed Limits: Forecasted Cost is over Current Approved Budget by 10% or more. Or Forecasted Schedule is over Current Approved Schedule by greater than 6 months or 10% or more.

All costs are shown in $1,000s as of 12/30/17

Project Name	Active Phase (**)	2005 Baseline Budget (a)	2016 Approved Budget (b)	Current Approved Budget (c)	Q2/FY17-18 Forecasted Cost (d)	Expenditures To Date (e)	Cost Variance (f= c - d)	Cost Status (+)	2005 Baseline Completion (g)	2016 Approved Completion (h)	Current Approved Completion (i)	Q2/FY17-18 Forecasted Completion (j)	Schedule Variance (k = i - j)	Schedule Status (+)	Project Data Sheet
Support Projects															
CUW36302 - System Security Upgrades	CN		$ 15,201	$ 15,201	$ 15,201	$ 12,861	-	★		12/31/16	03/31/18	09/28/18	6.0 mo. Late	●	See Section 6
CUW38802 - Bioregional Habitat Restoration	CN		$ 91,801	$ 91,801	$ 93,342	$ 84,117	($1,541)	⚠		05/31/18	05/31/18	09/30/21	40.0 mo. Late	●	See Section 6
CUW38804 - Long Term Mitigation Endowment ++	NA		$ 12,000	$ 12,000	$ 12,000	$ 0	-	★		08/31/18	08/31/18	08/31/18	-	★	NA
CUW39401 - Watershed Environmental Improvement Program +++	NA	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 4,332	-	★	06/28/13	04/26/19	04/26/19	11/05/20	18.4 mo. Late	●	See Section 6

∗ Excludes projects with completed construction and projects that are no longer active (i.e., deleted projects, closed projects, and projects combined with other projects)

∗∗ Phase Status Legend

PL Planning DS Design BA Bid & Award

CN Construction NA Not Applicable

For projects active in multiple phases, the table shows the phase in which a majority of the works is taking place.

+ Cost and Schedule Status

★ Meet Requirements: Forecasted Cost/Schedule is within Current Approved Budget/Schedule.

⚠ Need Attention: Forecasted Cost is over Current Approved Budget by greater than 1% and less than 10%. Or Forecasted Schedule is over Current Approved Schedule by greater than 2 months and less than 6 months and less than 10%.

● Exceed Limits: Forecasted Cost is over Current Approved Budget by 10% or more. Or Forecasted Schedule is over Current Approved Schedule by greater than 6 months or 10% or more.

++ The Long Term Mitigation Endowment (LTME) fund provides an initial deposit to secure a source of funds for perpetual monitoring and maintenance of the Bioregional Habitat Restoration sites constructed in the SFPUC watershed, as required by the United States Army Corps of Engineers and California Department of Fish and Wildlife permits. The LTME fund does not involve construction activities.

+++ The Watershed Environmental Improvement Program does not involve construction activities. A majority of its activities involve planning, environmental, and right-of-way activities to secure land purchases.

6. PROJECTS NOT WITHIN BUDGET AND/OR SCHEDULE

CUWSJI0101 - WSIP Closeout - San Joaquin

Project Description: This project includes miscellaneous improvements to ensure the WSIP Level of Service (LOS) goals and objectives are fully achieved in the San Joaquin region. The work will be completed by means of two sub-projects: (1) addition of new solar panels to supplement existing solar panels for existing onsite equipment operations at San Joaquin No.4 Junction, at the Throttling Station at Knight's Ferry, and at Oakdale Portal, eliminating the need for propane generators at these sites; and (2) the installation of an interior concrete slab and drainage improvements at Tesla Portal as the original slab was deleted during the portal construction to allow access for repairs of existing corroded pipelines beneath the slab.

Region: San Joaquin	**Project Status:** Construction	**Environmental Status:** Not Applicable

Project Cost:		**Project Schedule:**	
Approved	$1.64 M	Approved Jul-16	Dec-19
Forecast*	$4.38 M	Forecast* Jun-16	Dec-19
Actual	$0.19 M	Project Percent Complete: 4.1%	

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	**Environmental Approval**	**Bid Advertisement**	**Construction NTP**	**Construction Final Completion**
Current Forecast	N/A	N/A	Various	08/30/19

Progress and Status:

The contractor (Sierra Mountain Construction) didn't resume work for JOC-49-21 in this reporting period. Their plan is to return and complete outstanding items, which includes installation of the drainage system and the ladders, in early 2018. For the Solar Panels Project, Notice to Proceed (NTP) has been issued to the design consultant (AECOM) to perform a shadow analysis to determine the effects of shadows from the constructed microwave antennae on the existing photo-voltaic electrical system at three different sites. Work will begin in January 2018.

Oakdale Portal Site

Issues and Challenges:

The cost variance from the approved baseline budget is due to change in scope for the new solar panels project. When the design team first started on this closeout project, it was found that a new microwave antennae was installed at each of the three sites, which was not known when the scope was first developed. Additional power capacity may be needed to address the changes in conditions.

CUW35201 - Alameda Creek Recapture Project

Project Description: The scope of this project includes conveyance of the water to various existing storage sites within the Sunol Valley or the Sunol Valley Water Treatment Plant by addition of the following:

- Four vertical turbine pumps mounted on floating barges located in existing Pond F2.
- Flexible discharge pipelines which are connected between the new pipe manifold and the existing Sunol Pipeline to discharge the recaptured water to the SFPUC system.
- Throttling valves, a flow meter, and other electrical and general site improvements.

Region: Sunol Valley	**Project Status:** Design	**Environmental Status:** Active (EIR)

Project Cost:		**Project Schedule:**	
Approved	$29.41 M	Approved Sep-03	Jun-19
Forecast*	$34.00 M	Forecast* Sep-03	Aug-21
Actual	$11.38 M	Project Percent Complete: 38.0%	

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	**Environmental Approval**	**Bid Advertisement**	**Construction NTP**	**Construction Final Completion**
Current Forecast	11/27/18	01/07/19	05/31/19	02/04/21

Progress and Status:

The Team continued to work on the EIR recirculation. A meeting was held with National Marine Fisheries Service and California Department of Fish and Wildlife on their comment letters. The EIR Recirculation Scoping meeting was held on 12/6/17. The Planning Department secured an independent third party specialist to review the modeling methodology used in the EIR. The Team continued to work with Department of Water Resources on the encroachment permit to cross their right-of-way.

Issues and Challenges:

The cost and schedule variances from the approved baseline are due to required revisions to the EIR, revisions to the design and re-advertising the contract.

Existing Access Road to Pond F2

CUW37401 - Calaveras Dam Replacement

Project Description: The project provides for construction of a new 210-foot-high earth and rock fill dam, spillway, stilling basin, and intake tower and shaft to replace the existing facilities. A fish ladder will be added on the right abutment (looking downstream) of the Alameda Creek Diversion Dam (ACDD), a dam which acts to divert water through the Alameda Creek Diversion Tunnel (ACDT) to Calaveras Reservoir.

Region: Sunol Valley	**Project Status:** Construction	**Environmental Status:** Completed (EIR)

Project Cost:

Approved		$810.02 M
Forecast*		$823.09 M
Actual		$680.10 M

Project Schedule:

Approved Sep-02		Dec-19
Forecast* Sep-02		Dec-19

Project Percent Complete: 87.3%

Approved; Actual Cost; * Forecast Status: Meet Requirements; Need Attention; Exceed Limits

Key Milestones:	Environmental Approval	Bid+ Advertisement	Construction+ NTP	Construction+ Final Completion
Current Forecast	01/27/11✓	(A) 01/31/11✓ (B) 01/04/16✓	(A) 08/15/11✓ (B) 04/19/16✓	(A) 06/19/19 (B) 12/16/18

\+ Project includes multiple construction contracts.
(A) Calaveras Dam Replacement (WD-2551); (B) Alameda Creek Diversion Dam (WD-2729)

Progress and Status:

WD-2551 CDRP: The contractor continued to make progress in the placement of the dam embankment, reaching approximate elevation 693 feet at the end of the reporting period. Dam embankment work has been halted in late December and will resume in early March due to the rainy season. Contractor has also completed construction of the downstream electrical building, and site work and electrical installations at the downstream buildings.

WD-2729 ACDD: The contractor completed all in-creek work by the November 15, 2017 deadline. Work on the upper sections of the fish ladder and transition structure and the soil stabilization wall continued.

Progress made for the Dam Embankment in 2017

Issues and Challenges:

WD-2551 CDRP: The cost variance from the approved baseline budget is due to the following reasons: 1) Additional resources to cover the extended hours and eight (8) months extended duration between the March 2014 rebaseline and current forecast for the CDRP, which include mainly Construction Management and Design support staff; and 2) Additional resources for the ACDD project to meet extensive regulatory requirements and extended hours to address the differing site conditions in the field, which include additional Quality Assurance (QA) Inspectors, Biologists and Field Contract Administrators.

WD-2729 ACDD: The City continued to negotiate with the contractor on various change orders.

CUWSVI0101 - WSIP Closeout - Sunol Valley

Project Description: The project includes miscellaneous improvements to ensure WSIP Level of Service (LOS) goals and objectives are fully achieved in the Sunol Valley Region and consists of one design/bid contract and two Job Order Contracts (JOCs):
Sunol Valley Water Treatment Plant Basin 5 Optimization – This design/bid subproject will add and develop a range of flocculation aid polymer doses for the no. 5 sedimentation basin of the plant to enable the basin to meet a water production goal of 40 mgd consistently.
SABPL Erosion Repairs at Pond F3 East – This JOC subproject will repair the existing outfall pipe erosion at Quarry Pond F3 East with grouted riprap rockfill and restore the drain pipe. The outfall drainage system was originally installed as part of the San Antonio Backup Pipeline.
AS4 Carrier Water System Modifications – This JOC subproject will modify the chemical injection system of the Alameda Siphons No.4 Pipeline to overcome lack of water system volume and pressure needed to inject water treatment chemicals.

Region: Sunol Valley	**Project Status:** Design	**Environmental Status:** Not Applicable

Project Cost:		**Project Schedule:**	
Approved	$3.25 M	Approved Jul-16	Dec-19
Forecast*	$5.99 M	Forecast* Jul-16	Jun-21
Actual	$0.34 M	Project Percent Complete: 10.3%	

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	**Environmental Approval**	**Bid Advertisement**	**Construction NTP**	**Construction Final Completion**
Current Forecast	N/A	N/A	Various	12/31/20

Progress and Status:
•SVWTP Basin No.5 will be funded by WSIP for the chemical feed for only Basin 5, and the 10 year Water CIP will fund the chemical facilities for Basins 1 to 4. A task order for the CER and Design Phase awaits the new EMB As-Needed Engineering Services Contract expected in early 2018.
•NIT security doors, cathodic protection, UPS rack and enclosures, and other miscellaneous items will be done under JOC-54-02. The contractor, Mitchell Engineering completed the UPS panels and security doors. The tentative completion date for all the other work is March 2018.
•Relocation of the NIT's water quality equipment will be performed by GIRON under JOC-61-08. A JOC was issued in this reporting period due to a delay in completing the drawings to incorporate additional information which includes additional equipment that needs to be relocated and additional programming work to complete testing and startup of the system.
• Pond F3E will be done under JOC-59-20. A joint scope meeting with Power Engineering (JOC Contractor) occurred in late December 2017. The project team is updating the drawings and specifications to address comments discussed during the meeting. Once completed, contractor will provide pricing for the project.
•Two (2) JOC projects, AS4 and SABPL Carrier Water System Modifications Projects, are still in design phase.

Issues and Challenges:
The cost variance from the approved baseline budget is due to an increase in soft cost and construction cost for the refined scope of work for each of the closeout projects. With the scope refinement, three (3) new JOCs include:
1) NIT security doors, cathodic protection, UPS rack and enclosures:
2) Relocation of NIT's water quality equipment; and
3) San Antonio Backup Pipeline Carrier Water System Modification Projects.
The Schedule Variance is due to the change in scope for the SVWTP Basin 5 to include Basin 1 to 4. The design, bid and part of the construction phases will be covered under this WSIP closeout, while the remaining construction and closeout phases will be covered under Water CIP.

CUWBDP0101 - WSIP Closeout - Bay Division

Project Description: This project includes miscellaneous improvements to ensure the WSIP Level of Service (LOS) goals and objectives are fully achieved in the Bay Division region. The work will be completed by means of several sub-projects, including: developing an agreement with Caltrans for a drainage system across SFPUC ROW between the Caltrans storm-water invert and an open field associated with the construction of the Seismic Upgrades of BDPL Nos. 3 and 4 and decommissioning of the existing BDPL Nos. 1 and 2 as required by the EIR; and uncovering of previously installed valve E50U to provide for removal, cleaning, and re-installation of bolts; testing; and possible installation of new bolt sleeves for corrosion protection purposes.

Region: Bay Division	**Project Status:** Construction	**Environmental Status:** Not Applicable

Project Cost:		**Project Schedule:**	
Approved	$1.10 M	Approved Jul-16	Dec-19
Forecast*	$4.40 M	Forecast* Jul-16	Jun-20
Actual	$1.03 M	Project Percent Complete: 89.4%	

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	N/A	N/A	Various	11/19/18

Progress and Status:

After reviewing the JOC-60-15 contractor's preliminary estimate for the ventilation, pipe and pipe support coating, v-ditch and sump pump work and evaluating options, it was decided to separate the work into two (2) contracts. One JOC will install the ventilation and sump pump systems. The second will install the concrete v-ditch and perform the coating work. Initial planning work continued on the BDPL 1&2 Decommissioning project.

Issues and Challenges:

The preliminary estimate for the JOC work exceeded the JOC limit of $600k. The coating work will be separated and performed in conjunction with warranty work required under the original Seismic Upgrades of BDPL 3&4 contract. This arrangement will reduce the shutdown duration and have one coating firm in the vault and responsible for the all of the coating work. The previous arrangement had two separate coating firms working on BDPL 3, with each firm requiring confined space entry permits and rescue teams, and each firm requiring 30 days to complete their work. The construction management services for the JOC work will be handled by the CM consultant under a new WSIP Closeout – Bay Division project Task Order. The forecast for CM services is $150,000. The cost variance is due to the change in CM services for the JOC work. The schedule variance is due to an updated forecast for the BDPL 1&2 Decommissioning project.

Erosion Across ROW Due to Caltrans Drainage Pipe

CUWPWI0101 - WSIP Closeout - Peninsula

Project Description: This project consists of miscellaneous improvements to ensure the WSIP Level of Service (LOS) goals and objectives are fully achieved in the Peninsula region. The work will be completed by means of several sub-projects, including the Lower Crystal Springs Dam (LCSD) stilling basin modifications, valve modifications for fish passage at the same site, New Crystal Springs Bypass Tunnel electrical modifications, closeout of California Division of Safety of Dams permit applications, and coordination with San Mateo County for bridge construction over LCSD.

Region: Peninsula	**Project Status:** Design	**Environmental Status:** Not Applicable

Project Cost:		**Project Schedule:**	
Approved	$4.89 M	Approved Jul-16	Dec-19
Forecast*	$13.58 M	Forecast* Jul-16	May-20
Actual	$1.11 M	Project Percent Complete: 8.5%	

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	**Environmental Approval**	**Bid Advertisement**	**Construction NTP**	**Construction Final Completion**
Current Forecast	N/A	Various	Various	11/21/19

Progress and Status:

Crystal Springs / San Andreas Items:

1. WD-2822R – Crystal Springs Dam Stilling Basin, Dissipation Structure, and H53 Valve - Re-advertised in December 2017 with bids due in early February. 2.The New Crystal Springs Bypass Tunnel electrical modifications have been completed. 3.Lower Crystal Springs Dam Bridge Replacement- joint project with San Mateo County (SMC). Bridge opening is forecasted for late 2018. 4.Erosion Mitigation/Repairs – Post construction environmental monitoring of sites associated with major WSIP projects. Two locations in Crystal Springs were investigated in August 2017 due to erosion. A technical memorandum will be prepared to mitigate erosion. Construction forecast is scheduled for summer 2018.

Harry Tracy Water Treatment Plant Items:

1. JOC 59-01 - Electrical & Mechanical Piping Modifications. Contract NTP was issued in December to start work early next quarter. 2.JOC-59-17 - Emergency Generators Filters Upgrades. Drawings and specifications are being prepared for JOC contractor to price. Two indoor filters and an outdoor filter will be pre-purchased. 3.JOC-59-19 - Leak at Filter Gallery Channels. Design is being developed and a JOC Task Order as initiated to repair the leaks in the filter gallery channels. 4.Variable Frequency Drive Controllers (VFDs) - 5 out of 6 VFDs for wash water pumps and all 3 VFDs for sludge transfer pumps have failed. Five of the six were replaced and relocated to allow for greater air flow and ventilation. The VFDs will be monitored and temperature readings taken periodically to determine if the fix is the final solution. Alternatives for the 3 VFDs for the sludge transfer pumps are being developed. 5. Vibration Control Panel and Circuit Breakers. SFPUC staff conducted a site reconnaissance in September 2017. A site analysis memo is being prepared.

Issues and Challenges:

The cost forecast for this project has been increased to include closeout items from the Harry Tracy Long Term Improvements Project. This cost is also reflected as forecasted savings in the HTLTIP. The cost forecast has increased to address erosion issues associated with projects completed in the Peninsula region, and an increase in the construction estimates to complete the Crystal Springs Dam Stilling and H53 Valve Work. In preparation for the Mountain tunnel shutdown for November 2018, JOC-59-17 has a tight deadline to purchase and install three (3) filters for the emergency ozone generators at HTWTP.

CUW30103 - Regional Groundwater Storage and Recovery

Project Description: The project entails the construction of up to 16 groundwater wells and well stations with a total capacity of 7.2 mgd to be used as a regional dry-year water supply. The wells will be connected to three wholesale customer water systems on the Upper Peninsula (the Cities of Daly City and San Bruno, and California Water Service Company) and to the SFPUC transmission system. Disinfection will be required for all wells and treatment may be required at some of the wells for the removal of manganese.

Region: San Francisco Regional	**Project Status:** Construction	**Environmental Status:** Active (Various)

Project Cost:		**Project Schedule:**	
Approved	$113.58 M	Approved Jun-03	Jul-19
Forecast*	$138.79 M	Forecast* Jun-03	Dec-21
Actual	$87.02 M	Project Percent Complete: 75.8%	

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	Environmental Approval	Bid+ Advertisement	Construction+ NTP	Construction+ Final Completion
Current Forecast	(A) 09/07/09✓ (B) 08/07/14✓ (C) 08/30/19	(A) 09/07/11✓ (B) 09/22/14✓ (C) 09/03/19	(A) 01/30/12✓ (B) 04/06/15✓ (C) 01/02/20	(A) 09/05/12✓ (B) 06/28/19 (C) 05/31/21

\+ Project includes multiple construction contracts.
(A) Test well drilling; (B) Well station construction; (C) Well sites in Millbrae and South San Francisco

Progress and Status:

For Contract B, construction at all twelve well sites with new wells and buildings achieved substantial completion on 12/31/17. The 5-day test of the well sites was completed. The majority of the remaining activities is change order work related to modification and construction of the sodium hydroxide system for seven well sites. Performing the 7-day test for the well stations is the next major construction milestone and is expected to start this spring.

Issues and Challenges:

The variance between the Approved and Forecast Cost is due to actual costs for change orders and trends identified for Phase 1, and risk associated with Phase 2 further discussed below. The change orders include modification and new installation of a sodium hydroxide system; modification to the communication and master programmable logic controller system; access improvement to the well stations; furnishing and installing automated samplers, flow meter conduits, and sample lines; and performing site restoration.

Due to the difficulty in identifying two additional well sites in the San Bruno area, test wells are now planned in Millbrae and South San Francisco. Accordingly, the project team has identified significant schedule and cost risk associated with Phase 2 (Contract C). Once the test wells are completed, data evaluation will provide information required to assess the viability of each site for possible future groundwater well station(s).

Exterior of completed Serramonte Blvd well station in Colma, undergoing testing.

The variance between the Approved and Forecast completion dates is a result of the ongoing challenges in completing Phase 1, and the difficulty in identifying viable well sites for Phase 2.

CUW36302 - System Security Upgrades

Project Description: The project includes the identification, planning, design, and construction of all necessary security components associated with WSIP facilities. Phase A design consists of security appurtenances such as conduit routing incorporated into the overall design of projects. This work provides for the security infrastructure and is bid as part of the specific WSIP construction project. Phase B design consists of completion of project security system components which will be purchased, installed, and tested by a Security Integrator specialist.

Region: Support Projects	**Project Status:** Construction	**Environmental Status:** Completed (CatEx)

Project Cost:		**Project Schedule:**	
Approved	$15.20 M	Approved Jan-06	Mar-18
Forecast*	$15.20 M	Forecast* Jan-06	Sep-18
Actual	$12.86 M	Project Percent Complete: 95.0%	

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	**Environmental Approval**	**Bid+ Advertisement**	**Construction+ NTP**	**Construction+ Final Completion**
Current Forecast	03/28/12✓	01/07/06✓ - 08/15/13✓	11/13/06✓ - 05/08/14✓	07/13/07 ✓ - 03/31/18

\+ Date range for the first and last project among the 28 WSIP projects that require security improvements.

Progress and Status:

The project team is processing the final change order to close out the Second As-Needed Security Integration Construction Contract, WD-2661. At the Sunol Valley Treatment Plant, the project team is coordinating with Operations in order to complete the security installation. Now that the security doors have been installed at New Irvington Tunnel, the JOC for security work has started as planned.

For the Third As-Needed Security Integration Services Construction Contract, WD-2707, the project team has substantially completed construction for Task Order 2 (Harry Tracy) and issued the punchlist. The project team received O&Ms and As-Built drawings for Task Order 4 (Crystal Springs / San Andreas) and is reviewing them.

Security Panel recently installed

Issues and Challenges:

The schedule variance is due to late installation of doors at the New Irvington Tunnel project.

CUW38802 - Bioregional Habitat Restoration

Project Description: Bioregional Habitat Restoration (BHR) provides a coordinated and consolidated approach to compensate for WSIP construction impact to the environment of the construction site. BHR includes projects to preserve, enhance, restore, or create tidal marsh, vernal pools, sycamore and oak riparian woodland, oak woodland and savannah, and serpentine and annual grasslands to benefit threatened and endangered species. BHR includes design, environmental permitting, construction, construction management, and three years of performance monitoring and maintenance.

Region: Support Projects	**Project Status:** Construction	**Environmental Status:** Completed (Permitting Only)

Project Cost:		**Project Schedule:**	
Approved	$91.80 M	Approved Sep-06	May-18
Forecast*	$93.34 M	Forecast* Sep-06	Sep-21
Actual	$84.12 M	Project Percent Complete: 94.9%	

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	Environmental Approval	Bid+ Advertisement	Construction+ NTP	Construction+ Final Completion
Current Forecast	12/08/14✓	(A) 08/20/10✓ - 05/23/12✓ (B) 03/16/11✓ - 02/02/15✓	(A) 06/27/11✓ - 09/19/12✓ (B) 01/30/12✓ - 02/01/16✓	(A) 01/06/12 - 05/01/17 ++ (B) 12/31/19++

\+ Date range for the first and last contracts in each region.
(A) BHR Alameda Contracts - 7 compensation sites (B) BHR Peninsula Contracts - 11 compensation sites
++ Includes plant establishment, maintenance, and monitoring period.

Progress and Status:

There are 18 total compensation sites in the Alameda and the Peninsula Watershed. Construction work is complete at 10 of those sites, and those 10 sites are currently in the maintenance phase. The last BHR contract, Peninsula Vegetation Removal, contains the remaining 8 compensation sites and is currently 90% complete. Construction completion is anticipated within the next quarter.

Issues and Challenges:

Closeout for San Antonio Creek is delayed until February 2018 when an outstanding stop notice can be released. Closeout of Homestead Pond is delayed because Contract Monitoring Division (CMD) forms have not been submitted by a subcontractor to Yerba Buena Engineering. The variance between the approved and forecast costs resulted from 1) the eradication of pathogens and drought conditions that added an extra year of maintenance and watering at San Antonio Creek; and 2) the mitigation of naturally occurring asbestos and the addition of paving at Sawyer Camp Trail to the Peninsula Vegetation Removal contract. All construction will be complete in 2018; however, schedule has been extended to accommodate preparation and negotiation of conservation easements with the regulatory agencies.

LCSD Oak Tree Planting within Caltrans ROW

CUW39401 - Watershed Environmental Improvement Program

Project Description: The Watershed Environmental Improvement Program (WEIP) includes the comprehensive identification of critical watershed lands and ecosystem restoration needs within the hydrologic boundaries of the Alameda Creek, Peninsula (San Mateo and Pilarcitos Creeks), and Tuolumne River watersheds, and prioritizes the protection and/or restoration of these lands. This program will manage watershed activities and resources to protect source water quality, native species, and their habitat and to identify critical watershed lands, key ecosystem restoration needs, and restoration priorities. The program also supports projects that enhance public awareness and provide educational opportunities related to water quality, water supply, conservation, and environmental stewardship issues. These projects include construction of the proposed Alameda Creek Watershed Center and improvements to public access (e.g., trail connections) compatible with watershed management plans and policies.

Region: Support Projects	**Project Status:** Not Applicable	**Environmental Status:** Active (TBD)

Project Cost:

Approved		$20.00 M
Forecast*		$20.00 M
Actual		$4.33 M

Project Schedule:

Approved	Jan-07	Apr-19
Forecast*	Jan-07	Nov-20

Project Percent Complete: 20.8%

Approved; Actual Cost; * Forecast Status: Meet Requirements; Need Attention; Exceed Limits

Key Milestones:	Environmental Approval	Bid+ Advertisement	Construction+ NTP	Construction+ Final Completion
Current Forecast	11/01/18	N/A	N/A	N/A

\+ Project includes Planning, Environmental, Right-of-Way, and Close-out Phases only.

Progress and Status:

The Alameda Creek Watershed Center continued to be on hold pending resolution of funding issues. The design of the SFPUC Southern Skyline Boulevard Ridge Trail Extension (Bay Area Ridge Trail Extension) is completed and the project is now undergoing environmental review. The Federal environmental review process will be completed in spring 2018; the state process (CEQA) will be completed in fall 2018. Project construction will occur in 2019.

Issues and Challenges:

The direction of the WEIP has shifted to the construction of an environmentally focused construction project – the Skyline Ridge Trail Extension. WEIP funding may also be considered to supplement the 10-year CIP for the Alameda Creek Watershed Center.

Due to delays with the development of the Environmental Impact Report for the Skyline Ridge Trail Extension project, a time extension for the WEIP is necessary to complete the environmental review, bid and award the construction contract and complete construction of the project.

Sulfur Creek in the Alameda Creek Watershed

7. On-Going Construction

Construction Contract	Schedule			Budget		Variance (Approved - Forecast)		Actual % Complete
	NTP Date	Approved Construction Final Completion*	Q2/FY17-18 Forecasted Construction Final Completion**	Approved Contract Cost +	Q2/FY17-18 Forecasted Cost++	Schedule (Cal. Days)	Cost	
Sunol Valley Region								
CUW37401 - Calaveras Dam Replacement (Contract A)	08/15/11	04/08/19	06/19/19	$ 556,187,165	$ 573,954,955	(72)	($17,767,790)	91.8%
CUW37401 - Alameda Creek Diversion Dam (Contract B)	04/19/16	12/16/18	12/16/18	$ 31,659,031	$ 33,587,724	-	($1,928,693)	81.6%
San Francisco Regional Region								
CUW30103 - Regional GW Storage and Recovery (Contract B)	04/06/15	01/06/18	08/31/18	$ 47,005,841	$ 54,466,489	(237)	($7,460,648)	99.0%

Program Total for On-Going Construction	Approved Contract Cost	Q2/FY17-18 Forecasted Cost*	Variance	
			Cost	Percent
	$ 634,852,037	**$ 662,009,168**	**($27,157,132)**	**(4.3%)**

Note:

* Approved Construction Final Completion Date includes approved change orders.

** The Forecasted Construction Final Completion Date includes all approved, pending, and potential change orders and trends.

\+ Approved Contract Cost includes awarded contract amount and approved change orders.

++ The Forecasted Cost includes awarded contract amount and all approved, pending, and potential change orders.

8. PROJECTS IN CLOSE-OUT

Project Title	2005 Baseline Construction Phase Completion	2016 Approved Construction Phase Completion	Current Approved Construction Phase Completion	Actual Construction Phase Completion	2005 Approved Project Completion	2016 Approved Project Completion	Current Approved Project Completion	Forecasted Project Completion	2005 Baseline Construction Phase Budget	2016 Approved Construction Phase Budget	Current Approved Construction Phase Budget	Construction Phase Expenditures To Date
Sunol Valley Region												
CUW35901 - New Irvington Tunnel	04/02/13	08/30/16	09/30/17	09/30/17	09/17/13	12/30/16	03/31/18	03/31/18	$ 173,326,000	$ 279,916,895	$ 279,916,895	$ 272,132,716
TOTAL									$ 173,326,000	$ 279,916,895	$ 279,916,895	$ 272,132,716

9. COMPLETED PROJECTS

Project Title	2005 Baseline Project Completion	2016 Approved Project Completion	Current Approved Project Completion	Actual Project Completion	2005 Baseline Project Budget	2016 Approved Project Budget	Current Approved Project Budget	Project Expenditures To Date
San Joaquin Region								
CUW36401 - Lawrence Livermore Water Quality Improvement	11/07/11	07/31/13	07/31/13	07/31/13	$ 4,235,258	$ 4,198,480	$ 4,198,480	$ 4,198,247
CUW37301 - San Joaquin Pipeline System	03/25/14	03/31/16	03/31/16	03/31/16	$ 352,732,000	$ 202,886,020	$ 202,886,020	$ 203,178,015
CUW37302 - Rehabilitation of Existing San Joaquin Pipelines	06/30/14	10/31/14	10/31/14	10/31/14	$ 80,000,000	$ 21,153,438	$ 21,153,438	$ 21,153,622
CUW38401 - Tesla Treatment Facility	07/01/11	01/30/15	01/30/15	01/30/15	$ 101,643,001	$ 113,225,946	$ 113,225,946	$ 113,211,607
Sunol Valley Region								
CUW35501 - Standby Power Facilities - Various Locations	12/06/10	12/22/10	12/22/10	12/22/10	$ 9,949,735	$ 12,950,566	$ 12,950,566	$ 12,950,566
CUW35902 - Alameda Siphon #4	04/14/11	06/28/13	06/28/13	06/28/13	$ 78,577,000	$ 65,093,582	$ 65,093,582	$ 64,950,507
CUW37001 - Pipeline Repair & Readiness Improvements	03/30/07	04/16/09	04/16/09	04/16/09	$ 5,591,770	$ 5,195,381	$ 5,195,381	$ 5,195,381
CUW37402 - Calaveras Reservoir Upgrades	02/17/06	07/28/06	07/28/06	07/28/06	$ 1,740,055	$ 1,690,552	$ 1,690,552	$ 1,690,552
CUW37403 - San Antonio Backup Pipeline	06/29/12	03/31/16	03/31/16	06/30/16	$ 7,677,000	$ 53,688,450	$ 53,688,450	$ 53,594,683
CUW38101 - SVWTP Expansion & Treated Water Reservoir	07/09/13	10/31/14	10/31/14	10/31/14	$ 133,108,002	$ 129,593,674	$ 129,593,674	$ 129,593,674
CUW38601 - San Antonio Pump Station Upgrade	12/12/11	06/29/12	06/29/12	06/29/12	$ 41,854,000	$ 12,905,415	$ 12,905,415	$ 12,894,592
Bay Division Region								
CUW35301 - BDPL Nos. 3 & 4 Crossover/Isolation Valves	09/30/08	07/31/09	07/31/09	07/31/09	$ 27,600,158	$ 27,045,627	$ 27,045,626	$ 27,039,149
CUW36301 - SCADA System - Phase II	02/24/12	05/28/13	05/28/13	05/28/13	$ 36,098,999	$ 9,470,922	$ 9,470,922	$ 9,470,923
CUW36801 - BDPL Reliability Upgrade / Tunnel	01/31/14	08/30/16	08/30/16	08/30/16	$ 572,022,634	$ 275,931,544	$ 275,931,544	$ 271,660,844
CUW36802 - BDPL Reliability Upgrade - Pipeline	-	03/31/16	03/31/16	03/31/16	-	$ 217,262,675	$ 217,262,675	$ 216,719,335
CUW36803 - BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2	-	05/28/10	05/28/10	05/28/10	-	$ 3,046,981	$ 3,046,981	$ 3,046,981
CUW38001 - BDPL Nos. 3 & 4 Crossovers	04/24/13	06/30/14	06/30/14	06/30/14	$ 36,616,911	$ 29,910,448	$ 29,910,449	$ 29,910,449
CUW38901 - SFPUC/EBMUD Intertie	02/07/07	03/20/14	03/20/14	03/20/14	$ 8,598,851	$ 9,167,306	$ 9,167,306	$ 9,167,306
CUW39301 - BDPL No. 4 Condition Assessment PCCP Sections	05/01/08	02/06/09	02/06/09	02/06/09	$ 2,000,000	$ 1,937,599	$ 1,937,599	$ 1,937,599
Peninsula Region								
CUW35401 - Lower Crystal Springs Dam Improvements	08/16/11	12/28/12	12/28/12	12/28/12	$ 27,752,222	$ 34,859,039	$ 34,859,040	$ 34,859,040
CUW35601 - New Crystal Springs Bypass Tunnel	10/28/10	08/17/12	08/17/12	08/17/12	$ 83,222,790	$ 81,435,610	$ 81,435,610	$ 81,466,732
CUW35701 - Adit Leak Repair - Crystal Springs/Calaveras	07/03/08	07/31/08	07/31/08	07/31/08	$ 3,748,452	$ 2,787,322	$ 2,787,322	$ 2,787,322
CUW36101 - Pulgas Balancing - Inlet/Outlet Work	05/11/06	05/11/06	05/11/06	05/11/06	$ 1,667,532	$ 1,765,938	$ 1,765,938	$ 1,765,938
CUW36102 - Pulgas Balancing - Discharge Channel Modifications	08/05/13	07/30/10	07/30/10	07/30/10	$ 8,111,422	$ 2,910,007	$ 2,910,007	$ 2,910,007
CUW36103 - Pulgas Balancing - Structural Rehabilitation and Roof Replacement	01/29/13	12/28/12	12/28/12	12/28/12	$ 36,712,846	$ 20,232,215	$ 20,232,215	$ 20,238,716

Project Title	2005 Baseline Project Completion	2016 Approved Project Completion	Current Approved Project Completion	Actual Project Completion	2005 Baseline Project Budget	2016 Approved Project Budget	Current Approved Project Budget	Project Expenditures To Date
Peninsula Region								
CUW36105 - Pulgas Balancing - Modifications of the Existing Dechloramination Facility	-	03/20/13	03/20/13	03/20/13	-	$ 5,390,031	$ 5,390,031	$ 5,390,031
CUW36501 - Cross Connection Controls	05/15/09	04/30/09	04/30/09	04/30/09	$ 6,111,779	$ 3,948,944	$ 3,948,944	$ 3,948,944
CUW36601 - HTWTP Short-Term Improvements (Demo Filters)	07/03/06	11/14/06	11/14/06	11/14/06	$ 4,381,375	$ 3,067,903	$ 3,067,903	$ 3,067,903
CUW36603 - HTWTP Short-Term Improvements - Coagulation & Flocculation/ Remaining Filters	09/08/10	07/28/10	07/28/10	07/28/10	$ 9,741,617	$ 18,604,938	$ 18,604,937	$ 18,604,937
CUW36701 - HTWTP Long-Term Improvements	04/08/14	12/30/16	12/30/16	12/30/16	$ 167,570,000	$ 280,238,337	$ 280,238,337	$ 273,804,405
CUW36702 - Peninsula Pipelines Seismic Upgrade	-	07/06/16	07/06/16	07/06/16	-	$ 40,298,944	$ 40,298,944	$ 38,767,424
CUW36901 - Capuchino Valve Lot Improvements	07/24/09	08/19/08	08/19/08	08/19/08	$ 3,573,782	$ 2,803,153	$ 2,803,153	$ 2,803,153
CUW37101 - Crystal Springs/San Andreas Transmission Upgrade	04/01/14	06/30/15	06/30/15	06/30/15	$ 148,582,655	$ 190,740,623	$ 190,740,623	$ 189,816,066
CUW37801 - Crystal Springs Pipeline No. 2 Replacement	04/27/12	12/31/14	12/31/14	12/31/14	$ 93,926,000	$ 56,152,026	$ 56,152,026	$ 56,070,509
CUW37901 - San Andreas Pipeline No. 3 Installation	06/09/11	08/30/12	08/30/12	08/30/12	$ 42,029,941	$ 27,495,558	$ 27,495,558	$ 27,495,558
CUW39101 - Baden and San Pedro Valve Lots Improvements	10/12/11	03/29/13	03/29/13	03/29/13	$ 47,319,999	$ 24,990,803	$ 24,990,803	$ 24,990,803
San Francisco Regional Region								
CUW35801 - Sunset Reservoir - North Basin	05/06/09	09/10/10	09/10/10	09/10/10	$ 61,975,999	$ 64,271,570	$ 64,271,570	$ 64,270,725
CUW37201 - University Mound Reservoir - North Basin	03/10/11	03/29/13	03/29/13	03/29/13	$ 102,882,610	$ 43,420,000	$ 43,420,000	$ 43,266,552
Support Projects								
CUW38801 - Programmatic EIR	06/20/07	06/30/09	06/30/09	06/30/09	$ 9,271,001	$ 10,730,307	$ 10,730,307	$ 10,730,684
CUW38803 - Vegetation Restoration of WSIP Construction Sites	-	06/30/16	06/30/16	06/30/16	-	$ 2,200,000	$ 2,200,000	$ 2,099,755
TOTAL					$ 2,358,627,396	$ 2,114,697,876	$ 2,114,697,875	$ 2,100,719,238

APPENDICES

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APPENDIX A. PROJECT DESCRIPTIONS

SAN JOAQUIN REGION

CUW36401 - Lawrence Livermore Water Quality Improvement (Completed)
The project consists of:
• Ultraviolet (UV) disinfection, including two 150-gallon-per-minute, parallel UV units and ancillary facilities. The units will be installed in the existing Thomas Shaft building.
• Two pumps that will pump water from the Coastal Range Tunnel to the new disinfection system.

CUW37301 - San Joaquin Pipeline System (Completed)
The project consists of:
• Pipeline crossover facilities at Emery Road (including 10 valves) and Pelican Road (including 12 valves).
• Installation of a portion of new pipeline, the Western Segment, from the San Joaquin River to the Tesla Portal. The pipeline will be 78-inches in diameter, approximately 10.3 miles in length and will include tunneled crossings of several highways, a railroad, and an irrigation canal. The pipeline will cross over the top of the California Aqueduct.
• Installation of a portion of new pipeline, the Eastern Segment, from the Oakdale Portal to a new connection point approximately 6.7 miles downstream on SJPL No. 3. This segment will also be 78-inches in diameter.
• Installation of valve facilities on SJPL Nos. 3 and 4 along the Eastern Segment to provide for operational needs to divide and isolate segments of these lines for maintenance and to regulate flow and control pressure in the system.
• Security related site improvements at Oakdale Portal.

CUW37302 - Rehabilitation of Existing San Joaquin Pipelines (Completed)
The project scope is to assure that existing San Joaquin Pipelines will meet Delivery Reliability LOS goals by establishing a program of routine maintenance, repair, and replacement activities for long-term implementation and by addressing the highest priority rehabilitation measures identified during the timeframe of the WSIP:
• Rehabilitation of and security-related site improvements at the existing Roselle Crossover.
• Establishment of a program of pipelines conditions assessment, including upgrading and renewal as required, of pipe coating and lining systems.
• Upgrade of the existing SJPL cathodic protection system.
• Upgrade of the existing SJPL Supervisory Control and Data Acquisition (SCADA) system.

CUW38401 - Tesla Treatment Facility (Completed)
The project consists of:
• Isolation valves and piping to divert SJPL flow to the new treatment facility, large-diameter piping and valves located within the treatment facilities, and a single discharge pipeline to tie back into the existing SJPLs.
• A disinfection building housing 12 UV reactors, cleaning equipment, and ancillary equipment.
• A chemical storage and feed facility for sodium hypochlorite, hydrofluorsilicic acid (i.e., fluoride), and carbon dioxide.
• Office, laboratory, and control facilities, emergency engine generators, and security related site and access road improvements.

CUW38701 - Tesla Portal Disinfection Station
The Tesla Portal Disinfection Facility is located where the San Joaquin Pipelines (SJPLs) converge into the Coast Range Tunnel and provides primary disinfection of the Hetch Hetchy water supply. The facility is one of the key water quality monitoring and compliance locations for the San Francisco Public Utilities Commission (SFPUC). The Tesla Portal Disinfection Station Project includes the planning of a new disinfection facility that will provide reliable disinfection to the Hetch Hetchy water supply.
This project has been combined with the "CUW38401 - Tesla Treatment Facility Project"; therefore, the respective budgets for the Environmental, Design, Bid & Award, Construction, Construction Management, and Close-out Phases have been transferred to the "CUW38401 - Tesla Treatment Facility Project".

Note that this project has been terminated and the remaining scope & budget has been combined with the "CUW38401 - Tesla Treatment Facility" project.

CUWSJI0101- WSIP Closeout - San Joaquin

• Supplemental Solar Panel Installations – The CUW37301 San Joaquin Pipeline System, including the western segment, eastern segment and facilities, and crossover pipeline projects, achieved final completion in 2013, 2014 and 2015, respectively. During the initial course of operations it was noted the solar panel arrays designed to provide power for the facility equipment were not sufficient to meet all modes of operational demands. This sub-project will provide additional solar panels to cover power shortfalls and allow the facility to better meet its water delivery reliability LOS goal. This sub-project consists of three job order contracts at three sites: Oakdale, Knight Ferry Throttling Station, and San Joaquin Junction No. 4. The scope of work includes:

o Minor site preparation and grading work,
o Furnishing and installing new supplemental solar arrays mounted on concrete pads within security fence enclosures,
o Connection to and integration of the new solar panels into the existing power system and controls, and
o Installation of batteries for solar power storage on-site.

• Tesla Portal Facility Interior Floor Slab – The Tesla Portal Facility, a sub-project of the CUW38401 Tesla Treatment Facility, was completed in January 2015. During construction, the concrete interior floor slab was deleted from the project construction documents to allow easier access to repair corrosion of the existing pipelines discovered during construction beneath the new Tesla Portal Facility. Due to drainage issues at the site, the Operations staff at the facility has now requested the interior slab be incorporated into the structure with a small access opening for future maintenance and corrosion repairs of the existing buried pipelines. This sub-project will be constructed through use of a job order contract including:

o A new interior concrete slab slope to drain to a new catch basin,
o A new catch basin with grating and sump, and
o A small sump pump and drain through the slab or existing concrete wall to a discharge point.

SUNOL VALLEY REGION

CUW35201 - Alameda Creek Recapture Project

The planned facilities for this project are based on Alternative 4-1 from the Updated Alternatives Analysis Report (AAR) dated January 30, 2009, with some refinements described below. The planned facilities include the following components: four identical vertical turbine pumps mounted on floating barges located in existing Pond F2 (including a mooring system); four flexible discharge pipelines extending from each pump to a new pipe manifold located on shore; approximately 100-feet of 36-inch pipeline connection between the new pipe manifold and the existing Sunol Pipeline to discharge the recaptured water to the SFPUC system; throttling valves and a flow meter; electrical control building; 1,600 feet of power lines from the existing Hetch Hetchy Water & Power Calaveras Electrical Substation installed on 10 new power poles; and general site improvements. In addition, the scope includes conveyance of the water to various existing storage sites within the Sunol Valley or the Sunol Valley Water Treatment Plant, as necessary. Some minor refinements were made in the March 2016 Notice of Changes to eliminate on-shore booster pumps in favor of a single set of pumps located on barges in Pond F2 and the elimination of the flexibility to allow multiple sources of water from Pond F2 and Calaveras Reservoir to be blended and sent to San Antonio Reservoir (SAR) in the future.

CUW35501 - Standby Power Facilities - Various Locations (Completed)

The project consists of installing standby electrical power facilities at six sites in the East Bay and on the Peninsula. Each site is either provided with an emergency generator or electrical receptacles to accommodate a portable emergency generator. The five sites are: Alameda West Portal, and San Antonio Reservoir & Dam; Harry Tracy Water Treatment Plant; Millbrae Yard; San Pedro Valve

Lot; and Capuchino Valve Lot.

CUW35901 - New Irvington Tunnel
This project consists of an 18,660-foot long tunnel in a horseshoe shape with excavated dimensions of approximately 13 feet by 14 feet. The final tunnel lining will be mortar-lined, welded steel pipe, resulting in a finished diameter of 8.5 feet. Extra thick steel liner segments will also be used at low cover areas near the portals and beneath Interstate 680 where the tunnel intersects inactive fault zones, and where the tunnel passes through areas of poor ground conditions.
Major project elements include:
• Conventional mining methods are being used in a westward direction from the Alameda West Portal, in both an eastward and westward direction from an intermediate shaft located near Vargas Road just off Interstate 680, and in an eastward direction from Irvington Portal. Tunneling is being completed by multiple road header tunneling machines and limited, controlled detonation in areas of hard rock. Spoils disposal is being taken to fill sites just north of the San Antonio Pump Station (SAPS) near the intersection of Calaveras Road and Interstate 680. When completed the spoils fills will create a visual barrier to a new quarry operation located near Calaveras Road. Potentially contaminated spoils will be screened, separated, and, if found to contain contaminants, hauled to a permitted landfill.
• At the Irvington Portal, the tunnel connections to Bay Division Pipelines (BDPL) will include control valves directly buried with instrumentation and electrical gear in a small control building. At the Alameda West Portal, the tunnel will be connected to the discharge of the new mixing manifold to be constructed as part of the Alameda Siphons # 4 Project and to the existing overflow shaft. The project includes a new isolation valve between the mixing manifold and the portal.
• The NIT Project will include construction of a new access bridge across Alameda Creek to accommodate temporary construction traffic and on-going SFPUC Alameda West Portal operations.
• A Groundwater Management Program has been developed that includes two years of pre-construction monitoring of wells, springs, creeks, ponds, and wetlands; environmental habitat construction mitigation measures; and two years of monitoring after construction to minimize the impact to the local groundwater.
• At both the existing Irvington and Alameda West Portal facilities, other security-related site improvements will be constructed, including undergrounding of portal structures and new card access controlled gates and security fences.

CUW35902 - Alameda Siphon #4 (Completed)
This project consists of a 66-inch diameter welded steel pipeline; a 96-inch diameter "blending structure" near the Alameda West Portal that will blend SVWTP and Hetch Hetchy water; new isolation/throttling valves on Alameda Siphons Nos. 3 and 4; new isolation valves on Alameda Siphons Nos. 1 and 2; ventilation improvements at Alameda East Portal; new chemical injection facilities on Siphon No. 4; relocation and extension of the overflow pipe; and road improvements at the intersection with Calaveras Road.

CUW37001 - Pipeline Repair & Readiness Improvements (Completed)
The project consists of three phases for implementation: Phase A (completed) involves the procurement of varied lengths and sizes of welded steel pipe and fitting for stockpiling at seven locations west of the Coast Range Tunnel; Phase B (completed) includes procurement and installation of a pipe rolling facility at the Sunol Yard; Phase C (completed) involves the development of a pipeline repair prioritization plan as well as on-call emergency repair procedures, contracts, and mutual assistance agreements.

CUW37401 - Calaveras Dam Replacement
Project elements primarily include:
• Constructing a new 210-foot high earth and rock fill dam designed to accommodate a maximum credible earthquake on the Calaveras Fault. The dam will be constructed immediately downstream of the existing dam and will have a crest length of 1,210 feet, a base thickness of 1,180

feet, and a crest thickness of 80 feet. The total volume of the dam will be approximately 2.8 million cubic yards.

• The materials for construction will primarily originate from onsite sources, while surplus excavated material will be placed at disposal sites around the rim of the Calaveras Reservoir, including two in-water disposal sites and several upland disposal sites.

• The existing spillway will be removed, and a new spillway and stilling basin will be constructed. The overflow weir of the new spillway will be 307 feet long. The spillway will vary from 60 to 80 feet wide and will be 1,100 feet long. The stilling basin below the spillway will be 80 feet wide and 155 feet long.

• A new intake tower and shaft will be constructed. The drain line and three adits from the existing facility will be connected to the new shaft. The existing outlet conduit from the tower will be extended 1,250 feet downstream (beneath the replacement dam) and will be equipped with a high capacity fixed-cone discharge valve (relocated from the existing facility) to accommodate water releases from the reservoir. Fish screens will be added to the existing adits of the intake tower.

• The existing dam will largely remain in place. The downstream face will, however, be partially removed and re-graded, and a channel will be excavated through the dam to form the approach to the new spillway.

• A new 525-foot long fish ladder and flow bifurcation systems at Alameda Creek Diversion Dam (ACDD) will be used in conjunction with new low-flow capacity valves to be added at the base of the replacement Calaveras Dam to provide flows downstream of these facilities to support native aquatic resources and future populations of steelhead trout that are being restored to the Alameda Creek Watershed.

• The fish ladder and a total of four new fish protection screens will be added on the right abutment (looking downstream) of the ACDD. In addition, conveyance pipes will be installed to allow water from Alameda Creek to be delivered to the Calaveras Reservoir via the Alameda Creek Diversion Tunnel (ACDT).

• Landslide A removal beneath the northern half of the left abutment slope located on the left side of the valley (when looking downstream) as well as other associated changes as previously noted in the March 2013 Notice of Change.

• Landslide B removal within the lower left abutment slope as well as other associated changes as previously noted in the March 2014 Notice of Change.

• Additional slope reinforcement in Borrow Area B and import of offsite rockfill to supplement rockfill mined from Borrow Area B to mitigate schedule impacts as noted in the March 2016 Notice of Change.

CUW37402 - Calaveras Reservoir Upgrades (Completed)

The project consists of a new hypolimnetic oxygenation system and cryogenic equipment installed near the dam to help maintain reservoir water quality.

CUW37403 - San Antonio Backup Pipeline (Completed)

The SABPL consists of 6,600 feet of 66-inch-diameter steel pipe and extends from the Alameda Siphons at the SAPS to Sunol quarry, SMP-24, near the intersection of Calaveras Road and San Antonio Creek. There are three tie-in facilities with air gap provisions from the SABPL: one connecting to Alameda Siphon No. 3, a second to the SAPL near SAPS, and a third to the SAPL on the west side of Calaveras Road before the SAPL alignment turns and heads west to quarry SMP-24. The alignment of the SABPL parallels that of the existing SAPL, terminating with a control valve and concrete energy dissipation structure in quarry SMP-24. The project includes new chemical storage, feed, and water-quality-monitoring facilities for de-chlorination and pH adjustment of any discharges through the SABPL, the existing SAPL, and the Alameda East Portal overflow pipe. Water discharged into the SMP-24 quarry pond will be recovered with two submersible pumps and a short section of 24-inch diameter steel pipe which will connect to the existing SAPL to convey water to San Antonio Reservoir. Power to the water recovery pumps will be supplied from the nearby Calaveras Substation, which is owned and

operated by Hetch Hetchy Water & Power. Construction of a slurry wall around the quarry pond to minimize groundwater intrusion and to ensure slope stability is also included.

CUW38101 - SVWTP Expansion & Treated Water Reservoir (Completed)

The project consists of a plant expansion which will increase the sustainable capacity to 160 mgd by adding a new flocculation/sedimentation basin, by retrofitting some of the existing filters, by adding a new 17.5-million gallon (MG) circular treated water reservoir (TWR) with a new 3.5-MG rectangular chlorine contact tank on the northern portion of the existing plant site, by adding new chemical storage and feed facilities for disinfection, and by construction of approximately 2,700 feet of 78-in pipe to connect the new TWR to the existing plant.

CUW38102 - SVWTP Calaveras Road

The project consists of safety related improvements to Calaveras Road near the SVWTP access road. The project was deleted because it does not contribute to the WSIP Level of Service goals. This project deletion was approved by the Commission in February of 2008.

CUW38201 - SVWTP Treated Water Reservoir

The project consists of providing improvements to the SVWTP disinfection facilities, including new chemical feed equipment and a 5 MG chlorine contact tank. Additionally, two 8.75 MG balancing reservoirs are planned. These improvements were determined in response to a DOHS requirement.

NOTE THAT THIS PROJECT WAS TERMINATED AND THE REMAINING SCOPE & BUDGET WAS COMBINED WITH PROJECT "CUW38101 - SVWTP EXPANSION & TREATED WATER RESERVOIR."

CUW38601 - San Antonio Pump Station Upgrade (Completed)

The project consisted of:

• Replacement of three 1,000-horsepower electrical pumps.

• Addition of two 1.5-megawatt emergency generators. The generators are sized to power the three electric pumps.

• Seismic retrofit of the pump station, including reinforcement of the walls, foundation improvements, and connection of the roof to the walls.

CUWSVI0101- WSIP Closeout - Sunol Valley

• AS4 Carrier Water System Modifications – The CUW35902 Alameda Siphon No. 4 Project was completed in 2013. Since that time, new facilities being brought on-line as well as other changes occurring in water operations have resulted in an apparent drop in water pressure and volume at the Sunol Valley Chloramination Facility. This has reduced the available water needed for the current system to pump the necessary water treatment chemicals into the system. This new sub-project is designed to resolve the deficiency and allow the facility to meet its water delivery reliability LOS goal. This sub-project will be constructed by a job order contract including:

o Modifications of the current chemical injection system of overcome lack of water system pressure and volume,

o New supplemental water facilities, including possible new storage tanks, and monitoring and regulating equipment as needed, and

o Plumbing and control connections between the new facilities and the current system.

• Erosion Repair at Pond F3 East – The recently completed CUW37403 San Antonio Backup Pipeline Project included drainage improvements on the east side bank of Quarry Pond F3 East. After completion of construction, it was noted that the rock riprap below a 12-inch drainage pipe had eroded away and undermined the downstream section of the pipe. This sub-project will repair the erosion with grouted riprap and restore the drainage pipe through a job order contract including:

o Grouted riprap on the east back of the quarry pond from the current drain pipe to the toe of the bank,

o Grading to remove loose bank debris and prepare the subgrade slope to receive the riprap,

o Extension of the existing drain pipe downslope to the water line of the pond, and

o Temporary access improvements at the side

bank of the pond for a crane and other equipment to deliver and place rock riprap and other materials into the repair area.

• Sunol Valley Water Treatment Plant Basin 5 Optimization – The CUW38101 Sunol Valley Water Treatment Plant Expansion and Treated Water Reservoir Project was completed in 2014. The project added a new fifth flocculation sedimentation basin (Basin 5) to the existing four basins at the plant. During operations after completion, it was noted that Basin 5 was not able to achieve the optimal water production goal of 40 million gallons per day consistently. Subsequent jar testing and analysis of different flocculation aid polymers determined a more optimal composition of additives would achieve the desired water production rate. This sub-project will change the flocculation aid composition for Basin 5, and possibly the four older basins, to optimize plant water production, and allow this facility to better meet its water quality and delivery reliability LOS goals. This sub-project will be constructed by a bid contract including:

o Addition of new flocculant aid polymer to Basin 5;

o Water testing to develop a range of polymer doses for the range of different water quality expected at the plant;

o Construction of new structures and facilities to store, monitor, and control the application of the new polymer; and

o Possible extension of the new polymer to optimize water production from the four older basins.

BAY DIVISION REGION

CUW35301 - BDPL Nos. 3 & 4 Crossover/ Isolation Valves (Completed)

This project is 100 percent complete and has been closed out. The project consists of:

• Two large vaults that are primarily below-ground installations with only the top 30 inches of the structure exposed. Above-ground facilities include security fencing and satellite communication dishes. The vaults are approximately 2,400 feet apart along the BDPL Nos. 3 and 4.

• Each vault includes four mainline isolation valves and a crossover valve. The isolation valves are hydraulically operated, while the crossover valves are electrically operated.

• The existing BDPL No. 3 is a 78-inch-diameter reinforced concrete pipe, and BDPL No. 4 is a 96-inch-diameter PCCP. At each vault, approximately 170 feet of each pipeline will be replaced with welded steel pipe.

• Each facility will be equipped with connections for portable electric generators, and a battery system will provide immediate emergency power to operate the hydraulic system.

• Valve actuators will have remote monitoring and operating capability through the SFPUC SCADA system.

CUW35302 - Seismic Upgrade of BDPL Nos. 3 & 4

The project primarily consists of:

BDPL No. 3:

• A new 300-foot-long concrete vault will be constructed under Mission Boulevard near the I-680 Interchange where Fault Trace B is located. A new 300-foot segment of 72-inch welded steel BDPL No. 3 will be installed inside the vault. Within the vault and on either end of the fault trace zone, 72-inch-diameter ball joints and slip joints will be installed that will accommodate pipeline displacement during a seismic event.

• For the crossing under I-680 at Trace A, about 400 feet of 78-inch-diameter welded steel pipe will be installed in an existing, unused corrugated metal pipe.

• About 1,450 feet of additional new 78-inch diameter welded steel pipe will connect the existing and new segments between the two vaults, and will be buried.

BDPL No. 4:

• About 400 feet of new 80-inch steel liner will be installed inside BDPL No. 4 at Hayward Fault Trace C.

• BDPL No. 4 will be encased with concrete outside the existing slip joint vault at Hayward Fault Trace B.

• Modifications to the existing slip joint vault will be made including enlarging BDPL No. 4 pipe penetrations in the vault, new drainage systems,

new roof panels, and adjustments to the existing slip joint.
• Modifications to the existing BDPL No. 3 (to be abandoned in place) to collect and divert water from the area and prevent the undermining of the new BDPL No. 3.
• About 400 feet of new 90-inch diameter welded steel pipe will be installed at Trace A of the Hayward Fault.
• Relocation of the following utilities: two Alameda County Water District water pipelines, one Union Sanitary District sewer pipeline, one conduit of AT&T phone lines, and one six-inch diameter PG&E gas pipeline.

CUW36301 - SCADA System - Phase II (Completed)
The project primarily consists of:
• Establish a common software platform and migrate all elements to this platform.
• Connect existing flow meters and new pressure transmitters, and provide communication to SCADA master station at five major Bay Area Water Supply and Conservation Agency (BAWSCA) customer sites.
• Install pressure transmitters, perform piping modifications, and provide communication to SCADA master station at seven existing regulating valves in the City of San Francisco distribution system.
• Install new flow and pressure monitoring devices at 23 key locations in the City distribution system.

CUW36801 - BDPL Reliability Upgrade – Tunnel (Completed)
• The tunnel extends 5 miles under San Francisco Bay and is adjacent to the marshlands between the vicinity of the Ravenswood Valve Lot and the Newark Valve Lot. The tunnel will be constructed with a Tunnel Boring Machine (TBM). The final tunnel lining will consist of a 9-foot diameter welded steel pipeline. The tunnel will terminate on each end with vertical shafts and a connection to the BDPL Nos. 1, 2, and 5 piping manifolds. The two piping manifolds are provided under the BDPL Reliability Upgrade - Pipeline Project. The tunnel spoils are anticipated to be used as part of the conversion of adjacent salt ponds to marshland. The portion of the existing BDPL Nos. 1 and 2 that are replaced by the tunnel will be capped on each end and will be abandoned in place.
• Two facilities are proposed to be added to the original scope of work and are necessary to ensure the project will meet LOS goals:
1) SCADA Communications system at Newark Valve Lot
This added scope provides for the installation of a SCADA communications system and integrating such system into the existing water quality monitoring equipment located in the Newark Valve Lot Control Building. The work consists of installing communications equipment, telephone line, wires, conduits, and electrical cabinets.
2) 42–inch diameter Bay Division Pipeline No. 2 (BDPL2) Bypass
The supply from the Newark Valve Lot to the City of Hayward is currently being fed from both Bay Division Pipelines (BDPL) No. 1 and No. 2. Upon the completion of the Bay Tunnel Project, Hayward supply will be fed only by BDPL2. BDPL2, built in the mid-1930s, is a mixture of reinforced concrete cylinder pipe and wrought steel pipe. Thus, with the current scope of the Bay Tunnel project, the reliability of the Hayward service line could be reduced when the project is completed.
The scope of work for this change will provide for the installation of 640 linear feet of new 42-inch diameter welded steel pipe, replacing a portion of BDPL2, thereby increasing the reliability of the Hayward service.

CUW36802 - BDPL Reliability Upgrade – Pipeline (Completed)
The project primarily consists of:
• In the East Bay, 7 miles of 72-inch-diameter pipe will be constructed between the Irvington Portal and the Newark Portal of the new Bay Tunnel. On the Peninsula, 9 miles of 60-inch diameter pipe will be constructed between the Ravenswood Portal of the new Bay Tunnel and the portal of the Pulgas Tunnel.
• A seismically resistant crossing of the Hayward Fault will be constructed. The crossing will include a new crossover valve vault on each side of the fault. The valves will be hydraulically

actuated and will include emergency batteries. The pipe between the vaults will be higher strength and will be installed on a special foundation or trench section.

• Isolation valves and an interconnecting pipe manifold will be constructed at each portal of the new Bay Tunnel. The facilities will include new or rehabilitated control buildings with new emergency generators.

• New crossover valves between BDPL Nos. 2 and 5 will be installed at a location in Redwood City. The crossover facility will include a new or rehabilitated control building and connections for a portable emergency generator.

• A new throttling valve will also be added on BDPL No. 5 at the Pulgas Valve Lot. The throttling valve will include a new or rehabilitated control building.

• The project originally included underground concrete vaults for crossover facilities at Newark, Ravenswood, and Redwood City Valve Lots. The current project eliminates the concrete vaults and directly buries the valves with full access to valve actuators at these facilities.

CUW36803 - BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2 (Completed)

This project is 100 percent complete and has been closed out. The project includes relocation of approximately 600 feet of each pipeline (BDPL Nos. 1 and 2) at the BART/railroad crossings. The pipe segments to be relocated will be installed inside new casings that will be placed by the construction contractor doing the other development work in the area. The encased pipes are being installed in accordance with a utility agreement between the City of Fremont and the SFPUC.

CUW38001 - BDPL Nos. 3 & 4 Crossovers (Completed)

The three proposed crossover facilities are located near the Guadalupe River in Santa Clara, near Barron Creek in Palo Alto, and near Bear Gulch in Atherton. The facilities include vaults that are largely below-ground, with only the top 30 inches exposed. They are very similar to one another, consisting of four mainline valves and a crossover valve. Emergency engine generators will be included as an optional bid item.

CUW38901 - SFPUC/EBMUD Intertie (Completed)

The project primarily consists of:

• Providing new 36-inch-diameter piping and valving at the Newark Turnout to provide an additional connection between BDPL Nos. 1 and 2 to the existing City of Hayward system.

• Using the existing City of Hayward system for conveyance and providing six new valves for isolation.

• Providing 1.3 miles of new 36-inch-diameter pipe to connect the City of Hayward system to the EBMUD system and providing a new pump station along this alignment.

CUW39301 - BDPL No. 4 Condition Assessment PCCP Sections (Completed)

• This project is 100 percent complete and has been closed out. This project includes a detailed condition assessment of the two PCCP segments along BDPL No. 4. The first reach of concern (Reach 1) is 8.6 miles long and 96-inches in diameter. The second reach of concern (Reach 4) is 8.0 miles long and 84-inches in diameter. The condition assessment consists of an electromagnetic survey, seismic risk analysis, corrosion survey, visual inspection, and field investigations.

• The assessment identified six reaches of pipe (144 feet total out of 16 miles) that are potentially distressed. During initial investigations, the condition of one distressed pipe segment (Pipe 1558) was determined visually to be particularly deteriorated, and immediate emergency repair was recommended. The project funded and completed emergency repair using post-tension exterior tendon repair for this segment. For the other five potentially distressed pipe segments that were identified using electromagnetic survey, and determined to be of lower priority, recommendations were made for future excavation to confirm pipe condition in these areas, and repair if needed. A number of future follow-up investigations were recommended, including monitoring of groundwater acidity for a period of one year in the area of Edgewood Road and additional excavations of lower priority pipe

pieces. Any additional required repairs will be scheduled based on urgency and funded through the Water Enterprise's Repair and Replacement (R&R) Program.

CUWBDP0101- WSIP Closeout - Bay Division

• Caltrans V-Ditch Across SFPUC Right-of-Way – This sub-project provides for coordinating and working with Caltrans on an agreement and design for a drainage system across SFPUC ROW between the Caltrans storm-water invert and an open field associated with the construction of the CUW35302 Seismic Upgrades of BDPL Nos. 3 and 4. The sub-project includes design, construction, and management of the drainage system work.

• Bay Tunnel Warranty Inspection and BDPL 1 & 2 EIR Mitigation – This sub-project provides for the various mitigations required by the Environmental Impact Report (EIR) that cannot be completed by the time the CUW36801 BDPL Reliability Upgrade - Tunnel Project (Bay Tunnel Project) is scheduled to close out. Design work will be completed within the Bay Tunnel Project, but the Contractor procurement will go beyond the Bay Tunnel closeout date. The work that is proposed under this sub-project includes the warranty inspection of the new Bay Tunnel near the end of the warranty period, decommissioning of the existing BDPL Nos. 1 and 2 by punching holes in the pipe to prevent buoyancy during extreme future high tides and storm events, and covering those holes with wire mesh to prevent entrapment of wildlife, and installation of historical panels for public education.

• Hydro-seeding at Bay Tunnel Project - Due to the drought conditions and timing of hydro-seeding performed for the Bay Tunnel Project outside of the typical seasonal window, it may not be possible to file the Notice of Termination (NOT) to close out the storm water permit prior to the Bay Tunnel Project closeout date, as the 70% growth take requirement, with less than 10% noxious weeds, may not be achieved by that time. Accordingly, the scope of this sub-project provides for monitoring of the hydro-seeded areas, removal of noxious weeds, and potentially re-seeding some of the areas at the tunnel portals in Menlo Park and Newark if the storm water performance objectives are not met.

• Newark Valve Lot Additional Gravel Placement - The Bay Tunnel Project design plans call for a portion of the Newark Valve Lot to be landscaped and hydro-seeded. However, based on recent discussions, Operations staff are requesting that gravel be placed in this area since it will be a high traffic area during shutdowns and other maintenance work. Accordingly, this sub-project provides for the purchase and placement of the gravel.

• Corrosion Protection for Valve E5OU – The E50U Valve was installed in 2011 as part of the CUW36802 BDPL Reliability Upgrade – Pipeline Project. Immediately prior to the Bay Tunnel Project in-service/commissioning date in early Fall 2015, the Bay Tunnel Contractor completed the flanged connection of the manifold to the existing E50U Valve. However, during the installation and testing of the new flanged connection, the Bay Tunnel Contractor discovered an inconsistency in the corrosion protection isolation system of the existing valve E50U (high corrosion potential). It was decided to not authorize a Change Order to fix the corrosion problem of the E50U Valve at that time due to the risk of high cost delays to the Bay Tunnel Project, if leaks were to occur after the solution was implemented. Accordingly, this sub-project includes excavating and shoring the area around the valve, and removal of one bolt at a time for testing, and replacement if necessary. A gasket will be purchased and may be installed if there are leaks that develop after the bolts are removed, cleaned, and replaced. The proposed work on the valve will be done during the shutdown of the Bay Tunnel for warranty inspection in Winter 2016/2017.

PENINSULA REGION

CUW35401 - Lower Crystal Springs Dam Improvements (Completed)

The project consists of:

• Spillway modifications that include widening the spillway, constructing two bridge piers within the spillway to accommodate rebuilding of a San Mateo County Bridge, removing the existing timber stop-log system, constructing a new weir system within the spillway, installing access

cat-walks for operation and maintenance, and eliminating water ponding on top of the dam.
• Parapet wall modifications that include increasing the height of the wall that is located on top of the upstream face of the dam and increasing the height of the approach walls to the spillway.
• Stilling basin modifications at the base of the spillway that include removing the existing basin, constructing a new larger basin, and adding downstream riprap protection at the toe of the basin.

CUW35601 - New Crystal Springs Bypass Tunnel (Completed)
The project consists of:
• A 4,200-foot long tunnel with 8-foot diameter welded steel liner.
• Vertical shafts on each end of the tunnel to accommodate a tunnel boring machine and future maintenance. The southern shaft will include a connection to the existing Crystal Springs Bypass Pipeline; the northern shaft will tie into the southern ends of both Crystal Springs Pipeline No. 2 and Sunset Supply Line.
• New isolation valves and valve vaults.
• Standby power near valve vault G40.

CUW35701 - Adit Leak Repair - Crystal Springs/Calaveras (Completed)
The project consists of :
• Crystal Springs Outlet Tower No. 1: repairing leaks inside the tower, blasting and recoating piping and valves, replacing roof, structurally retrofitting the access footbridge, and installing a marine hatch at the tower drain.
• Crystal Springs Outlet Tower No. 2: installing a marine hatch at the tower drain.
• Calaveras Outlet Tower: installing a dewatering pump, replacing a deteriorated valve actuator, and providing ladder fall protection.
• San Antonio Outlet Tower: installing a dewatering pump and repairing leaks inside the tower.

CUW36101 - Pulgas Balancing - Inlet/Outlet Work (Completed)
The project consists of new inlet and outlet piping designed to direct the path of the water in such a manner as to promote better mixing. The shutdowns associated with construction of these improvements provided an opportunity to perform a condition assessment of the reservoir interior that has been used to help identify work associated with CUW36103 - Pulgas Balancing Reservoir - Structural Rehabilitation and Roof Replacement project. This project was successfully completed in May 2006.

CUW36102 - Pulgas Balancing - Discharge Channel Modifications (Completed)
The project consists of raising the channel walls, repairing concrete cracks and exposed reinforcing steel, strengthening and interconnecting the channel floor sections, and strengthening the wall near the Pulgas Tunnel as needed. The project will restore the Discharge Channel capacity for accommodating flow up to 250 mgd.

CUW36103 - Pulgas Balancing - Structural Rehabilitation and Roof Replacement (Completed)
The project consists of the seismic retrofit of the walls, installation of a new steel frame roof, and repair of concrete cracks and exposed reinforcing steel. The project scope also includes installing a new ventilation system and sampling ports, replacing utility piping, and upgrading the electrical system.

CUW36104 - Pulgas Balancing - Laguna Creek Sedimentation (Completed)
This project consists of the execution of the Laguna Creek Habitat Management and Revegetation Plan. This is a mitigation measure for the Non-WSIP Pulgas Dechlorination Facility Project, which involves the restoration of the Laguna Creek Sedimentation Basin, a 6-8 acre catchment basin that provides habitat for the San Francisco Garter Snake and the California Red Legged Frog. In coordination with regulatory agencies, a strategy was developed to accomplish this habitat restoration, and to have it measured under the Habitat Reserve Program (HRP). This project was closed in December 2007 and combined with Project CUW38802-Habitat Reserve Program (HRP).

CUW36105 - Pulgas Balancing - Modifications of the Existing Dechloramination Facility (Completed)
The project consists of various improvements to the dechloramination and pH control facilities that are necessary to address immediate compliance issues. Anticipated improvements include modifications to the flow measurement and control systems, and to the various process control and chemical feed systems.

CUW36501 - Cross Connection Controls (Completed)
The project consists of providing improvements at 304 different sites to address potential cross connections. The work varies from site to site due to specific site conditions. The major work elements typically include: Install air gaps at blow-off locations and at air valves; install backflow prevention devices; reconstruct or raise existing vaults; install new vault covers; replace existing air valves; and/or modify, relocate, or remove existing blow-off facilities.

CUW36601 - HTWTP Short-Term Improvements (Demo Filters) (Completed)
The project consists of retrofitting two filters and performing full-scale performance demonstration testing of the retrofitted filters. The project was successfully completed in November 2006.

CUW36602 - HTWTP Short-Term Improvements - Remaining Filters (Completed)
This project consists of filtration modification to eight of the ten existing filters, replacement of effluent control valves and backwash supply valves, provision for a filter to waste system, installation of new underdrains and media, and seismic retrofit of basin walls. Combined with CUW36603 - HTWTP Short-term Improvements - Coagulation & Flocculation project.

CUW36603 - HTWTP Short-Term Improvements - Coagulation & Flocculation/ Remaining Filters (Completed)
The project consists of improvements to both the coagulation and flocculation systems. The coagulation improvements include restoring and improving operation of the pumped-jet flash-mix system, increasing capacity of the flash-mix pumps, providing the pumps with variable speed controls to improve efficiency, providing an automated dilution water system, and reconfiguring the chemical injectors to improve performance. Flocculation improvements include reconfiguring the baffling system, adding new mechanical mixers with variable speed controls, and seismically retrofitting the walkways and basin walls.

CUW36701 - HTWTP Long-Term Improvements (Completed)
The project consists of seismic and hydraulic improvements in various treatment units and expansion of the filtration process capacity by the addition of five new filters. In addition, a new 11 million gallon Treated Water Reservoir will be built to replace the two existing treated water reservoirs. The project also includes improvements to the sludge handling and washwater systems and provides a new additional washwater tank to enhance the plant's performance. Additional improvements are also planned for the electrical system, including a new substation, switchgear, and motor control center. The project also includes improvement to key valves and pipelines conveying the raw water supply to the Plant and treated water to the distribution system.

CUW36702 - Peninsula Pipelines Seismic Upgrade (Completed)
The scope of this project includes geotechnical investigations to characterize the Serra Fault in the vicinity of the pipelines and to confirm assumptions about sub-surface conditions along the length of the pipelines (SAPL2 and SAPL3 from HTWTP to San Pedro Valve Lot, SSBPL from HTWTP to Capuchino Valve Lot, and Sunset Supply Pipeline (SSPL) from Capuchino Valve Lot to San Pedro Valve Lot). In addition, hydraulic modeling has been performed to review system/facility requirements to meet system goals. The objectives of the investigations were: 1)to determine the potential fault offset at the Serra Fault crossings and the potential response from the three pipelines to these offsets, and 2) to determine potential for pipeline rupture due to

displacement from liquefaction, landslides, and other seismically-triggered hazards along the pipeline alignments. The extensive geotechnical and modeling analyses performed to date have been carefully reviewed to identify specific project recommendations.

The refined project scope (Phase 1) currently includes the following components at five locations on the San Francisco Peninsula:

- Colma Site – Replacement of an approximately 700-ft segment of SAPL2
- South San Francisco Site – Replacement of an approximately 720-ft segment of SAPL2
- San Bruno North Site – Stabilization of SAPL2 where it extends through a tunnel
- San Bruno South Site – Replacement of an approximately 1,170-ft segment of SAPL2 and an approximately 1,050-ft segment of SAPL3; and
- Millbrae Site – Replacement of an approximately 900-ft segment of SSBPL

A common staging area is planned to be located at SFPUC Baden Valve Lot in South San Francisco on El Camino Real.

Phase 2 of the project will include installation of two new isolation valves near the Baden Valve Lot on SAPL No. 2 and No. 3 in the City of South San Francisco. The WSIP construction contract will include both Phases 1 and 2.

Phase 3 has been identified as a non-WSIP project, and includes condition assessment and improvements to SAPL2, installation of new isolation valves, and the potential addition of flexible connections along the alignment within the City of San Francisco.

CUW36901 - Capuchino Valve Lot Improvements (Completed)

The project consists of replacing two existing isolation valves, providing new electric actuators for valve operation, performing concrete crack repair to prevent water leakage into the vault, providing new instrumentation and control systems for valve operation and pressure monitoring, and relocating the existing electrical and instrumentation systems outside the vault.

CUW37101 - Crystal Springs/San Andreas Transmission Upgrade (Completed)

The project consists of improvements to facilities necessary to transport water from Upper Crystal Springs Reservoir, through the lower Crystal Springs Reservoir to San Andreas Reservoir, and ultimately, to the Harry Tracy Water Treatment Plant (HTWTP) Raw Water Pump Station. Specifically, improvements will be made to the Upper Crystal Springs Dam discharge culverts, the Lower Crystal Springs outlet structures, the Crystal Springs Pump Station (CSPS), the Crystal Springs/San Andreas Pipeline, and the San Andreas outlet structures.

CUW37801 - Crystal Springs Pipeline No. 2 Replacement (Completed)

The project consists of:

- Seismic reliability improvements, which include replacing or relocating a total of 1.7 miles of pipe at 12 locations, sliplining 3.5 miles of pipe, retrofitting pipe bridge pier supports at two creek crossings, providing a new connection at the Crystal Springs Pump Station, and providing a connecting segment with a blind flange for later connection to the New Crystal Springs Bypass Tunnel.
- Facility improvements, which include installing fences and enclosures for exposed facilities, and concealing exposed portions of pipe.
- Upgrading the cathodic protection system along the length of the pipeline.

CUW37901 - San Andreas Pipeline No. 3 Installation (Completed)

The project consists of installation of 4.4 miles of 36-inch-diameter pipe from San Pedro Valve Lot in Daly City to Merced Manor Reservoir in San Francisco. There will be three jack and bore crossings along 19th Avenue and John Daly Boulevard. Work will also include installation of five customer service connections, a new cathodic protection system along the length of the new pipeline, three interconnections to the San Andreas Pipeline No.2, various valves, and a flow meter.

CUW39101 - Baden and San Pedro Valve Lots Improvements (Completed)

This project consists of upgrades to valve vaults, valves, and piping in the Baden Valve Lot and the San Pedro Valve Lot. It also includes the

installation of a pressure reducing valve and associated system valving to allow transfer of a portion of the flow from the HTWTP high-pressure zone to the low- pressure zone during emergencies.

CUWPWI0101- WSIP Closeout - Peninsula

• LCSD Stilling Basin Modifications & Dissipation Structure Riprap – This sub-project is provided in response to concerns that fish may be "trapped" in the Lower Crystal Springs Dam (LCSD) stilling basin during low flow summer periods, and that high flow discharges from the new LCSD dissipation structure and potential high water levels in Pool 2 may cause erosion of the bank adjacent to the dissipation structure. The dissipation structure includes 60-inch diameter pipes with a maximum flow of 600 cubic feet per second (cfs) each and two 8-inch diameter pipes with maximum flow of 7 cfs each. During flow testing of the dissipation structure, released water could be observed flowing over the dissipation structure, potentially eroding the bank adjacent to the structure. It was also observed that during summer periods, of low flow in the channel downstream of the stilling basin, fish trapped in the basin were dying due to warm water temperatures. The purposes of this sub-project are to hydraulically connect the stilling basin with Pool 2 in order to allow fish to escape the basin in summer, and to add rip-rap behind the dissipation structure to prevent erosion. Specifically, this sub-project consists of:

o A new deeper channel between the dissipation structure and the Pool 2, which would prevent fish from being trapped in the stilling basin,

o Installation of a new SCADA controls to the existing 8-in discharge pipeline and re-routing one line to the stilling basin,

o Installation of additional rip-rap around the dissipation structure, and

o Installation of landscaping around the new Crystal Springs Pump Station, per the approved re-vegetation plan.

• LCSD Valve H53 / Pipeline Investigation & Fisheries Release Valve – As stipulated by the US Army Corps of Engineers 404 permit and the associated biological opinion by NOAA's National Marine Fisheries Service (NMFS) covering the SFPUC activities at the Crystal Springs Pump Station (CSPS), the SFPUC is to take measures to protect the threatened Central California Coast (CCC) steelhead present in San Mateo Creek at CSPS site. One measure requires the release of fresh water at a rate of 3 to 17 cubic feet per second (cfs) depending on the season in recorded dry and wet years. This sub-project will utilize modification of an existing pipeline to release the required flows to the LCSD stilling basin feeding San Mateo Creek. Specifically, this sub-project consists of:

o Condition assessment of the existing 60-in diameter pipeline from Valve H-53 to the stilling basin. In addition, valve H-53 will be exposed and visually inspected to determine its condition, requiring excavation and shoring of a pit approximately 20 feet long by 20 feet wide by 20 feet deep.

o Depending on the verified condition, viable alternatives, including abandonment of the option to use H-53 pipeline, will be evaluated.

o The approved option will include a SCADA controlled 12-inch valve installed at the discharge end of the pipeline. Depending on the condition of the pipeline, the approved option may also include repairs to the pipeline lining. Options may also include slip-lining the existing line with a smaller diameter pipeline such as 12 to 24-in diameter flexible polypropylene pipe.

• New Crystal Springs Bypass Tunnel Electrical Modifications – The New Crystal Springs Bypass Tunnel (CUW35601) was commissioned in July 2011, and the project administratively closed in August 2012. Various inspections of the above ground facilities discovered excessive groundwater intrusion and resultant corrosion of equipment and electrical components. This sub-project will develop a thorough documentation of the above ground facilities at the north and south shafts, and design and implement repairs as warranted. Possible repairs may include replacement of damaged equipment and electrical components, water proofing of the affected vaults, and rechanneling of surface runoff as necessary. Preliminary inspections identified the following in the South Shaft:

groundwater seepage into the venturi meter and valve G32 vaults through pipe/conduit wall penetrations, resulting in coating failure and localized corrosion. In the North Shaft, preliminary investigations identified surface runoff is entering electrical boxes. In addition, groundwater is seeping through wall penetrations into G36 and G38 vaults. Due to the high moisture, some electrical switches and two actuators failed and required replacement.

• Closeout of DSOD Permit Applications for LCSDI and CSSA Projects – California Department of Water Resources, Division of Safety of Dams (DSOD) issued Alteration Permits allowing the start of construction of CUW35401, Lower Crystal Springs Dam Improvements (LCSDI) Project (Application No. 10-6) and the construction of CUW37101, Crystal Springs / San Andreas Transmission Upgrade (CSSA) Project (Application No.10-10). In June 2015, DSOD issued an approval of the completed work and requested the SFPUC to submit the final documentation of each project. Under this sub-project, the following information and documents will be extracted from the project files and submitted in a format acceptable to DSOD: affidavit of actual costs of construction and design; full size as-built drawings stamped and signed by a California registered Civil Engineer; and final concrete testing summary reports.

• Coordination with San Mateo County Bridge Construction over LCSI - The implementation of the CUW35401 Lower Crystal Springs Dam Improvement (LCSDI) Project required the demolition of an existing San Mateo County (SMC) Bridge that spanned over the LCSD crest. With the completion of the LCSDI Project, SMC awarded the construction contract for the new bridge and gave notice-to-proceed to the construction contractor in January 2016. To support this, SMC and the SFPUC executed a Memorandum of Understanding outlining the roles and responsibilities and expectations of both organizations. Accordingly, this sub-project will support the coordination between the SFPUC and SMC Bridge Project team. Typical activities may include response to relevant Requests for Information (RFI) such as existing site conditions, existing dam design, coordination with SFPUC Operations and Watershed groups; field inspection of placement of the bridge piers over the dam and the construction of the SFPUC funded catwalk; attendance at construction meetings; and activities concerning the water quality in Lower Crystal Springs Reservoir, security measures, and other aspects of SFPUC assets.

SAN FRANCISCO REGIONAL REGION

CUW30103 - Regional Groundwater Storage and Recovery

The project is to develop a groundwater supply in the South Westside Basin for use during dry years. In normal and wet years, the SFPUC will supply supplemental surface water to three wholesale customers on the Upper Peninsula (the Cities of Daly City and San Bruno, and the California Water Service Company - South San Francisco District) to be used in place of groundwater pumping. The reduced pumping during normal and wet years will thereby increase the volume of groundwater in storage that can be pumped in dry years. The project consists of the construction of up to 16 groundwater wells and well stations with a total capacity of 7.2 mgd to be used as a regional dry-year water supply. The wells will be connected to the three wholesale customers' water systems and to the SFPUC transmission system. Disinfection will be required for all wells and treatment may be required at some of the wells for the removal of manganese.

CUW35801 - Sunset Reservoir - North Basin (Completed)

This project consists of:

• Seismic rehabilitation, which includes stabilization of the soil dam embankment; a retrofit of the walls and roof using seismic joints, shear walls, diagonal bracing, and struts; and foundation improvements.

• General rehabilitation, which includes repairing deteriorated concrete, replacing part of the reservoir lining material, replacing inlet piping, installing security fencing, upgrading the

landscaping, and other miscellaneous site improvements.

CUW37201 - University Mound Reservoir - North Basin (Completed)
This project consists of:
• Seismic rehabilitation of the reservoir walls and roof using seismic joints, shear walls, diagonal bracing, and struts and foundation improvements. A geotechnical investigation was conducted that verified that the reservoir embankments are not subject to seismically induced failure.
• General rehabilitation, which includes repairing deteriorated concrete; replacing the reservoir lining material; replacing inlet/outlet, drain, and overflow piping; replacing outlet and drain valves; and performing landscaping and other miscellaneous site improvements.

SUPPORT PROJECTS

CUW36302 - System Security Upgrades
The purpose of this project is to develop and integrate security components at critical water system facilities including those identified in previous vulnerability assessments and to ensure that security functions such as deterrence, detection, assessment, delay, and response will be effective. As part of this project, SFPUC Security has evaluated all WSIP projects. The project includes the identification of all necessary security components including security fencing, intrusion detection, and vehicle barriers for applicable WSIP projects. The project provides for the necessary planning and design of these facilities, while the individual WSIP projects will fund the installation and construction of civil security work such as conduit lay out, fencing, and gate installation. This project will fund the furnishing and installation of Access Control and Alarm Monitoring System (ACAMS) and Digital Video Surveillance System (DVSS) equipment, and necessary security systems.

CUW38801 - Programmatic EIR (Completed)
A Program Environmental Impact Report (PEIR) has been prepared for the WSIP under the California Environmental Quality Act (CEQA). The WSIP includes a number of projects that will improve the Regional Water System with respect to water quality, seismic reliability, delivery reliability, and water supply. The PEIR will (1) identify and analyze, at a programmatic level, the potential environmental impacts of proposed system improvements, (2) describe and evaluate feasible alternatives to the proposed program, and (3) propose mitigation measures.

CUW38802 - Bioregional Habitat Restoration
The Bioregional Habitat Restoration project was created to provide a coordinated and consolidated approach to compensate for habitat impacts that may result from implementation of the WSIP projects in the San Joaquin, Sunol Valley, Bay Division, and Peninsula Regions of the SFPUC Regional Water System. The previously approved scope of the Bioregional Habitat Restoration project included projects to preserve, enhance, restore, or create approximately 2,350 acres of tidal marsh, vernal pools, white alder riparian forest, sycamore alluvial woodland, arroyo willow riparian habitat, oak woodland and savannah, sage scrub habitat, serpentine grasslands, coastal live oak woodland, annual grasslands, and oak riparian forest.
The project includes design, environmental permitting, construction, construction management, maintenance and performance monitoring during a 3-year plant establishment period.
The wide variety of the types of impacts from WSIP projects resulted in the need for development of 18 compensation sites on SFPUC property and for contracting with 7 property owners to secure compensation on property outside the Alameda and Peninsula watersheds. There are 7 compensation sites on SFPUC property in the Alameda watershed with an average size of 250 acres, demonstrating a significant commitment to the continued protection of species habitat. Although the average size of the 11 Peninsula compensation sites is 15 acres, the projects have been strategically placed to best benefit the San Francisco garter snake and the fountain thistle. The increase in habitat compensation addresses mitigation for the fountain thistle and for changes

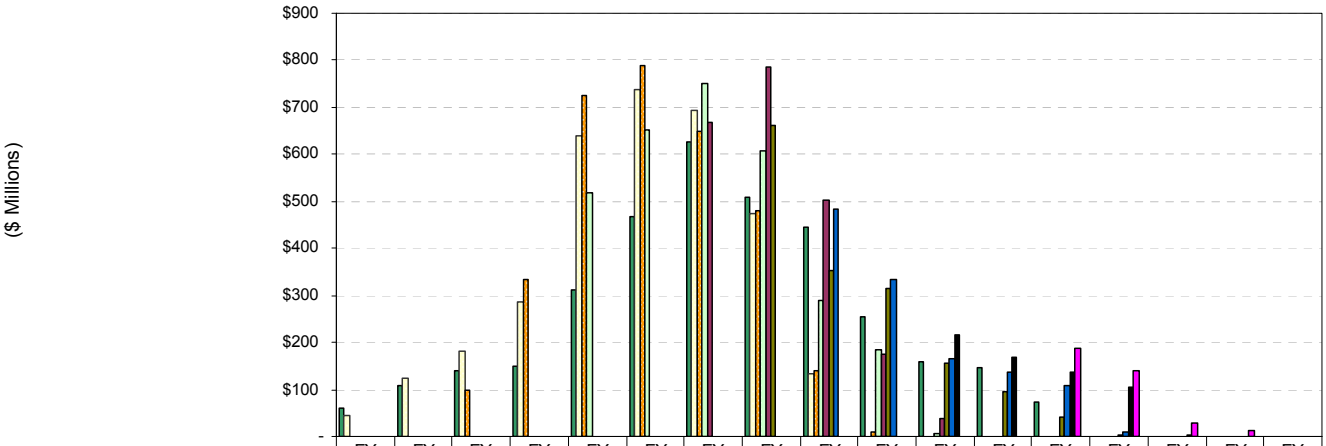
in the Calaveras Dam Replacement Project.
Under the March 2014 Revised WSIP, some scope for the Bioregional Habitat Restoration project associated with Lower Crystal Springs Dam and long term monitoring and maintenance of the compensation sites was reduced. The remaining wetland development at Upper San Mateo Creek and Boat Ramp and most of the oak woodland compensation for the Lower Crystal Springs Dam Improvement Project has been deferred until the operating elevation of the reservoir has increased, estimated to be around 2020. This work will be completed in the future by SFPUC Water Enterprise.

CUW38803 - Vegetation Restoration of WSIP Construction Sites (Completed)
The Vegetation Restoration of WSIP Construction Sites is a WSIP project that received Commission approval on October 9, 2012. This project is required to comply with the CEQA and resource agency permit requirements to restore and re-vegetate habitat areas temporarily impacted by construction at the various WSIP sites to preconstruction condition.

CUW38804 - Long Term Mitigation Endowment
The scope of work and budget for this Long Term Mitigation Endowment was previously included and reported within the WSIP Regional project CUW38802 Bioregional Habitat Restoration; however, the office of the City Controller has established a separate project, specific for this endowment fund, in project CUW38804 Long Term Mitigation Endowment. This perpetual endowment fund, was required by the United States Army Corps of Engineers and California Department of Fish and Wildlife permits issued for WSIP projects. It provides a secure source of funds for the perpetual monitoring and maintenance of the Bioregional Habitat Restoration sites constructed in the SFPUC watershed.

CUW39401 - Watershed Environmental Improvement Program
The Watershed Environmental Improvement Program (WEIP) includes the comprehensive identification and protection of critical watershed lands and ecosystem restoration needs within the hydrologic boundaries of the Alameda Creek, Peninsula (San Mateo and Pilarcitos Creeks) and Tuolumne River watersheds, and prioritizes the protection and/or restoration of these lands. Projects under this program will protect source water quality, native species, and their habitat as well as identifying critical watershed lands for protection through purchase of fee title or perpetual conservation easement. The program also supports projects that enhance public awareness and provide education opportunities related to water quality, water supply, conservation, and environmental stewardship. These projects include construction of the proposed Alameda Creek Watershed Center and improved public access (e.g., trail connections) compatible with watershed management plans and policies.
Initially, specific projects were identified, including the Repair or Replacement of Niles Gage and Watershed Road Management Plan and Improvements – both in the Alameda Creek watershed. After further research and planning, the program's focus has shifted towards permanently protecting Alameda Creek watershed lands through conservation easements and/or fee title purchase of property from willing landowners and providing education opportunities that will further the goals of the Water Enterprise Environmental Stewardship Policy. Opportunities that are consistent with the WEIP description and purpose in the Peninsula and Tuolumne watersheds will be considered as well.

APPENDIX B. BUDGET AND EXPENDITURE HISTOGRAM*



	FY 05-06	FY 06-07	FY 07-08	FY 08-09	FY 09-10	FY 10-11	FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22
Actual Total Cost	$62	$108	$140	$151	$312	$468	$628	$509	$444	$253	$158	$145	$73				
2005 Approved Budget	$46	$123	$180	$287	$638	$738	$692	$473	$133	$1							
2007 Approved Budget			$99	$335	$724	$790	$649	$481	$140	$10							
2009 Approved Budget					$519	$651	$751	$606	$290	$186	$5						
2011 Approved Budget							$669	$784	$501	$176	$38	$0					
2013 Approved Budget								$662	$352	$314	$156	$94	$41	$4			
2014 Approved Budget									$484	$335	$164	$138	$109	$11			
2016 Approved Budget											$215	$168	$138	$106	$3		
Current Forecast													$188	$139	$28	$14	$1
Percentage Spent**	136%	88%	142%	45%	60%	72%	94%	77%	92%	76%	73%	86%					

All costs are shown in $ Millions.

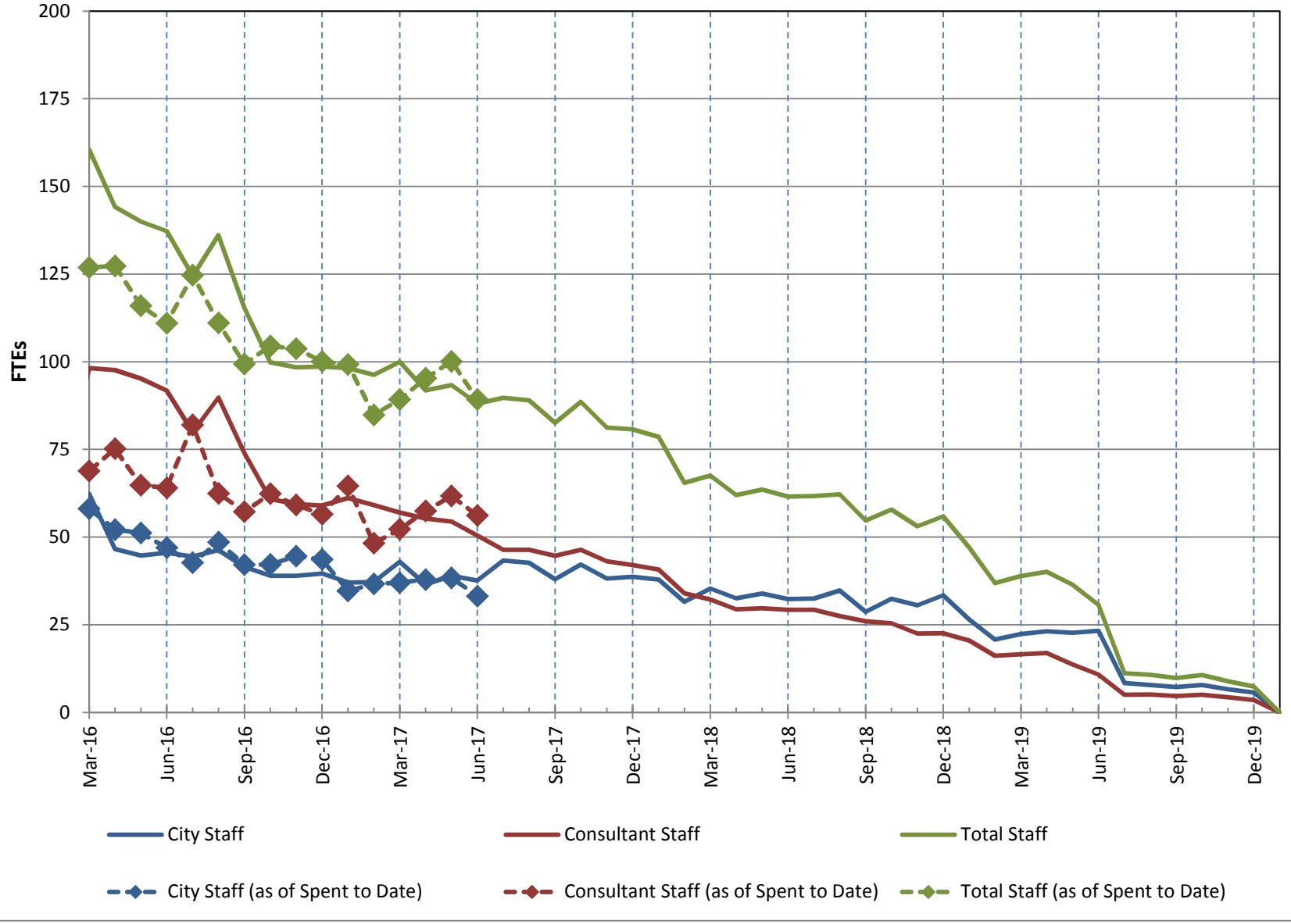
* The histogram does not reflect budget and expenditures prior to FY 2005-2006.

** Percentage Spent calculated as Actual Expenditures over the most current Approved Budget for each individual Fiscal Year.

Figure B1 Annual Budgeted Spending Plans vs. Actual Expenditures

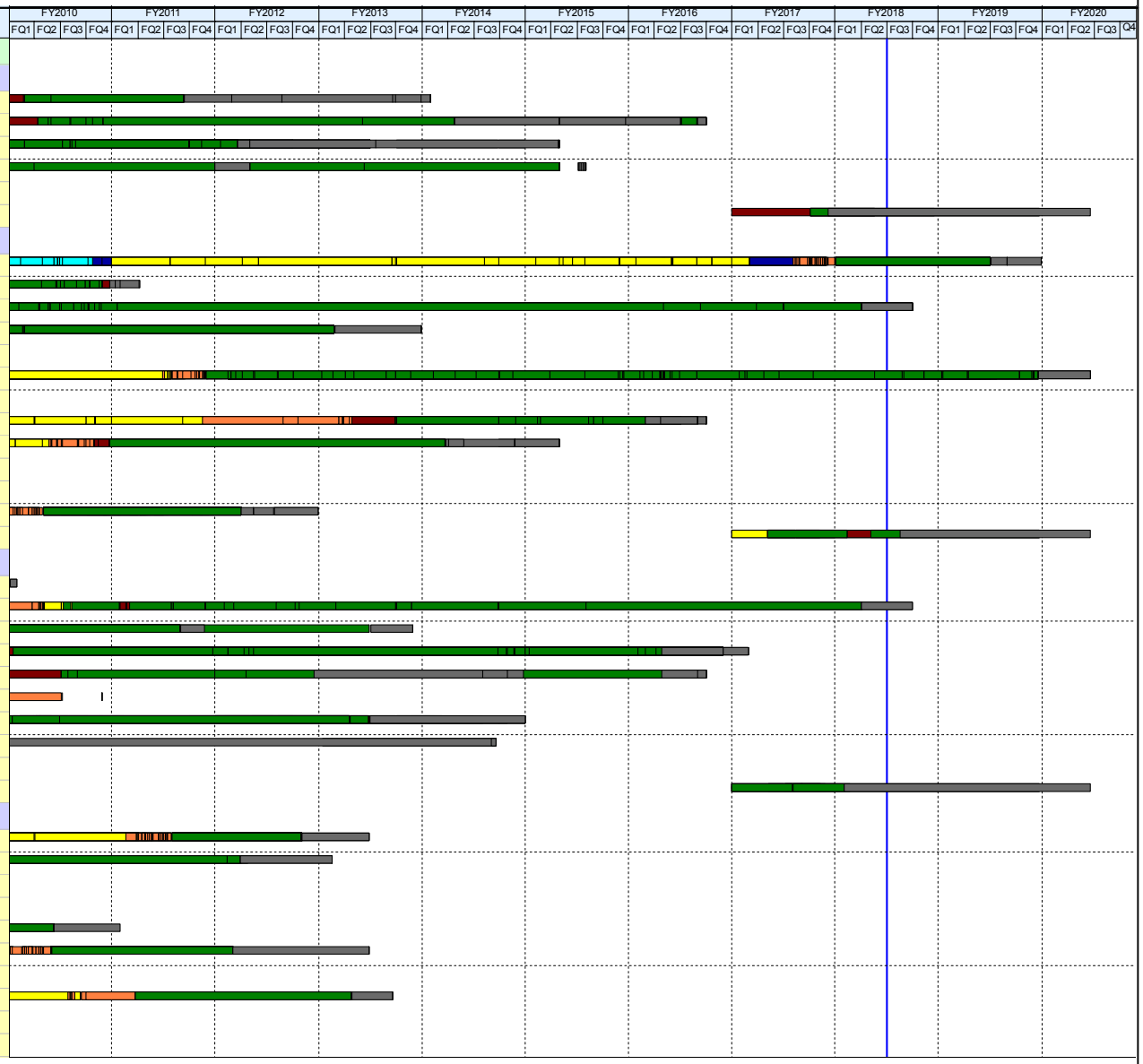
Figure B compares the spending plans associated with the various WSIP Approved Budgets to Actual Expenditures. It shows total annual expenditures from FY05-06 through Q2/FY17-18 and cost projections (Current Forecast) from FY17-18 through program completion in December 2021. Actual annual expenditures have ranged from 45% to 142% of planned expenditures.

Appendix C. WSIP Regional Program
Staffing Plan



APPENDIX D. WSIP Approved Project-Level Schedule

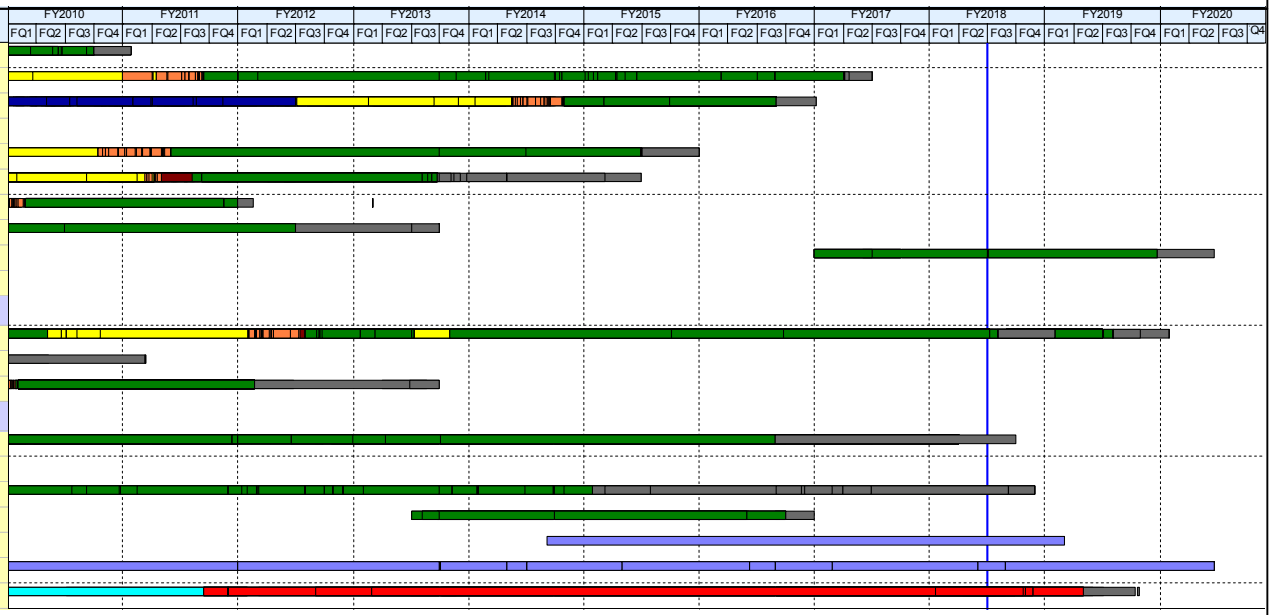
Project Name	Start	Finish
Regional Improvement Projects	31-Mar-00	20-Dec-19
San Joaquin Region	01-Jul-02	20-Dec-19
CUW36401 Lawrence Livermore Water Quality Impr	02-Feb-04	31-Jul-13
CUW37301 San Joaquin Pipeline System	19-Aug-02	31-Mar-16
CUW37302 Rehabilitation of Existing San Joaquin Pi	03-Jul-06	31-Oct-14
CUW38401 Tesla Treatment Facility	01-Jul-02	30-Jan-15
CUW38701 Tesla Portal Disinfection Station	01-Jul-02	29-Jun-07
CUWSJI0101 WSIP Closeout - San Joaquin	01-Jul-16	20-Dec-19
Sunol Valley Region	19-Dec-01	20-Dec-19
CUW35201 Alameda Creek Recapture Project	30-Sep-03	28-Jun-19
CUW35501 Standby Power Facilities - Various Locat	11-Jul-02	22-Dec-10
CUW35901 New Irvington Tunnel	19-Dec-01	31-Mar-18
CUW35902 Alameda Siphon #4	19-Dec-01	28-Jun-13
CUW37001 Pipeline Repair & Readiness Improveme	21-Apr-03	16-Apr-09
CUW37401 Calaveras Dam Replacement	03-Sep-02	20-Dec-19
CUW37402 Calaveras Reservoir Upgrades	19-Nov-03	28-Jul-06
CUW37403 San Antonio Backup Pipeline	17-Dec-03	31-Mar-16
CUW38101 SVWTP Expansion & Treated Water Re	22-Apr-05	31-Oct-14
CUW38102 SVWTP Calaveras Road	01-Feb-07	14-Dec-07
CUW38201 SVWTP Treated Water Reservoir	15-Sep-03	02-Mar-07
CUW38601 San Antonio Pump Station Upgrade	01-Jul-04	29-Jun-12
CUWSVI0101 WSIP Closeout - Sunol Valley	01-Jul-16	20-Dec-19
Bay Division Region	19-Dec-01	20-Dec-19
CUW35301 BDPL Nos. 3 & 4 Crossover/Isolation Va	06-Jan-03	31-Jul-09
CUW35302 Seismic Upgrade of BDPL Nos. 3 & 4	22-Oct-04	31-Mar-18
CUW36301 SCADA System - Phase II	22-Apr-05	28-May-13
CUW36801 BDPL Reliability Upgrade / Tunnel	19-Dec-01	30-Aug-16
CUW36802 BDPL Reliability Upgrade - Pipeline	19-Dec-01	31-Mar-16
CUW36803 BDPL Reliability Upgrade - Relocation o	24-Apr-06	28-May-10
CUW38001 BDPL Nos. 3 & 4 Crossovers	17-Feb-04	30-Jun-14
CUW38901 SFPUC/EBMUD Intertie	24-Jun-02	20-Mar-14
CUW39301 BDPL No. 4 Condition Assessment PCC	04-Aug-06	06-Feb-09
CUWBDP0101 WSIP Closeout - Bay Division	01-Jul-16	20-Dec-19
Peninsula Region	01-Nov-00	20-Dec-19
CUW35401 Lower Crystal Springs Dam Improvement	01-Nov-00	28-Dec-12
CUW35601 New Crystal Springs Bypass Tunnel	07-Jan-02	17-Aug-12
CUW35701 Adit Leak Repair - Crystal Springs/Calav	01-Apr-05	31-Jul-08
CUW36101 Pulgas Balancing - Inlet/Outlet Work	15-May-02	11-May-06
CUW36102 Pulgas Balancing - Discharge Channel M	01-Apr-05	30-Jul-10
CUW36103 Pulgas Balancing - Structural Rehabilitati	03-Apr-06	28-Dec-12
CUW36104 Pulgas Balancing - Laguna Creek Sedim	31-Mar-06	31-Dec-07
CUW36105 Pulgas Balancing - Modifications of the E	02-Apr-07	20-Mar-13
CUW36501 Cross Connection Controls	01-Jul-03	30-Apr-09
CUW36601 HTWTP Short-Term Improvements (Der	04-Sep-02	14-Nov-06



Planning
Design
Bid & Award
Construction
Program Management
Environmental
Right-of-Way
Construction Management
Closeout

APPENDIX D. WSIP Approved Project-Level Schedule

Project Name	Start	Finish
CUW36603 HTWTP Short-Term Improvements - Co	03-Jul-06	28-Jul-10
CUW36701 HTWTP Long-Term Improvements	01-Jul-03	30-Dec-16
CUW36702 Peninsula Pipelines Seismic Upgrade	01-Jul-09	06-Jul-16
CUW36901 Capuchino Valve Lot Improvements	22-Apr-05	19-Aug-08
CUW37101 Crystal Springs/San Andreas Transmissi	18-Aug-03	30-Jun-15
CUW37801 Crystal Springs Pipeline No. 2 Replacem	15-Jan-04	31-Dec-14
CUW37901 San Andreas Pipeline No. 3 Installation	15-Jan-04	30-Aug-12
CUW39101 Baden and San Pedro Valve Lots Impro	03-Oct-05	29-Mar-13
CUWPWI0101 WSIP Closeout - Peninsula	01-Jul-16	20-Dec-19
CUW36602 HTWTP Short-Term Improvements - Re	12-Jan-06	22-Feb-08
San Francisco Regional Region	31-Mar-00	30-Jul-19
CUW30103 Regional Groundwater Storage and Rec	01-Jun-03	30-Jul-19
CUW35801 Sunset Reservoir - North Basin	31-Mar-00	10-Sep-10
CUW37201 University Mound Reservoir - North Basin	24-Oct-05	29-Mar-13
Support Projects	13-Apr-04	20-Dec-19
CUW36302 System Security Upgrades	07-Jan-06	31-Mar-18
CUW38801 Programmatic EIR	13-Apr-04	30-Jun-09
CUW38802 Bioregional Habitat Restoration	06-Sep-06	31-May-18
CUW38803 Vegetation Restoration of WSIP Constru	02-Jan-13	30-Jun-16
CUW38804 Long Term Mitigation Endowment	05-Mar-14	31-Aug-18
CUW39201 Program Management Project	01-Aug-05	20-Dec-19
CUW39401 Watershed Environmental Improvement	02-Jan-07	26-Apr-19



Planning
Design
Bid & Award
Construction
Program Management
Environmental
Right-of-Way
Construction Management
Closeout

APPENDIX E. PROJECTS WITHIN BUDGET AND SCHEDULE

CUW35302 - Seismic Upgrade of BDPL Nos. 3 & 4

Project Description: This project provides for a new seismically resistant pipeline and vault system located between the two new valve vaults on either side of the Hayward Fault. This pipeline and vault system will lie across the fault for BDPL No. 3. The project also provides for a partial upgrade of BDPL No. 4, to control water that may be released from BDPL No. 4 during a major seismic event.

Region: Bay Division	**Project Status:** Construction	**Environmental Status:** Completed (EIR)

Project Cost:		**Project Schedule:**	
Approved	$76.98 M	Approved Oct-04	Mar-18
Forecast*	$73.62 M	Forecast* Oct-04	Mar-18
Actual	$72.11 M	Project Percent Complete: 98.0%	

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

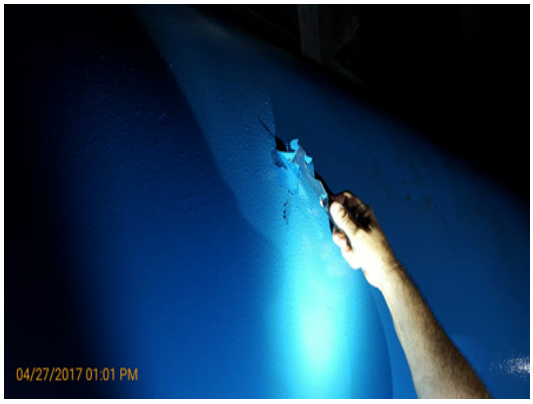
Key Milestones:	**Environmental Approval**	**Bid Advertisement**	**Construction NTP**	**Construction+ Final Completion**
Current Forecast	01/20/11✓	02/21/12✓	09/04/12✓	04/28/17✓

Progress and Status:

The Contractor continues to work on final as-builts, corrosion repair warranty items and certified payroll and stop notice issues. Final change orders are being prepared. The Team continues to negotiate with ACWD on final change order costs and to closeout the MOU. The ventilation fan and recoating the pipe and pipe supports inside the articulated box, concrete v-ditch and BDPL 4 sump pump JOC work was transferred to the BDPL Region Closeout project.

Issues and Challenges:

The ventilation, sump pump, coating repair and erosion repair was transferred to the CUWBDP0101 – WSIP Closeout – Bay Division project. The corrosion repair warranty work will be performed in conjunction with the JOC coating work to avoid contractor coordination issues within the vault and reduce the required pipeline shutdown duration related to the confined space entry permit requirements. The contractor is working to clear several certified payroll and stop notice issues. Once cleared, Commission contract acceptance and closeout will be requested. The Team continues to discuss final costs and MOU closeout with ACWD for their pipeline installation work.



BDPL#3 Coating Peeling Away from Pipe

APPENDIX F. LIST OF ACRONYMS

AAR	Alternative Analysis Report
AB	Assembly Bill
ACAMS	Access Control and Alarm Monitoring System
ACDD	Alameda Creek Diversion Dam
ACDT	Alameda Creek Diversion Tunnel
ACWD	Alameda County Water District
BART	Bay Area Rapid Transit
BAWSCA	Bay Area Water Supply and Conservation Agency
BDPL	Bay Division Pipeline
BHR	Bioregional Habitat Restoration
BO	Biological Opinion
CATEX	Categorical Exemption
CCSF	City and County of San Francisco
CDD	City Distribution Division
CDRP	Calaveras Dam Replacement Project
CEQA	California Environmental Quality Act
CER	Conceptual Engineering Report
CIP	Capital Improvement Program
CM	Construction Management
CMB	Construction Management Bureau
CMD	Contract Monitoring Department
CMD	Contract Monitoring Division
CMIS	Construction Management Information System
CO	Change Order
CPI	Cost Performance Index
CSPS	Crystal Springs Pump Station
CSSA	Crystal Springs/San Andreas
DB	Design, Build
DSOD	Division of Safety of Dams (State of California)
DVSS	Digital Video Surveillance System
EBMUD	East Bay Municipal Utility District
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EV	Earned Value
EVM	Earned Value Management
FY	Fiscal Year
HH	Hetch Hetchy
HTLTIP	Harry Tracy Long Term Improvements Project
HTWTP	Harry Tracy Water Treatment Plant
JOC	Job Order Contract
LCSD	Lower Crystal Springs Dam
LCSDI	Lower Crystal Springs Dam Improvements
LMPS	Lake Merced Pump Station
LOS	Levels of Service
MG	Million Gallons
MGD	Million Gallons per Day
MND	Mitigated Negative Declaration
MOU	Memorandum of Understanding
NEG DEC	Negative Declaration (also shown as ND)
NEPA	National Environmental Policy Act
NIT	New Irvington Tunnel
NMFS	National Marine Fisheries Service (under NOAA)
NOAA	National Oceanic and Atmospheric Agency
NOT	Notice of Termination
NTP	Notice to Proceed
PCCP	Pre-stressed Concrete Cylinder Pipe
PCE	Project Controls Engineer
PE	Project Engineer
PEIR	Program Environmental Impact Report
PG&E	Pacific Gas and Electric Company
PPSU	Peninsula Pipeline Seismic Upgrade
QA	Quality Assurance
RFI	Request For Information
ROW	Right-of-Way
SABPL	San Antonio Backup Pipeline
SAPL	San Antonio Pipeline
SAPS	San Antonio Pump Station
SCADA	Supervisory Control and Data Acquisition
SFPUC	San Francisco Public Utilities Commission
SJPL	San Joaquin Pipeline
SMC	San Mateo County
SMP	Surface Mining Permit
SPI	Schedule Performance Index
SQS	Supplier Quality Surveillance
SSBPL	Sunset Supply Branch Pipeline
SSPL	Sunset Supply Pipeline
SVWTP	Sunol Valley Water Treatment Plant
TBD	To be determined

TBM	Tunnel Boring Machine
TWR	Treated Water Reservoir
UM	University Mound
UV	Ultra Violet
VFD	Variable Frequency Drive
WEIP	Watershed Environmental Improvement Program
WSIP	Water System Improvement Program

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San Francisco
Water Power Sewer
Services of the San Francisco Public Utilities Commission

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DATE: May 1, 2018

TO: Commissioner, Ike Kwon, President
Commissioner, Vince Courtney, Vice President
Commissioner, Ann Moller Caen
Commissioner, Francesca Vietor
Commissioner, Anson Moran

FROM: Harlan L. Kelly, Jr., General Manager

RE: WSIP Regional Projects Quarterly Report
3rd Quarter / Fiscal Year 2017-2018

Enclosed please find the Water System Improvement Program (WSIP) Regional Projects Quarterly Report for the 3rd Quarter (Q3) of Fiscal Year (FY) 2017-2018. The primary intent of the report is to provide the San Francisco Public Utilities Commission ("Commission"), stakeholders, and the public with a status summary of the program's regional projects for the period of January 1, 2018 through March 31, 2018.

In their recent April 3, 2018 letter, the Bay Area Water Supply and Conservation Agency (BAWSCA) requested additional information be included in the WSIP Quarterly reports. As the current enclosed report was already in production at the time of BAWSCA's request, we intend to meet with BAWSCA to discuss the specific adjustments needed to meet the intent of their recommendation, and subsequently implement any necessary changes to the report in the next quarterly reporting cycle.

It should be noted that this report does not include all the expenditures accrued for the work completed from July 1 through March 31, 2018 due to challenges associated with the migration of the City financial system from FAMIS to PeopleSoft. We are continuing to work diligently with the Controller's Office to address these challenges.

STATUS AND PERFORMANCE SUMMARY

Overall, WSIP regional projects are 95.5% complete as of March 31, 2018, which is 0.5% ahead of the Commission Approved Schedule.

As of the end of the reporting period, planning, environmental, design, and construction activities are 99.3%, 98.4%, 96.9%, and 96.4% complete, respectively. The following table shows the number of projects and the total approved value of these projects that are active in the WSIP's various phases.

Status of WSIP Regional Projects (as of March 31, 2018)

Project Phase	No. of Projects	Percent by No. of Projects	Total Project Value ($M)	Percent by Project Value
Planning	0	0%	$0	0%
Design	4	8%	$75	2%
Bid & Award	0	0%	$0	0%
Construction	7	13%	$1,188	31%
Close-Out	1	2%	$351	9%
Completed	39	75%	$2,176	57%
Not Applicable[2]	1	2%	$12	0%
Total	**52**	**100%**	**$3,803**	**100%**

Notes: (1) "Total Project Value" for various phases includes proportional allocation of approved program management budget. Projects active in multiple phases are counted as being in the phase with the greatest amount of project activities.
(2) "Not Applicable" category is for the Long-Term Mitigation Endowment since this project does not include construction.

PROGRAM UPDATE

As of the end of the reporting period, seven (7) regional projects with a total value of $1,188M are in construction and forty (40) projects with a total value of $2,527M are in close-out or have been completed. Forty (40) out of forty-three (43) Regional WSIP projects with specific Level of Service (LOS) goals have achieved their LOS goals to date. Besides the WSIP Closeout Projects, the only Regional project that remains in pre-construction is the Alameda Creek Recapture Project.

As of the end of the reporting period, the forecasted total program cost (regional and local projects) is $4,787.8M, which is the same as the Commission Approved Budget. As of the end of the reporting period, all approved change orders (COs) on active construction contracts total $430.1M, and the current remaining construction contingency is $46.7M. Also, as of the end of

the reporting period, all pending and potential COs together with all trends total $26.8M. Therefore, if all pending and proposed COs and trends become approved COs, the current forecasted remaining construction contingency is $19.9M.

The current forecasted date to complete the overall WSIP is December 2021 which is the same as the current approved date, given that the current forecasts for the overall WSIP budget and schedule are based on the April 10, 2018 Commission approval of the March 2018 Revised WSIP Baseline.

UPDATE ON PROJECTS IN PRE-CONSTRUCTION

Alameda Creek Recapture

During this quarter, the Team continued to work on the EIR recirculation. The independent third party specialist submitted a draft report of the modeling methodology used in the EIR. The report was reviewed by the Team and comments were prepared and returned. The Team continued to work with Department of Water Resources (DWR) on the encroachment permit to cross DWR's right-of-way.

WSIP Closeout Projects

Steady progress was made on WSIP Closeout Projects for each of the San Joaquin, Sunol Valley, Bay Division, and Peninsula Regions in the reporting Quarter.

In the San Joaquin Region, the Tesla Portal slab and drainage improvement work is almost complete except for the installation of the ladder. The re-evaluation of the existing photo-voltaic systems for three sites has been initiated.

In the Sunol Valley Region, SFPUC staff has issued two bid packages to JOC contractors for them to provide cost proposals. San Antonio Backup Pipeline (SABPL) Erosion Repairs at Pond F3 East was issued to Power Engineering, and New Irvington Tunnel (NIT) Portal Water Quality Equipment Relocation was issued to CalState. The SVWTP Basin No. 5 design is on hold pending a new as-needed consultant contract to be issued for design. Other ongoing projects in design include SABPL Water Carrier System Modification and Alameda Siphon 4 Water Carrier Water System Modification. Construction for the NIT/SABPL Cathodic Protection is still underway.

In the Bay Division Region, bid documents for the Ventilation & Sump Pump Installation have been issued to JOC contractor CalState. Bid packages for the installation of a V-Ditch and for BDPL 3 pipe coating work are being prepared.

In the Peninsula Region, the Crystal Springs Dam Stilling Basin, Dissipation Structure, and H53 Valve project will be re-advertised in August 2018. The San Mateo County Bridge currently being replaced over Lower Crystal Springs Dam is forecasted to be completed in fall 2018. A new JOC will be necessary to address a gap between the Lower Crystal Springs Dam north parapet wall and the bridge abutment.

Several JOC task orders have been initiated for the Harry Tracy Water Treatment Plant facility: JOC 59-01 – Electrical & Mechanical Piping Modifications; JOC-59-17 – Emergency Generators Filters Upgrades; and JOC-59-19 – Repair of Leaks at Filter Gallery Channels. Additional work at HTWTP includes: replacement of variable frequency drives (VFDs) controllers since 5 out of 6 VFDs for wash water pumps and all three VFDs for sludge transfer pumps have failed; vibration

control for electrical panel and circuit breakers; replacement of equalization basin mixers that have failed; and repair of erosion at two locations associated with the CSSA Pipeline.

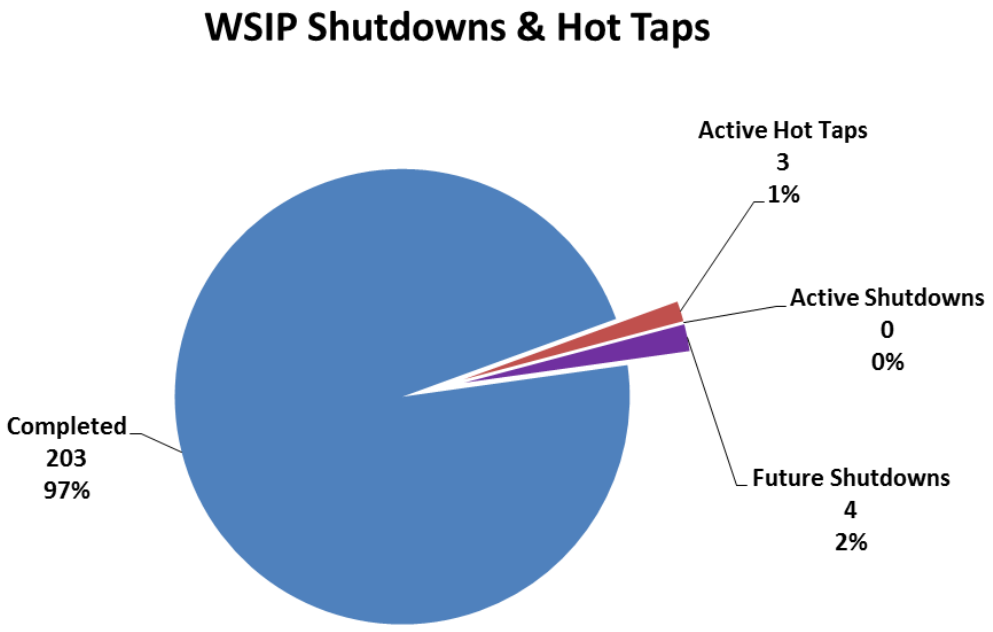
UPDATE ON PROJECTS IN CONSTRUCTION

Steady progress continued for the ongoing WSIP construction activities. As of the end of March 2018, WSIP regional construction contracts (including active, completed, and future contracts) are 97.2% complete overall. The percent complete remained unchanged from the value reported last quarter due to the addition of $21.9M of approved change orders during this period and a slowdown of work during the winter period. Actual progress is ahead of the Late Planned performance of 96.4%.

A review of the construction work hours recorded over the last five years shows continued ramping down of construction activities, with monthly work hours peaking at 206,400 in August 2012, compared to a total of 28,443 work hours recorded in March 2018. The monthly average workhours in the reporting Quarter was 30,530, a decrease compared to the 37,565 monthly average workhours for the same period in 2017.

As of the end of March 2018, monitored exposure hours on WSIP regional projects totaled 9.4 million construction person-hours. Since the implementation of the WSIP Safety Approach in April 2009, the total lost time incidence rate is at 0.53, compared to the U.S. Bureau of Labor Statistics (BLS) industry average rate (2016) of 1.7.

There were no changes to the status of shutdowns and/or hot-taps during the quarter. To date, 203 out of 210 (97%) of the planned shutdowns & hot taps have been completed. Currently, there are 3 active hot taps and 4 future planned shutdowns.



The following is a summary of the progress made, issues encountered, and/or milestones achieved on the key WSIP regional projects currently active in construction.

Calaveras Dam Replacement

Overall progress on the Calaveras Dam Replacement current construction contract is reported at 91.5% as of the end of the quarter, which is a decrease of 0.3% during the period. During the quarter $16.4M of approved change orders were added to the contract, resulting in an increased contract amount that consequently reduced the percentage completion of the contract. Dam embankment placement activities are ahead of schedule, and therefore progress is ahead of the planned progress of 87.7% according to the late baseline curve. Work activities during the reporting quarter included completion of blasting in Borrow Area B to mine hard rock materials for the upstream shell of the dam, installation of instrumentation to monitor the new dam and foundation, and excavation of a portion of the tie-back retaining wall within the dam embankment footprint. The dam embankment construction did not advance significantly during the reporting quarter due to the planned winter moratorium on embankment construction activities; the dam embankment construction had recently resumed and had a top elevation of 694 feet at the end of the reporting quarter.

Regional Groundwater Storage and Recovery

Overall progress on the current Phase 1 construction contract for the Regional Groundwater Storage and Recovery construction is reported at 99% as of the end of the quarter. This value remains unchanged from the value reported during the previous quarter. A total of $3.5M of approved change orders were added to the contract increasing the contract amount to $50.5M.

The contractual Substantial Completion was established as of December 31, 2017. The project team is coordinating with Cal Water to prepare for the 7-day test.

Fish Passage Facilities within the Alameda Creek Watershed (Sub-project to Calaveras Dam Replacement)

The Fish Passage Facilities within the Alameda Creek Watershed construction is 83.3% complete - an increase of 1.3% during the Quarter. As of the end of the Quarter the Contractor was working on installing the under-slab drain pipe and conduit at the maintenance/control building, the intake structure conduit, the conduit for the VSAT tower, and the PIT detector. Work continues drilling the landslide stabilization wall pier, with backfill, compaction, and installation of drain pipe behind the piers.

MAJOR PROGRAM TRENDS AND RISKS

Actual and potential impacts on the cost and schedule of WSIP projects are identified and tracked using change orders (COs), trends, and risks. COs and trends are managed using the Construction Management Information System (CMIS), while risks are managed using Active Risk Manager (ARM). Active COs on the WSIP are categorized based on their status as follows: Approved COs are changes that have been negotiated, have been certified by the City Controller,

and are now part of the contract (exact magnitude of change is known); Pending COs are changes that have been negotiated but have yet to be certified by the City Controller (exact magnitude of change is known); and Potential COs are changes that have been proposed by either the SFPUC or the contractor but are still being negotiated (magnitude of change is unknown). Any known issue with a probable impact to the approved schedule and/or contract amount that has yet to be proposed as a Potential CO is captured as a trend. In addition, project teams assess and quantify conceivable risks to their projects with the goal to mitigate the conditions which might cause them to materialize.

WSIP Management submits to the Commission on a quarterly basis a separate report on the status of Change Orders. This section summarizes the major program trends and risks being tracked as of March 31, 2018.

The trends for the WSIP Active Regional construction contracts totaled $18.3M as of the end of the reporting period, an increase of $4.7M during the period. Approximately 48% of the total trends at the end of March 2018 belong to the Calaveras Dam Replacement Project. The following table lists the trend totals for active projects:

WSIP Active Regional Projects Trend Totals (as of March 31, 2018)

Project	Trends ($ Million)	Percent Completion[1]
Calaveras Dam	$8.8	92%
Fish Passage Facilities at ACDD	$5.9	83%
Regional Groundwater Storage & Recovery	$3.5	99%

1. Refers to percent completion of the current construction contract (including all Approved COs).

The WSIP Risk Management System ranks risks based on a combination of likelihood of occurrence and potential cost impact to the SFPUC. On that basis, and as of March 31, 2018, the Calaveras Dam Replacement Project has seven of the top ten program risks and the Fish Passage Facilities within the Alameda Creek Watershed project has the remaining three. The current highest risk in the program is at the Calaveras Dam project and addresses the potential schedule impact on zone embankment placement related to Borrow Area B shale removal and slope stabilization. The following table lists the projects with the largest risks.

Top 10 Risks of WSIP Regional Projects (as of March 31, 2018)

Project	No. of Top 10 Risks	Percent Completion[1]
Risk Ranking Based on Likelihood of Occurrence and Potential Cost Impact		
Calaveras Dam	7	92%
Fish Passage Facilities at ACDD	3	83%

1. Refers to percent completion of the current construction contract (including all Approved COs).

Based on the risks summarized above, the two (2) active construction contracts that carry the greatest potential to impact the Program's overall cost and schedule are Calaveras Dam Replacement and the Fish Passage Facilities within the Alameda Creek Watershed, while the Regional Groundwater Storage and Recovery Phase 1 construction contract has associated risk ranked below the top 20 risks to the Program.

Calaveras Dam Replacement

As of the end of March 2018, there are 20 active trends, totaling $8.8M, on this contract, an increase of $2.7M during the quarter. The largest trend is related to the potential quantity overrun of zone embankment materials. There are now four trends of roughly the same value addressing the need for additional needed repairs to Calaveras Road, SCADA / ADAS system changes, differing site conditions regarding the existing native soil condition, and adjustments to the home office overhead rate. The sixth largest trend covers the right abutment swale restoration above the soldier pile wall.

Other trends concern the left abutment erosion control during construction, the bird deterrent program, the access to permanent instrumentation required for long-term operations and maintenance, and other differing site conditions.

Seven of the current top ten risks for the active WSIP construction contracts, based on likelihood of occurrence and potential cost impact, belong to this contract. The estimated value of the 80% risk confidence level is $14.1M, a decrease of $3.8M from the value reported for the previous quarter.

The current largest risk to the project concerns the potential schedule impact on Zone 5 and Zone 6 embankment material yield related to Borrow Area B shale/talus removal and slope stabilization. The second highest risk is associated with insufficient hard rock materials on site for the Zone 5 upstream shell part of the dam. The third highest risk is the potential for overtopping of the existing dam during construction due to an extreme flood event while the spillway is out of service.

Other top ten risks include the risk that local Zone 2 and 3 filter materials do not meet regulatory requirements, the risk of potential long-term erosion for the right abutment, and risk of water quality issues from left abutment groundwater seepage. Additional significant risks include the risk of adverse environmental conditions or the risk of encountering protected and endangered species impacting construction, weather impacts in excess of contractual agreement, automation

of the survey monuments and inclinometers, encountering high levels of naturally occurring asbestos (NOA) beyond the contractor's control, and additional excavation at the left wall approach channel.

Fish Passage Facilities within the Alameda Creek Watershed (ACDD)

This project is currently reporting on 69 active trends that total $5.9M, an increase of $0.6M from the value reported last quarter. The current largest trend covers the increase in the allowance for the storm-water pollution prevention plan (SWPPP). The second and third highest trends relate to the volume of subterranean water flow beneath the creek for the first and second construction seasons respectively. Other relatively large trends concern the costs of the foam backfill at the fish ladder, shoring for over excavation, additional shoring depth, headwall length increases, potential rock fall hazard on the left bank, and several differing site conditions.

The 80% risk confidence level as of the end of March 2018 is estimated at $4.6M which is a decrease of $0.2M from the last quarter. The current highest risk addresses the costs associated with the accelerated schedule needed to mitigate previous delays. Other high risks include the risk of potential for prolongation of out-of-stream drilling (including the new soldier pile wall) due to unforeseen conditions such as cobbles and boulders, the risk of differing site conditions, mishandling storm-water runoffs leading to violation of the construction general permit, and the potential for insufficient creek flow to test the system upon substantial completion.

Other risks include the risk of SCADA and instruments not working properly, the potential for the access road becoming impassable due to heavy rains, the risk of excessive dewatering needed during the third construction season (2018), the risk of fish ladders and screens not functioning as planned, and the possibility for regulatory agencies to require shuttling of personnel at the job site due to multiple takes of endangered snakes or salamanders.

Regional Groundwater Storage and Recovery

This project is currently reporting on 16 active trends that total $3.5M, an increase of $1.4M during the quarter. The largest trend addresses the need to furnish and install three remote analyzers with radio communication. The second largest trend covers the cost of extended overhead due to the schedule extension beyond the contractual substantial completion date related to necessary changes. The third largest trend addresses several items needed to address operational/safety needs, including sumps in the chemical containments, lower calibration columns, vent chemical tanks outside the building, ambient monitoring detector for ammonia, and other miscellaneous items.

Other significant trends include the addition of seven hot taps to calibrate the flowmeters; furnishing and installing a remote analyzer at Serramonte; and the rental of generators for temporary power during commissioning. Partially offsetting these trends is a potential credit for steel plates.

The 80% risk confidence level as of the end of the reporting period is estimated at $0.9M which is an increase of $0.1M during the quarter. The current largest risk addresses the challenges in meeting regulatory and operational requirements due to taste and odor parameters for blending. The second highest risk considers the potential costs that would be caused by design errors and/or omissions. Additional risks include the potential for delays in finalizing permanent

easements, the risk of project impacts due to turnover of key personnel, schedule delays caused by longer turnaround in submittals and RFIs, and the potential for encountering unforeseen underground utilities.

CLOSING

Despite the challenges described above, the WSIP team continues to make steady progress in the delivery of the program as described in the attached WSIP Regional Projects Quarterly Report. It should be noted that the challenges encountered in the field and reported herein are not unusual for infrastructure programs of the size and complexity of the WSIP.

The SFPUC continues to be committed to work collaboratively with other City departments, its Regional Wholesale customers, and all program stakeholders and partners to ensure the successful delivery of the WSIP.

Enclosure

HETCH HETCHY
WATER SYSTEM IMPROVEMENT PROGRAM

QUARTERLY REPORT

Regional Projects
Q3 FY 2017 | 2018
January 2018 — March 2018

Rebuilding Today for a Better Tomorrow

Published: 05/01/2018

Quarterly Report - Q3 FY2017/2018

Water System Improvement Program - Regional Projects

TABLE OF CONTENTS

1. PROGRAM DESCRIPTION

The Water System Improvement Program (WSIP) is a $4.8 billion, multi-year capital program to upgrade the City of San Francisco's regional and local drinking water systems. The program will deliver improvements that enhance the City's ability to provide reliable, affordable, high quality drinking water to its 26 wholesale customers and regional retail customers in Alameda, Santa Clara, and San Mateo Counties, and to 800,000 retail customers in San Francisco, in an environmentally sustainable manner. The WSIP is structured to cost-effectively meet water quality requirements, improve seismic and delivery reliability, and achieve water supply goals.

Built in the early to mid-1900s, many components of the water system are nearing the end of their working life, with crucial facilities crossing or in close proximity to three major earthquake faults. The San Francisco Public Utilities Commission (SFPUC) initiated the WSIP to repair, replace, and seismically upgrade the system's deteriorating pipelines, tunnels, dams, reservoirs, pump stations, storage tanks, and treatment facilities.

The program consists of 35 local projects located within San Francisco and 52 regional projects spread over seven different counties from the Sierra foothills to San Francisco. Local projects only benefit San Francisco residents whereas regional projects benefit both City residents and the 26 wholesale agencies that receive water from the SFPUC. The management of regional projects is divided into 6 regions – San Joaquin, Sunol Valley, Bay Division, Peninsula, San Francisco Regional, and Support Projects.

The WSIP is funded through the issuance of revenue bonds. Local Measures A and E, which were approved by San Francisco voters in November 2002, allowed for the financing of improvements to the City's water system using revenue bonds and/or other forms of revenue financing. Increases in the water rates of retail and wholesale customers will be used to pay back the debt service on the bonds.

The program budget and schedule were originally adopted by the San Francisco Public Utilities Commission on March 1, 2003. The program at the time was referred to as the Capital Improvement Program (CIP). The scope of the CIP was changed significantly following the adoption of Level of Service (LOS) goals in early 2005. The program changes were so substantial that the program was renamed the WSIP and a new program budget and schedule were adopted on November 29, 2005. Since the scope of the 2005 Revised WSIP is in general representative of the program being implemented today, the 2005 budget and schedule are considered the "Baseline Budget and Schedule."

Subsequently, the WSIP Baseline Budget and Schedule were revised in 2007, 2009, 2011, 2013, 2014, 2015, 2016, 2017, and 2018, and these revisions were approved by the San Francisco Public Utilities Commission on February 26, 2008, July 28, 2009, July 12, 2011, April 23, 2013, April 22, 2014, December 8, 2015, April 26, 2016, February 14, 2017, and April 10, 2018, respectively. Refer to Appendix A for a scope description of all the regional projects included in the WSIP.

Program Revision	Commission Approval	Budget ($Million)	Schedule(*)
2003 (Original)	March 1, 2003	$3,628	03/15/16
2005 (Baseline)	November 29, 2005	$4,343	06/30/14
2007 (Revised)	February 26, 2008	$4,392	12/18/14
2009 (Revised)	July 28, 2009	$4,586	12/04/15
2011 (Revised)	July 12, 2011	$4,586	07/29/16
2013 (Revised)	April 23, 2013	$4,640	04/11/19
2014 (Revised)	April 22, 2014	$4,765	05/24/19
2015 (Revised)	December 8, 2015	$4,765	05/24/19
2016 (Revised)	April 26, 2016	$4,845	12/20/19
2017 (Revised)	February 14, 2017	$4,845	12/20/19
2018 (Latest Approved)	April 10, 2018	$4,788	12/30/21

* Final Program Completion Date

2. PROGRAM STATUS

This third (3rd) Quarterly Report for Fiscal Year (FY) 2017-2018 presents the progress made on the WSIP regional projects between January 1, 2018 and March 31, 2018. The program's schedule and budget were last approved by the San Francisco Public Utilities Commission (SFPUC or Commission) on April 10, 2018. The progress made on the local projects of the WSIP is presented in a separate quarterly report.

Figure 2.1 shows the total Current Approved Budget for the regional projects remaining in each phase of the program as of March 31, 2018. The number of projects currently active in each phase is shown in parentheses.

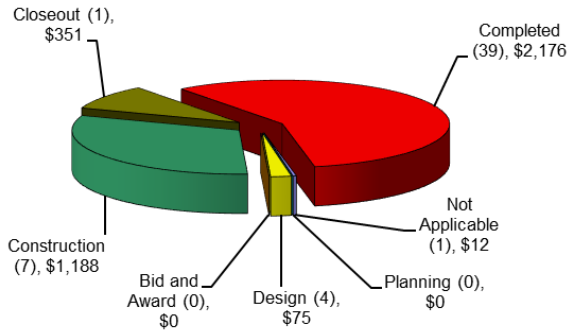


Figure 2.1 Total Current Approved Budget for Projects Active in Each Phase ($Million)

Figure 2.2 shows the number of regional projects in the following stages of the program as of March 31, 2018: Pre-construction, Construction, and Post-construction.

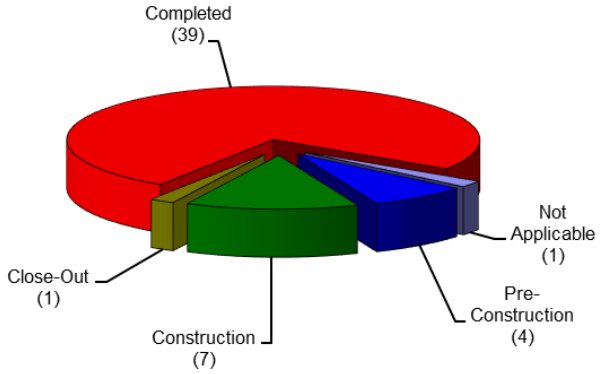


Figure 2.2 Number of Projects in Pre-construction, Construction, and Post-construction

Figure 2.3 summarizes the environmental review and permitting status of the WSIP 52 regional projects as of March 31, 2018.

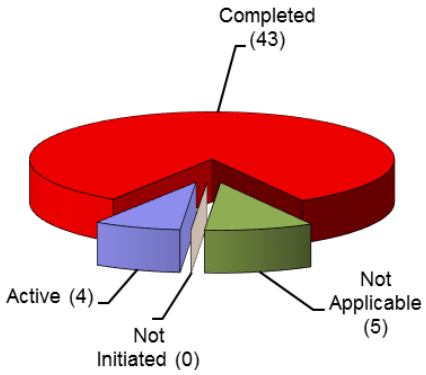


Figure 2.3 Program Environmental and Permitting Status

2.1 Progress Towards Meeting Level of Service (LOS) Goals

The scope of the WSIP is based on the following Level of Service (LOS) goals for the Regional Water System: Seismic Reliability, Delivery Reliability, Water Quality Reliability and Water Supply Reliability. Each project that reaches construction substantial completion contributes to increasing the overall reliability of the system and achieving progress towards meeting the overall LOS goals for the system.

Table 2.1 lists the projects with their individual Primary (P) and Secondary (S) contributions towards LOS goals, and indicates which projects have met their respective LOS goals. As can be seen in Table 2.1, the actual operational service start dates indicate that 40 of the 43 Regional WSIP projects with specific LOS goals have achieved their LOS goals to date. The other 9 Regional WSIP projects do not have specific LOS goals. The WSIP team remains committed to achieving the overall LOS goals established for the system.

Table 2.1 Progress Towards Meeting LOS Goals [1]

Project No.	Project Name / Construction Contract	Actual / Approved Substantial Completion Date	LOS Goals (P =Primary, S =Secondary)				Actual Operational Service Start	Construction Progress Toward LOS Goals
			Water Quality	Seismic Reliability	Delivery Reliability	Water Supply		
San Joaquin Projects								
CUW36401	Lawrence Livermore Water Quality Improvement *(Completed)*	08/31/10	P				08/31/10	100%
CUW37301	San Joaquin Pipeline System *(Completed)* (A) HH935A Crossovers (B) HH935B Western Segment (C) HH935C Eastern Segment	(A) 01/06/12 (B) 05/27/13 (C) 06/21/13			P		(A) 01/06/12 (B) 05/27/13 (C) 06/21/13	100%
CUW37302	Rehabilitation of Existing San Joaquin Pipelines (Roselle Crossover; *Completed*)	05/13/11			P		05/13/11	100%
CUW38401	Tesla Treatment Facility *(Completed)* (A) DB116 Tesla Treatment Facility Design-Build Contract (B) HH953 Tesla Portal Protection	(A) 06/24/11 (B) 08/05/13	P	S	S		(A) 06/24/11 (B) 08/05/13	100%
Sunol Valley Projects								
CUW35201	Alameda Creek Recapture	11/30/20				P		0%
CUW35501	Standby Power Facilities - Various Locations *(Completed)* (A) WD-2553 East Bay - Standby Power Facilities (B) WD-2511 Peninsula - Standby Power Facilities	(A) 09/11/08 (B) 04/15/10		P	S		(A) 09/11/08 (B) 04/15/10	100%
CUW35901	New Irvington Tunnel	09/19/15		S	P		02/27/15	100%
CUW35902	Alameda Siphon #4 *(Completed)*	12/16/11		P	S		12/16/11	100%
CUW37001	Pipeline Repair & Readiness Improvements *(Completed)* (A) WD-2530 Phase A 8 Pipe Storage Sites (B) WD-2530 Phase B Pipe Rolling Machine Facility @ Sunol Yard	(A) 02/09/07 (B) 07/14/08		P	S		(A) 02/09/07 (B) 07/14/08	100%
CUW37401	Calaveras Dam Replacement (A) WD-2551 Calaveras Dam Replacement[2] (B) WD-2729 Alameda Creek Diversion Dam	(A) 10/12/18 (B) 09/17/18		S	P	S		(A) 92% (B) 83%
CUW37402	Calaveras Reservoir Upgrades *(Completed)*	10/06/05	P				10/06/05	100%
CUW37403	San Antonio Backup Pipeline *(Completed)*	12/31/14			P		12/31/14	100%
CUW38101	SVWTP Expansion & Treated Water Reservoir *(Completed)*	05/17/13	P		P		05/17/13	100%
CUW38601	San Antonio Pump Station Upgrade *(Completed)*	06/30/11			P		06/30/11	100%

Project No.	Project Name / Construction Contract	Actual / Approved Substantial Completion Date	LOS Goals (P =Primary, S =Secondary)				Actual Operational Service Start	Construction Progress Toward LOS Goals
			Water Quality	Seismic Reliability	Delivery Reliability	Water Supply		
Bay Division Projects								
CUW35301	BDPL Nos. 3 & 4 Crossover/Isolation Valves *(Completed)*	11/15/07		P			11/15/07	100%
CUW35302	Seismic Upgrade of BDPL Nos. 3 & 4	10/26/15		P			06/20/14	100%
CUW36301	SCADA System - Phase II *(Completed)*	11/29/10			P		11/29/10	100%
CUW36801	BDPL Reliability Upgrade – Tunnel *(Completed)*	05/20/15		P	S		10/15/14	100%
CUW36802	BDPL Reliability Upgrade – Pipeline *(Completed)* (A) WD-2541 East Bay (B) WD-2542 Peninsula (C) WD-2665 Cordilleras	(A) 12/09/11 (B) 06/13/12 (C) 03/05/13		P	S		(A) 12/09/11 (B) 06/13/12 (C) 03/05/13	100%
CUW36803	BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2 *(Completed)*	05/28/10			P		05/28/10	100%
CUW38001	BDPL Nos. 3 & 4 - Crossovers *(Completed)*	08/15/12		P	S		08/15/12	100%
CUW38901	SFPUC/EBMUD Intertie *(Completed)*	09/07/07			P		09/07/07	100%
CUW39301	BDPL No. 4 Condition Assessment PCCP Sections *(Completed)*	02/06/09		P	S		02/06/09	100%
Peninsula Projects								
CUW35401	Lower Crystal Springs Dam Improvements *(Completed)*	11/20/11			P	S	11/20/11	100%
CUW35601	New Crystal Springs Bypass Tunnel *(Completed)*	07/14/11		P	S		07/14/11	100%
CUW35701	Adit Leak Repair - Crystal Springs/Calaveras *(Completed)*	11/30/07			P		11/30/07	100%
CUW36101	Pulgas Balancing - Inlet/Outlet Work *(Completed)*	02/02/06	P		S		02/02/06	100%
CUW36102	Pulgas Balancing - Discharge Channel Modifications *(Completed)*	10/23/09			P		10/23/09	100%
CUW36103	Pulgas Balancing - Structural Rehabilitation & Roof Replacement *(Completed)*	07/26/11	P		S		07/26/11	100%
CUW36105	Pulgas Balancing - Modifications of the Existing Dechloramination Facility *(Completed)*	08/27/12	P		S		08/27/12	100%
CUW36501	Cross Connection Controls *(Completed)*	11/26/08	P				11/26/08	100%
CUW36601	HTWTP Short-Term Improvements - Demo Filters *(Completed)*	01/11/06		P	S		01/11/06	100%
CUW36603	HTWTP Short-Term Improvements - Coagulation & Flocculation/Remaining Filters *(Completed)*	12/21/09		P	S		12/21/09	100%
CUW36701	HTWTP Long -Term Improvements *(Completed)*	09/08/15		P	S		09/08/15	100%
CUW36702	Peninsula Pipelines Seismic Upgrade *(Completed)*	10/30/15		P			10/30/15	100%
CUW36901	Capuchino Valve Lot Improvements *(Completed)*	02/14/08			P		02/14/08	100%
CUW37101	Crystal Springs/San Andreas Transmission Upgrade *(Completed)*	06/30/14		P	S		09/02/14	100%
CUW37801	Crystal Springs Pipeline No. 2 Replacement *(Completed)*	01/31/13		P	S		01/31/13	100%
CUW37901	San Andreas Pipeline No. 3 Installation *(Completed)*	03/29/11		P	S		03/29/11	100%
CUW39101	Baden & San Pedro Valve Lots Improvements *(Completed)*	03/31/11		P	S		03/31/11	100%

Project No.	Project Name / Construction Contract	Actual / Approved Substantial Completion Date	LOS Goals (P =Primary, S =Secondary)				Actual Operational Service Start	Construction Progress Toward LOS Goals
			Water Quality	Seismic Reliability	Delivery Reliability	Water Supply		
San Francisco Regional Projects								
CUW30103	Regional Groundwater Storage and Recovery (A) WD-2600 Test Well Drilling (B) WD-2668 Regional Groundwater Storage and Recovery (Phase 1) (C) Regional Groundwater Storage and Recovery (Phase 2)	(A) 07/23/12 (B) 12/31/17 (C) 02/28/21				P	(A) 07/23/12	(A) 100% (B) 99% (C) 0%
CUW35801	Sunset Reservoir - North Basin *(Completed)*	09/19/08		P	S		09/19/08	100%
CUW37201	University Mound Reservoir - North Basin *(Completed)*	05/25/11		P	S		05/25/11	100%

Notes:

1 Support projects and WSIP Closeout projects are not listed in the table above since these projects do not have specific Level of Service (LOS) goals.

2 The Approved Substantial Completion Date for this contract was extended to 4/12/19 per Commission meeting on 4/26/16, but a contract change order has not yet been issued to the Contractor to extend the date.

3. PROGRAM COST SUMMARY

Table 3.1 provides an overall program-level cost summary of the WSIP Regional Program. It shows the Expenditures to Date; the 2005 Baseline, 2018 Approved, Current Approved and Q3/FY17-18 Forecasted Budgets; and the Cost Variance between the Current Approved and Forecasted Budgets.

The total Current Approved WSIP Budget (including Regional and Local Programs, Local Water Supply Projects, and Financing Costs) and Current Forecasted Cost at completion are $4,787.8 million. The Current Approved WSIP Budget and Forecasted Cost at completion for the Regional Program (including construction contingency) are $3,803.1 million. The Current Approved WSIP Budget and Forecasted Cost at completion for the Local Improvement Projects are $331.4 million. Refer to Appendix B for a graphical representation of how the WSIP budget and actual expenditures have changed over time.

Table 3.1 Program Cost Summary

Cost Categories	Expenditures To Date ($ Million) (A)	2005 Baseline Budget ($ Million) (B)	2018 Approved Budget ($ Million) (C)	Current Approved Budget [7] ($ Million) (D)	Q3/FY17-18 Forecasted Costs ($ Million) (E)	Cost Variance ($ Million) (F = D - E)
Regional Improvement Projects	**$2,928**	**$3,181**	**$3,081.4**	**$3,081.4**	**$3,081.4**	**-**
Construction Costs [1]	$1,990	$2,322	**$2,065.9**	$2,065.9	$2,065.9	-
Program Delivery Costs [2]	$913	$758	**$984.8**	$984.8	$984.8	-
Other Costs [3]	$25	$101	**$30.7**	$30.7	$30.7	-
Support Projects [4]	**$215**	**$33**	**$244.9**	**$244.9**	**$244.9**	**-**
Construction Contingency for Regional & Support Projects [5]	**$393**	**$193**	**$476.8**	**$476.8**	**$476.8**	**-**
REGIONAL PROGRAM WITH CONTINGENCY	**$3,536**	**$3,407**	**$3,803.1**	**$3,803.1**	**$3,803.1**	**-**
Local Improvement Projects	$331	**$383**	**$331.4**	**$331.4**	**$331.4**	**-**
Local Water Supply Projects [6][8]	**$103**	**-**	**$281.3**	**$281.3**	**$281.3**	**-**
Finance	**$372**	**$552**	**$372.0**	**$372.0**	**$372.0**	**-**
PROGRAM TOTAL	**$4,342**	**$4,343**	**$4,787.8**	**$4,787.8**	**$4,787.8**	**-**

Notes:

1. **Construction Costs** include the Construction Base Bid and owner-provided equipment/material for all regional and support projects. Those costs do not include any construction contingency. That contingency is reflected as a separate cost category.
2. **Delivery Costs** include project management, planning, environmental (CEQA, permitting, construction compliance), design, construction management, and engineering support during construction.
3. **Other Costs** include environmental mitigation, art enrichment, security improvements, and real estate expenses.
4. **Support Projects** include (1) System Security Upgrades, (2) Programmatic EIR, (3) Bioregional Habitat Restoration, (4) Vegetation Restoration of WSIP Construction Sites, (5) Long Term Mitigation Endowment, (6) Program Management, and (7) Watershed and Environmental Improvement Program. Please note that the cost reflected above for support projects only includes "Delivery" and "Other" costs, and "Construction" cost for these projects is included in "Construction Costs" under the Regional Improvement Projects.
5. Expenditures to Date for Construction Contingency for Regional and Support projects correspond to the Total Approved Change Orders on those projects. For projects with ongoing or completed construction, the 2018 Approved Budget for construction contingency includes all change orders and trends as identified at the time of the March 2018 Revised WSIP, as well as additional contingency funding allocated to cover the 80% confidence level risks identified at the time of the March 2018 Revised WSIP. For projects in pre-construction, the 2018 Approved Budget for construction contingency includes 10% of the estimated construction base bid.
6. Local Water Supply Projects managed as part of the Water Enterprise Capital Improvement Program (CIP) are (1) Lake Merced Water Level Restoration, (2) San Francisco Groundwater Supply, (3) San Francisco Westside Recycled Water, (4)

Harding Park Recycled Water, and (5) San Francisco Eastside Recycled Water.

7. The budget approved as part of the March 2018 Revised WSIP, plus any additional budget changes approved by the Commission as part of additional contingencies on construction contracts.
8. The WSIP Local Water Supply projects underwent a September 2013 re-baseline. Only the original WSIP portion of the re-baselined costs is reported here. The remaining budget is funded under the Water Enterprise CIP and is managed outside the purview of the WSIP.

Table 3.2 provides the current remaining construction contingency. For each region, it shows the 2018 Approved Construction Contingency; the Total Approved Change Orders prior to the reporting quarter; Change Orders Approved during the reporting quarter; Total Approved Change Orders through the reporting quarter; Project Savings Moved to Contingency/ Funds Moved out of Contingency during the Reporting Quarter; the Q3/FY17-18 Forecasted Construction Contingency; and the Remaining Contingency as of the end of the reporting quarter. As of March 31, 2018, the Forecasted Construction Contingency is $476.8 million and the Current Remaining Contingency is $46.7 million.

The Change Orders Approved in Q3/FY17-18 are shown in Table 3.2. Table 3.3 provides further information at the construction contract level for all subsequent approved change orders.

Table 3.2 Current Remaining Construction Contingency

Region	2018 Approved Construction Contingency [1] ($ Million) (A)	Total Approved Change Orders as of Q2/FY17-18[2,3] ($ Million) (B)	Change Orders Approved in Q3/FY17-18[2] ($ Million) (C)	Total Approved Change Orders as of Q3/FY17-18 ($ Million) (D = B+C)	Project Savings or Director's Reserves (+) Moved to Contingency/ Funds (--) Moved out of Contingency during Q3/FY17-18 [4] ($ Million) (E)	Q3/FY17-18 Forecasted Construction Contingency ($ Million) (F = A + E)	Q3/FY17-18 Remaining Contingency ($ Million) (G = F - D)
San Joaquin Region	$0.22	-	-	-	-	$0.22	$0.22
Sunol Valley Region	$390.63	$340.08	$17.36	$357.44	-	$390.63	$33.19
Bay Division Region	$8.56	$8.66	($0.51)	$8.16	-	$8.56	$0.41
Peninsula Region	$57.82	$56.79	-	$56.79	-	$57.82	$1.03
San Francisco Regional Region	$17.58	$4.03	$3.49	$7.51	-	$17.58	$10.06
Support Projects	$2.01	$0.24	-	$0.24	-	$2.01	$1.77
Regional Total	**$476.82**	**$409.81**	**$20.33**	**$430.14**	**-**	**$476.82**	**$46.67**

Notes:

1. Construction Contingency approved as part of the March 2018 Revised WSIP, plus any regional projects' savings moved to contingency.
2. Approved Change Orders are changes that have received all required approvals, including that of the City Controller.
3. This table only reports change orders for the active construction contracts as of this reporting cycle.
4. Values only reflect savings realized following the Commission's adoption of the March 2018 Revised WSIP.

Table 3.3. Details on Transactions Out of and Into Contingency

Project No. - Contract	Transactions Out of Contingency			Transactions Into Contingency		
	Approved Change Orders ($ Million) (A)	Budget Underrun at Project Completion / Director's Reserve Moved Out of Project ($ Million) (B)	Sub Total ($ Million) (C = A + B)	Savings Due to Low Bid ($ Million) (D)	Budget Overrun at Project Completion / Director's Reserve Moved to Project ($ Million) (E)	Sub Total ($ Million) (F = D + E)
Sunol Valley Region	**$17.36**	**-**	**$17.36**	**-**	**-**	**-**
CUW35901 New Irvington Tunnel	($1.12)	-	($1.12)	-	-	-
CUW37401 Calaveras Dam Replacement WD-2551	$16.39	-	$16.39	-	-	-
CUW37401 Calaveras Dam Other Construction WD-2729	$2.09		$2.09	-	-	-
Bay Division Region	**($0.51)**	**-**	**($0.51)**	**-**	**-**	**-**
CUW35302 Seismic Upgrade of BDPL Nos. 3 & 4	($0.51)	-	($0.51)	-	-	-
San Francisco Regional	**$3.49**	**-**	**$3.49**	**-**	**-**	**-**
CUW30103 Regional Groundwater Storage and Recovery (WD-2668)	$3.49	-	$3.49	-	-	-
Regional Total	**$20.33**	**-**	**$20.33**	**-**	**-**	**-**

Table 3.4 Forecasted Remaining Construction Contingency

Region	Q3/FY17-18 Remaining Construction Contingency [1] ($ Million) (A)	Pending Change Orders as of Q3/FY17-18 [2] ($ Million) (B)	Potential Change Orders as of Q3/FY17-18 [3] ($ Million) (C)	Trends as of Q3/FY17-18 [4] ($ Million) D	Q3/FY17-18 Forecasted Remaining Construction Contingency ($ Million) (E =A-B-C-D)
San Joaquin Region	$0.22	-	-	-	$0.22
Sunol Valley Region	$33.19	$1.57	$1.55	$14.79	$15.27
Bay Division Region	$0.41	($0.09)	-	-	$0.50
Peninsula Region	$1.03	-	-	-	$1.03
San Francisco Regional Region	$10.06	$0.54	$5.04	$3.50	$0.98
Support Projects	$1.77	$0.09	-	($0.20)	$1.87
Regional Total	**$46.67**	**$2.11**	**$6.59**	**$18.10**	**$19.87**

Notes:
1. Same as Column G in Table 3.2.
2. Pending Change Orders are changes that have been negotiated and approved by the SFPUC but have to be approved by the City Controller.
3. Potential Change Orders are changes that have been requested and entered into CMIS but are still being negotiated.
4. Trends are any expected impact that the CM team believes has a high probability of becoming a change but are yet to be entered into CMIS as a Potential Change

Table 3.4 provides the forecasted remaining construction contingency. For each region as of Q3/FY17-18, it shows the Remaining Construction Contingency, Pending Change Orders, Potential Change Orders, Trends, and Forecasted Remaining Construction Contingency. As of March 31, 2018, the Total Forecasted Remaining Construction Contingency is $19.9 million. This amount does not include funds that are currently held in Director's Reserve.

The Program Management project includes programmatic activities that span multiple regions and benefit several WSIP projects (Table 3.5). The project provides funding for the following functions and resources: SFPUC Staff assigned to the management of the overall program; consultants supporting SFPUC staff at the program level (program, project and pre-construction management consultant, program construction management consultant, program control consultant); labor relations, including management of the project labor agreement; communication and public outreach; programmatic legal support; real estate acquisitions; program controls, including the tracking and reporting of all WSIP efforts; and program-level construction management activities associated with quality assurance, risk management, the Supplier Quality Surveillance (SQS) Program, operations assistance, safety, and training.

The activities under the Program Management project are organized into five categories that are tracked and monitored on a monthly basis. These categories are Management Support, Project Labor Agreement, Planning and Project Development, Program Control, and Program Construction Management.

Table 3.5 Status of Program Management Project Cost Breakdown

Category	Expenditures To Date ($ Million) (A)	2018 Approved Budget ($ Million) (B)	Current Approved Budget ($ Million) (C)	Q3/FY17-18 Forecasted Cost* ($ Million) (D)	Cost Variance ($ Million) (E = C-D)
Management Support	$36.3	$42.8	$42.8	$42.8	-
Project Labor Agreement	$3.5	$3.8	$3.8	$3.8	-
Planning and Project Development	$17.9	$18.3	$18.3	$18.3	-
Program Controls	$18.9	$19.8	$19.8	$19.8	-
Program Construction Management	$27.3	$28.0	$28.0	$28.0	-
Program Management Total	**$103.9**	**$112.7**	**$112.7**	**$112.7**	**-**

The spending pattern for the project is very similar from month to month as the project primarily funds program-level positions occupied by both SFPUC staff and consultants. The Current Approved Budget and Forecasted Total Program Management Cost are $112.7 million.

4. PROGRAM SCHEDULE SUMMARY

Figure 4.1 and Table 4.1 compare the 2005 Baseline, 2018 Approved, Current Approved, and Q3/FY17-18 Forecasted Schedules for the WSIP Regional Program. Refer to the "Cost and Schedule Status" notes in Section 5 for the criteria associated with the three color-coded Forecast Status levels in Figure 4.1 – Meet Requirements, Need Attention, and Exceed Limits. The Current Approved and Forecasted Schedule completion for the overall WSIP (including Regional and Local Programs) is in December 2021. Refer to Appendix C for a graphical presentation of the WSIP Approved Project-Level Schedule.

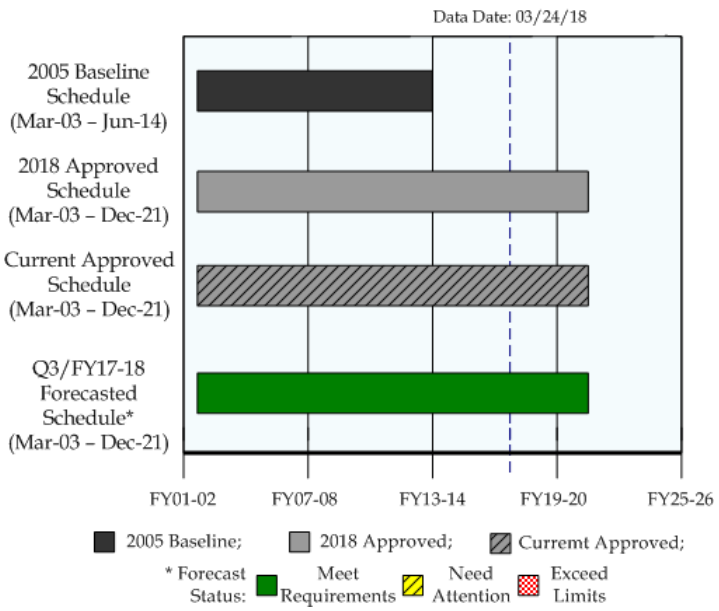


Figure 4.1 Program Schedule Summary

Table 4.1 2018 Approved vs. Q3/FY17-18 Forecasted Schedule Dates

Category	2005 Baseline Start	2018 Approved Start	Current* Approved Start	Actual Start	2005 Baseline Finish	2018 Approved Finish	Current* Approved Finish	Q3/FY17-18 Forecasted Finish	Schedule Variance (Months)
Regional Program	03/01/03	03/31/03	03/31/03	03/01/03✓	06/30/14	12/30/21	12/30/21	12/30/21	-
Local** Program	03/01/03	03/31/03	03/31/03	03/01/03✓	06/28/13	7/31/18	7/31/18	7/31/18	-
Overall WSIP	03/01/03	03/01/03	03/01/03	03/01/03✓	06/30/14	12/30/21	12/30/21	12/30/21	-

* The budget and schedule approved as part of the March 2018 Revised WSIP, plus any additional budget and schedule changes approved by the Commission as part of additional contingencies on construction contracts.

** Excluding Local Water Supply Projects

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5. PROJECT PERFORMANCE SUMMARY*

All costs are shown in $1,000s as of 03/24/18

Project Name	Active Phase (**)	2005 Baseline Budget (a)	2018 Approved Budget (b)	Current Approved Budget (c)	Q3/FY17-18 Forecasted Cost (d)	Expenditures To Date (e)	Cost Variance (f= c - d)	Cost Status (+)	2005 Baseline Completion (g)	2018 Approved Completion (h)	Current Approved Completion (i)	Q3/FY17-18 Forecasted Completion (j)	Schedule Variance (k = i - j)	Schedule Status (+)	Project Data Sheet
San Joaquin Region															
CUWSJI0101 - WSIP Closeout - San Joaquin	CN		$ 4,376	$ 4,376	$ 4,376	$ 242	-	★		12/20/19	12/20/19	12/20/19	-	★	See Appendix E
Sunol Valley Region															
CUW35201 - Alameda Creek Recapture Project	DS	$ 18,809	$ 34,000	$ 34,000	$ 34,000	$ 11,417	-	★	05/25/12	11/03/21	11/03/21	11/03/21	-	★	See Appendix E
CUW37401 - Calaveras Dam Replacement	CN	$ 256,511	$ 823,092	$ 823,092	$ 823,092	$ 702,538	-	★	05/25/12	12/20/19	12/20/19	12/20/19	-	★	See Appendix E
CUWSVI0101 - WSIP Closeout - Sunol Valley	DS		$ 5,990	$ 5,990	$ 5,990	$ 389	-	★		06/30/21	06/30/21	06/30/21	-	★	See Appendix E
Bay Division Region															
CUW35302 - Seismic Upgrade of BDPL Nos. 3 & 4	CN	$ 66,793	$ 73,623	$ 73,623	$ 73,623	$ 71,854	-	★	10/15/12	07/30/18	07/30/18	07/30/18	-	★	See Appendix E
CUWBDP0101 - WSIP Closeout - Bay Division	CN		$ 4,399	$ 4,399	$ 4,399	$ 1,175	-	★		06/30/20	06/30/20	06/30/20	-	★	See Appendix E
Peninsula Region															
CUWPWI0101 - WSIP Closeout - Peninsula	DS		$ 13,580	$ 13,580	$ 13,580	$ 1,419	-	★		05/19/21	05/19/21	05/19/21	-	★	See Appendix E
San Francisco Regional Region															
CUW30103 - Regional Groundwater Storage and Recovery	CN	$ 39,233	$ 138,793	$ 138,793	$ 138,793	$ 90,924	-	★	02/27/14	12/30/21	12/30/21	12/30/21	-	★	See Appendix E

* Excludes projects with completed construction and projects that are no longer active (i.e., deleted projects, closed projects, and projects combined with other projects)

**** Phase Status Legend**

PL Planning DS Design BA Bid & Award

CN Construction NA Not Applicable

For projects active in multiple phases, the table shows the phase in which a majority of the works is taking place.

+ Cost and Schedule Status

★ Meet Requirements: Forecasted Cost/Schedule is within Current Approved Budget/Schedule.

⚠ Need Attention: Forecasted Cost is over Current Approved Budget by greater than 1% and less than 10%. Or Forecasted Schedule is over Current Approved Schedule by greater than 2 months and less than 6 months and less than 10%.

● Exceed Limits: Forecasted Cost is over Current Approved Budget by 10% or more. Or Forecasted Schedule is over Current Approved Schedule by greater than 6 months or 10% or more.

All costs are shown in $1,000s as of 03/24/18

Project Name	Active Phase (**)	2005 Baseline Budget (a)	2018 Approved Budget (b)	Current Approved Budget (c)	Q3/FY17-18 Forecasted Cost (d)	Expenditures To Date (e)	Cost Variance (f= c - d)	Cost Status (+)	2005 Baseline Completion (g)	2018 Approved Completion (h)	Current Approved Completion (i)	Q3/FY17-18 Forecasted Completion (j)	Schedule Variance (k = i - j)	Schedule Status (+)	Project Data Sheet
Support Projects															
CUW36302 - System Security Upgrades	CN		$ 15,201	$ 15,201	$ 15,201	$ 13,129	-	★		09/28/18	09/28/18	09/28/18	-	★	See Appendix E
CUW38802 - Bioregional Habitat Restoration	CN		$ 93,342	$ 93,342	$ 93,342	$ 85,144	-	★		09/30/21	09/30/21	09/30/21	-	★	See Appendix E
CUW38804 - Long Term Mitigation Endowment ++	NA		$ 12,000	$ 12,000	$ 12,000	$ 0	-	★		09/30/21	09/30/21	09/30/21	-	★	NA
CUW39401 - Watershed and Environmental Improvement Program	DS	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 4,349	-	★	06/28/13	01/08/21	01/08/21	01/08/21	-	★	See Appendix E

∗ Excludes projects with completed construction and projects that are no longer active (i.e., deleted projects, closed projects, and projects combined with other projects)

∗∗ Phase Status Legend

PL Planning DS Design BA Bid & Award

CN Construction NA Not Applicable

For projects active in multiple phases, the table shows the phase in which a majority of the works is taking place.

+ Cost and Schedule Status

★ Meet Requirements: Forecasted Cost/Schedule is within Current Approved Budget/Schedule.

⚠ Need Attention: Forecasted Cost is over Current Approved Budget by greater than 1% and less than 10%. Or Forecasted Schedule is over Current Approved Schedule by greater than 2 months and less than 6 months and less than 10%.

● Exceed Limits: Forecasted Cost is over Current Approved Budget by 10% or more. Or Forecasted Schedule is over Current Approved Schedule by greater than 6 months or 10% or more.

++ The Long Term Mitigation Endowment (LTME) fund provides an initial deposit to secure a source of funds for perpetual monitoring and maintenance of the Bioregional Habitat Restoration sites constructed in the SFPUC watershed, as required by the United States Army Corps of Engineers and California Department of Fish and Wildlife permits. The LTME fund does not involve construction activities.s to secure land purchases.

6. PROJECTS NOT WITHIN BUDGET AND/OR SCHEDULE

All projects are within the current approved budget and schedule.

7. On-Going Construction

Construction Contract	Schedule			Budget		Variance (Approved - Forecast)		Actual % Complete
	NTP Date	Approved Construction Final Completion*	Q3/FY17-18 Forecasted Construction Final Completion**	Approved Contract Cost +	Q3/FY17-18 Forecasted Cost++	Schedule (Cal. Days)	Cost	
Sunol Valley Region								
CUW37401 - Calaveras Dam Replacement (Contract A)	08/15/11	05/28/19	05/28/19	$ 572,572,883	$ 574,572,217	-	($1,999,334)	91.5%
CUW37401 - Alameda Creek Diversion Dam (Contract B)	04/19/16	12/16/18	12/16/18	$ 33,752,498	$ 34,874,443	-	($1,121,945)	83.3%
San Francisco Regional Region								
CUW30103 - Regional GW Storage and Recovery (Contract B)	04/06/15	03/31/18	06/28/19	$ 50,493,134	$ 56,077,179	(454)	($5,584,045)	98.7%

Program Total for On-Going Construction	Approved Contract Cost	Q3/FY17-18 Forecasted Cost*	Variance	
			Cost	Percent
	$ 656,818,515	**$ 665,523,838**	**($8,705,323)**	**(1.3%)**

Note:
* Approved Construction Final Completion Date includes approved change orders.
** The Forecasted Construction Final Completion Date includes all approved, pending, and potential change orders and trends.
\+ Approved Contract Cost includes awarded contract amount and approved change orders.
++ The Forecasted Cost includes awarded contract amount and all approved, pending, and potential change orders.

8. PROJECTS IN CLOSE-OUT

Project Title	2005 Baseline Construction Phase Completion	2016 Approved Construction Phase Completion	Current Approved Construction Phase Completion	Actual Construction Phase Completion	2005 Approved Project Completion	2018 Approved Project Completion	Current Approved Project Completion	Forecasted Project Completion	2005 Baseline Construction Phase Budget	2018 Approved Construction Phase Budget	Current Approved Construction Phase Budget	Construction Phase Expenditures To Date
Sunol Valley Region												
CUW35901 - New Irvington Tunnel	04/02/13	09/30/17	09/30/17	09/30/17	09/17/13	03/31/18	03/31/18	03/31/18	$ 173,326,000	$ 272,130,689	$ 272,130,689	$ 272,130,689
TOTAL									$ 173,326,000	$ 272,130,689	$ 272,130,689	$ 272,130,689

9. COMPLETED PROJECTS

Project Title	2005 Baseline Project Completion	2018 Approved Project Completion	Current Approved Project Completion	Actual Project Completion	2005 Baseline Project Budget	2018 Approved Project Budget	Current Approved Project Budget	Project Expenditures To Date
San Joaquin Region								
CUW36401 - Lawrence Livermore Water Quality Improvement	11/07/11	07/31/13	07/31/13	07/31/13	$ 4,235,258	$ 4,198,247	$ 4,198,247	$ 4,198,247
CUW37301 - San Joaquin Pipeline System	03/25/14	03/31/16	03/31/16	03/31/16	$ 352,732,000	$ 203,178,015	$ 203,178,015	$ 203,178,015
CUW37302 - Rehabilitation of Existing San Joaquin Pipelines	06/30/14	10/31/14	10/31/14	10/31/14	$ 80,000,000	$ 21,153,622	$ 21,153,622	$ 21,153,622
CUW38401 - Tesla Treatment Facility	07/01/11	01/30/15	01/30/15	01/30/15	$ 101,643,001	$ 113,211,607	$ 113,211,607	$ 113,211,607
Sunol Valley Region								
CUW35501 - Standby Power Facilities - Various Locations	12/06/10	12/22/10	12/22/10	12/22/10	$ 9,949,735	$ 12,950,566	$ 12,950,566	$ 12,950,566
CUW35902 - Alameda Siphon #4	04/14/11	06/28/13	06/28/13	06/28/13	$ 78,577,000	$ 64,950,507	$ 64,950,507	$ 64,950,507
CUW37001 - Pipeline Repair & Readiness Improvements	03/30/07	04/16/09	04/16/09	04/16/09	$ 5,591,770	$ 5,195,381	$ 5,195,381	$ 5,195,381
CUW37402 - Calaveras Reservoir Upgrades	02/17/06	07/28/06	07/28/06	07/28/06	$ 1,740,055	$ 1,690,552	$ 1,690,552	$ 1,690,552
CUW37403 - San Antonio Backup Pipeline	06/29/12	06/30/16	06/30/16	06/30/16	$ 7,677,000	$ 53,594,683	$ 53,594,683	$ 53,594,683
CUW38101 - SVWTP Expansion & Treated Water Reservoir	07/09/13	10/31/14	10/31/14	10/31/14	$ 133,108,002	$ 129,593,674	$ 129,593,674	$ 129,593,674
CUW38601 - San Antonio Pump Station Upgrade	12/12/11	06/29/12	06/29/12	06/29/12	$ 41,854,000	$ 12,894,592	$ 12,894,592	$ 12,894,592
Bay Division Region								
CUW35301 - BDPL Nos. 3 & 4 Crossover/Isolation Valves	09/30/08	07/31/09	07/31/09	07/31/09	$ 27,600,158	$ 27,039,149	$ 27,039,149	$ 27,039,149
CUW36301 - SCADA System - Phase II	02/24/12	05/28/13	05/28/13	05/28/13	$ 36,098,999	$ 9,470,922	$ 9,470,922	$ 9,470,923
CUW36801 - BDPL Reliability Upgrade / Tunnel	01/31/14	08/30/16	08/30/16	08/30/16	$ 572,022,634	$ 272,364,089	$ 272,364,089	$ 271,660,844
CUW36802 - BDPL Reliability Upgrade - Pipeline	-	03/31/16	03/31/16	03/31/16	-	$ 216,871,156	$ 216,871,156	$ 216,719,335
CUW36803 - BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2	-	05/28/10	05/28/10	05/28/10	-	$ 3,046,981	$ 3,046,981	$ 3,046,981
CUW38001 - BDPL Nos. 3 & 4 Crossovers	04/24/13	06/30/14	06/30/14	06/30/14	$ 36,616,911	$ 29,910,449	$ 29,910,449	$ 29,910,449
CUW38901 - SFPUC/EBMUD Intertie	02/07/07	03/20/14	03/20/14	03/20/14	$ 8,598,851	$ 9,167,306	$ 9,167,306	$ 9,167,306
CUW39301 - BDPL No. 4 Condition Assessment PCCP Sections	05/01/08	02/06/09	02/06/09	02/06/09	$ 2,000,000	$ 1,937,599	$ 1,937,599	$ 1,937,599
Peninsula Region								
CUW35401 - Lower Crystal Springs Dam Improvements	08/16/11	12/28/12	12/28/12	12/28/12	$ 27,752,222	$ 34,859,040	$ 34,859,040	$ 34,859,040
CUW35601 - New Crystal Springs Bypass Tunnel	10/28/10	08/17/12	08/17/12	08/17/12	$ 83,222,790	$ 81,466,732	$ 81,466,732	$ 81,466,732
CUW35701 - Adit Leak Repair - Crystal Springs/Calaveras	07/03/08	07/31/08	07/31/08	07/31/08	$ 3,748,452	$ 2,787,322	$ 2,787,322	$ 2,787,322
CUW36101 - Pulgas Balancing - Inlet/Outlet Work	05/11/06	05/11/06	05/11/06	05/11/06	$ 1,667,532	$ 1,765,938	$ 1,765,938	$ 1,765,938
CUW36102 - Pulgas Balancing - Discharge Channel Modifications	08/05/13	07/30/10	07/30/10	07/30/10	$ 8,111,422	$ 2,910,007	$ 2,910,007	$ 2,910,007
CUW36103 - Pulgas Balancing - Structural Rehabilitation and Roof Replacement	01/29/13	12/28/12	12/28/12	12/28/12	$ 36,712,846	$ 20,238,716	$ 20,238,716	$ 20,238,716

Project Title	2005 Baseline Project Completion	2018 Approved Project Completion	Current Approved Project Completion	Actual Project Completion	2005 Baseline Project Budget	2018 Approved Project Budget	Current Approved Project Budget	Project Expenditures To Date
Peninsula Region								
CUW36105 - Pulgas Balancing - Modifications of the Existing Dechloramination Facility	-	03/20/13	03/20/13	03/20/13	-	$ 5,390,031	$ 5,390,031	$ 5,390,031
CUW36501 - Cross Connection Controls	05/15/09	04/30/09	04/30/09	04/30/09	$ 6,111,779	$ 3,948,944	$ 3,948,944	$ 3,948,944
CUW36601 - HTWTP Short-Term Improvements (Demo Filters)	07/03/06	11/14/06	11/14/06	11/14/06	$ 4,381,375	$ 3,067,903	$ 3,067,903	$ 3,067,903
CUW36603 - HTWTP Short-Term Improvements - Coagulation & Flocculation/ Remaining Filters	09/08/10	07/28/10	07/28/10	07/28/10	$ 9,741,617	$ 18,604,937	$ 18,604,937	$ 18,604,937
CUW36701 - HTWTP Long-Term Improvements	04/08/14	12/30/16	12/30/16	12/30/16	$ 167,570,000	$ 274,081,969	$ 274,081,969	$ 273,804,405
CUW36702 - Peninsula Pipelines Seismic Upgrade	-	07/06/16	07/06/16	07/06/16	-	$ 38,825,346	$ 38,825,346	$ 38,767,424
CUW36901 - Capuchino Valve Lot Improvements	07/24/09	08/19/08	08/19/08	08/19/08	$ 3,573,782	$ 2,803,153	$ 2,803,153	$ 2,803,153
CUW37101 - Crystal Springs/San Andreas Transmission Upgrade	04/01/14	06/30/15	06/30/15	06/30/15	$ 148,582,655	$ 190,309,453	$ 190,309,453	$ 189,816,066
CUW37801 - Crystal Springs Pipeline No. 2 Replacement	04/27/12	12/31/14	12/31/14	12/31/14	$ 93,926,000	$ 56,070,509	$ 56,070,509	$ 56,070,509
CUW37901 - San Andreas Pipeline No. 3 Installation	06/09/11	08/30/12	08/30/12	08/30/12	$ 42,029,941	$ 27,495,558	$ 27,495,558	$ 27,495,558
CUW39101 - Baden and San Pedro Valve Lots Improvements	10/12/11	03/29/13	03/29/13	03/29/13	$ 47,319,999	$ 24,990,803	$ 24,990,803	$ 24,990,803
San Francisco Regional Region								
CUW35801 - Sunset Reservoir - North Basin	05/06/09	09/10/10	09/10/10	09/10/10	$ 61,975,999	$ 64,270,725	$ 64,270,725	$ 64,270,725
CUW37201 - University Mound Reservoir - North Basin	03/10/11	03/29/13	03/29/13	03/29/13	$ 102,882,610	$ 43,266,552	$ 43,266,552	$ 43,266,552
Support Projects								
CUW38801 - Programmatic EIR	06/20/07	06/30/09	06/30/09	06/30/09	$ 9,271,001	$ 10,730,684	$ 10,730,684	$ 10,730,684
CUW38803 - Vegetation Restoration of WSIP Construction Sites	-	06/30/16	06/30/16	06/30/16	-	$ 2,111,546	$ 2,111,546	$ 2,099,755
TOTAL					$ 2,358,627,396	$ 2,102,414,967	$ 2,102,414,967	$ 2,100,719,238

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APPENDICES

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APPENDIX A. PROJECT DESCRIPTIONS

SAN JOAQUIN REGION

CUW36401 - Lawrence Livermore Water Quality Improvement (Completed)
The project consists of:
• Ultraviolet (UV) disinfection, including two 150-gallon-per-minute, parallel UV units and ancillary facilities. The units will be installed in the existing Thomas Shaft building.
• Two pumps that will pump water from the Coastal Range Tunnel to the new disinfection system.

CUW37301 - San Joaquin Pipeline System (Completed)
The project consists of:
• Pipeline crossover facilities at Emery Road (including 10 valves) and Pelican Road (including 12 valves).
• Installation of a portion of new pipeline, the Western Segment, from the San Joaquin River to the Tesla Portal. The pipeline will be 78-inches in diameter, approximately 10.3 miles in length and will include tunneled crossings of several highways, a railroad, and an irrigation canal. The pipeline will cross over the top of the California Aqueduct.
• Installation of a portion of new pipeline, the Eastern Segment, from the Oakdale Portal to a new connection point approximately 6.7 miles downstream on SJPL No. 3. This segment will also be 78-inches in diameter.
• Installation of valve facilities on SJPL Nos. 3 and 4 along the Eastern Segment to provide for operational needs to divide and isolate segments of these lines for maintenance and to regulate flow and control pressure in the system.
• Security related site improvements at Oakdale Portal.

CUW37302 - Rehabilitation of Existing San Joaquin Pipelines (Completed)
The project scope is to assure that existing San Joaquin Pipelines will meet Delivery Reliability LOS goals by establishing a program of routine maintenance, repair, and replacement activities for long-term implementation and by addressing the highest priority rehabilitation measures identified during the timeframe of the WSIP:
• Rehabilitation of and security-related site improvements at the existing Roselle Crossover.
• Establishment of a program of pipelines conditions assessment, including upgrading and renewal as required, of pipe coating and lining systems.
• Upgrade of the existing SJPL cathodic protection system.
• Upgrade of the existing SJPL Supervisory Control and Data Acquisition (SCADA) system.

CUW38401 - Tesla Treatment Facility (Completed)
The project consists of:
• Isolation valves and piping to divert SJPL flow to the new treatment facility, large-diameter piping and valves located within the treatment facilities, and a single discharge pipeline to tie back into the existing SJPLs.
• A disinfection building housing 12 UV reactors, cleaning equipment, and ancillary equipment.
• A chemical storage and feed facility for sodium hypochlorite, hydrofluorsilicic acid (i.e., fluoride), and carbon dioxide.
• Office, laboratory, and control facilities, emergency engine generators, and security related site and access road improvements.

CUW38701 - Tesla Portal Disinfection Station
The Tesla Portal Disinfection Facility is located where the San Joaquin Pipelines (SJPLs) converge into the Coast Range Tunnel and provides primary disinfection of the Hetch Hetchy water supply. The facility is one of the key water quality monitoring and compliance locations for the San Francisco Public Utilities Commission (SFPUC). The Tesla Portal Disinfection Station Project includes the planning of a new disinfection facility that will provide reliable disinfection to the Hetch Hetchy water supply.
This project has been combined with the "CUW38401 - Tesla Treatment Facility Project"; therefore, the respective budgets for the Environmental, Design, Bid & Award, Construction, Construction Management, and Close-out Phases have been transferred to the "CUW38401 - Tesla Treatment Facility Project".

Note that this project has been terminated and the remaining scope & budget has been combined with the "CUW38401 - Tesla Treatment Facility" project.

CUWSJI0101- WSIP Closeout - San Joaquin

• **Supplemental Solar Panel Installations** – The CUW37301 San Joaquin Pipeline System, including the western segment, eastern segment and facilities, and crossover pipeline projects, achieved final completion in 2013, 2014 and 2015, respectively. During the initial course of operations it was noted the solar panel arrays designed to provide power for the facility equipment were not sufficient to meet all modes of operational demands. This sub-project will re-evaluate the existing photo-voltaic systems and will provide additional solar panels, if needed, to cover power shortfalls and allow the facility to better meet its water delivery reliability LOS goal. This sub-project consists of three sites: Oakdale, Knight Ferry Throttling Station, and San Joaquin Junction No. 4. The scope of work includes:

o Re-evaluation of the existing photo-voltaic systems at these three (3) locations before proceeding with modifications to the existing arrays,

o If determined necessary to meet current power demands, furnish and install new supplemental solar arrays mounted on concrete pads within security fence enclosures,

o Connection to and integration of the new solar panels into the existing power system and controls, and

o Installation of batteries for solar power storage on-site.

• **Tesla Portal Facility Interior Floor Slab** – The Tesla Portal Facility, a sub-project of the CUW38401 Tesla Treatment Facility, was completed in January 2015. During construction, the concrete interior floor slab was deleted from the project construction documents to allow easier access to repair corrosion of the existing pipelines discovered during construction beneath the new Tesla Portal Facility. Due to drainage issues at the site, the Operations staff at the facility requested the interior slab be incorporated into the structure with a small access opening for future maintenance and corrosion repairs of the existing buried pipelines. This sub-project will be constructed through use of a job order contract including:

o A new interior concrete slab slope to drain to a new catch basin,

o A new catch basin with grating and sump, and

o A small sump pump and drain through the slab or existing concrete wall to a discharge point.

SUNOL VALLEY REGION

CUW35201 - Alameda Creek Recapture Project

The planned facilities for this project are based on Alternative 4-1 from the Updated Alternatives Analysis Report (AAR) dated January 30, 2009, with some refinements described below. The planned facilities include the following components: four identical vertical turbine pumps mounted on floating barges located in existing Pond F2 (including a mooring system); four flexible discharge pipelines extending from each pump to a new pipe manifold located on shore; approximately 100-feet of 36-inch pipeline connection between the new pipe manifold and the existing Sunol Pipeline to discharge the recaptured water to the SFPUC system; throttling valves and a flow meter; electrical control building; 1,600 feet of power lines from the existing Hetch Hetchy Water & Power Calaveras Electrical Substation installed on 10 new power poles; and general site improvements. In addition, the scope includes conveyance of the water to various existing storage sites within the Sunol Valley or the Sunol Valley Water Treatment Plant, as necessary. Some minor refinements were made in the March 2016 Notice of Changes to eliminate on-shore booster pumps in favor of a single set of pumps located on barges in Pond F2 and the elimination of the flexibility to allow multiple sources of water from Pond F2 and Calaveras Reservoir to be blended and sent to San Antonio Reservoir (SAR) in the future.

CUW35501 - Standby Power Facilities - Various Locations (Completed)

The project consists of installing standby electrical power facilities at six sites in the East Bay and on the Peninsula. Each site is either provided with an emergency generator or electrical receptacles to accommodate a portable emergency generator.

The five sites are: Alameda West Portal, and San Antonio Reservoir & Dam; Harry Tracy Water Treatment Plant; Millbrae Yard; San Pedro Valve Lot; and Capuchino Valve Lot.

CUW35901 - New Irvington Tunnel

This project consists of an 18,660-foot long tunnel in a horseshoe shape with excavated dimensions of approximately 13 feet by 14 feet. The final tunnel lining will be mortar-lined, welded steel pipe, resulting in a finished diameter of 8.5 feet. Extra thick steel liner segments will also be used at low cover areas near the portals and beneath Interstate 680 where the tunnel intersects inactive fault zones, and where the tunnel passes through areas of poor ground conditions.

Major project elements include:

• Conventional mining methods are being used in a westward direction from the Alameda West Portal, in both an eastward and westward direction from an intermediate shaft located near Vargas Road just off Interstate 680, and in an eastward direction from Irvington Portal. Tunneling is being completed by multiple road header tunneling machines and limited, controlled detonation in areas of hard rock. Spoils disposal is being taken to fill sites just north of the San Antonio Pump Station (SAPS) near the intersection of Calaveras Road and Interstate 680. When completed the spoils fills will create a visual barrier to a new quarry operation located near Calaveras Road. Potentially contaminated spoils will be screened, separated, and, if found to contain contaminants, hauled to a permitted landfill.

• At the Irvington Portal, the tunnel connections to Bay Division Pipelines (BDPL) will include control valves directly buried with instrumentation and electrical gear in a small control building. At the Alameda West Portal, the tunnel will be connected to the discharge of the new mixing manifold to be constructed as part of the Alameda Siphons # 4 Project and to the existing overflow shaft. The project includes a new isolation valve between the mixing manifold and the portal.

• The NIT Project will include construction of a new access bridge across Alameda Creek to accommodate temporary construction traffic and on-going SFPUC Alameda West Portal operations.

• A Groundwater Management Program has been developed that includes two years of pre-construction monitoring of wells, springs, creeks, ponds, and wetlands; environmental habitat construction mitigation measures; and two years of monitoring after construction to minimize the impact to the local groundwater.

• At both the existing Irvington and Alameda West Portal facilities, other security-related site improvements will be constructed, including undergrounding of portal structures and new card access controlled gates and security fences.

CUW35902 - Alameda Siphon #4 (Completed)

This project consists of a 66-inch diameter welded steel pipeline; a 96-inch diameter "blending structure" near the Alameda West Portal that will blend SVWTP and Hetch Hetchy water; new isolation/throttling valves on Alameda Siphons Nos. 3 and 4; new isolation valves on Alameda Siphons Nos. 1 and 2; ventilation improvements at Alameda East Portal; new chemical injection facilities on Siphon No. 4; relocation and extension of the overflow pipe; and road improvements at the intersection with Calaveras Road.

CUW37001 - Pipeline Repair & Readiness Improvements (Completed)

The project consists of three phases for implementation: Phase A (completed) involves the procurement of varied lengths and sizes of welded steel pipe and fitting for stockpiling at seven locations west of the Coast Range Tunnel; Phase B (completed) includes procurement and installation of a pipe rolling facility at the Sunol Yard; Phase C (completed) involves the development of a pipeline repair prioritization plan as well as on-call emergency repair procedures, contracts, and mutual assistance agreements.

CUW37401 - Calaveras Dam Replacement

Project elements primarily include:

• Constructing a new 210-foot high earth and rock fill dam designed to accommodate a maximum credible earthquake on the Calaveras

Fault. The dam will be constructed immediately downstream of the existing dam and will have a crest length of 1,210 feet, a base thickness of 1,180 feet, and a crest thickness of 80 feet. The total volume of the dam will be approximately 2.8 million cubic yards.

- The materials for construction will primarily originate from onsite sources, while surplus excavated material will be placed at disposal sites around the rim of the Calaveras Reservoir, including two in-water disposal sites and several upland disposal sites.
- The existing spillway will be removed, and a new spillway and stilling basin will be constructed. The overflow weir of the new spillway will be 307 feet long. The spillway will vary from 60 to 80 feet wide and will be 1,100 feet long. The stilling basin below the spillway will be 80 feet wide and 155 feet long.
- A new intake tower and shaft will be constructed. The drain line and three adits from the existing facility will be connected to the new shaft. The existing outlet conduit from the tower will be extended 1,250 feet downstream (beneath the replacement dam) and will be equipped with a high capacity fixed-cone discharge valve (relocated from the existing facility) to accommodate water releases from the reservoir. Fish screens will be added to the existing adits of the intake tower.
- The existing dam will largely remain in place. The downstream face will, however, be partially removed and re-graded, and a channel will be excavated through the dam to form the approach to the new spillway.
- A new 525-foot long fish ladder and flow bifurcation systems at Alameda Creek Diversion Dam (ACDD) will be used in conjunction with new low-flow capacity valves to be added at the base of the replacement Calaveras Dam to provide flows downstream of these facilities to support native aquatic resources and future populations of steelhead trout that are being restored to the Alameda Creek Watershed.
- The fish ladder and a total of four new fish protection screens will be added on the right abutment (looking downstream) of the ACDD. In addition, conveyance pipes will be installed to allow water from Alameda Creek to be delivered to the Calaveras Reservoir via the Alameda Creek Diversion Tunnel (ACDT).
- Landslide A removal beneath the northern half of the left abutment slope located on the left side of the valley (when looking downstream) as well as other associated changes as previously noted in the March 2013 Notice of Change.
- Landslide B removal within the lower left abutment slope as well as other associated change.
- Additional slope reinforcement in Borrow Area B and import of offsite rockfill to supplement rockfill mined from Borrow Area B to mitigate schedule impacts.
- Repairs to a portion of Calaveras Road where a landslide occurred due to unusually wet weather in February 2017.
- Repairs to the West Haul Road which was inundated by the reservoir elevation rise due to unusually wet weather in February 2017.
- For the ACDD fish ladder, to address potential landslide hazard and further protect the fish passage structure, an extension to the contract landslide stabilization wall and an additional reinforced concrete panel wall with tie-backs to reinforce a section of the soil nail wall.

CUW37402 - Calaveras Reservoir Upgrades (Completed)

The project consists of a new hypolimnetic oxygenation system and cryogenic equipment installed near the dam to help maintain reservoir water quality.

CUW37403 - San Antonio Backup Pipeline (Completed)

The SABPL consists of 6,600 feet of 66-inch-diameter steel pipe and extends from the Alameda Siphons at the SAPS to Sunol quarry, SMP-24, near the intersection of Calaveras Road and San Antonio Creek. There are three tie-in facilities with air gap provisions from the SABPL: one connecting to Alameda Siphon No. 3, a second to the SAPL near SAPS, and a third to the SAPL on the west side of Calaveras Road before the SAPL alignment turns and heads west to quarry SMP-24. The alignment of the SABPL parallels that of the existing SAPL, terminating with a control valve and concrete energy

dissipation structure in quarry SMP-24. The project includes new chemical storage, feed, and water-quality-monitoring facilities for de-chlorination and pH adjustment of any discharges through the SABPL, the existing SAPL, and the Alameda East Portal overflow pipe. Water discharged into the SMP-24 quarry pond will be recovered with two submersible pumps and a short section of 24-inch diameter steel pipe which will connect to the existing SAPL to convey water to San Antonio Reservoir. Power to the water recovery pumps will be supplied from the nearby Calaveras Substation, which is owned and operated by Hetch Hetchy Water & Power. Construction of a slurry wall around the quarry pond to minimize groundwater intrusion and to ensure slope stability is also included.

CUW38101 - SVWTP Expansion & Treated Water Reservoir (Completed)
The project consists of a plant expansion which will increase the sustainable capacity to 160 mgd by adding a new flocculation/sedimentation basin, by retrofitting some of the existing filters, by adding a new 17.5-million gallon (MG) circular treated water reservoir (TWR) with a new 3.5-MG rectangular chlorine contact tank on the northern portion of the existing plant site, by adding new chemical storage and feed facilities for disinfection, and by construction of approximately 2,700 feet of 78-in pipe to connect the new TWR to the existing plant.

CUW38102 - SVWTP Calaveras Road
The project consists of safety related improvements to Calaveras Road near the SVWTP access road. The project was deleted because it does not contribute to the WSIP Level of Service goals. This project deletion was approved by the Commission in February of 2008.

CUW38201 - SVWTP Treated Water Reservoir
The project consists of providing improvements to the SVWTP disinfection facilities, including new chemical feed equipment and a 5 MG chlorine contact tank. Additionally, two 8.75 MG balancing reservoirs are planned. These improvements were determined in response to a DOHS requirement.

NOTE THAT THIS PROJECT WAS TERMINATED AND THE REMAINING SCOPE & BUDGET WAS COMBINED WITH PROJECT "CUW38101 - SVWTP EXPANSION & TREATED WATER RESERVOIR."

CUW38601 - San Antonio Pump Station Upgrade (Completed)
The project consisted of:
• Replacement of three 1,000-horsepower electrical pumps.
• Addition of two 1.5-megawatt emergency generators. The generators are sized to power the three electric pumps.
• Seismic retrofit of the pump station, including reinforcement of the walls, foundation improvements, and connection of the roof to the walls.

CUWSVI0101- WSIP Closeout - Sunol Valley
• **AS4 Carrier Water System Modifications** – The CUW35902 Alameda Siphon No. 4 Project was completed in 2013. Since that time, new facilities being brought on-line as well as other changes occurring in water operations have resulted in an apparent drop in water pressure and volume at the Sunol Valley Chloramination Facility. This has reduced the available water needed for the current system to pump the necessary water treatment chemicals into the system. This new sub-project is designed to resolve the deficiency and allow the facility to meet its water delivery reliability LOS goal. This sub-project will be constructed by a job order contract including:
o Modifications of the current chemical injection system to overcome lack of water system pressure and volume,
o New supplemental water facilities, including possible new storage tanks, and monitoring and regulating equipment as needed, and
o Plumbing and control connections between the new facilities and the current system.
• **Erosion Repair at Pond F3 East** – The recently completed CUW37403 San Antonio Backup Pipeline Project included drainage improvements on the east side bank of Quarry Pond F3 East. After completion of construction, it was noted that the rock riprap below a 12-inch drainage pipe had eroded away and undermined the

downstream section of the pipe. This sub-project will repair the erosion with new rockfill and restore the drainage pipe including;
o Grading to remove loose bank debris and prepare the subgrade slope to receive the riprap,
o Extension of the existing drain pipe downslope to the water line of the pond,
o Installation of new rockfill on the east bank of the quarry pond from the current drain pipe to the toe of the bank, and
o Temporary access improvements at the side bank of the pond for a crane and other equipment to deliver and place rock riprap and other materials into the repair area.

• **Sunol Valley Water Treatment Plant Polymer Feed Facility**. The Sunol Valley Water Treatment Plant Expansion and Treated Water Reservoir Project was completed in 2014 and included addition of a new fifth flocculation sedimentation basin (Basin 5) to the existing four (4) basins at the plant. During operations after completion, it was noted that Basin 5 was not able to achieve the optimal water production goal of 40 million gallons per day consistently. This sub-project was originally scoped to change the flocculation aid composition for Basin 5. The March 2018 scope refinement is to build a polymer feed facility that will serve not only Basin 5, but also the four (4) older basins (Basins 1 to 4), to optimize plant water production, and allow this facility to better meet its water quality and delivery reliability LOS goals. The portion of the facility cost attributed to Basin 5 will be funded under the WSIP; the portion of the facility cost attributed to Basins 1 to 4 will be funded under the Water 10-Year Capital Improvement Program. This sub-project will be constructed by a bid contract including:
o Addition of new flocculant aid polymer to optimize water production from the four older basins and the new Basin 5
o Water testing to develop a range of polymer doses for the range of different water quality expected at the plant
o Construction of new structures and facilities to store, monitor and control the application of the new polymer

• **Miscellaneous Work at AWP, IVP and SABPL.** The CUW35901 New Irvington Tunnel (NIT) was completed in 2017, and the CUW37403 San Antonio Backup Pipeline (SABPL) was completed in 2016. This subproject will include the following work:
o Installation of new security doors at Alameda West Portal (AWP) and Irvington Portal (IVP)
o Installation of new couplings between the valve stem and actuator for the cathodic protection at AWP and IVP
o Refurbishment of uninterruptible power supply (UPS) and installation of new enclosures for the UPS at AWP and IVP
o Installation of discharge pipe lateral supports, safety railings, ladder stiffening supports, and sunshades for electrical equipment on SABPL

• **NIT Water Quality Equipment Relocation.** The CUW35901 New Irvington Tunnel (NIT) project installed new water quality monitoring equipment in an underground vault to monitor water quality on Irvington Portal 2 (IP2). After the equipment was installed, problems were noted that related to safe access and water drainage. This sub-project is to relocate the water quality monitoring equipment to Building B10 for Irvington Portal 1 (IP1), and install a new pump to pump water from Irvington Tunnel 2 (IT2) to Irvington Tunnel 1 (IT1) to provide IT2 water for the water quality monitoring.

• **San Antonio Backup Pipeline Carrier Water System Modifications.** The CUW37403 San Antonio Back Pipeline was completed in 2016. Since that time, changes in operations have resulted in an apparent drop in water pressure in the carrier water system for two (2) chemicals including Calcium Thiosulfate for dechlorination and Hydrofluorosilicic acid for pH adjustment. The purpose of this sub-project is to modify the carrier water and chemical injection system to ensure the chemicals will be injected properly.

BAY DIVISION REGION

CUW35301 - BDPL Nos. 3 & 4 Crossover/ Isolation Valves (Completed)

This project is 100 percent complete and has been closed out. The project consists of:

• Two large vaults that are primarily below-ground installations with only the top 30 inches of the structure exposed. Above-ground facilities include security fencing and satellite

communication dishes. The vaults are approximately 2,400 feet apart along the BDPL Nos. 3 and 4.

• Each vault includes four mainline isolation valves and a crossover valve. The isolation valves are hydraulically operated, while the crossover valves are electrically operated.

• The existing BDPL No. 3 is a 78-inch-diameter reinforced concrete pipe, and BDPL No. 4 is a 96-inch-diameter PCCP. At each vault, approximately 170 feet of each pipeline will be replaced with welded steel pipe.

• Each facility will be equipped with connections for portable electric generators, and a battery system will provide immediate emergency power to operate the hydraulic system.

• Valve actuators will have remote monitoring and operating capability through the SFPUC SCADA system.

CUW35302 - Seismic Upgrade of BDPL Nos. 3 & 4

The project primarily consists of:

BDPL No. 3:

• A new 300-foot-long concrete vault will be constructed under Mission Boulevard near the I-680 Interchange where Fault Trace B is located. A new 300-foot segment of 72-inch welded steel BDPL No. 3 will be installed inside the vault. Within the vault and on either end of the fault trace zone, 72-inch-diameter ball joints and slip joints will be installed that will accommodate pipeline displacement during a seismic event.

• For the crossing under I-680 at Trace A, about 400 feet of 78-inch-diameter welded steel pipe will be installed in an existing, unused corrugated metal pipe.

• About 1,450 feet of additional new 78-inch diameter welded steel pipe will connect the existing and new segments between the two vaults, and will be buried.

BDPL No. 4:

• About 400 feet of new 80-inch steel liner will be installed inside BDPL No. 4 at Hayward Fault Trace C.

• BDPL No. 4 will be encased with concrete outside the existing slip joint vault at Hayward Fault Trace B.

• Modifications to the existing slip joint vault will be made including enlarging BDPL No. 4 pipe penetrations in the vault, new drainage systems, new roof panels, and adjustments to the existing slip joint.

• Modifications to the existing BDPL No. 3 (to be abandoned in place) to collect and divert water from the area and prevent the undermining of the new BDPL No. 3.

• About 400 feet of new 90-inch diameter welded steel pipe will be installed at Trace A of the Hayward Fault.

• Relocation of the following utilities: two Alameda County Water District water pipelines, one Union Sanitary District sewer pipeline, one conduit of AT&T phone lines, and one six-inch diameter PG&E gas pipeline.

CUW36301 - SCADA System - Phase II (Completed)

The project primarily consists of:

• Establish a common software platform and migrate all elements to this platform.

• Connect existing flow meters and new pressure transmitters, and provide communication to SCADA master station at five major Bay Area Water Supply and Conservation Agency (BAWSCA) customer sites.

• Install pressure transmitters, perform piping modifications, and provide communication to SCADA master station at seven existing regulating valves in the City of San Francisco distribution system.

• Install new flow and pressure monitoring devices at 23 key locations in the City distribution system.

CUW36801 - BDPL Reliability Upgrade – Tunnel (Completed)

• The tunnel extends 5 miles under San Francisco Bay and is adjacent to the marshlands between the vicinity of the Ravenswood Valve Lot and the Newark Valve Lot. The tunnel will be constructed with a Tunnel Boring Machine (TBM). The final tunnel lining will consist of a 9-foot diameter welded steel pipeline. The tunnel will terminate on each end with vertical shafts and a connection to the BDPL Nos. 1, 2, and 5 piping manifolds. The two piping manifolds are provided under the BDPL Reliability Upgrade - Pipeline Project. The

tunnel spoils are anticipated to be used as part of the conversion of adjacent salt ponds to marshland. The portion of the existing BDPL Nos. 1 and 2 that are replaced by the tunnel will be capped on each end and will be abandoned in place.

• Two facilities are proposed to be added to the original scope of work and are necessary to ensure the project will meet LOS goals:

1) SCADA Communications system at Newark Valve Lot

This added scope provides for the installation of a SCADA communications system and integrating such system into the existing water quality monitoring equipment located in the Newark Valve Lot Control Building. The work consists of installing communications equipment, telephone line, wires, conduits, and electrical cabinets.

2) 42–inch diameter Bay Division Pipeline No. 2 (BDPL2) Bypass

The supply from the Newark Valve Lot to the City of Hayward is currently being fed from both Bay Division Pipelines (BDPL) No. 1 and No. 2. Upon the completion of the Bay Tunnel Project, Hayward supply will be fed only by BDPL2. BDPL2, built in the mid-1930s, is a mixture of reinforced concrete cylinder pipe and wrought steel pipe. Thus, with the current scope of the Bay Tunnel project, the reliability of the Hayward service line could be reduced when the project is completed.

The scope of work for this change will provide for the installation of 640 linear feet of new 42-inch diameter welded steel pipe, replacing a portion of BDPL2, thereby increasing the reliability of the Hayward service.

CUW36802 - BDPL Reliability Upgrade – Pipeline (Completed)

The project primarily consists of:

• In the East Bay, 7 miles of 72-inch-diameter pipe will be constructed between the Irvington Portal and the Newark Portal of the new Bay Tunnel. On the Peninsula, 9 miles of 60-inch diameter pipe will be constructed between the Ravenswood Portal of the new Bay Tunnel and the portal of the Pulgas Tunnel.

• A seismically resistant crossing of the Hayward Fault will be constructed. The crossing will include a new crossover valve vault on each side of the fault. The valves will be hydraulically actuated and will include emergency batteries. The pipe between the vaults will be higher strength and will be installed on a special foundation or trench section.

• Isolation valves and an interconnecting pipe manifold will be constructed at each portal of the new Bay Tunnel. The facilities will include new or rehabilitated control buildings with new emergency generators.

• New crossover valves between BDPL Nos. 2 and 5 will be installed at a location in Redwood City. The crossover facility will include a new or rehabilitated control building and connections for a portable emergency generator.

• A new throttling valve will also be added on BDPL No. 5 at the Pulgas Valve Lot. The throttling valve will include a new or rehabilitated control building.

• The project originally included underground concrete vaults for crossover facilities at Newark, Ravenswood, and Redwood City Valve Lots. The current project eliminates the concrete vaults and directly buries the valves with full access to valve actuators at these facilities.

CUW36803 - BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2 (Completed)

This project is 100 percent complete and has been closed out. The project includes relocation of approximately 600 feet of each pipeline (BDPL Nos. 1 and 2) at the BART/railroad crossings. The pipe segments to be relocated will be installed inside new casings that will be placed by the construction contractor doing the other development work in the area. The encased pipes are being installed in accordance with a utility agreement between the City of Fremont and the SFPUC.

CUW38001 - BDPL Nos. 3 & 4 Crossovers (Completed)

The three proposed crossover facilities are located near the Guadalupe River in Santa Clara, near Barron Creek in Palo Alto, and near Bear Gulch in Atherton. The facilities include vaults that are largely below-ground, with only the top 30 inches exposed. They are very similar to one another,

consisting of four mainline valves and a crossover valve. Emergency engine generators will be included as an optional bid item.

CUW38901 - SFPUC/EBMUD Intertie (Completed)

The project primarily consists of:

• Providing new 36-inch-diameter piping and valving at the Newark Turnout to provide an additional connection between BDPL Nos. 1 and 2 to the existing City of Hayward system.

• Using the existing City of Hayward system for conveyance and providing six new valves for isolation.

• Providing 1.3 miles of new 36-inch-diameter pipe to connect the City of Hayward system to the EBMUD system and providing a new pump station along this alignment.

CUW39301 - BDPL No. 4 Condition Assessment PCCP Sections (Completed)

• This project is 100 percent complete and has been closed out. This project includes a detailed condition assessment of the two PCCP segments along BDPL No. 4. The first reach of concern (Reach 1) is 8.6 miles long and 96-inches in diameter. The second reach of concern (Reach 4) is 8.0 miles long and 84-inches in diameter. The condition assessment consists of an electromagnetic survey, seismic risk analysis, corrosion survey, visual inspection, and field investigations.

• The assessment identified six reaches of pipe (144 feet total out of 16 miles) that are potentially distressed. During initial investigations, the condition of one distressed pipe segment (Pipe 1558) was determined visually to be particularly deteriorated, and immediate emergency repair was recommended. The project funded and completed emergency repair using post-tension exterior tendon repair for this segment. For the other five potentially distressed pipe segments that were identified using electromagnetic survey, and determined to be of lower priority, recommendations were made for future excavation to confirm pipe condition in these areas, and repair if needed. A number of future follow-up investigations were recommended, including monitoring of groundwater acidity for a period of one year in the area of Edgewood Road and additional excavations of lower priority pipe pieces. Any additional required repairs will be scheduled based on urgency and funded through the Water Enterprise's Repair and Replacement (R&R) Program.

CUWBDP0101- WSIP Closeout - Bay Division

• **Site Drainage and Pipe Coating Repairs** - This sub-project will focus on providing a drainage system solely within SFPUC's Right-of-Way to address an erosion issue that developed after the construction of the CUW35302 Seismic Upgrades of BDPL Nos. 3 & 4. In addition, this sub-project will include repairs to coatings on the pipe and pipe supports of the Bay Division Pipeline (BDPL) No. 3 to address issues that developed inside the articulated vault after construction was completed. The sub-project includes design, construction, and management of the drainage system work.

• **Bay Tunnel Warranty Inspection and BDPL 1 & 2 EIR Mitigation** – This sub-project advances the planning for a decommissioning study of the existing BDPL Nos. 1 and 2 until such time that the funding for a new Water 10-Year Capital Improvement Project (CIP) to further study mitigation alternatives and pursue removal of the BDPL Nos. 1 and 2 within the Don Edwards San Francisco Bay National Wildlife Refuge becomes available in FY2020-21.

• **Hydro-seeding at Bay Tunnel Project** - The scope of this sub-project provides for monitoring of hydro-seeded areas, removal of noxious weeds, and potentially re-seeding some of the areas at the tunnel portals in Menlo Park and Newark if the storm water performance objectives are not met.

• **Newark Valve Lot Additional Gravel Placement** - The Bay Tunnel Project design plans call for a portion of the Newark Valve Lot to be landscaped and hydro-seeded. However, Operations staff requested that gravel be placed in this area since it will be a high traffic area during shutdowns and other maintenance work. Accordingly, this sub-project provides for the purchase and placement of the gravel.

• **Corrosion Protection for Valve E5OU** – The E50U Valve was installed in 2011 as part of the CUW36802 BDPL Reliability Upgrade – Pipeline

Project. Immediately prior to the Bay Tunnel Project in-service/commissioning date in early Fall 2015, the Bay Tunnel Contractor completed the flanged connection of the manifold to the existing E50U Valve. However, during the installation and testing of the new flanged connection, the Bay Tunnel Contractor discovered an inconsistency in the corrosion protection isolation system of the existing valve E50U (high corrosion potential). It was decided to not authorize a Change Order to fix the corrosion problem of the E50U Valve at that time due to the risk of high cost delays to the Bay Tunnel Project, if leaks were to occur after the solution was implemented. Accordingly, this sub-project includes excavating and shoring the area around the valve, and removal of one bolt at a time for testing, and replacement if necessary. A gasket will be purchased and may be installed if there are leaks that develop after the bolts are removed, cleaned, and replaced.

• **Ventilation and Sump Pump Systems Installation.** This sub-project provides improvements for inspection, monitoring and maintenance associated with the construction of the CUW35302 Seismic Upgrades of BDPL Nos. 3 and 4. The BDPL No. 3 pipe, slip joint, ball joints and pipe supports and seismic monitoring equipment inside the articulated vault require on-going inspection, monitoring and maintenance. The type and frequency of inspection and maintenance were not well defined during the design phase; it is now clear that a fixed ventilation system is required for the BDPL No. 3 vault. Furthermore, the BDPL No. 4 expansion joint vault also requires access for inspection and monitoring; installation of a sump pump is required to remove water from the vault prior to inspections. Accordingly, the scope of this sub-project is to install a fixed ventilation system and a sump pump system to eliminate the need for removing access hatches and installing temporary fans and sump pump prior to accessing the vaults for frequent inspection and maintenance needs.

PENINSULA REGION

CUW35401 - Lower Crystal Springs Dam Improvements (Completed)

The project consists of:

• Spillway modifications that include widening the spillway, constructing two bridge piers within the spillway to accommodate rebuilding of a San Mateo County Bridge, removing the existing timber stop-log system, constructing a new weir system within the spillway, installing access cat-walks for operation and maintenance, and eliminating water ponding on top of the dam.

• Parapet wall modifications that include increasing the height of the wall that is located on top of the upstream face of the dam and increasing the height of the approach walls to the spillway.

• Stilling basin modifications at the base of the spillway that include removing the existing basin, constructing a new larger basin, and adding downstream riprap protection at the toe of the basin.

CUW35601 - New Crystal Springs Bypass Tunnel (Completed)

The project consists of:

• A 4,200-foot long tunnel with 8-foot diameter welded steel liner.

• Vertical shafts on each end of the tunnel to accommodate a tunnel boring machine and future maintenance. The southern shaft will include a connection to the existing Crystal Springs Bypass Pipeline; the northern shaft will tie into the southern ends of both Crystal Springs Pipeline No. 2 and Sunset Supply Line.

• New isolation valves and valve vaults.

• Standby power near valve vault G40.

CUW35701 - Adit Leak Repair - Crystal Springs/Calaveras (Completed)

The project consists of :

• Crystal Springs Outlet Tower No. 1: repairing leaks inside the tower, blasting and recoating piping and valves, replacing roof, structurally retrofitting the access footbridge, and installing a marine hatch at the tower drain.

• Crystal Springs Outlet Tower No. 2: installing a marine hatch at the tower drain.

• Calaveras Outlet Tower: installing a dewatering pump, replacing a deteriorated valve actuator, and providing ladder fall protection.

• San Antonio Outlet Tower: installing a dewatering pump and repairing leaks inside the tower.

CUW36101 - Pulgas Balancing - Inlet/Outlet Work (Completed)
The project consists of new inlet and outlet piping designed to direct the path of the water in such a manner as to promote better mixing. The shutdowns associated with construction of these improvements provided an opportunity to perform a condition assessment of the reservoir interior that has been used to help identify work associated with CUW36103 - Pulgas Balancing Reservoir - Structural Rehabilitation and Roof Replacement project. This project was successfully completed in May 2006.

CUW36102 - Pulgas Balancing - Discharge Channel Modifications (Completed)
The project consists of raising the channel walls, repairing concrete cracks and exposed reinforcing steel, strengthening and interconnecting the channel floor sections, and strengthening the wall near the Pulgas Tunnel as needed. The project will restore the Discharge Channel capacity for accommodating flow up to 250 mgd.

CUW36103 - Pulgas Balancing - Structural Rehabilitation and Roof Replacement (Completed)
The project consists of the seismic retrofit of the walls, installation of a new steel frame roof, and repair of concrete cracks and exposed reinforcing steel. The project scope also includes installing a new ventilation system and sampling ports, replacing utility piping, and upgrading the electrical system.

CUW36104 - Pulgas Balancing - Laguna Creek Sedimentation (Completed)
This project consists of the execution of the Laguna Creek Habitat Management and Revegetation Plan. This is a mitigation measure for the Non-WSIP Pulgas Dechlorination Facility Project, which involves the restoration of the Laguna Creek Sedimentation Basin, a 6-8 acre catchment basin that provides habitat for the San Francisco Garter Snake and the California Red Legged Frog. In coordination with regulatory agencies, a strategy was developed to accomplish this habitat restoration, and to have it measured under the Habitat Reserve Program (HRP). This project was closed in December 2007 and combined with Project CUW38802-Habitat Reserve Program (HRP).

CUW36105 - Pulgas Balancing - Modifications of the Existing Dechloramination Facility (Completed)
The project consists of various improvements to the dechloramination and pH control facilities that are necessary to address immediate compliance issues. Anticipated improvements include modifications to the flow measurement and control systems, and to the various process control and chemical feed systems.

CUW36501 - Cross Connection Controls (Completed)
The project consists of providing improvements at 304 different sites to address potential cross connections. The work varies from site to site due to specific site conditions. The major work elements typically include: Install air gaps at blow-off locations and at air valves; install backflow prevention devices; reconstruct or raise existing vaults; install new vault covers; replace existing air valves; and/or modify, relocate, or remove existing blow-off facilities.

CUW36601 - HTWTP Short-Term Improvements (Demo Filters) (Completed)
The project consists of retrofitting two filters and performing full-scale performance demonstration testing of the retrofitted filters. The project was successfully completed in November 2006.

CUW36602 - HTWTP Short-Term Improvements - Remaining Filters (Completed)
This project consists of filtration modification to eight of the ten existing filters, replacement of effluent control valves and backwash supply valves, provision for a filter to waste system, installation of new underdrains and media, and seismic retrofit of basin walls. Combined with CUW36603 - HTWTP Short-term Improvements - Coagulation & Flocculation project.

CUW36603 - HTWTP Short-Term Improvements - Coagulation & Flocculation/ Remaining Filters (Completed)

The project consists of improvements to both the coagulation and flocculation systems. The coagulation improvements include restoring and improving operation of the pumped-jet flash-mix system, increasing capacity of the flash-mix pumps, providing the pumps with variable speed controls to improve efficiency, providing an automated dilution water system, and reconfiguring the chemical injectors to improve performance. Flocculation improvements include reconfiguring the baffling system, adding new mechanical mixers with variable speed controls, and seismically retrofitting the walkways and basin walls.

CUW36701 - HTWTP Long-Term Improvements (Completed)

The project consists of seismic and hydraulic improvements in various treatment units and expansion of the filtration process capacity by the addition of five new filters. In addition, a new 11 million gallon Treated Water Reservoir will be built to replace the two existing treated water reservoirs. The project also includes improvements to the sludge handling and washwater systems and provides a new additional washwater tank to enhance the plant's performance. Additional improvements are also planned for the electrical system, including a new substation, switchgear, and motor control center. The project also includes improvement to key valves and pipelines conveying the raw water supply to the Plant and treated water to the distribution system.

CUW36702 - Peninsula Pipelines Seismic Upgrade (Completed)

The scope of this project includes geotechnical investigations to characterize the Serra Fault in the vicinity of the pipelines and to confirm assumptions about sub-surface conditions along the length of the pipelines (SAPL2 and SAPL3 from HTWTP to San Pedro Valve Lot, SSBPL from HTWTP to Capuchino Valve Lot, and Sunset Supply Pipeline (SSPL) from Capuchino Valve Lot to San Pedro Valve Lot). In addition, hydraulic modeling has been performed to review system/facility requirements to meet system goals. The objectives of the investigations were: 1)to determine the potential fault offset at the Serra Fault crossings and the potential response from the three pipelines to these offsets, and 2) to determine potential for pipeline rupture due to displacement from liquefaction, landslides, and other seismically-triggered hazards along the pipeline alignments. The extensive geotechnical and modeling analyses performed to date have been carefully reviewed to identify specific project recommendations.

The refined project scope (Phase 1) currently includes the following components at five locations on the San Francisco Peninsula:

- Colma Site – Replacement of an approximately 700-ft segment of SAPL2
- South San Francisco Site – Replacement of an approximately 720-ft segment of SAPL2
- San Bruno North Site – Stabilization of SAPL2 where it extends through a tunnel
- San Bruno South Site – Replacement of an approximately 1,170-ft segment of SAPL2 and an approximately 1,050-ft segment of SAPL3; and
- Millbrae Site – Replacement of an approximately 900-ft segment of SSBPL

A common staging area is planned to be located at SFPUC Baden Valve Lot in South San Francisco on El Camino Real.

Phase 2 of the project will include installation of two new isolation valves near the Baden Valve Lot on SAPL No. 2 and No. 3 in the City of South San Francisco. The WSIP construction contract will include both Phases 1 and 2.

Phase 3 has been identified as a non-WSIP project, and includes condition assessment and improvements to SAPL2, installation of new isolation valves, and the potential addition of flexible connections along the alignment within the City of San Francisco.

CUW36901 - Capuchino Valve Lot Improvements (Completed)

The project consists of replacing two existing isolation valves, providing new electric actuators for valve operation, performing concrete crack repair to prevent water leakage into the vault, providing new instrumentation and control

systems for valve operation and pressure monitoring, and relocating the existing electrical and instrumentation systems outside the vault.

CUW37101 - Crystal Springs/San Andreas Transmission Upgrade (Completed)
The project consists of improvements to facilities necessary to transport water from Upper Crystal Springs Reservoir, through the lower Crystal Springs Reservoir to San Andreas Reservoir, and ultimately, to the Harry Tracy Water Treatment Plant (HTWTP) Raw Water Pump Station. Specifically, improvements will be made to the Upper Crystal Springs Dam discharge culverts, the Lower Crystal Springs outlet structures, the Crystal Springs Pump Station (CSPS), the Crystal Springs/San Andreas Pipeline, and the San Andreas outlet structures.

CUW37801 - Crystal Springs Pipeline No. 2 Replacement (Completed)
The project consists of:
• Seismic reliability improvements, which include replacing or relocating a total of 1.7 miles of pipe at 12 locations, sliplining 3.5 miles of pipe, retrofitting pipe bridge pier supports at two creek crossings, providing a new connection at the Crystal Springs Pump Station, and providing a connecting segment with a blind flange for later connection to the New Crystal Springs Bypass Tunnel.
• Facility improvements, which include installing fences and enclosures for exposed facilities, and concealing exposed portions of pipe.
• Upgrading the cathodic protection system along the length of the pipeline.

CUW37901 - San Andreas Pipeline No. 3 Installation (Completed)
The project consists of installation of 4.4 miles of 36-inch-diameter pipe from San Pedro Valve Lot in Daly City to Merced Manor Reservoir in San Francisco. There will be three jack and bore crossings along 19th Avenue and John Daly Boulevard. Work will also include installation of five customer service connections, a new cathodic protection system along the length of the new pipeline, three interconnections to the San Andreas Pipeline No.2, various valves, and a flow meter.

CUW39101 - Baden and San Pedro Valve Lots Improvements (Completed)
This project consists of upgrades to valve vaults, valves, and piping in the Baden Valve Lot and the San Pedro Valve Lot. It also includes the installation of a pressure reducing valve and associated system valving to allow transfer of a portion of the flow from the HTWTP high-pressure zone to the low- pressure zone during emergencies.

CUWPWI0101- WSIP Closeout - Peninsula
• **LCSD Stilling Basin Modifications & Dissipation Structure Riprap** – This sub-project is provided in response to concerns that fish may be "trapped" in the Lower Crystal Springs Dam (LCSD) stilling basin during low flow summer periods, and that high flow discharges from the new LCSD dissipation structure and potential high water levels in Pool 2 may cause erosion of the bank adjacent to the dissipation structure. The dissipation structure includes 60-inch diameter pipes with a maximum flow of 600 cubic feet per second (cfs) each and two 8-inch diameter pipes with maximum flow of 7 cfs each. During flow testing of the dissipation structure, released water could be observed flowing over the dissipation structure, potentially eroding the bank adjacent to the structure. It was also observed that during summer periods, of low flow in the channel downstream of the stilling basin, fish trapped in the basin were dying due to warm water temperatures. The purposes of this sub-project are to hydraulically connect the stilling basin with Pool 2 in order to allow fish to escape the basin in summer, and to add rip-rap behind the dissipation structure to prevent erosion. Specifically, this sub-project consists of:
o A new deeper channel between the dissipation structure and the Pool 2, which would prevent fish from being trapped in the stilling basin,
o Installation of a new SCADA controls to the existing 8-in discharge pipeline and re-routing one line to the stilling basin,
o Installation of additional rip-rap around the dissipation structure,
o Installation of a new 24-inch HDPE pipeline

through an existing abandoned 60-inch pipe directed to the stilling basin
o Coordination and facilitation of access for a piezometer drilling contractor during periods of concurrent work in the stilling basin
o Deletion of landscaping around the new Crystal Springs Pump Station
o Addition of tree, shrub and grass plantings along the creek bank in accordance with the approved re-vegetation plan

• **LCSD Valve H53/ Pipeline Investigation & Fisheries Release Valve** – As stipulated by the US Army Corps of Engineers 404 permit and the associated biological opinion by NOAA's National Marine Fisheries Service (NMFS) covering the SFPUC activities at the Crystal Springs Pump Station (CSPS), the SFPUC is to take measures to protect the threatened Central California Coast (CCC) steelhead present in San Mateo Creek at CSPS site. One measure requires the release of fresh water at a rate of 3 to 17 cubic feet per second (cfs) depending on the season in recorded dry and wet years. This sub-project will utilize modification of an existing pipeline to release the required flows to the LCSD stilling basin feeding San Mateo Creek. Specifically, this sub-project consists of:
o Condition assessment of the existing 60-in diameter pipeline from Valve H-53 to the stilling basin. In addition, valve H-53 will be exposed and visually inspected to determine its condition, requiring excavation and shoring of a pit approximately 20 feet long by 20 feet wide by 20 feet deep.
o Depending on the verified condition, viable alternatives, including abandonment of the option to use H-53 pipeline, will be evaluated.
o The approved option will include a SCADA controlled 12-inch valve installed at the discharge end of the pipeline. Depending on the condition of the pipeline, the approved option may also include repairs to the pipeline lining. Options may also include slip-lining the existing line with a smaller diameter pipeline such as 12 to 24-in diameter flexible polypropylene pipe.
o Use of a temporary pipeline "line stop" and associated shoring upstream of Valve H-53 to allow for potential installation of a permanent blind flange.
o Replacement of leaking plug valves that discharge from an existing concrete vault to the stilling basin with new knife gate valves.
o Installation of new flow control valves, isolation valves and appurtenances for Pool 2.
o Connections to the existing 72-inch pipeline using hot taps.
o Construction of a new concrete walkway from the access road to the existing stairs at the flow dissipation structure adjacent to the stilling basin.

• **New Crystal Springs Bypass Tunnel Electrical Modifications** – The New Crystal Springs Bypass Tunnel (CUW35601) was commissioned in July 2011, and the project administratively closed in August 2012. Various inspections of the above ground facilities discovered excessive groundwater intrusion and resultant corrosion of equipment and electrical components. This sub-project will develop a thorough documentation of the above ground facilities at the north and south shafts, and design and implement repairs as warranted. Possible repairs may include replacement of damaged equipment and electrical components, water proofing of the affected vaults, and rechanneling of surface runoff as necessary. Preliminary inspections identified the following in the South Shaft: groundwater seepage into the venturi meter and valve G32 vaults through pipe/conduit wall penetrations, resulting in coating failure and localized corrosion. In the North Shaft, preliminary investigations identified surface runoff is entering electrical boxes. In addition, groundwater is seeping through wall penetrations into G36 and G38 vaults. Due to the high moisture, some electrical switches and two actuators failed and required replacement. This sub-project developed a thorough documentation of the above ground facilities at the north and south shafts and designed and implemented repairs as warranted. Repairs included replacement of damaged equipment and electrical components, water proofing of the affected vaults, and rechanneling of surface runoff as necessary. This subproject is 100% complete and has been closed out.

• **Closeout of DSOD Permit Applications for LCSDI and CSSA Projects** – California Department of Water Resources, Division of

Safety of Dams (DSOD) issued Alteration Permits allowing the start of construction of CUW35401, Lower Crystal Springs Dam Improvements (LCSDI) Project (Application No. 10-6) and the construction of CUW37101, Crystal Springs / San Andreas Transmission Upgrade (CSSA) Project (Application No.10-10). In June 2015, DSOD issued an approval of the completed work and requested the SFPUC to submit the final documentation of each project. Under this sub-project, the following information and documents will be extracted from the project files and submitted in a format acceptable to DSOD: affidavit of actual costs of construction and design; full size as-built drawings stamped and signed by a California registered Civil Engineer; and final concrete testing summary reports.

• **Coordination with San Mateo County Bridge Construction over LCSI** - The implementation of the CUW35401 Lower Crystal Springs Dam Improvement (LCSDI) Project required the demolition of an existing San Mateo County (SMC) Bridge that spanned over the LCSD crest. With the completion of the LCSDI Project, SMC awarded the construction contract for the new bridge and gave notice-to-proceed to the construction contractor in January 2016. To support this, SMC and the SFPUC executed a Memorandum of Understanding outlining the roles and responsibilities and expectations of both organizations. Accordingly, this sub-project will support the coordination between the SFPUC and SMC Bridge Project team. Typical activities may include response to relevant Requests for Information (RFI) such as existing site conditions, existing dam design, coordination with SFPUC Operations and Watershed groups; field inspection of placement of the bridge piers over the dam and the construction of the SFPUC funded catwalk; attendance at construction meetings; and activities concerning the water quality in Lower Crystal Springs Reservoir, security measures, and other aspects of SFPUC assets.

• **Harry Tracy Water Treatment Plant (HTWTP) Improvements.** The Harry Tracy Long-Term Improvements Project (CUW36701) was completed in 2014. Since 2014, the following needs were identified to address construction issues and improve operations at the plant to fully meet the LOS goals and objectives:

o Automate the 12-inch gate valve at the High Rate Clarifiers' filter to waste manhole to eliminate the need for Operations to manually operate the valve on a frequent basis

o Modify Sludge Tank No. 1 piping to eliminate cavitation in the washwater pumps

o Upgrade the filters of three (3) emergency generators from passive filters to active filters to increase the effectiveness of the exhaust filtration and to reduce the need for Operations to constantly clean the filters

o Repair leaks in the filter gallery channels where stainless steel angle plates were added to support several concrete walls

o Automate flushing of the sludge transfer pumps and piping to eliminate the need for Operations to manually flush on a frequent basis

o Replace and relocate failed variable frequency drives (VFDs) for the wash water and sludge transfer pumps to address an over-heating issue

o Install double containment for the diesel fuel supply lines for the exterior generator to protect against leaks into the environment

o Provide training and programming modifications to the Raw Water Pump Station switchgear equipment to enable remote SCADA control

o Install vibration control monitoring system on the electrical panels at the Raw Water Pump Station to replace the existing obsolete system

o Evaluate/Assess condition of failed mixers in the equalization basin

• **Crystal Springs/San Andreas Pipeline (CSSA) Erosion Repairs.** The heavy winter storms of 2017 exacerbated erosion at two (2) watershed culvert locations, OW-13 and OW-18, along the CSSA Pipeline. Erosion has caused the CSSA Pipeline to be exposed and potentially undermined. The scope of this sub-project is to repair the erosion with systems consistent with the requirements of permitting agencies such as the State Water Resources Control Board.

SAN FRANCISCO REGIONAL REGION

CUW30103 - Regional Groundwater Storage and Recovery

The goal of the project is to provide up to 7.2 million gallons per day (mgd) of dry year water supply over 7.5 years. The original project design included the construction of up to 16 groundwater wells and well stations in the South Westside Basin to be connected to three wholesale customers on the Upper Peninsula and the SFPUC transmission system to achieve the water supply goal. Phase 1 included the installation of 13 well stations to produce approximately 6.2 mgd, and the original scope of Phase 2 included construction of 2 to 3 additional well stations, based upon well yield. Due to difficulties with siting well stations in the central portion of the groundwater basin, Phase 2 has been modified to install up to 3 test wells (Ludeman North, Ludeman South and Centennial Trail), complete the South San Francisco Main well and pipeline, and complete other Phase 1 scope items, including chemical system monitoring, sampling and storage at various sites. The Phase 2 test wells will not be converted to production wells at this time, but will allow for determination as to whether the identified sites could be viable future production wells, and will provide valuable information related to water quality and potential pumping capacities that can be used for future planning and decision making.

CUW35801 - Sunset Reservoir - North Basin (Completed)

This project consists of:

- Seismic rehabilitation, which includes stabilization of the soil dam embankment; a retrofit of the walls and roof using seismic joints, shear walls, diagonal bracing, and struts; and foundation improvements.
- General rehabilitation, which includes repairing deteriorated concrete, replacing part of the reservoir lining material, replacing inlet piping, installing security fencing, upgrading the landscaping, and other miscellaneous site improvements.

CUW37201 - University Mound Reservoir - North Basin (Completed)

This project consists of:

- Seismic rehabilitation of the reservoir walls and roof using seismic joints, shear walls, diagonal bracing, and struts and foundation improvements. A geotechnical investigation was conducted that verified that the reservoir embankments are not subject to seismically induced failure.
- General rehabilitation, which includes repairing deteriorated concrete; replacing the reservoir lining material; replacing inlet/outlet, drain, and overflow piping; replacing outlet and drain valves; and performing landscaping and other miscellaneous site improvements.

SUPPORT PROJECTS

CUW36302 - System Security Upgrades

The purpose of this project is to develop and integrate security components at critical water system facilities including those identified in previous vulnerability assessments and to ensure that security functions such as deterrence, detection, assessment, delay, and response will be effective. As part of this project, SFPUC Security has evaluated all WSIP projects. The project includes the identification of all necessary security components including security fencing, intrusion detection, and vehicle barriers for applicable WSIP projects. The project provides for the necessary planning and design of these facilities, while the individual WSIP projects will fund the installation and construction of civil security work such as conduit lay out, fencing, and gate installation. This project will fund the furnishing and installation of Access Control and Alarm Monitoring System (ACAMS) and Digital Video Surveillance System (DVSS) equipment, and necessary security systems.

CUW38801 - Programmatic EIR (Completed)

A Program Environmental Impact Report (PEIR) has been prepared for the WSIP under the California Environmental Quality Act (CEQA). The WSIP includes a number of projects that will improve the Regional Water System with respect to water quality, seismic reliability, delivery reliability, and water supply. The PEIR will (1) identify and analyze, at a programmatic level, the potential environmental impacts of proposed system improvements, (2) describe and evaluate feasible alternatives to the proposed program,

and (3) propose mitigation measures.

CUW38802 - Bioregional Habitat Restoration
The Bioregional Habitat Restoration project was created to provide a coordinated and consolidated approach to compensate for habitat impacts that may result from implementation of the WSIP projects in the San Joaquin, Sunol Valley, Bay Division, and Peninsula Regions of the SFPUC Regional Water System. The previously approved scope of the Bioregional Habitat Restoration project included projects to preserve, enhance, restore, or create approximately 2,350 acres of tidal marsh, vernal pools, white alder riparian forest, sycamore alluvial woodland, arroyo willow riparian habitat, oak woodland and savannah, sage scrub habitat, serpentine grasslands, coastal live oak woodland, annual grasslands, and oak riparian forest.
The project includes design, environmental permitting, construction, construction management, maintenance and performance monitoring during a 3-year plant establishment period.
The wide variety of the types of impacts from WSIP projects resulted in the need for development of 18 compensation sites on SFPUC property and for contracting with 7 property owners to secure compensation on property outside the Alameda and Peninsula watersheds. There are 7 compensation sites on SFPUC property in the Alameda watershed with an average size of 250 acres, demonstrating a significant commitment to the continued protection of species habitat. Although the average size of the 11 Peninsula compensation sites is 15 acres, the projects have been strategically placed to best benefit the San Francisco garter snake and the fountain thistle. The increase in habitat compensation addresses mitigation for the fountain thistle and for changes in the Calaveras Dam Replacement Project.
Under the March 2014 Revised WSIP, some scope for the Bioregional Habitat Restoration project associated with Lower Crystal Springs Dam and long term monitoring and maintenance of the compensation sites was reduced. The remaining wetland development at Upper San Mateo Creek and Boat Ramp and most of the oak woodland compensation for the Lower Crystal Springs Dam Improvement Project has been deferred until the operating elevation of the reservoir has increased, estimated to be around 2020. This work will be completed in the future by SFPUC Water Enterprise.

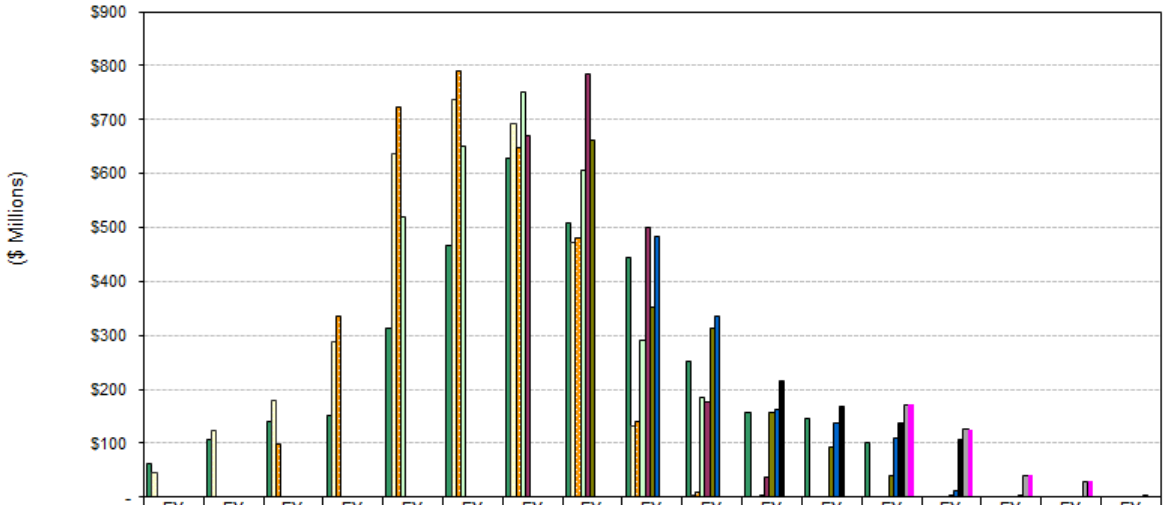
CUW38803 - Vegetation Restoration of WSIP Construction Sites (Completed)
The Vegetation Restoration of WSIP Construction Sites is a WSIP project that received Commission approval on October 9, 2012. This project is required to comply with the CEQA and resource agency permit requirements to restore and re-vegetate habitat areas temporarily impacted by construction at the various WSIP sites to preconstruction condition.

CUW38804 - Long Term Mitigation Endowment
The scope of work and budget for this Long Term Mitigation Endowment was previously included and reported within the WSIP Regional project CUW38802 Bioregional Habitat Restoration; however, the office of the City Controller has established a separate project, specific for this endowment fund, in project CUW38804 Long Term Mitigation Endowment. This perpetual endowment fund, was required by the United States Army Corps of Engineers and California Department of Fish and Wildlife permits issued for WSIP projects. It provides a secure source of funds for the perpetual monitoring and maintenance of the Bioregional Habitat Restoration sites constructed in the SFPUC watershed.

CUW39401 - Watershed and Environmental Improvement Program
The Watershed and Environmental Improvement Program (WEIP) includes the comprehensive identification and protection of critical watershed lands and ecosystem restoration needs within the hydrologic boundaries of the Alameda Creek, Peninsula (San Mateo and Pilarcitos Creeks) and Tuolumne River watersheds, and prioritizes the protection and/or restoration of these lands. Projects under this program will protect source water quality, native species, and their habitat as well as identifying critical watershed lands for

protection through purchase of fee title or perpetual conservation easement. The program also supports projects that enhance public awareness and provide education opportunities related to water quality, water supply, conservation, and environmental stewardship. Consistent with the SFPUC Water Enterprise Environmental Stewardship Policy, a portion of the funding under the WEIP will be allocated to support projects that enhance public awareness and provide education opportunities related to water quality, water supply, conservation, and environmental stewardship issues. Accordingly, construction of the Southern Skyline Boulevard Ridge Trail Extension will be funded using a portion of the WEIP funds.

APPENDIX B. BUDGET AND EXPENDITURE HISTOGRAM*



	FY 05-06	FY 06-07	FY 07-08	FY 08-09	FY 09-10	FY 10-11	FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22
Actual Total Cost	$62	$108	$140	$151	$312	$468	$628	$509	$444	$253	$158	$145	$102				
2005 Approved Budget	$46	$123	$180	$287	$638	$738	$692	$473	$133	$1							
2007 Approved Budget			$99	$335	$724	$790	$649	$481	$140	$10							
2009 Approved Budget					$519	$651	$751	$606	$290	$186	$5						
2011 Approved Budget							$669	$784	$501	$176	$38	$0					
2013 Approved Budget								$662	$352	$314	$156	$94	$41	$4			
2014 Approved Budget									$484	$335	$164	$138	$109	$11			
2016 Approved Budget											$215	$168	$138	$106	$3		
2018 Approved Budget													$171	$126	$41	$30	$2
Current Forecast													$171	$126	$41	$30	$2
Percentage Spent**	136%	88%	142%	45%	60%	72%	94%	77%	92%	76%	73%	86%					

All costs are shown in $ Millions.

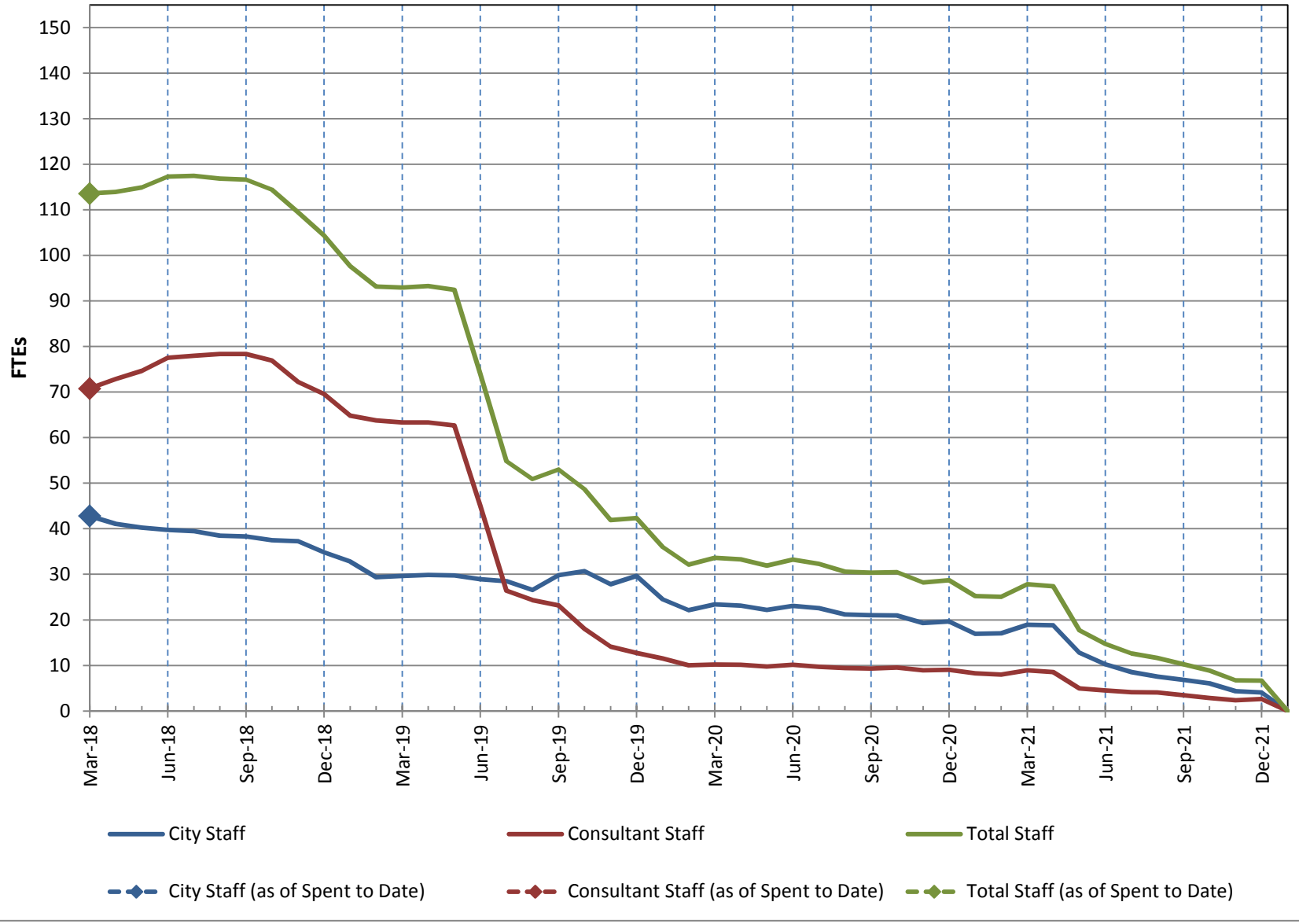
* The histogram does not reflect budget and expenditures prior to FY 2005-2006.

** Percentage Spent calculated as Actual Expenditures over the most current Approved Budget for each individual Fiscal Year.

Figure B1 Annual Budgeted Spending Plans vs. Actual Expenditures

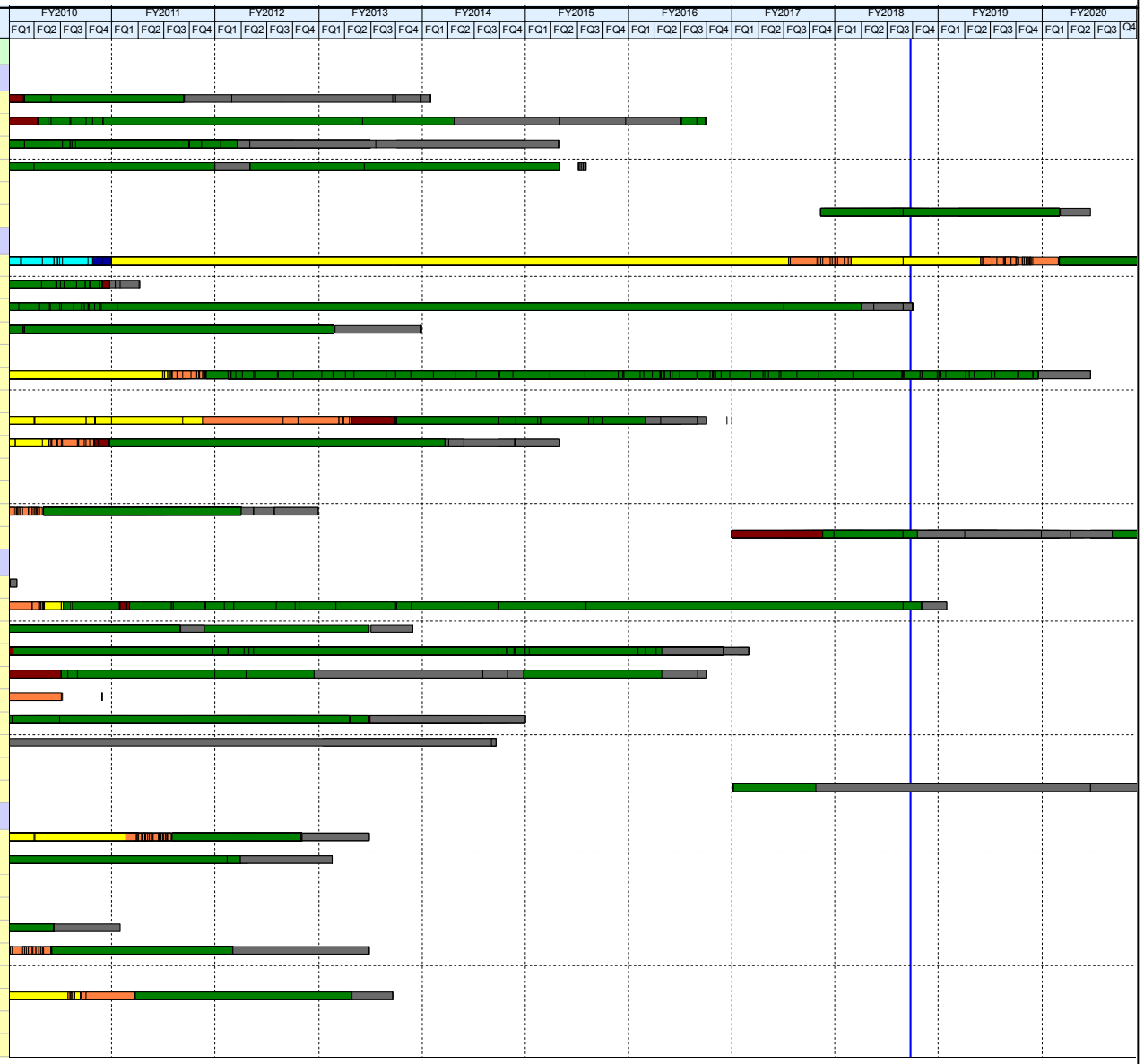
Figure B compares the spending plans associated with the various WSIP Approved Budgets to Actual Expenditures. It shows total annual expenditures from FY05-06 through Q3/FY17-18 and cost projections (Current Forecast) from FY17-18 through program completion in December 2021. Actual annual expenditures have ranged from 45% to 142% of planned expenditures.

Appendix C. WSIP Regional Program
Staffing Plan



APPENDIX D. WSIP Approved Project-Level Schedule

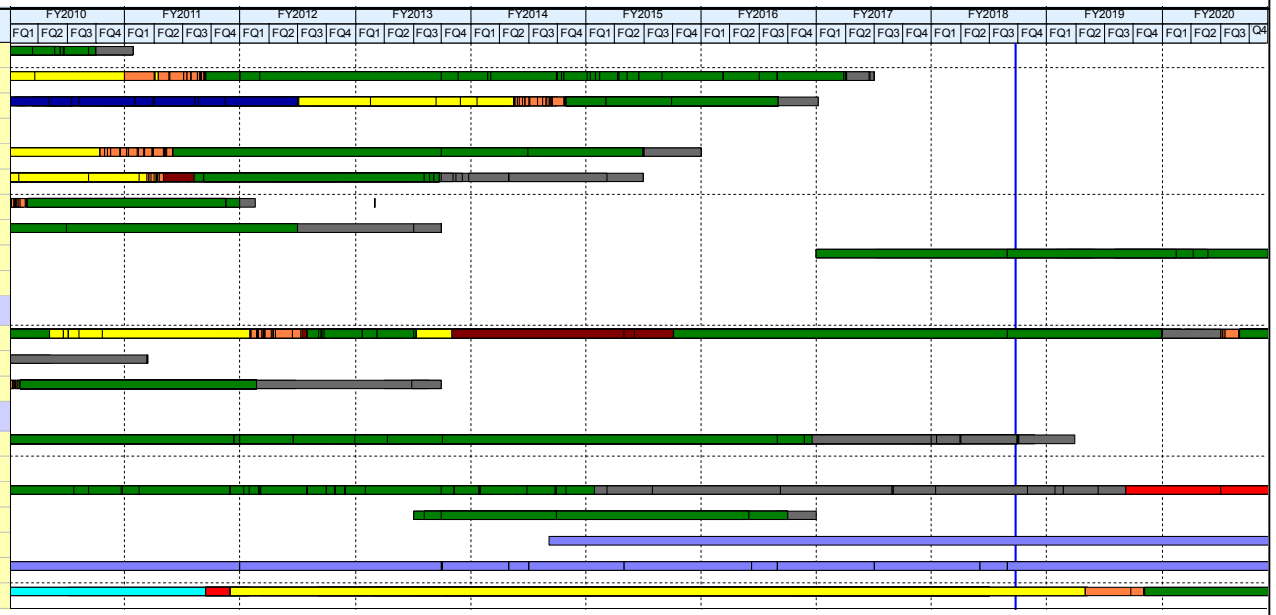
Project Name	Start	Finish
Regional Improvement Projects	31-Mar-00	30-Dec-21
San Joaquin Region	01-Jul-02	20-Dec-19
CUW36401 Lawrence Livermore Water Quality Impr	02-Feb-04	31-Jul-13
CUW37301 San Joaquin Pipeline System	19-Aug-02	31-Mar-16
CUW37302 Rehabilitation of Existing San Joaquin Pi	03-Jul-06	31-Oct-14
CUW38401 Tesla Treatment Facility	01-Jul-02	30-Jan-15
CUW38701 Tesla Portal Disinfection Station	01-Jul-02	29-Jun-07
CUWSJI0101 WSIP Closeout - San Joaquin	20-Jun-16	20-Dec-19
Sunol Valley Region	19-Dec-01	03-Nov-21
CUW35201 Alameda Creek Recapture Project	30-Sep-03	03-Nov-21
CUW35501 Standby Power Facilities - Various Locat	11-Jul-02	22-Dec-10
CUW35901 New Irvington Tunnel	19-Dec-01	31-Mar-18
CUW35902 Alameda Siphon #4	19-Dec-01	28-Jun-13
CUW37001 Pipeline Repair & Readiness Improveme	21-Apr-03	16-Apr-09
CUW37401 Calaveras Dam Replacement	03-Sep-02	20-Dec-19
CUW37402 Calaveras Reservoir Upgrades	19-Nov-03	28-Jul-06
CUW37403 San Antonio Backup Pipeline	17-Dec-03	30-Jun-16
CUW38101 SVWTP Expansion & Treated Water Re	22-Apr-05	31-Oct-14
CUW38102 SVWTP Calaveras Road	01-Feb-07	14-Dec-07
CUW38201 SVWTP Treated Water Reservoir	15-Sep-03	02-Mar-07
CUW38601 San Antonio Pump Station Upgrade	01-Jul-04	29-Jun-12
CUWSVI0101 WSIP Closeout - Sunol Valley	01-Jul-16	30-Jun-21
Bay Division Region	19-Dec-01	30-Jun-20
CUW35301 BDPL Nos. 3 & 4 Crossover/Isolation Va	06-Jan-03	31-Jul-09
CUW35302 Seismic Upgrade of BDPL Nos. 3 & 4	22-Oct-04	30-Jul-18
CUW36301 SCADA System - Phase II	22-Apr-05	28-May-13
CUW36801 BDPL Reliability Upgrade / Tunnel	19-Dec-01	30-Aug-16
CUW36802 BDPL Reliability Upgrade - Pipeline	19-Dec-01	31-Mar-16
CUW36803 BDPL Reliability Upgrade - Relocation o	24-Apr-06	28-May-10
CUW38001 BDPL Nos. 3 & 4 Crossovers	17-Feb-04	30-Jun-14
CUW38901 SFPUC/EBMUD Intertie	24-Jun-02	20-Mar-14
CUW39301 BDPL No. 4 Condition Assessment PCC	04-Aug-06	06-Feb-09
CUWBDP0101 WSIP Closeout - Bay Division	06-Jul-16	30-Jun-20
Peninsula Region	01-Nov-00	19-May-21
CUW35401 Lower Crystal Springs Dam Improvement	01-Nov-00	28-Dec-12
CUW35601 New Crystal Springs Bypass Tunnel	07-Jan-02	17-Aug-12
CUW35701 Adit Leak Repair - Crystal Springs/Calav	01-Apr-05	31-Jul-08
CUW36101 Pulgas Balancing - Inlet/Outlet Work	15-May-02	11-May-06
CUW36102 Pulgas Balancing - Discharge Channel M	01-Apr-05	30-Jul-10
CUW36103 Pulgas Balancing - Structural Rehabilitati	03-Apr-06	28-Dec-12
CUW36104 Pulgas Balancing - Laguna Creek Sedim	31-Mar-06	31-Dec-07
CUW36105 Pulgas Balancing - Modifications of the E	02-Apr-07	20-Mar-13
CUW36501 Cross Connection Controls	01-Jul-03	30-Apr-09
CUW36601 HTWTP Short-Term Improvements (Der	04-Sep-02	14-Nov-06



Planning
Design
Bid & Award
Construction
Program Management
Environmental
Right-of-Way
Construction Management
Closeout

APPENDIX D. WSIP Approved Project-Level Schedule

Project Name	Start	Finish
CUW36603 HTWTP Short-Term Improvements - Co	03-Jul-06	28-Jul-10
CUW36701 HTWTP Long-Term Improvements	01-Jul-03	30-Dec-16
CUW36702 Peninsula Pipelines Seismic Upgrade	01-Jul-09	06-Jul-16
CUW36901 Capuchino Valve Lot Improvements	22-Apr-05	19-Aug-08
CUW37101 Crystal Springs/San Andreas Transmissi	18-Aug-03	30-Jun-15
CUW37801 Crystal Springs Pipeline No. 2 Replacem	15-Jan-04	31-Dec-14
CUW37901 San Andreas Pipeline No. 3 Installation	15-Jan-04	30-Aug-12
CUW39101 Baden and San Pedro Valve Lots Impro	03-Oct-05	29-Mar-13
CUWPWI0101 WSIP Closeout - Peninsula	01-Jul-16	19-May-21
CUW36602 HTWTP Short-Term Improvements - Re	12-Jan-06	22-Feb-08
San Francisco Regional Region	31-Mar-00	30-Dec-21
CUW30103 Regional Groundwater Storage and Rec	01-Jun-03	30-Dec-21
CUW35801 Sunset Reservoir - North Basin	31-Mar-00	10-Sep-10
CUW37201 University Mound Reservoir - North Basin	24-Oct-05	29-Mar-13
Support Projects	13-Apr-04	30-Dec-21
CUW36302 System Security Upgrades	07-Jan-06	28-Sep-18
CUW38801 Programmatic EIR	13-Apr-04	30-Jun-09
CUW38802 Bioregional Habitat Restoration	06-Sep-06	30-Sep-21
CUW38803 Vegetation Restoration of WSIP Constru	02-Jan-13	30-Jun-16
CUW38804 Long Term Mitigation Endowment	05-Mar-14	30-Sep-21
CUW39201 Program Management Project	01-Aug-05	30-Dec-21
CUW39401 Watershed and Environmental Improvem	02-Jan-07	08-Jan-21



Planning
Design
Bid & Award
Construction
Program Management
Environmental
Right-of-Way
Construction Management
Closeout

APPENDIX E. PROJECTS WITHIN BUDGET AND SCHEDULE

CUWSJI0101 - WSIP Closeout - San Joaquin

Project Description: This project includes miscellaneous improvements to ensure the WSIP Level of Service (LOS) goals and objectives are fully achieved in the San Joaquin Region. The work will be completed by means of two sub-projects: (1) re-evaluation of existing photo-voltaic systems and potential addition of new solar panels to supplement existing solar panels for existing onsite equipment operations at San Joaquin No.4 Junction, at the Throttling Station at Knight's Ferry, and at Oakdale Portal, eliminating the need for propane generators at these sites; and (2) the installation of an interior concrete slab and drainage improvements at Tesla Portal as the original slab was deleted during the portal construction to allow access for repairs of existing corroded pipelines beneath the slab.

Region: San Joaquin	**Project Status:** Construction	**Environmental Status:** Not Applicable

Project Cost:		**Project Schedule:**	
Approved	$4.38 M	Approved Jun-16	Dec-19
Forecast*	$4.38 M	Forecast* Jun-16	Dec-19
Actual	$0.24 M	Project Percent Complete: 17.2%	

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	**Environmental Approval**	**Bid Advertisement**	**Construction NTP**	**Construction Final Completion**
Current Forecast	N/A	N/A	Various	08/30/19

Progress and Status:

The contractor for the Tesla Portal site, Sierra Mountain Construction, has completed the installation of the drainage system under JOC49-21. The ladder is anticipated to be completed in the next quarter. For the Solar Panels Project, design consultant (AECOM) has initiated the shadow analysis at three different sites to determine the effects on power generation of shadows from the constructed microwave antennae being cast on the existing photo-voltaic electrical system.

Issues and Challenges:

None at this time.

Oakdale Portal Site

CUW35201 - Alameda Creek Recapture Project

Project Description: The scope of this project includes conveyance of the water to various existing storage sites within the Sunol Valley or the Sunol Valley Water Treatment Plant by addition of the following:

- Four vertical turbine pumps mounted on floating barges located in existing Pond F2.
- Flexible discharge pipelines which are connected between the new pipe manifold and the existing Sunol Pipeline to discharge the recaptured water to the SFPUC system.
- Throttling valves, a flow meter, and other electrical and general site improvements.

Region: Sunol Valley	**Project Status:** Design	**Environmental Status:** Active (EIR)

Project Cost:

Approved		$34.00 M
Forecast*		$34.00 M
Actual		$11.42 M

Project Schedule:

Approved	Sep-03	Nov-21
Forecast*	Sep-03	Nov-21

Project Percent Complete: 36.3%

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	11/27/18	01/07/19	08/30/19	05/04/21

Progress and Status:

The project team (Team) continued to work on the EIR recirculation. The independent third party specialist submitted a draft report of the modeling methodology used in the EIR. The report was reviewed by the Team and comments were prepared and returned. The Team continued to work with Department of Water Resources on the encroachment permit to cross their right-of-way.

Issues and Challenges:

None at this time.

Existing Access Road to Pond F2

CUW37401 - Calaveras Dam Replacement

Project Description: The main construction project at Calaveras Reservoir provides for construction of a new 210-foot-high earth and rock fill dam, spillway, stilling basin, and intake tower and shaft to replace the existing facilities. A fish ladder will be added on the right abutment (looking downstream) of the Alameda Creek Diversion Dam (ACDD), a dam which acts to divert water through the Alameda Creek Diversion Tunnel (ACDT) to Calaveras Reservoir.

Region: Sunol Valley	**Project Status:** Construction	**Environmental Status:** Completed (EIR)

Project Cost:		**Project Schedule:**	
Approved	$823.09 M	Approved Sep-02	Dec-19
Forecast*	$823.09 M	Forecast* Sep-02	Dec-19
Actual	$702.54 M	Project Percent Complete: 90.1%	

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	**Environmental Approval**	**Bid+ Advertisement**	**Construction+ NTP**	**Construction+ Final Completion**
Current Forecast	01/27/11✓	(A) 01/31/11✓ (B) 01/04/16✓	(A) 08/15/11✓ (B) 04/19/16✓	(A) 06/19/19 (B) 12/16/18

\+ Project includes multiple construction contracts.
(A) Calaveras Dam Replacement (WD-2551); (B) Alameda Creek Diversion Dam (WD-2729)

Progress and Status:

WD-2551 CDRP: The contractor resumed dam embankment placement in mid-March 2018, starting at elevation 693 feet. This work will be continued in the next reporting period. During the current reporting period, the contractor completed the last blast at Borrow Area B to mine for hard rock materials for the upstream face of the dam, installed instrumentation for the dam embankment and foundation, and excavated a portion of the tie-back wall within the dam embankment footprint.

WD-2729 ACDD: The contractor continued work on the upper sections of the fish ladder, transition structure, and soil stabilization wall. Work started on the fish monitoring equipment, access stairs, handrails, fish ladder grating, and underground utilities to the control building.

Fish Screens Installed at the Intake Structure

Issues and Challenges:

None at this time.

CUWSVI0101 - WSIP Closeout - Sunol Valley

Project Description: The project includes miscellaneous improvements to ensure WSIP Level of Service (LOS) goals and objectives are fully achieved in the Sunol Valley Region. The work will be completed by means of six sub-projects: (1) AS4 Carrier Water System odifications will modify the chemical injection system of the Alameda Siphons No.4 Pipeline to overcome lack of water system volume and pressure needed to inject water treatment chemicals; (2) Erosion Repairs at Pond F3 East will repair the existing outfall pipe erosion at Quarry Pond F3 East with new rockfill and restore the drain pipe. The outfall drainage system was originally installed as part of the San Antonio Backup Pipeline; (3)Sunol Valley Water Treatment Plant (SVWTP) Polymer Feed Facility will build a polymer feed facility that will serve all five sedimentation basins to optimize plant water production (only the portion of the facility cost attributable to basin No. 5 will be funded under the WSIP); (4) Miscellaneous Work at Alameda West Portal (AWP), Irvington Portal (IVP), and San Antonio Backup Pipeline (SABPL) will install security doors at AWP, provide cathodic protection at IVP, refurbish uninterruptable power supply (UPS) at AWP and IVP, and install discharge pipe lateral supports, safety railings, ladder stiffening supports, and sunshades for electrical equipment at SABPL; (5) NIT Water Quality Equipment Relocation will relocate water quality monitoring equipment from an underground vault to a dedicated building together with a pump to the building to provide the water for water quality monitoring; (6) San Antonio Backup Pipeline Carrier Water System Modifications will modify the carrier water and chemical injection systems to ensure proper chemical injection.

Region: Sunol Valley	**Project Status:** Design	**Environmental Status:** Active (Various)

Project Cost:		**Project Schedule:**	
Approved	$5.99 M	Approved Jul-16	Jun-21
Forecast*	$5.99 M	Forecast* Jul-16	Jun-21
Actual	$0.39 M	Project Percent Complete: 19.5%	

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	**Environmental Approval**	**Bid Advertisement**	**Construction NTP**	**Construction Final Completion**
Current Forecast	Various	Various	Various	12/31/20

Progress and Status:

-Alameda Siphon Carrier Water System Modifications. During the reporting period, the project team continued with the design effort for this sub-project.

-Erosion Repair at Pond F3E. Drawings and specifications have been revised to address comments solicited during the joint scope meeting held in late December 2017 with Contractor (Power Engineering). The team anticipates receiving a proposal from the Contractor in the next reporting period.

-SVWTP Polymer Feed Facility (aka Basin 5). The new As-Needed Engineering Service Contract is anticipated to be issued for the CER and Design Phases in the next reporting period.

-Miscellaneous Work at AWP, IVP and SABPL. Contractor completed the installation of new security doors at AWP and IVP, refurbishment of uninterruptible power supply (UPS) and installation of new enclosures for the UPS, and installation of safety railings and ladder stiffening supports during the last quarter.

-NIT Water Quality Equipment Relocation. Design was completed and the design package has been forwarded to a new JOC contractor, CalState. Contractor will submit proposal in the next quarter, and work will be performed under JOC 60-20.

-San Antonio Back Pipeline Carrier Water System Modifications. Due to the sequence of work, this sub-project will be performed in two separate phases. Phase 1 will include installation of the pipeline to provide reliable water source for the carrier water system. Phase 2 will include adjustment to the existing chemical feed pumps and other miscellaneous items to meet the intent of the overall operation strategies. During the reporting period, design team has completed the draft final AAR and 95% design.

Issues and Challenges:

None at this time.

CUW35302 - Seismic Upgrade of BDPL Nos. 3 & 4

Project Description: This project provides for a new seismically resistant pipeline and vault system located between the two new valve vaults on either side of the Hayward Fault. This pipeline and vault system will lie across the fault for BDPL No. 3. The project also provides for a partial upgrade of BDPL No. 4, to control water that may be released from BDPL No. 4 during a major seismic event.

Region: Bay Division	**Project Status:** Construction	**Environmental Status:** Completed (EIR)

Project Cost:

Approved		$73.62 M
Forecast*		$73.62 M
Actual		$71.85 M

Project Schedule:

Approved Oct-04		Jul-18
Forecast* Oct-04		Jul-18

Project Percent Complete: 99.3%

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	Environmental Approval	Bid Advertisement	Construction NTP	Construction+ Final Completion
Current Forecast	01/20/11✓	02/21/12✓	09/04/12✓	04/28/17✓

Progress and Status:

The Contractor continued to work on final as-builts and O&M items. The contractor settled all stop notices and labor compliance issues. The project team started preparing the contract closeout package. The team negotiated and agreed on final change order costs with ACWD for their pipeline installation work. Both parties are working to process the invoices and close out the MOU. The draft inspection plan was distributed to Operations for review and comments. The final plan is being prepared.

Issues and Challenges:

The corrosion repair warranty work will be performed by the same contractor as the Bay Division WSIP Closeout project work. Combining the work will reduce potential conflicts and the number of confined space entry permits and associated costs. Operations plans to inspect BDPL 3X during the shutdown and is coordinating with the team on possible dates for the shutdown.

BDPL#3 Coating Peeling Away from Pipe

CUWBDP0101 - WSIP Closeout - Bay Division

Project Description: This project includes miscellaneous improvements to ensure the WSIP Level of Service (LOS) goals and objectives are fully achieved in the Bay Division Region. The work will be completed by means of six sub-projects, including: (1) providing a drainage system to address erosion issues that developed after Seismic Upgrades to Bay Division Pipeline Nos. 1 and 2 was constructed; (2) planning for a decommissioning study of the existing BDPL Nos. 1 and 2 pending funding for removal of the portion within the Don Edwards San Francisco Bay Wildlife Refuge and other mitigation measures; (3) monitoring of hydro-seeded areas at the Bay Tunnel Project; (4) placement of gravel at the Newark Valve Lot; (5) uncovering of previously installed valve E50U to provide for removal, cleaning, and re-installation of bolts for corrosion protection purposes; and (6) installation of a ventilation and sump pump system to improve conditions for inspection and monitoring of the pipe, slip, ball joints, and pipe supports inside the articulated vaults of Bay Division Pipeline Nos. 3 and 4.

Region: Bay Division	**Project Status:** Construction	**Environmental Status:** Not Applicable

Project Cost:

Approved		$4.40 M
Forecast*		$4.40 M
Actual		$1.17 M

Project Schedule:

Approved	Jul-16	Jun-20
Forecast*	Jul-16	Jun-20

Project Percent Complete: 55.8%

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	N/A	N/A	Various	N/A

Progress and Status:

Site Drainage and Pipe Coating Repairs – Design for the drainage and coating repairs are all on going. Bay Tunnel Warranty Inspection - Construction has been completed, Project Team is in the process making final payment and release of retention. BDPL 1&2 EIR Mitigation – Continued with the initial planning work for the project.

Hydro-seeding at Bay Tunnel Project - Completed

Newark Valve Lot Additional Gravel Placement - Completed

Corrosion Protection for Valve E50U - Completed

Ventilation and Sump Pump System Installation – JOC Contractor submitted a cost proposal for the Project Team to review during the reporting period. Negotiation with the contractor will be completed in the next quarter.

Erosion Across ROW Due to Caltrans Drainage Pipe

Issues and Challenges:

None at this time.

CUWPWI0101 - WSIP Closeout - Peninsula

Project Description: This project consists of miscellaneous improvements to ensure the WSIP Level of Service (LOS) goals and objectives are fully achieved in the Peninsula Region. The work will be completed by means of seven sub-projects: (1) the Lower Crystal Springs Dam (LCSD) stilling basin modifications and dissipation structure riprap; (2) valve modifications to accommodate stipulated releases of fresh water into San Mateo Creek for fish passage at the same site; (3) New Crystal Springs Bypass Tunnel electrical modifications due to groundwater intrusion into vaults housing it; (4) closeout of California Division of Safety of Dams permit applications; (5) coordination with San Mateo County for bridge construction over LCSD; (6) Harry Tracy Water Treatment Plant Improvements in automating operations to aid reliability in meeting LOS goals; and (7) Crystal Springs/San Andreas pipeline erosion repairs.

Region: Peninsula	**Project Status:** Design	**Environmental Status:** Not Applicable

Project Cost:		**Project Schedule:**	
Approved	$13.58 M	Approved Jul-16	May-21
Forecast*	$13.58 M	Forecast* Jul-16	May-21
Actual	$1.42 M	Project Percent Complete: 11.3%	

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	**Environmental Approval**	**Bid Advertisement**	**Construction NTP**	**Construction Final Completion**
Current Forecast	N/A	Various	Various	11/20/20

Progress and Status:

Crystal Springs / San Andreas Items:

1. WD-2822R – Crystal Springs Dam Stilling Basin, Dissipation Structure, and H53 Valve - Will re-advertise in August 2018, with Final Completion forecasted for 6/24/20. 2.The New Crystal Springs Bypass Tunnel electrical modifications have been completed. 3.Lower Crystal Springs Dam Bridge Replacement- joint project with San Mateo County (SMC). Bridge opening is forecasted for late 2018. A new JOC will be necessary to address a gap between the Lower Crystal Springs Dam north parapet wall and the bridge abutment, with a forecasted start date in early 2019. 4. Erosion Mitigation/Repairs – Post construction environmental monitoring of sites associated with major WSIP projects. Two locations in Crystal Springs were investigated in August 2017 due to erosion. A technical memorandum will be prepared to set forth proposals to mitigate erosion. Construction forecast is scheduled for Summer 2018.

Harry Tracy Water Treatment Plant Items:

1. JOC 59-01 – Electrical & Mechanical Piping Modifications. Contractor submitted long lead items for review. 2. JOC-59-17 - Emergency Generators Filters Upgrades. Drawings and specifications are finalized for JOC contractor to price. Two indoor filters and an outdoor filter will be pre-purchased. 3. JOC-59-19 – Leak at Filter Gallery Channels. Leaks were repaired in February. 4. Variable Frequency Drive Controllers (VFDs) – Five of six wash water pump VFDs and all 3 sludge transfer pumps VFDs failed. The failed wash water pump VFDs were replaced and relocated to allow for greater ventilation. These VFDs are being monitored and temperature readings taken. Alternatives for the 3 VFDs for the sludge transfer pumps have been developed, and testing will be done next quarter to facilitate selection of the preferred alternative. 5. Vibration Control Panel and Circuit Breakers. Engineers are reviewing existing conditions and as-builts to prepare recommendations. 6. Equalization Basin Mixers – Two mixers have failed, one due to an entangled cable; the other is still being investigated. The mixers have been replaced and spare mixers brought on site. 7. Erosion on CSSA Pipeline – Design is underway for repairs to erosion at OW-13 and OW-18.

Issues and Challenges:

None at this time.

CUW30103 - Regional Groundwater Storage and Recovery

Project Description: The goal of the project is to provide up to 7.2 million gallons per day (mgd) of dry year water supply over 7.5 years. The original project design included the construction of up to 16 groundwater wells and well stations to be connected to three wholesale customers on the Upper Peninsula and the SFPUC transmission system to achieve the water supply goal. Phase 1 included the installation of 13 well stations to produce approximately 6.2 mgd, and the original scope of Phase 2 included construction of 2 to 3 additional well stations, based upon well yield. Due to difficulties with siting well stations in the central portion of the groundwater basin, Phase 2 has been modified to install up to 3 test wells (Ludeman North, Ludeman South and Centennial Trail), complete the South San Francisco Main well and pipeline, and complete other Phase 1 scope items, including chemical system monitoring, sampling and storage at various sites. The Phase 2 test wells will not be converted to production wells at this time, but will allow for determination as to whether the identified sites could be viable future production wells, and will provide valuable information related to water quality and potential pumping capacities that can be used for future planning and decision making.

Region: San Francisco Regional	**Project Status:** Construction	**Environmental Status:** Active (Various)

Project Cost:

Approved		$138.79 M
Forecast*		$138.79 M
Actual		$90.92 M

Project Schedule:

Approved	Jun-03	Dec-21
Forecast*	Jun-03	Dec-21

Project Percent Complete: 71.6%

Approved; Actual Cost; * Forecast Status: Meet Requirements; Need Attention; Exceed Limits

Key Milestones:	Environmental Approval	Bid+ Advertisement	Construction+ NTP	Construction+ Final Completion
Current Forecast	(A) 09/07/09✓ (B) 08/07/14✓ (C) 08/30/19	(A) 09/07/11✓ (B) 09/22/14✓ (C) 10/01/19	(A) 01/30/12✓ (B) 04/06/15✓ (C) 03/02/20	(A) 09/05/12✓ (B) 06/28/19 (C) 06/30/21

\+ Project includes multiple construction contracts.

(A) Test well drilling; (B) Well station construction; (C) Well sites in Millbrae and South San Francisco

Progress and Status:

For Contract B (Phase 1), construction at all twelve well sites with new wells and buildings achieved substantial completion on 12/31/17. The 5-day test of the well sites has been completed. The majority of the remaining activities involves change order work related to modification and construction of the sodium hydroxide system and remote sampling analyzers for seven well sites. Performing the 7-day test for the well stations is the next major construction milestone and is expected to start this summer. For Phase 2 (associated with Contract C), the JOC contractor mobilized on 3/29/18 to drill a test well at Ludeman North in Millbrae.

Lake Merced Well Station

Issues and Challenges:

None at this time.

CUW36302 - System Security Upgrades

Project Description: The project includes the identification, planning, design, and construction of all necessary security components associated with WSIP facilities. Phase A design consists of security appurtenances such as conduit routing incorporated into the overall design of projects. This work provides for the security infrastructure and is bid as part of the specific WSIP construction project. Phase B design consists of completion of project security system components which will be purchased, installed, and tested by a Security Integrator specialist.

Region: Support Projects	**Project Status:** Construction	**Environmental Status:** Completed (CatEx)

Project Cost:

Approved		$15.20 M
Forecast*		$15.20 M
Actual		$13.13 M

Project Schedule:

Approved	Jan-06	Sep-18
Forecast*	Jan-06	Sep-18

Project Percent Complete: 95.0%

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	Environmental Approval	Bid+ Advertisement	Construction+ NTP	Construction+ Final Completion
Current Forecast	03/28/12✓	01/07/06✓ - 08/15/13✓	11/13/06✓ - 05/08/14✓	07/13/07 ✓ - 05/22/18

\+ Date range for the first and last project among the 28 WSIP projects that require security improvements.

Progress and Status:

The project team is preparing the resolution and staff report to close out the project for Commission consideration. At the Sunol Valley Treatment Plant, the security work installation is nearly completed. The JOC for security work at the New Irvington Tunnel is also nearly completed.

For the third As-Needed Security Integration Services Construction Contract, WD-2707, the project team has substantially completed construction for Harry Tracy Water Treatment Plant and Crystal Springs Dam/San Andreas Reservoir, and has issued the punch-lists of work necessary for close out. Once the work listed on the punch lists is done, the Contractor will conduct final testing of the security systems in situ and finalize the as-builts and the O&M manuals.

Security Panel recently installed

Issues and Challenges:

None at this time.

CUW38802 - Bioregional Habitat Restoration

Project Description: Bioregional Habitat Restoration (BHR) provides a coordinated and consolidated approach to compensate for WSIP construction impact to the environment of the construction site. BHR includes projects to preserve, enhance, restore, or create tidal marsh, vernal pools, sycamore and oak riparian woodland, oak woodland and savannah, and serpentine and annual grasslands to benefit threatened and endangered species. BHR includes design, environmental permitting, construction, construction management, and three years of performance monitoring and maintenance.

Region: Support Projects	**Project Status:** Construction	**Environmental Status:** Completed (Permitting Only)

Project Cost:

Approved		$93.34 M
Forecast*		$93.34 M
Actual		$85.14 M

Project Schedule:

Approved	Sep-06	Sep-21
Forecast*	Sep-06	Sep-21

Project Percent Complete: 93.4%

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	Environmental Approval	Bid+ Advertisement	Construction+ NTP	Construction+ Final Completion
Current Forecast	12/08/14✓	(A) 08/20/10✓ - 05/23/12✓ (B) 03/16/11✓ - 02/02/15✓	(A) 06/27/11✓ - 09/19/12✓ (B) 01/30/12✓ - 02/01/16✓	(A) 01/06/12✓ - 05/01/17✓ (B) 05/31/18

+ Date range for the first and last contracts in each region.
(A) BHR Alameda Contracts - 7 compensation sites (B) BHR Peninsula Contracts - 11 compensation sites

Progress and Status:

Of the six formal construction contracts for BHR sites, construction is complete for five out of the six contracts. Construction completion at the Peninsula Vegetation Removal Contract is currently 95% complete and completion is anticipated at the end of May 2018.

Issues and Challenges:

One of the subcontractors that performed work on the San Antonio Creek Project has filed suit against the general contractor for non-payment. Payment of the final invoice and contract closeout will be delayed until the litigation is resolved.

All construction will be complete in 2018; however, the schedule has been extended to accommodate preparation and negotiation of conservation easements with the regulatory agencies.

Adobe Gulch North Irrigation System

CUW39401 - Watershed and Environmental Improvement Program

Project Description: The Watershed and Environmental Improvement Program (WEIP) includes the comprehensive identification of critical watershed lands and ecosystem restoration needs within the hydrologic boundaries of the Alameda Creek, Peninsula (San Mateo and Pilarcitos Creeks), and Tuolumne River watersheds, and prioritizes the protection and/or restoration of these lands. This program will manage watershed activities and resources to protect source water quality, native species, and their habitat and to identify critical watershed lands, key ecosystem restoration needs, and restoration priorities. The program also supports projects that enhance public awareness and provide educational opportunities related to water quality, water supply, conservation, and environmental stewardship issues. Consistent with the SFPUC Water Enterprise Stewardship Policy, a portion of the WEIP funding will be used to fund construction of the Southern Skyline Boulevard Ridge Trail Extension.

Region: Support Projects	**Project Status:** Design	**Environmental Status:** Active (TBD)

Project Cost:		**Project Schedule:**	
Approved	$20.00 M	Approved Jan-07	Jan-21
Forecast*	$20.00 M	Forecast* Jan-07	Jan-21
Actual	$4.35 M	Project Percent Complete: 23.3%	

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	**Environmental Approval**	**Bid Advertisement**	**Construction NTP**	**Construction Final Completion**
Current Forecast	TBD	TBD	TBD	TBD

Progress and Status:

CUW39401 funds will be used for the construction of the Southern Skyline Boulevard Ridge Trail Extension (CUW2751801). The design of the SFPUC Southern Skyline Boulevard Ridge Trail Extension (Bay Area Ridge Trail Extension) is complete and the project is now undergoing environmental review. The Federal environmental review process will be completed in Spring 2018; the State process (CEQA) will be completed in Spring 2019. Project construction will commence in 2019.

Issues and Challenges:

The WEIP will fund an environmentally focused construction project – the Skyline Ridge Trail Extension. The environmental consultant for the Southern Skyline Boulevard Ridge Extension project has recently assessed their work effort and its impact on the CEQA schedule. Issues related to CUW275180 are reported in the March 2018 Quarterly Water Enterprise CIP.

Sulfur Creek in the Alameda Creek Watershed

APPENDIX F. LIST OF ACRONYMS

AAR	Alternative Analysis Report
AB	Assembly Bill
ACAMS	Access Control and Alarm Monitoring System
ACDD	Alameda Creek Diversion Dam
ACDT	Alameda Creek Diversion Tunnel
ACWD	Alameda County Water District
AWP	Alameda West Portal
BART	Bay Area Rapid Transit
BAWSCA	Bay Area Water Supply and Conservation Agency
BDPL	Bay Division Pipeline
BHR	Bioregional Habitat Restoration
BO	Biological Opinion
CATEX	Categorical Exemption
CCSF	City and County of San Francisco
CDD	City Distribution Division
CDRP	Calaveras Dam Replacement Project
CEQA	California Environmental Quality Act
CER	Conceptual Engineering Report
CIP	Capital Improvement Program
CM	Construction Management
CMB	Construction Management Bureau
CMD	Contract Monitoring Department
CMD	Contract Monitoring Division
CMIS	Construction Management Information System
CO	Change Order
CPI	Cost Performance Index
CSPS	Crystal Springs Pump Station
CSSA	Crystal Springs/San Andreas
DB	Design, Build
DSOD	Division of Safety of Dams (State of California)
DVSS	Digital Video Surveillance System
EBMUD	East Bay Municipal Utility District
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EV	Earned Value
EVM	Earned Value Management
FY	Fiscal Year
HH	Hetch Hetchy
HTLTIP	Harry Tracy Long Term Improvements Project
HTWTP	Harry Tracy Water Treatment Plant
IVP	Irvington Portal
JOC	Job Order Contract
LCSD	Lower Crystal Springs Dam
LCSDI	Lower Crystal Springs Dam Improvements
LMPS	Lake Merced Pump Station
LOS	Levels of Service
MG	Million Gallons
MGD	Million Gallons per Day
MND	Mitigated Negative Declaration
MOU	Memorandum of Understanding
NEG DEC	Negative Declaration (also shown as ND)
NEPA	National Environmental Policy Act
NIT	New Irvington Tunnel
NMFS	National Marine Fisheries Service (under NOAA)
NOAA	National Oceanic and Atmospheric Agency
NOT	Notice of Termination
NTP	Notice to Proceed
O&M	Operation and Maintenance
PCCP	Pre-stressed Concrete Cylinder Pipe
PCE	Project Controls Engineer
PE	Project Engineer
PEIR	Program Environmental Impact Report
PG&E	Pacific Gas and Electric Company
PPSU	Peninsula Pipeline Seismic Upgrade
QA	Quality Assurance
RFI	Request For Information
ROW	Right-of-Way
SABPL	San Antonio Backup Pipeline
SAPL	San Antonio Pipeline
SAPS	San Antonio Pump Station
SCADA	Supervisory Control and Data Acquisition
SFPUC	San Francisco Public Utilities Commission
SJPL	San Joaquin Pipeline
SMC	San Mateo County
SMP	Surface Mining Permit
SPI	Schedule Performance Index
SQS	Supplier Quality Surveillance
SSBPL	Sunset Supply Branch Pipeline

SSPL	Sunset Supply Pipeline
SVWTP	Sunol Valley Water Treatment Plant
TBD	To be determined
TBM	Tunnel Boring Machine
TWR	Treated Water Reservoir
UM	University Mound
UPS	Uninterruptable Power Supply
UV	Ultra Violet
VFD	Variable Frequency Drive
WEIP	Watershed Environmental Improvement Program
WSIP	Water System Improvement Program

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San Francisco
Water Power Sewer
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DATE: August 21, 2018

TO: Commissioner, Ike Kwon, President
Commissioner, Vince Courtney, Vice President
Commissioner, Ann Moller Caen
Commissioner, Francesca Vietor
Commissioner, Anson Moran

FROM: Harlan L. Kelly, Jr., General Manager

RE: WSIP Regional Projects Quarterly Report
4th Quarter / Fiscal Year 2017-2018

Enclosed please find the Water System Improvement Program (WSIP) Regional Projects Quarterly Report for the 4th Quarter (Q4) of Fiscal Year (FY) 2017-2018. The primary intent of the report is to provide the San Francisco Public Utilities Commission ("Commission"), stakeholders, and the public with a status summary of the program's regional projects for the period of April 1, 2018 through June 30, 2018.

In their April 3, 2018 letter, the Bay Area Water Supply and Conservation Agency (BAWSCA) requested additional information be included in the WSIP Quarterly reports. On June 5, 2018 we met with BAWSCA and agreed that beginning with the Q1FY2018-2019 report, the SFPUC will add a section to the cover letter for the WSIP Quarterly Report to highlight the use of contingency, and documentation on the sufficiency of the contingency to deliver WSIP within budget, and will also highlight in the cover letter documentation regarding work force reduction and other efficient practices and procedures to control soft costs as the program is completed.

It should be noted that this report does not include all the expenditures accrued for the work completed from July 1, 2017 through June 30, 2018 due to challenges associated with the migration of the City financial system from FAMIS to PeopleSoft. We are working diligently with the Controller's Office to address these challenges.

STATUS AND PERFORMANCE SUMMARY

Overall, WSIP regional projects are 95.8% complete as of June 30, 2018, which is on schedule in accordance with the Commission Approved Schedule.

As of the end of the reporting period, planning, environmental, design, and construction activities are 99.6%, 99.0%, 97.3%, and 96.5% complete, respectively. The following table shows the number of projects and the total approved value of these projects that are active in the WSIP's various phases.

Status of WSIP Regional Projects (as of June 30, 2018)

Project Phase	No. of Projects	Percent by No. of Projects	Total Project Value ($M)	Percent by Project Value
Planning	0	0%	$0	0%
Design	4	8%	$75	2%
Bid & Award	0	0%	$0	0%
Construction	5	10%	$1,016	27%
Close-Out	2	4%	$172	5%
Completed	40	77%	$2,527	66%
Not Applicable[2]	1	2%	$12	0%
Total	**52**	**100%**	**$3,803**	**100%**

Notes: (1) "Total Project Value" for various phases includes proportional allocation of approved program management budget. Projects active in multiple phases are counted as being in the phase with the greatest amount of project activities.
(2) "Not Applicable" category is for the one project that does not include construction: the Long-Term Mitigation Endowment.

PROGRAM UPDATE

As of the end of the reporting period, five (5) regional projects with a total value of $1,016M are in construction and forty-two (42) projects with a total value of $2,699M are in close-out or have been completed. Forty (40) out of forty-three (43) Regional WSIP projects with specific Level of Service (LOS) goals have achieved their LOS goals to date. Besides the WSIP Closeout Projects, the two (2) Regional project remain in pre-construction are the Alameda Creek Recapture Project and the Watershed and Environmental Improvement Program.

As of the end of the reporting period, the forecasted total program cost (regional and local projects) is $4,787.8M, which is the same as the Commission Approved Budget. As of the end of the reporting period, all approved change orders (COs) on active construction contracts total $434.7M, and the current remaining construction contingency is $42.2M. Also, as of the end of the reporting period, all pending and potential COs, and trends total $24.2M. Therefore, if all

pending and proposed COs and trends become approved COs, the current forecasted remaining construction contingency is $18.1M.

The current forecasted date to complete the overall WSIP is December 2021 which is the same as the current approved date; given that the current forecasts for the overall WSIP budget and schedule are based on the Commission approved 2018 Baseline on April 10, 2018.

UPDATE ON PROJECTS IN PRE-CONSTRUCTION

Alameda Creek Recapture

During this quarter, the team continued to work on the EIR recirculation. Meetings were held with California Department of Fish and Wildlife and National Marine Fisheries Services to present and discuss our updates towards addressing their EIR comments. A comment letter on the presentation was received from CDFW requesting additional modeling and information and suggesting a change in our operation strategy for Pond F2.

WSIP Closeout Projects

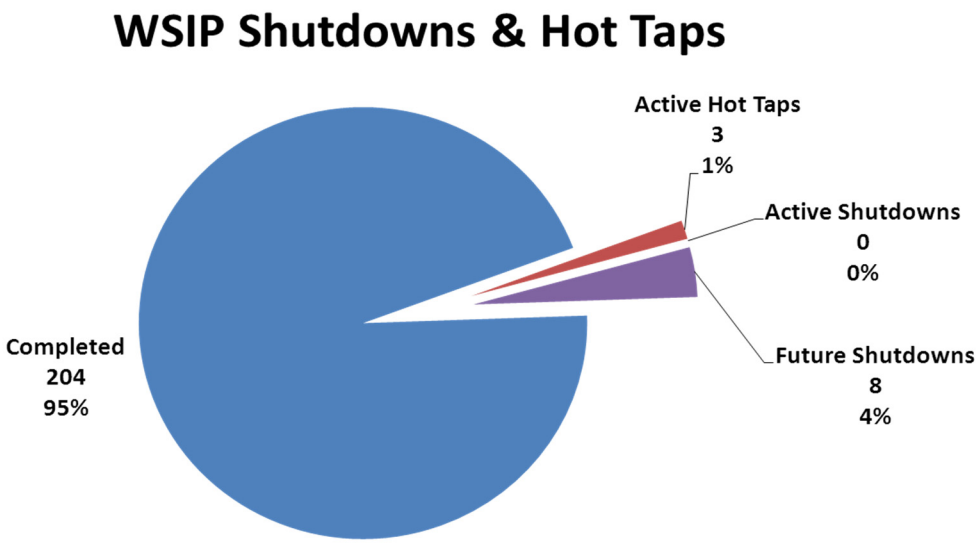
Steady progress was made on WSIP Closeout Projects for each of the San Joaquin, Sunol Valley, Bay Division, and Peninsula Regions in the reporting quarter. In the San Joaquin Region, the Tesla Portal slab and drainage improvement work is essentially complete except for the punch list items. The re-evaluation of the existing photo-voltaic systems for three sites is ongoing.

In the Sunol Valley Region, SFPUC received proposal from Power Engineering for the San Antonio Backup Pipeline (SABPL) Erosion Repairs at Pond F3 East. Since the cost exceeds the Job Order Contract (JOC) task order limit, this work will not be performed under a JOC and will be re-packaged with other future project work. For the New Irvington Tunnel (NIT) Portal Water Quality Equipment Relocation, SFPUC completed negotiation with CalState and will issue Notice to Proceed (NTP) in the next quarter. NTP for the SVWTP Polymer Feed Facility (aka Basin 5) was issued to perform full scale testing and to complete design criteria and CER. Other ongoing projects in design include SABPL Water Carrier System Modification and Alameda Siphon 4 Water Carrier Water System Modification Construction for the NIT/SABPL Cathodic Protection has been completed.

In the Bay Division Region, Project Team has completed negotiation with the JOC Contractor, CalState, for the Ventilation & Sump Pump Installation. Work will begin in the next quarter. Bid packages for the installation of a V-Ditch and BDPL 3 pipe coating work has been completed and will be issued to the JOC contractor when Ventilation & Sump Pump work is completed.

In the Peninsula Region, the Crystal Springs Dam Stilling Basin, Dissipation Structure, and H53 Valve project will be re-advertised next quarter. The joint San Mateo County/SFPUC Lower Crystal Springs Dam Bridge Replacement Project is forecasted to be completed in fall 2018. A new JOC will be necessary to address the gap between the Lower Crystal Springs Dam north parapet wall and the new bridge abutment. Several JOC task orders have been initiated for the Harry Tracy Water Treatment Plant facility: JOC-59-01 – Electrical & Mechanical Piping Modifications – Construction submittals have been submitted. long lead items are being fabricated, and Contractor plans to begin construction in the fall. JOC-59-17 – Emergency Generators Filters Upgrades – Proposal from JOC contractor was approved, and bids were received for the pre-purchase of the active filters. JOC-59-19 – Leak at Filter Gallery Channels –

Work has been completed and task order is closed. Variable Frequency Drives (VFDs)



controllers – Testing of the sludge transfer pumps was completed and alternatives are under review for the three VFDs for the sludge transfer pumps. Vibration Control Panel and Circuit Breakers – Engineers are working with vendors on quotes for the replacement panel. Equalization Basin Mixers – Engineers are evaluating the performance of similar mixers at local municipalities and will prepare a report for review in the fall. Erosion on CSSA Pipeline – Design was completed and project WD-2850(I) will be advertised for bids next quarter to repair the erosion.

UPDATE ON PROJECTS IN CONSTRUCTION

Steady progress continued on the ongoing WSIP construction activities. As of the end of June 2018, WSIP regional construction contracts (including active, completed, and future contracts) are 97.7% complete overall, an increase of 0.5% during the quarter. Actual progress is above the Late Planned performance of 97.5%.

A review of the construction work hours recorded over the last five years shows continued ramping down of construction activities, with monthly work hours peaking at 206,400 in August 2012, compared to a total of 33,906 work hours recorded in June 2018. The monthly average work hours in the reporting quarter was 37,771, a decrease compared to the 57,272 monthly average work hours for the same period in 2017.

As of the end of June 2018, monitored exposure hours on WSIP regional projects totaled 9.5 million construction person-hours. Since the implementation of the WSIP Safety Approach in April 2009, the total lost time incidence rate is at 0.52, compared to the U.S. Bureau of Labor Statistics (BLS) industry average rate (2016) of 1.7.

There were changes to the status of Shutdowns and/or Hot-taps during the quarter. To date, 204 out of 215 (95%) of the planned shutdowns & hot taps have been completed. Currently, there are 3 active hot taps and 8 future planned shutdowns.

The following is a brief summary of the progress made, issues encountered, and/or milestones achieved on the key WSIP regional projects currently active in construction.

Calaveras Dam Replacement

Overall progress on the Calaveras Dam Replacement current construction contract is reported at 94% as of the end of the quarter, which is an increase of 2.5% during the period. Dam embankment placement activities are ahead of schedule, and therefore progress is above the planned progress of 91.6% according to the late baseline curve.

The dam embankment construction made substantial progress during the reporting quarter, with a top elevation of 727 feet at the end of the reporting quarter compared to a top elevation of 694 feet at the end of the previous quarter.

Regional Groundwater Storage and Recovery (Phase 1 contract)

Overall progress on the Regional Groundwater Storage and Recovery construction contract is reported at 99% as of the end of the quarter. This value remains unchanged from the value reported during the previous quarter. The contractual Substantial Completion was achieved as of December 31, 2017. The Contractor is addressing miscellaneous punchlist items at all 13 sites. Injection quills for the NaOH have not been inserted into the transmission line yet. Security testing has been completed, barring a few punchlist items. Operational startup and testing is planned at all sites in coming months.

Fish Passage Facilities within the Alameda Creek Watershed (Sub-project to Calaveras Dam Replacement)

The Fish Passage Facilities within the Alameda Creek Watershed construction is 87.6% complete - an increase of 4.3% during the quarter. As of the end of the quarter, the Contractor was working on insulation, roofing, and siding installation at the maintenance/control building; backfill of detention basin at Area 1-1; handrail replacement inside the dam core; duct bank between the transition structure and the control building; forming, pouring, and stripping of culvert headwall at Geary Road Improvements Project Site #3; and establishing a temporary staging area at Turnout #3 in preparation for GRIP Site #2 work.

MAJOR PROGRAM TRENDS AND RISKS

Actual and potential impacts on the cost and schedule of WSIP projects are identified and tracked using change orders (COs), trends, and risks. COs and trends are managed using the Construction Management Information System (CMIS), while risks are managed using Active Risk Manager (ARM). Active COs on the WSIP are categorized based on their status as follows: Approved COs are changes that have been negotiated, have been certified by the City Controller, and are now part of the contract (exact magnitude of change is known); Pending COs are changes that have been negotiated but have yet to be certified by the City Controller (exact magnitude of change is known); and Potential COs are changes that have been proposed by either the SFPUC or the contractor but are still being negotiated (magnitude of change is unknown). Any known issue with a probable impact to the approved schedule and/or contract amount that has yet to be proposed as a Potential CO is captured as a trend. In addition, project

teams assess and quantify conceivable risks to their projects with the goal to mitigate the conditions which might cause them to materialize.

WSIP Management submits to the Commission on a quarterly basis a separate report on the status of Change Orders. This section summarizes the major program trends and risks being tracked as of June 30, 2018.

The trends for the WSIP Active Regional construction contracts totaled $15.2M as of the end of the reporting period, a decrease of $3.1M during the period. Approximately 54% of the total trends at the end of June 2018 belong to the Calaveras Dam Replacement Project. The following table lists the trend totals for active projects:

WSIP Active Regional Projects Trend Totals (as of June 30, 2018)

Project	Trends ($ Million)	Percent Completion[1]
Calaveras Dam	$8.2	94%
Fish Passage Facilities at ACDD	$5.2	88%
Regional Groundwater Storage & Recovery – Phase 1	$1.8	99%

1. Refers to percent completion of the current construction contract (including all Approved COs).

The WSIP Risk Management System ranks risks based on a combination of likelihood of occurrence and potential cost impact to the SFPUC. On that basis, and as of June 30, 2018, the Calaveras Dam Replacement Project has two of the top ten program risks, the Fish Passage Facilities within the Alameda Creek Watershed project has four, and the Regional Groundwater Storage and Recovery project has the remaining four. The current highest risk in the program is at the Fish Passage Facilities within the Alameda Creek Watershed project and concerns the costs associated with the accelerated schedule due to delays. The following table lists the projects with the largest risks.

Top 10 Risks of WSIP Regional Projects (as of June 30, 2018)

Project	No. of Top 10 Risks	Percent Completion[1]
Risk Ranking Based on Likelihood of Occurrence and Potential Cost Impact		
Fish Passage Facilities at ACDD	4	88%
Regional Groundwater Storage & Recovery	4	99%
Calaveras Dam	2	94%

1. Refers to percent completion of the current construction contract (including all Approved COs).

Based on the risks summarized above, the three (3) active construction contracts that carry the greatest potential to impact the Program's overall cost and schedule are the Fish Passage Facilities within the Alameda Creek Watershed, the Regional Groundwater Storage & Recovery project, and the Calaveras Dam Replacement.

Calaveras Dam Replacement

As of the end of June 2018, there are 25 active trends, totaling $8.2M, on this contract, a decrease of $0.6M during the quarter. The largest trend is related to the potential quantity overrun of zone embankment materials, which trend was reduced during the quarter by the issuance of Zone 5A additional importation change orders. The second largest trend addresses the potential for additional repairs of Calaveras Road. The third largest trend is for geotechnical instrumentation automation. Additional trends include differing geotechnical site conditions, adjustments to the Home Office Overhead rate, adding rock surfacing on the left wall of the approach channel, left abutment erosion control during construction, and the continuation of the bird deterrent program. Other trends concern providing access to permanent instrumentation required for long-term operations and maintenance and DS-3 Pond demolition and concrete disposal.

Two of the current top ten risks for the active WSIP construction contracts, based on likelihood of occurrence and potential cost impact, belong to this contract. The estimated value of the 80% risk confidence level is $1.3M, a decrease of $12.8M from the value reported for the previous quarter. The sharp deduction in the risk profile of this project is a result of the construction of the dam nearing completion.

The current largest risk to the project is associated with the potential costs to repair Calaveras Road should another weather event cause landslides that block access to the site. The second highest risk considers the potential for weather delays in excess of contractual agreements. The third highest risk is associated with the Borrow Area B shale removal and slope stabilization issue. Other top ten risks include potential long-term erosion for the right abutment, potential water quality issues for the left abutment, the risk that local Zone 2 and 3 filter materials do not meet regulatory requirements, the risk of encountering high levels of naturally occurring asbestos (NOA) beyond the contractor's control, and the risk of adverse environmental conditions or the risk of encountering protected and endangered species impacting construction.

Additional risks include the risk the foundation is not approved by DSOD due to inadequate cleaning or excessive deterioration due to extended exposure from left and right abutment changes, the risk the work does not meet DSOD requirements, or the risk of DSOD mandated re-work. Completing the top ten risks is the risk of potential additional excavation of the left wall approach channel that would be required if the rock condition is not as favorable as anticipated.

Fish Passage Facilities within the Alameda Creek Watershed (ACDD)

This project is currently reporting on 75 active trends that total $5.2M, a decrease of $0.7M from the value reported last quarter. The current largest trend and the third largest trend relate to the volume of subterranean water flow beneath the creek for the second and first construction seasons respectively. The second largest trend covers the increase in the allowance for the storm-water pollution prevention plan (SWPPP). Other large trends concern the costs of shoring

for over excavation upstream and downstream, additional shoring depth, headwall length increases, removal of potential rock fall hazard on the left bank, cleanout of training wall sediment, fall protection system, and several differing site conditions.

The 80% risk confidence level as of the end of June 2018 is estimated at $3.5M which is a decrease of $1.1M from the value reported last quarter. Four of the current top ten risks for the active WSIP construction contracts, based on likelihood of occurrence and potential cost impact, belong to this contract. The current highest risk addresses the costs associated with the accelerated schedule due to delays. Other high risks include the risk of differing site conditions for global landslide due to actual conditions not represented in the geotechnical report, the potential for insufficient creek flow to test the system upon substantial completion, the risk of SCADA and instruments not working properly, and the potential of mishandling storm-water runoffs leading to a violation of the construction general permit.

Other risks include the potential for the access road becoming impassable due to heavy rains next rainy season, the risk of fish ladders and screens not functioning as planned, the possibility for regulatory agencies to require shuttling of personnel at the job site due to multiple takes of snakes or salamanders, and the potential that bid item quantities for backfill material need upward adjustment.

Regional Groundwater Storage and Recovery – Phase 1

This project is currently reporting on 21 active trends that total $1.8M, a decrease of $1.7M during the quarter. The largest trend covers the cost of extended overhead due to the schedule extension beyond the contractual substantial completion date related to necessary changes. The second largest trend addresses the rental of generators for temporary power during commissioning. The third highest trend covers the addition of seven hot taps to calibrate the flowmeters. Other relevant trends include additional backflow preventers, several trends to address health and safety concerns including eyewashes in pump room sinks, portable sodium fluoride ventilation, and relocation of showers at two sites. Partially offsetting these trends is a potential credit for steel plates and an expected surplus in bid item 05: Environmental Mitigation.

The 80% risk confidence level as of the end of the reporting period is estimated at $0.9M which remains similar to the value reported last quarter. Four of the current top ten risks for the active WSIP construction contracts, based on likelihood of occurrence and potential cost impact, belong to this contract. The current largest risk addresses the challenges in meeting regulatory and operational requirements due to taste and odor parameters for blending. The second highest risk considers the potential costs that would be caused by design errors and/or omissions. Additional risks include the potential for delays in finalizing permanent easements, the risk of project impacts due to turnover of key personnel, schedule delays caused by longer turnaround in submittals and RFIs, and the potential for encountering unforeseen underground utilities.

CLOSING

Despite the challenges described above, the WSIP team continues to make steady progress in the delivery of the program as described in the attached WSIP Quarterly Report. It should be noted that the challenges encountered in the field and reported herein are not unusual for infrastructure programs of the size and complexity of the WSIP.

The SFPUC continues to be committed to work collaboratively with other City departments, its Regional Wholesale customers, and all program stakeholders and partners to ensure the successful delivery of the WSIP.

Enclosure

HETCH HETCHY
WATER SYSTEM IMPROVEMENT PROGRAM

QUARTERLY REPORT

Regional Projects
Q4 FY 2017 | 2018
April 2018 — June 2018

Rebuilding Today for a Better Tomorrow

Published: 08/21/2018

Quarterly Report - Q4 FY2017/2018

Water System Improvement Program - Regional Projects

TABLE OF CONTENTS

1. PROGRAM DESCRIPTION

The Water System Improvement Program (WSIP) is a $4.8 billion, multi-year capital program to upgrade the City of San Francisco's regional and local drinking water systems. The program will deliver improvements that enhance the City's ability to provide reliable, affordable, high quality drinking water to its 26 wholesale customers and regional retail customers in Alameda, Santa Clara, and San Mateo Counties, and to 800,000 retail customers in San Francisco, in an environmentally sustainable manner. The WSIP is structured to cost-effectively meet water quality requirements, improve seismic and delivery reliability, and achieve water supply goals.

Built in the early to mid-1900s, many components of the water system are nearing the end of their working life, with crucial facilities crossing or in close proximity to three major earthquake faults. The San Francisco Public Utilities Commission (SFPUC) initiated the WSIP to repair, replace, and seismically upgrade the system's deteriorating pipelines, tunnels, dams, reservoirs, pump stations, storage tanks, and treatment facilities.

The program consists of 35 local projects located within San Francisco and 52 regional projects spread over seven different counties from the Sierra foothills to San Francisco. Local projects only benefit San Francisco residents whereas regional projects benefit both City residents and the 26 wholesale agencies that receive water from the SFPUC. The management of regional projects is divided into 6 regions – San Joaquin, Sunol Valley, Bay Division, Peninsula, San Francisco Regional, and Support Projects.

The WSIP is funded through the issuance of revenue bonds. Local Measures A and E, which were approved by San Francisco voters in November 2002, allowed for the financing of improvements to the City's water system using revenue bonds and/or other forms of revenue financing. Increases in the water rates of retail and wholesale customers will be used to pay back the debt service on the bonds.

The program budget and schedule were originally adopted by the San Francisco Public Utilities Commission on March 1, 2003. The program at the time was referred to as the Capital Improvement Program (CIP). The scope of the CIP was changed significantly following the adoption of Level of Service (LOS) goals in early 2005. The program changes were so substantial that the program was renamed the WSIP and a new program budget and schedule were adopted on November 29, 2005. Since the scope of the 2005 Revised WSIP is in general representative of the program being implemented today, the 2005 budget and schedule are considered the "Baseline Budget and Schedule."

Subsequently, the WSIP Baseline Budget and Schedule were revised in 2007, 2009, 2011, 2013, 2014, 2015, 2016, 2017, and 2018, and these revisions were approved by the San Francisco Public Utilities Commission on February 26, 2008, July 28, 2009, July 12, 2011, April 23, 2013, April 22, 2014, December 8, 2015, April 26, 2016, February 14, 2017, and April 10, 2018, respectively. Refer to Appendix A for a scope description of all the regional projects included in the WSIP.

Program Revision	Commission Approval	Budget ($Million)	Schedule(*)
2003 (Original)	March 1, 2003	$3,628	03/15/16
2005 (Baseline)	November 29, 2005	$4,343	06/30/14
2007 (Revised)	February 26, 2008	$4,392	12/18/14
2009 (Revised)	July 28, 2009	$4,586	12/04/15
2011 (Revised)	July 12, 2011	$4,586	07/29/16
2013 (Revised)	April 23, 2013	$4,640	04/11/19
2014 (Revised)	April 22, 2014	$4,765	05/24/19
2015 (Revised)	December 8, 2015	$4,765	05/24/19
2016 (Revised)	April 26, 2016	$4,845	12/20/19
2017 (Revised)	February 14, 2017	$4,845	12/20/19
2018 (Latest Approved)	April 10, 2018	$4,788	12/30/21

* Final Program Completion Date

2. PROGRAM STATUS

This fourth (4th) Quarterly Report for Fiscal Year (FY) 2017-2018 presents the progress made on the WSIP regional projects between April 1, 2018 and June 30, 2018. The program's schedule and budget were last approved by the San Francisco Public Utilities Commission (SFPUC or Commission) on April 10, 2018. The progress made on the local projects of the WSIP is presented in a separate quarterly report.

Figure 2.1 shows the total Current Approved Budget for the regional projects remaining in each phase of the program as of June 30, 2018. The number of projects currently active in each phase is shown in parentheses.

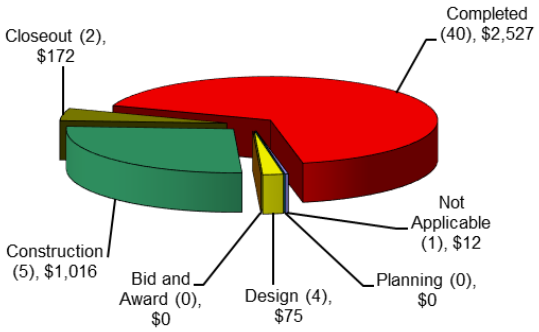


Figure 2.1 Total Current Approved Budget for Projects Active in Each Phase ($Million)

Figure 2.2 shows the number of regional projects in the following stages of the program as of June 30, 2018: Pre-construction, Construction, and Post-construction.

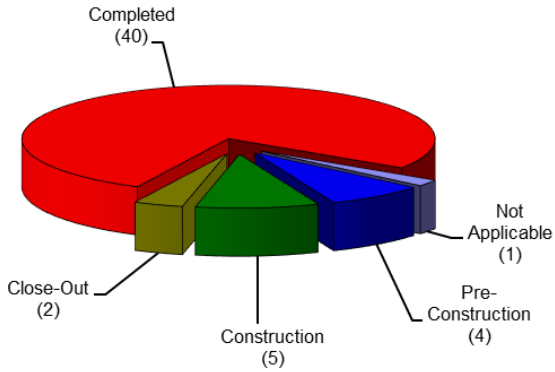


Figure 2.2 Number of Projects in Pre-construction, Construction, and Post-construction

Figure 2.3 summarizes the environmental review and permitting status of the WSIP 52 regional projects as of June 30, 2018.

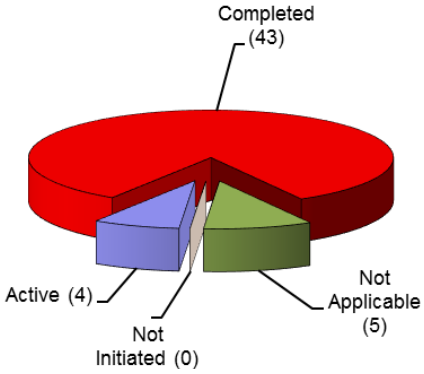


Figure 2.3 Program Environmental and Permitting Status

2.1 Progress Towards Meeting Level of Service (LOS) Goals

The scope of the WSIP is based on the following Level of Service (LOS) goals for the Regional Water System: Seismic Reliability, Delivery Reliability, Water Quality Reliability and Water Supply Reliability. Each project that reaches construction substantial completion contributes to increasing the overall reliability of the system and achieving progress towards meeting the overall LOS goals for the system.

Table 2.1 lists the projects with their individual Primary (P) and Secondary (S) contributions towards LOS goals, and indicates which projects have met their respective LOS goals. As can be seen in Table 2.1, the actual operational service start dates indicate that 40 of the 43 Regional WSIP projects with specific LOS goals have achieved their LOS goals to date. The other 9 Regional WSIP projects do not have specific LOS goals. The WSIP team remains committed to achieving the overall LOS goals established for the system.

Table 2.1 Progress Towards Meeting LOS Goals [1]

Project No.	Project Name / Construction Contract	Actual / Approved Substantial Completion Date	LOS Goals (P =Primary, S =Secondary)				Actual Operational Service Start	Construction Progress Toward LOS Goals
			Water Quality	Seismic Reliability	Delivery Reliability	Water Supply		
San Joaquin Projects								
CUW36401	Lawrence Livermore Water Quality Improvement *(Completed)*	08/31/10	P				08/31/10	100%
CUW37301	San Joaquin Pipeline System *(Completed)* (A) HH935A Crossovers (B) HH935B Western Segment (C) HH935C Eastern Segment	(A) 01/06/12 (B) 05/27/13 (C) 06/21/13			P		(A) 01/06/12 (B) 05/27/13 (C) 06/21/13	100%
CUW37302	Rehabilitation of Existing San Joaquin Pipelines (Roselle Crossover; *Completed*)	05/13/11			P		05/13/11	100%
CUW38401	Tesla Treatment Facility *(Completed)* (A) DB116 Tesla Treatment Facility Design-Build Contract (B) HH953 Tesla Portal Protection	(A) 06/24/11 (B) 08/05/13	P	S	S		(A) 06/24/11 (B) 08/05/13	100%
Sunol Valley Projects								
CUW35201	Alameda Creek Recapture	11/30/20				P		0%
CUW35501	Standby Power Facilities - Various Locations *(Completed)* (A) WD-2553 East Bay - Standby Power Facilities (B) WD-2511 Peninsula - Standby Power Facilities	(A) 09/11/08 (B) 04/15/10		P	S		(A) 09/11/08 (B) 04/15/10	100%
CUW35901	New Irvington Tunnel *(Completed)*	09/19/15		S	P		02/27/15	100%
CUW35902	Alameda Siphon #4 *(Completed)*	12/16/11		P	S		12/16/11	100%
CUW37001	Pipeline Repair & Readiness Improvements *(Completed)* (A) WD-2530 Phase A 8 Pipe Storage Sites (B) WD-2530 Phase B Pipe Rolling Machine Facility @ Sunol Yard	(A) 02/09/07 (B) 07/14/08		P	S		(A) 02/09/07 (B) 07/14/08	100%
CUW37401	Calaveras Dam Replacement (A) WD-2551 Calaveras Dam Replacement (B) WD-2729 Alameda Creek Diversion Dam	(A) 04/12/19 (B) 09/17/18		S	P	S		(A) 94% (B) 88%
CUW37402	Calaveras Reservoir Upgrades *(Completed)*	10/06/05	P				10/06/05	100%
CUW37403	San Antonio Backup Pipeline *(Completed)*	12/31/14			P		12/31/14	100%
CUW38101	SVWTP Expansion & Treated Water Reservoir *(Completed)*	05/17/13	P		P		05/17/13	100%
CUW38601	San Antonio Pump Station Upgrade *(Completed)*	06/30/11			P		06/30/11	100%

Project No.	Project Name / Construction Contract	Actual / Approved Substantial Completion Date	LOS Goals (P =Primary, S =Secondary)				Actual Operational Service Start	Construction Progress Toward LOS Goals
			Water Quality	Seismic Reliability	Delivery Reliability	Water Supply		
Bay Division Projects								
CUW35301	BDPL Nos. 3 & 4 Crossover/Isolation Valves *(Completed)*	11/15/07		P			11/15/07	100%
CUW35302	Seismic Upgrade of BDPL Nos. 3 & 4	10/26/15		P			06/20/14	100%
CUW36301	SCADA System - Phase II *(Completed)*	11/29/10			P		11/29/10	100%
CUW36801	BDPL Reliability Upgrade – Tunnel *(Completed)*	05/20/15		P	S		10/15/14	100%
CUW36802	BDPL Reliability Upgrade – Pipeline *(Completed)* (A) WD-2541 East Bay (B) WD-2542 Peninsula (C) WD-2665 Cordilleras	(A) 12/09/11 (B) 06/13/12 (C) 03/05/13		P	S		(A) 12/09/11 (B) 06/13/12 (C) 03/05/13	100%
CUW36803	BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2 *(Completed)*	05/28/10			P		05/28/10	100%
CUW38001	BDPL Nos. 3 & 4 - Crossovers *(Completed)*	08/15/12		P	S		08/15/12	100%
CUW38901	SFPUC/EBMUD Intertie *(Completed)*	09/07/07			P		09/07/07	100%
CUW39301	BDPL No. 4 Condition Assessment PCCP Sections *(Completed)*	02/06/09		P	S		02/06/09	100%
Peninsula Projects								
CUW35401	Lower Crystal Springs Dam Improvements *(Completed)*	11/20/11			P	S	11/20/11	100%
CUW35601	New Crystal Springs Bypass Tunnel *(Completed)*	07/14/11		P	S		07/14/11	100%
CUW35701	Adit Leak Repair - Crystal Springs/Calaveras *(Completed)*	11/30/07			P		11/30/07	100%
CUW36101	Pulgas Balancing - Inlet/Outlet Work *(Completed)*	02/02/06	P		S		02/02/06	100%
CUW36102	Pulgas Balancing - Discharge Channel Modifications *(Completed)*	10/23/09			P		10/23/09	100%
CUW36103	Pulgas Balancing - Structural Rehabilitation & Roof Replacement *(Completed)*	07/26/11	P		S		07/26/11	100%
CUW36105	Pulgas Balancing - Modifications of the Existing Dechloramination Facility *(Completed)*	08/27/12	P		S		08/27/12	100%
CUW36501	Cross Connection Controls *(Completed)*	11/26/08	P				11/26/08	100%
CUW36601	HTWTP Short-Term Improvements - Demo Filters *(Completed)*	01/11/06		P	S		01/11/06	100%
CUW36603	HTWTP Short-Term Improvements - Coagulation & Flocculation/Remaining Filters *(Completed)*	12/21/09		P	S		12/21/09	100%
CUW36701	HTWTP Long -Term Improvements *(Completed)*	09/08/15		P	S		09/08/15	100%
CUW36702	Peninsula Pipelines Seismic Upgrade *(Completed)*	10/30/15		P			10/30/15	100%
CUW36901	Capuchino Valve Lot Improvements *(Completed)*	02/14/08			P		02/14/08	100%
CUW37101	Crystal Springs/San Andreas Transmission Upgrade *(Completed)*	06/30/14		P	S		09/02/14	100%
CUW37801	Crystal Springs Pipeline No. 2 Replacement *(Completed)*	01/31/13		P	S		01/31/13	100%
CUW37901	San Andreas Pipeline No. 3 Installation *(Completed)*	03/29/11		P	S		03/29/11	100%
CUW39101	Baden & San Pedro Valve Lots Improvements *(Completed)*	03/31/11		P	S		03/31/11	100%

Project No.	Project Name / Construction Contract	Actual / Approved Substantial Completion Date	LOS Goals (P =Primary, S =Secondary)				Actual Operational Service Start	Construction Progress Toward LOS Goals
			Water Quality	Seismic Reliability	Delivery Reliability	Water Supply		
San Francisco Regional Projects								
CUW30103	Regional Groundwater Storage and Recovery (A) WD-2600 Test Well Drilling (B) WD-2668 Regional Groundwater Storage and Recovery (Phase 1) (C) Regional Groundwater Storage and Recovery (Phase 2)	(A) 07/23/12 (B) 12/31/17 (C) 02/28/21				P	(A) 07/23/12	(A) 100% (B) 99% (C) 0%
CUW35801	Sunset Reservoir - North Basin *(Completed)*	09/19/08		P	S		09/19/08	100%
CUW37201	University Mound Reservoir - North Basin *(Completed)*	05/25/11		P	S		05/25/11	100%

Notes:

1 Support projects and WSIP Closeout projects are not listed in the table above since these projects do not have specific Level of Service (LOS) goals.

3. PROGRAM COST SUMMARY

Table 3.1 provides an overall program-level cost summary of the WSIP Regional Program. It shows the Expenditures to Date; the 2005 Baseline, 2018 Approved, Current Approved and Q4/FY17-18 Forecasted Budgets; and the Cost Variance between the Current Approved and Forecasted Budgets.

The total Current Approved WSIP Budget (including Regional and Local Programs, Local Water Supply Projects, and Financing Costs) and Current Forecasted Cost at completion are $4,787.8 million. The Current Approved WSIP Budget and Forecasted Cost at completion for the Regional Program (including construction contingency) are $3,803.1 million. The Current Approved WSIP Budget and Forecasted Cost at completion for the Local Improvement Projects are $331.4 million. Refer to Appendix B for a graphical representation of how the WSIP budget and actual expenditures have changed over time.

Table 3.1 Program Cost Summary

Cost Categories	Expenditures To Date ($ Million) (A)	2005 Baseline Budget ($ Million) (B)	2018 Approved Budget ($ Million) (C)	Current Approved Budget [7] ($ Million) (D)	Q4/FY17-18 Forecasted Costs ($ Million) (E)	Cost Variance ($ Million) (F = D - E)
Regional Improvement Projects	**$2,934**	**$3,181**	**$3,081.4**	**$3,081.4**	**$3,081.3**	**$0.1**
Construction Costs [1]	$1,987	$2,322	**$2,065.9**	$2,065.9	$2,065.7	$0.2
Program Delivery Costs [2]	$921	$758	**$984.8**	$984.8	$984.9	($0.1)
Other Costs [3]	$26	$101	**$30.7**	$30.7	$30.7	-
Support Projects [4]	**$217**	**$33**	**$244.9**	**$244.9**	**$244.9**	**-**
Construction Contingency for Regional & Support Projects [5]	**$417**	**$193**	**$476.8**	**$476.8**	**$476.9**	**($0.1)**
REGIONAL PROGRAM WITH CONTINGENCY	**$3,568**	**$3,407**	**$3,803.1**	**$3,803.1**	**$3,803.1**	**-**
Local Improvement Projects	$331	**$383**	**$331.4**	**$331.4**	**$331.4**	**-**
Local Water Supply Projects [6][8]	**$107**	**-**	**$281.3**	**$281.3**	**$281.3**	**-**
Finance	**$372**[11]	**$552**[9]	**$372.0**[10]	**$372.0**[10]	**$372.0**[10]	**-**
PROGRAM TOTAL	**$4,377**	**$4,343**	**$4,787.8**	**$4,787.8**	**$4,787.8**	**-**

Notes:

1. **Construction Costs** include the Construction Base Bid and owner-provided equipment/material for all regional and support projects. Those costs do not include any construction contingency. That contingency is reflected as a separate cost category.
2. **Delivery Costs** include project management, planning, environmental (CEQA, permitting, construction compliance), design, construction management, and engineering support during construction.
3. **Other Costs** include environmental mitigation, art enrichment, security improvements, and real estate expenses.
4. **Support Projects** include (1) System Security Upgrades, (2) Programmatic EIR, (3) Bioregional Habitat Restoration, (4) Vegetation Restoration of WSIP Construction Sites, (5) Long Term Mitigation Endowment, (6) Program Management, and (7) Watershed and Environmental Improvement Program. Please note that the cost reflected above for support projects only includes "Delivery" and "Other" costs, and "Construction" cost for these projects is included in "Construction Costs" under the Regional Improvement Projects.
5. Expenditures to Date for Construction Contingency for Regional and Support projects correspond to the Total Approved Change Orders on those projects. For projects with ongoing or completed construction, the 2018 Approved Budget for construction contingency includes all change orders and trends as identified at the time of the March 2018 Revised WSIP, as well as additional contingency funding allocated to cover the 80% confidence level risks identified at the time of the March 2018 Revised WSIP. For projects in pre-construction, the 2018 Approved Budget for construction contingency includes 10% of the estimated construction base bid.
6. Local Water Supply Projects managed as part of the Water Enterprise Capital Improvement Program (CIP) are (1) Lake Merced Water Level Restoration, (2) San Francisco Groundwater Supply, (3) San Francisco Westside Recycled Water, (4)

Harding Park Recycled Water, and (5) San Francisco Eastside Recycled Water.

7. The budget approved as part of the March 2018 Revised WSIP, plus any additional budget changes approved by the Commission as part of additional contingencies on construction contracts.
8. The WSIP Local Water Supply projects underwent a September 2013 re-baseline. Only the original WSIP portion of the re-baselined costs is reported here. The remaining budget is funded under the Water Enterprise CIP and is managed outside the purview of the WSIP.
9. The original $522M estimate of financing cost was based on a memorandum to the Commission dated November 23, 2005.
10. The financing cost budget of $372M that was included in the March 2018 Revised WSIP includes all financing costs appropriated to date.
11. The actual financing cost is assumed to match the budgeted financing cost. Final reconciliation of all associated financing costs will occur upon WSIP completion.

Table 3.2 provides the current remaining construction contingency. For each region, it shows the 2018 Approved Construction Contingency; the Total Approved Change Orders prior to the reporting quarter; Change Orders Approved during the reporting quarter; Total Approved Change Orders through the reporting quarter; Project Savings Moved to Contingency/ Funds Moved out of Contingency during the Reporting Quarter; the Q4/FY17-18 Forecasted Construction Contingency; and the Remaining Contingency as of the end of the reporting quarter. As of June 30, 2018, the Forecasted Construction Contingency is $476.9 million and the Current Remaining Contingency is $42.2 million.

The Change Orders Approved in Q4/FY17-18 are shown in Table 3.2. Table 3.3 provides further information at the construction contract level for all subsequent approved change orders.

Table 3.2 Current Remaining Construction Contingency

Region	Q3/FY17-18 Forecasted Construction Contingency [1] ($ Million) (A)	Total Approved Change Orders as of Q3/FY17-18[2,3] ($ Million) (B)	Change Orders Approved in Q4/FY17-18[2] ($ Million) (C)	Total Approved Change Orders as of Q4/FY17-18 ($ Million) (D = B+C)	Project Savings or Director's Reserves (+) Moved to Contingency/ Funds (--) Moved out of Contingency during Q4/FY17-18 [4] ($ Million) (E)	Q4/FY17-18 Forecasted Construction Contingency ($ Million) (F = A + E)	Q4/FY17-18 Remaining Contingency ($ Million) (G = F - D)
San Joaquin Region	$0.22	-	-	-	-	$0.22	$0.22
Sunol Valley Region	$390.63	$357.44	$3.41	$360.85	-	$390.63	$29.78
Bay Division Region	$8.56	$8.16	-	$8.16	$0.09	$8.65	$0.50
Peninsula Region	$57.82	$56.79	-	$56.79	-	$57.82	$1.03
San Francisco Regional Region	$17.58	$7.51	$1.27	$8.78	-	$17.58	$8.79
Support Projects	$2.01	$0.24	($0.11)	$0.14	-	$2.01	$1.87
Regional Total	**$476.82**	**$409.81**	**$4.57**	**$434.71**	**$0.09**	**$476.91**	**$42.20**

Notes:

1. Construction Contingency approved as part of the March 2018 Revised WSIP, plus any regional projects' savings moved to contingency.
2. Approved Change Orders are changes that have received all required approvals, including that of the City Controller.
3. This table only reports change orders for the active construction contracts as of this reporting cycle.
4. Values only reflect savings realized following the Commission's adoption of the March 2018 Revised WSIP.

Table 3.3. Details on Transactions Out of and Into Contingency

Project No. - Contract	Transactions Out of Contingency			Transactions Into Contingency		
	Approved Change Orders ($ Million) (A)	Budget Underrun at Project Completion / Director's Reserve Moved Out of Project ($ Million) (B)	Sub Total ($ Million) (C = A + B)	Savings Due to Low Bid ($ Million) (D)	Budget Overrun at Project Completion / Director's Reserve Moved to Project ($ Million) (E)	Sub Total ($ Million) (F = D + E)
Sunol Valley Region	**$3.41**	**-**	**$3.41**	**-**	**-**	**-**
CUW37401 Calaveras Dam Replacement WD-2551	$3.33	-	$3.33	-	-	-
CUW37401 Calaveras Dam Other Construction WD-2729	$0.08		$0.08	-	-	-
Bay Division Region	**-**	**-**	**-**	**-**	**$0.09**	**$0.09**
CUWBDP0101 - WSIP Closeout - Bay Division		-	-		$0.09	$0.09
San Francisco Regional	**$1.27**	**-**	**$1.27**	**-**	**-**	**-**
CUW30103 Regional Groundwater Storage and Recovery (WD-2668)	$1.27	-	$1.27	-	-	-
Regional Total	**$4.68**	**-**	**$4.68**	**-**	**$0.09**	**$0.09**

Table 3.4 Forecasted Remaining Construction Contingency

Region	Q4/FY17-18 Remaining Construction Contingency [1] ($ Million) (A)	Pending Change Orders as of Q4/FY17-18 [2] ($ Million) (B)	Potential Change Orders as of Q4/FY17-18 [3] ($ Million) (C)	Trends as of Q4/FY17-18 [4] ($ Million) D	Q4/FY17-18 Forecasted Remaining Construction Contingency ($ Million) (E =A-B-C-D)
San Joaquin Region	$0.22	-	-	-	$0.22
Sunol Valley Region	$29.78	$1.02	$2.05	$13.45	$13.27
Bay Division Region	$0.50	($0.09)	-	-	$0.59
Peninsula Region	$1.03	-	-	-	$1.03
San Francisco Regional Region	$8.79	$2.35	$3.59	$1.79	$1.06
Support Projects	$1.87	-	-	-	$1.87
Regional Total	**$42.20**	**$3.28**	**$5.64**	**$15.23**	**$18.05**

Notes:
1. Same as Column G in Table 3.2.
2. Pending Change Orders are changes that have been negotiated and approved by the SFPUC but have to be approved by the City Controller.
3. Potential Change Orders are changes that have been requested and entered into CMIS but are still being negotiated.
4. Trends are any expected impact that the CM team believes has a high probability of becoming a change but are yet to be entered into CMIS as a Potential Change

Table 3.4 provides the forecasted remaining construction contingency. For each region as of Q4/FY17-18, it shows the Remaining Construction Contingency, Pending Change Orders, Potential Change Orders, Trends, and Forecasted Remaining Construction Contingency. As of June 30, 2018, the Total Forecasted Remaining Construction Contingency is $18.1 million. This amount does not include funds that are currently held in Director's Reserve.

The Program Management project includes programmatic activities that span multiple regions and benefit several WSIP projects (Table 3.5). The project provides funding for the following functions and resources: SFPUC Staff assigned to the management of the overall program; consultants supporting SFPUC staff at the program level (program, project and pre-construction management consultant, program construction management consultant, program control consultant); labor relations, including management of the project labor agreement; communication and public outreach; programmatic legal support; real estate acquisitions; program controls, including the tracking and reporting of all WSIP efforts; and program-level construction management activities associated with quality assurance, risk management, the Supplier Quality Surveillance (SQS) Program, operations assistance, safety, and training.

The activities under the Program Management project are organized into five categories that are tracked and monitored on a monthly basis. These categories are Management Support, Project Labor Agreement, Planning and Project Development, Program Control, and Program Construction Management.

Table 3.5 Status of Program Management Project Cost Breakdown

Category	Expenditures To Date ($ Million) (A)	2018 Approved Budget ($ Million) (B)	Current Approved Budget ($ Million) (C)	Q4/FY17-18 Forecasted Cost* ($ Million) (D)	Cost Variance ($ Million) (E = C-D)
Management Support	$36.6	$42.8	$42.8	$42.8	-
Project Labor Agreement	$3.5	$3.8	$3.8	$3.8	-
Planning and Project Development	$17.9	$18.3	$18.3	$18.3	-
Program Controls	$19.0	$19.8	$19.8	$19.8	-
Program Construction Management	$27.3	$28.0	$28.0	$28.0	-
Program Management Total	**$104.2**	**$112.7**	**$112.7**	**$112.7**	**-**

The spending pattern for the project is very similar from month to month as the project primarily funds program-level positions occupied by both SFPUC staff and consultants. The Current Approved Budget and Forecasted Total Program Management Cost are $112.7 million.

4. PROGRAM SCHEDULE SUMMARY

Figure 4.1 and Table 4.1 compare the 2005 Baseline, 2018 Approved, Current Approved, and Q4/FY17-18 Forecasted Schedules for the WSIP Regional Program. Refer to the "Cost and Schedule Status" notes in Section 5 for the criteria associated with the three color-coded Forecast Status levels in Figure 4.1 – Meet Requirements, Need Attention, and Exceed Limits. The Current Approved and Forecasted Schedule completion for the overall WSIP (including Regional and Local Programs) is in December 2021. Refer to Appendix C for a graphical presentation of the WSIP Approved Project-Level Schedule.

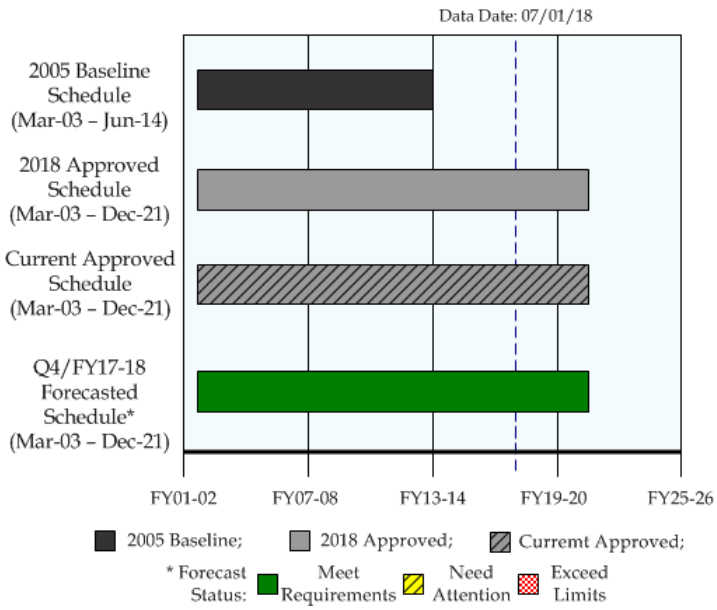


Figure 4.1 Program Schedule Summary

Table 4.1 2018 Approved vs. Q4/FY17-18 Forecasted Schedule Dates

Category	2005 Baseline Start	2018 Approved Start	Current* Approved Start	Actual Start	2005 Baseline Finish	2018 Approved Finish	Current* Approved Finish	Q4/FY17-18 Forecasted Finish	Schedule Variance (Months)
Regional Program	03/01/03	03/31/03	03/31/03	03/01/03✓	06/30/14	12/30/21	12/30/21	12/30/21	-
Local** Program	03/01/03	03/31/03	03/31/03	03/01/03✓	06/28/13	7/31/18	7/31/18	12/31/18	5.0 (Late)
Overall WSIP	03/01/03	03/01/03	03/01/03	03/01/03✓	06/30/14	12/30/21	12/30/21	12/30/21	-

* The budget and schedule approved as part of the March 2018 Revised WSIP, plus any additional budget and schedule changes approved by the Commission as part of additional contingencies on construction contracts.

** Excluding Local Water Supply Projects

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5. PROJECT PERFORMANCE SUMMARY*

All costs are shown in $1,000s as of 07/01/18

Project Name	Active Phase (**)	2005 Baseline Budget (a)	2018 Approved Budget (b)	Current Approved Budget (c)	Q4/FY17-18 Forecasted Cost (d)	Expenditures To Date (e)	Cost Variance (f= c - d)	Cost Status (+)	2005 Baseline Completion (g)	2018 Approved Completion (h)	Current Approved Completion (i)	Q4/FY17-18 Forecasted Completion (j)	Schedule Variance (k = i - j)	Schedule Status (+)	Project Data Sheet
San Joaquin Region															
CUWSJI0101 - WSIP Closeout - San Joaquin	CN		$ 4,376	$ 4,376	$ 4,376	$ 428	-	★		12/20/19	12/20/19	12/20/19	-	★	See Appendix E
Sunol Valley Region															
CUW35201 - Alameda Creek Recapture Project	DS	$ 18,809	$ 34,000	$ 34,000	$ 34,000	$ 11,924	-	★	05/25/12	11/03/21	11/03/21	11/03/21	-	★	See Appendix E
CUW37401 - Calaveras Dam Replacement	CN	$ 256,511	$ 823,092	$ 823,092	$ 823,092	$ 727,586	-	★	05/25/12	12/20/19	12/20/19	12/20/19	-	★	See Appendix E
CUWSVI0101 - WSIP Closeout - Sunol Valley	DS		$ 5,990	$ 5,990	$ 5,990	$ 688	-	★		06/30/21	06/30/21	06/30/21	-	★	See Appendix E
Bay Division Region															
CUWBDP0101 - WSIP Closeout - Bay Division	CN		$ 4,399	$ 4,399	$ 4,399	$ 1,560	-	★		06/30/20	06/30/20	06/30/20	-	★	See Appendix E
Peninsula Region															
CUWPWI0101 - WSIP Closeout - Peninsula	DS		$ 13,580	$ 13,580	$ 13,580	$ 1,767	-	★		05/19/21	05/19/21	05/19/21	-	★	See Appendix E
San Francisco Regional Region															
CUW30103 - Regional Groundwater Storage and Recovery	CN	$ 39,233	$ 138,793	$ 138,793	$ 138,793	$ 93,993	-	★	02/27/14	12/30/21	12/30/21	12/30/21	-	★	See Appendix E

* Excludes projects with completed construction and projects that are no longer active (i.e., deleted projects, closed projects, and projects combined with other projects)

**** Phase Status Legend**

PL Planning DS Design BA Bid & Award

CN Construction NA Not Applicable

For projects active in multiple phases, the table shows the phase in which a majority of the works is taking place.

+ Cost and Schedule Status

★ Meet Requirements: Forecasted Cost/Schedule is within Current Approved Budget/Schedule.

⚠ Need Attention: Forecasted Cost is over Current Approved Budget by greater than 1% and less than 10%. Or Forecasted Schedule is over Current Approved Schedule by greater than 2 months and less than 6 months and less than 10%.

● Exceed Limits: Forecasted Cost is over Current Approved Budget by 10% or more. Or Forecasted Schedule is over Current Approved Schedule by greater than 6 months or 10% or more.

All costs are shown in $1,000s as of 07/01/18

Project Name	Active Phase (**)	2005 Baseline Budget (a)	2018 Approved Budget (b)	Current Approved Budget (c)	Q4/FY17-18 Forecasted Cost (d)	Expenditures To Date (e)	Cost Variance (f= c - d)	Cost Status (+)	2005 Baseline Completion (g)	2018 Approved Completion (h)	Current Approved Completion (i)	Q4/FY17-18 Forecasted Completion (j)	Schedule Variance (k = i - j)	Schedule Status (+)	Project Data Sheet
Support Projects															
CUW36302 - System Security Upgrades	CN		$ 15,201	$ 15,201	$ 15,201	$ 13,164	-	★		09/28/18	09/28/18	09/28/18	-	★	See Appendix E
CUW38804 - Long Term Mitigation Endowment ++	NA		$ 12,000	$ 12,000	$ 12,000	$ 0	-	★		09/30/21	09/30/21	09/30/21	-	★	NA
CUW39401 - Watershed and Environmental Improvement Program	DS	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 4,406	-	★	06/28/13	01/08/21	01/08/21	01/08/21	-	★	See Appendix E

* Excludes projects with completed construction and projects that are no longer active (i.e., deleted projects, closed projects, and projects combined with other projects)

**** Phase Status Legend**

PL Planning DS Design BA Bid & Award

CN Construction NA Not Applicable

For projects active in multiple phases, the table shows the phase in which a majority of the works is taking place.

+ Cost and Schedule Status

★ Meet Requirements: Forecasted Cost/Schedule is within Current Approved Budget/Schedule.

⚠ Need Attention: Forecasted Cost is over Current Approved Budget by greater than 1% and less than 10%. Or Forecasted Schedule is over Current Approved Schedule by greater than 2 months and less than 6 months and less than 10%.

● Exceed Limits: Forecasted Cost is over Current Approved Budget by 10% or more. Or Forecasted Schedule is over Current Approved Schedule by greater than 6 months or 10% or more.

++ The Long Term Mitigation Endowment (LTME) fund provides an initial deposit to secure a source of funds for perpetual monitoring and maintenance of the Bioregional Habitat Restoration sites constructed in the SFPUC watershed, as required by the United States Army Corps of Engineers and California Department of Fish and Wildlife permits. The LTME fund does not involve construction activities.s to secure land purchases.

6. PROJECTS NOT WITHIN BUDGET AND/OR SCHEDULE

All projects are within the current approved budget and schedule.

7. On-Going Construction

Construction Contract	Schedule			Budget		Variance (Approved - Forecast)		Actual % Complete
	NTP Date	Approved Construction Final Completion*	Q4/FY17-18 Forecasted Construction Final Completion**	Approved Contract Cost +	Q4/FY17-18 Forecasted Cost++	Schedule (Cal. Days)	Cost	
Sunol Valley Region								
CUW37401 - Calaveras Dam Replacement (Contract A)	08/15/11	05/28/19	05/28/19	$ 575,901,346	$ 577,440,062	-	($1,538,716)	94.0%
CUW37401 - Alameda Creek Diversion Dam (Contract B)	04/19/16	12/16/18	12/16/18	$ 33,829,620	$ 35,356,153	-	($1,526,533)	87.6%
San Francisco Regional Region								
CUW30103 - Regional GW Storage and Recovery (Contract B)	04/06/15	03/31/18	06/28/19	$ 51,763,498	$ 57,706,992	(454)	($5,943,494)	99.9%

Program Total for On-Going Construction	Approved Contract Cost	Q4/FY17-18 Forecasted Cost*	Variance	
			Cost	Percent
	$ 661,494,464	**$ 670,503,208**	**($9,008,743)**	**(1.4%)**

Note:
* Approved Construction Final Completion Date includes approved change orders.
** The Forecasted Construction Final Completion Date includes all approved, pending, and potential change orders and trends.
\+ Approved Contract Cost includes awarded contract amount and approved change orders.
++ The Forecasted Cost includes awarded contract amount and all approved, pending, and potential change orders.

8. PROJECTS IN CLOSE-OUT

Project Title	2005 Baseline Construction Phase Completion	2016 Approved Construction Phase Completion	Current Approved Construction Phase Completion	Actual Construction Phase Completion	2005 Approved Project Completion	2018 Approved Project Completion	Current Approved Project Completion	Forecasted Project Completion	2005 Baseline Construction Phase Budget	2018 Approved Construction Phase Budget	Current Approved Construction Phase Budget	Construction Phase Expenditures To Date
Bay Division Region												
CUW35302 - Seismic Upgrade of BDPL Nos. 3 & 4	04/30/12	06/25/18	06/25/18	06/28/18	10/15/12	07/30/18	07/30/18	07/30/18	$ 52,308,000	$ 43,114,117	$ 43,114,117	$ 42,233,440
Support Projects												
CUW38802 - Bioregional Habitat Restoration		05/31/18	05/31/18	05/31/18		09/30/21	09/30/21	09/30/21		$ 52,299,498	$ 51,636,156	$ 50,608,602
TOTAL									$ 52,308,000	$ 95,413,615	$ 94,750,274	$ 92,842,042

9. COMPLETED PROJECTS

Project Title	2005 Baseline Project Completion	2018 Approved Project Completion	Current Approved Project Completion	Actual Project Completion	2005 Baseline Project Budget	2018 Approved Project Budget	Current Approved Project Budget	Project Expenditures To Date
San Joaquin Region								
CUW36401 - Lawrence Livermore Water Quality Improvement	11/07/11	07/31/13	07/31/13	07/31/13	$ 4,235,258	$ 4,198,247	$ 4,198,247	$ 4,198,247
CUW37301 - San Joaquin Pipeline System	03/25/14	03/31/16	03/31/16	03/31/16	$ 352,732,000	$ 203,178,014	$ 203,178,015	$ 203,178,015
CUW37302 - Rehabilitation of Existing San Joaquin Pipelines	06/30/14	10/31/14	10/31/14	10/31/14	$ 80,000,000	$ 21,153,622	$ 21,153,622	$ 21,153,622
CUW38401 - Tesla Treatment Facility	07/01/11	01/30/15	01/30/15	01/30/15	$ 101,643,001	$ 113,211,607	$ 113,211,607	$ 113,211,607
Sunol Valley Region								
CUW35501 - Standby Power Facilities - Various Locations	12/06/10	12/22/10	12/22/10	12/22/10	$ 9,949,735	$ 12,950,566	$ 12,950,566	$ 12,950,566
CUW35901 - New Irvington Tunnel	09/17/13	03/31/18	03/31/18	03/31/18	$ 214,650,004	$ 340,406,358	$ 340,406,358	$ 339,797,831
CUW35902 - Alameda Siphon #4	04/14/11	06/28/13	06/28/13	06/28/13	$ 78,577,000	$ 64,950,507	$ 64,950,507	$ 64,950,507
CUW37001 - Pipeline Repair & Readiness Improvements	03/30/07	04/16/09	04/16/09	04/16/09	$ 5,591,770	$ 5,195,381	$ 5,195,381	$ 5,195,381
CUW37402 - Calaveras Reservoir Upgrades	02/17/06	07/28/06	07/28/06	07/28/06	$ 1,740,055	$ 1,690,552	$ 1,690,552	$ 1,690,552
CUW37403 - San Antonio Backup Pipeline	06/29/12	06/30/16	06/30/16	06/30/16	$ 7,677,000	$ 53,594,683	$ 53,594,683	$ 53,594,683
CUW38101 - SVWTP Expansion & Treated Water Reservoir	07/09/13	10/31/14	10/31/14	10/31/14	$ 133,108,002	$ 129,593,674	$ 129,593,674	$ 129,593,674
CUW38601 - San Antonio Pump Station Upgrade	12/12/11	06/29/12	06/29/12	06/29/12	$ 41,854,000	$ 12,894,592	$ 12,894,592	$ 12,894,592
Bay Division Region								
CUW35301 - BDPL Nos. 3 & 4 Crossover/Isolation Valves	09/30/08	07/31/09	07/31/09	07/31/09	$ 27,600,158	$ 27,039,149	$ 27,039,149	$ 27,039,149
CUW36301 - SCADA System - Phase II	02/24/12	05/28/13	05/28/13	05/28/13	$ 36,098,999	$ 9,470,922	$ 9,470,922	$ 9,470,923
CUW36801 - BDPL Reliability Upgrade / Tunnel	01/31/14	08/30/16	08/30/16	08/30/16	$ 572,022,634	$ 272,364,089	$ 272,364,089	$ 271,660,844
CUW36802 - BDPL Reliability Upgrade - Pipeline	-	03/31/16	03/31/16	03/31/16	-	$ 216,871,156	$ 216,871,156	$ 216,719,335
CUW36803 - BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2	-	05/28/10	05/28/10	05/28/10	-	$ 3,046,981	$ 3,046,981	$ 3,046,981
CUW38001 - BDPL Nos. 3 & 4 Crossovers	04/24/13	06/30/14	06/30/14	06/30/14	$ 36,616,911	$ 29,910,449	$ 29,910,449	$ 29,910,449
CUW38901 - SFPUC/EBMUD Intertie	02/07/07	03/20/14	03/20/14	03/20/14	$ 8,598,851	$ 9,167,306	$ 9,167,306	$ 9,167,306
CUW39301 - BDPL No. 4 Condition Assessment PCCP Sections	05/01/08	02/06/09	02/06/09	02/06/09	$ 2,000,000	$ 1,937,599	$ 1,937,599	$ 1,937,599
Peninsula Region								
CUW35401 - Lower Crystal Springs Dam Improvements	08/16/11	12/28/12	12/28/12	12/28/12	$ 27,752,222	$ 34,859,040	$ 34,859,040	$ 34,859,040
CUW35601 - New Crystal Springs Bypass Tunnel	10/28/10	08/17/12	08/17/12	08/17/12	$ 83,222,790	$ 81,466,732	$ 81,466,732	$ 81,466,732
CUW35701 - Adit Leak Repair - Crystal Springs/Calaveras	07/03/08	07/31/08	07/31/08	07/31/08	$ 3,748,452	$ 2,787,322	$ 2,787,322	$ 2,787,322
CUW36101 - Pulgas Balancing - Inlet/Outlet Work	05/11/06	05/11/06	05/11/06	05/11/06	$ 1,667,532	$ 1,765,938	$ 1,765,938	$ 1,765,938
CUW36102 - Pulgas Balancing - Discharge Channel Modifications	08/05/13	07/30/10	07/30/10	07/30/10	$ 8,111,422	$ 2,910,007	$ 2,910,007	$ 2,910,007

Project Title	2005 Baseline Project Completion	2018 Approved Project Completion	Current Approved Project Completion	Actual Project Completion	2005 Baseline Project Budget	2018 Approved Project Budget	Current Approved Project Budget	Project Expenditures To Date
Peninsula Region								
CUW36103 - Pulgas Balancing - Structural Rehabilitation and Roof Replacement	01/29/13	12/28/12	12/28/12	12/28/12	$ 36,712,846	$ 20,238,716	$ 20,238,716	$ 20,238,716
CUW36105 - Pulgas Balancing - Modifications of the Existing Dechloramination Facility	-	03/20/13	03/20/13	03/20/13	-	$ 5,390,031	$ 5,390,031	$ 5,390,031
CUW36501 - Cross Connection Controls	05/15/09	04/30/09	04/30/09	04/30/09	$ 6,111,779	$ 3,948,944	$ 3,948,944	$ 3,948,944
CUW36601 - HTWTP Short-Term Improvements (Demo Filters)	07/03/06	11/14/06	11/14/06	11/14/06	$ 4,381,375	$ 3,067,903	$ 3,067,903	$ 3,067,903
CUW36603 - HTWTP Short-Term Improvements - Coagulation & Flocculation/ Remaining Filters	09/08/10	07/28/10	07/28/10	07/28/10	$ 9,741,617	$ 18,604,937	$ 18,604,937	$ 18,604,937
CUW36701 - HTWTP Long-Term Improvements	04/08/14	12/30/16	12/30/16	12/30/16	$ 167,570,000	$ 274,081,969	$ 274,081,969	$ 273,804,405
CUW36702 - Peninsula Pipelines Seismic Upgrade	-	07/06/16	07/06/16	07/06/16	-	$ 38,825,346	$ 38,825,346	$ 38,767,424
CUW36901 - Capuchino Valve Lot Improvements	07/24/09	08/19/08	08/19/08	08/19/08	$ 3,573,782	$ 2,803,153	$ 2,803,153	$ 2,803,153
CUW37101 - Crystal Springs/San Andreas Transmission Upgrade	04/01/14	06/30/15	06/30/15	06/30/15	$ 148,582,655	$ 190,309,453	$ 190,309,453	$ 189,816,066
CUW37801 - Crystal Springs Pipeline No. 2 Replacement	04/27/12	12/31/14	12/31/14	12/31/14	$ 93,926,000	$ 56,070,509	$ 56,070,509	$ 56,070,509
CUW37901 - San Andreas Pipeline No. 3 Installation	06/09/11	08/30/12	08/30/12	08/30/12	$ 42,029,941	$ 27,495,558	$ 27,495,558	$ 27,495,558
CUW39101 - Baden and San Pedro Valve Lots Improvements	10/12/11	03/29/13	03/29/13	03/29/13	$ 47,319,999	$ 24,990,803	$ 24,990,803	$ 24,990,803
San Francisco Regional Region								
CUW35801 - Sunset Reservoir - North Basin	05/06/09	09/10/10	09/10/10	09/10/10	$ 61,975,999	$ 64,270,725	$ 64,270,725	$ 64,270,725
CUW37201 - University Mound Reservoir - North Basin	03/10/11	03/29/13	03/29/13	03/29/13	$ 102,882,610	$ 43,266,552	$ 43,266,552	$ 43,266,552
Support Projects								
CUW38801 - Programmatic EIR	06/20/07	06/30/09	06/30/09	06/30/09	$ 9,271,001	$ 10,730,684	$ 10,730,684	$ 10,730,684
CUW38803 - Vegetation Restoration of WSIP Construction Sites	-	06/30/16	06/30/16	06/30/16	-	$ 2,111,546	$ 2,111,546	$ 2,099,755
TOTAL					$ 2,573,277,400	$ 2,442,821,325	$ 2,442,821,325	$ 2,440,517,069

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APPENDICES

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APPENDIX A. PROJECT DESCRIPTIONS

SAN JOAQUIN REGION

CUW36401 - Lawrence Livermore Water Quality Improvement (Completed)
The project consists of:
• Ultraviolet (UV) disinfection, including two 150-gallon-per-minute, parallel UV units and ancillary facilities. The units will be installed in the existing Thomas Shaft building.
• Two pumps that will pump water from the Coastal Range Tunnel to the new disinfection system.

CUW37301 - San Joaquin Pipeline System (Completed)
The project consists of:
• Pipeline crossover facilities at Emery Road (including 10 valves) and Pelican Road (including 12 valves).
• Installation of a portion of new pipeline, the Western Segment, from the San Joaquin River to the Tesla Portal. The pipeline will be 78-inches in diameter, approximately 10.3 miles in length and will include tunneled crossings of several highways, a railroad, and an irrigation canal. The pipeline will cross over the top of the California Aqueduct.
• Installation of a portion of new pipeline, the Eastern Segment, from the Oakdale Portal to a new connection point approximately 6.7 miles downstream on SJPL No. 3. This segment will also be 78-inches in diameter.
• Installation of valve facilities on SJPL Nos. 3 and 4 along the Eastern Segment to provide for operational needs to divide and isolate segments of these lines for maintenance and to regulate flow and control pressure in the system.
• Security related site improvements at Oakdale Portal.

CUW37302 - Rehabilitation of Existing San Joaquin Pipelines (Completed)
The project scope is to assure that existing San Joaquin Pipelines will meet Delivery Reliability LOS goals by establishing a program of routine maintenance, repair, and replacement activities for long-term implementation and by addressing the highest priority rehabilitation measures identified during the timeframe of the WSIP:
• Rehabilitation of and security-related site improvements at the existing Roselle Crossover.
• Establishment of a program of pipelines conditions assessment, including upgrading and renewal as required, of pipe coating and lining systems.
• Upgrade of the existing SJPL cathodic protection system.
• Upgrade of the existing SJPL Supervisory Control and Data Acquisition (SCADA) system.

CUW38401 - Tesla Treatment Facility (Completed)
The project consists of:
• Isolation valves and piping to divert SJPL flow to the new treatment facility, large-diameter piping and valves located within the treatment facilities, and a single discharge pipeline to tie back into the existing SJPLs.
• A disinfection building housing 12 UV reactors, cleaning equipment, and ancillary equipment.
• A chemical storage and feed facility for sodium hypochlorite, hydrofluorsilicic acid (i.e., fluoride), and carbon dioxide.
• Office, laboratory, and control facilities, emergency engine generators, and security related site and access road improvements.

CUW38701 - Tesla Portal Disinfection Station
The Tesla Portal Disinfection Facility is located where the San Joaquin Pipelines (SJPLs) converge into the Coast Range Tunnel and provides primary disinfection of the Hetch Hetchy water supply. The facility is one of the key water quality monitoring and compliance locations for the San Francisco Public Utilities Commission (SFPUC). The Tesla Portal Disinfection Station Project includes the planning of a new disinfection facility that will provide reliable disinfection to the Hetch Hetchy water supply.
This project has been combined with the "CUW38401 - Tesla Treatment Facility Project"; therefore, the respective budgets for the Environmental, Design, Bid & Award, Construction, Construction Management, and Close-out Phases have been transferred to the "CUW38401 - Tesla Treatment Facility Project".

Note that this project has been terminated and the remaining scope & budget has been combined with the "CUW38401 - Tesla Treatment Facility" project.

CUWSJI0101- WSIP Closeout - San Joaquin

• **Supplemental Solar Panel Installations** – The CUW37301 San Joaquin Pipeline System, including the western segment, eastern segment and facilities, and crossover pipeline projects, achieved final completion in 2013, 2014 and 2015, respectively. During the initial course of operations it was noted the solar panel arrays designed to provide power for the facility equipment were not sufficient to meet all modes of operational demands. This sub-project will re-evaluate the existing photo-voltaic systems and will provide additional solar panels, if needed, to cover power shortfalls and allow the facility to better meet its water delivery reliability LOS goal. This sub-project consists of three sites: Oakdale, Knight Ferry Throttling Station, and San Joaquin Junction No. 4. The scope of work includes:

o Re-evaluation of the existing photo-voltaic systems at these three (3) locations before proceeding with modifications to the existing arrays,

o If determined necessary to meet current power demands, furnish and install new supplemental solar arrays mounted on concrete pads within security fence enclosures,

o Connection to and integration of the new solar panels into the existing power system and controls, and

o Installation of batteries for solar power storage on-site.

• **Tesla Portal Facility Interior Floor Slab** – The Tesla Portal Facility, a sub-project of the CUW38401 Tesla Treatment Facility, was completed in January 2015. During construction, the concrete interior floor slab was deleted from the project construction documents to allow easier access to repair corrosion of the existing pipelines discovered during construction beneath the new Tesla Portal Facility. Due to drainage issues at the site, the Operations staff at the facility requested the interior slab be incorporated into the structure with a small access opening for future maintenance and corrosion repairs of the existing buried pipelines. This sub-project will be constructed through use of a job order contract including:

o A new interior concrete slab slope to drain to a new catch basin,

o A new catch basin with grating and sump, and

o A small sump pump and drain through the slab or existing concrete wall to a discharge point.

SUNOL VALLEY REGION

CUW35201 - Alameda Creek Recapture Project

The planned facilities for this project are based on Alternative 4-1 from the Updated Alternatives Analysis Report (AAR) dated January 30, 2009, with some refinements described below. The planned facilities include the following components: four identical vertical turbine pumps mounted on floating barges located in existing Pond F2 (including a mooring system); four flexible discharge pipelines extending from each pump to a new pipe manifold located on shore; approximately 100-feet of 36-inch pipeline connection between the new pipe manifold and the existing Sunol Pipeline to discharge the recaptured water to the SFPUC system; throttling valves and a flow meter; electrical control building; 1,600 feet of power lines from the existing Hetch Hetchy Water & Power Calaveras Electrical Substation installed on 10 new power poles; and general site improvements. In addition, the scope includes conveyance of the water to various existing storage sites within the Sunol Valley or the Sunol Valley Water Treatment Plant, as necessary. Some minor refinements were made in the March 2016 Notice of Changes to eliminate on-shore booster pumps in favor of a single set of pumps located on barges in Pond F2 and the elimination of the flexibility to allow multiple sources of water from Pond F2 and Calaveras Reservoir to be blended and sent to San Antonio Reservoir (SAR) in the future.

CUW35501 - Standby Power Facilities - Various Locations (Completed)

The project consists of installing standby electrical power facilities at six sites in the East Bay and on the Peninsula. Each site is either provided with an emergency generator or electrical receptacles to accommodate a portable emergency generator.

The five sites are: Alameda West Portal, and San Antonio Reservoir & Dam; Harry Tracy Water Treatment Plant; Millbrae Yard; San Pedro Valve Lot; and Capuchino Valve Lot.

CUW35901 - New Irvington Tunnel (Completed)
This project consists of an 18,660-foot long tunnel in a horseshoe shape with excavated dimensions of approximately 13 feet by 14 feet. The final tunnel lining will be mortar-lined, welded steel pipe, resulting in a finished diameter of 8.5 feet. Extra thick steel liner segments will also be used at low cover areas near the portals and beneath Interstate 680 where the tunnel intersects inactive fault zones, and where the tunnel passes through areas of poor ground conditions.
Major project elements include:
• Conventional mining methods are being used in a westward direction from the Alameda West Portal, in both an eastward and westward direction from an intermediate shaft located near Vargas Road just off Interstate 680, and in an eastward direction from Irvington Portal. Tunneling is being completed by multiple road header tunneling machines and limited, controlled detonation in areas of hard rock. Spoils disposal is being taken to fill sites just north of the San Antonio Pump Station (SAPS) near the intersection of Calaveras Road and Interstate 680. When completed the spoils fills will create a visual barrier to a new quarry operation located near Calaveras Road. Potentially contaminated spoils will be screened, separated, and, if found to contain contaminants, hauled to a permitted landfill.
• At the Irvington Portal, the tunnel connections to Bay Division Pipelines (BDPL) will include control valves directly buried with instrumentation and electrical gear in a small control building. At the Alameda West Portal, the tunnel will be connected to the discharge of the new mixing manifold to be constructed as part of the Alameda Siphons # 4 Project and to the existing overflow shaft. The project includes a new isolation valve between the mixing manifold and the portal.
• The NIT Project will include construction of a new access bridge across Alameda Creek to accommodate temporary construction traffic and on-going SFPUC Alameda West Portal operations.
• A Groundwater Management Program has been developed that includes two years of pre-construction monitoring of wells, springs, creeks, ponds, and wetlands; environmental habitat construction mitigation measures; and two years of monitoring after construction to minimize the impact to the local groundwater.
• At both the existing Irvington and Alameda West Portal facilities, other security-related site improvements will be constructed, including undergrounding of portal structures and new card access controlled gates and security fences.

CUW35902 - Alameda Siphon #4 (Completed)
This project consists of a 66-inch diameter welded steel pipeline; a 96-inch diameter "blending structure" near the Alameda West Portal that will blend SVWTP and Hetch Hetchy water; new isolation/throttling valves on Alameda Siphons Nos. 3 and 4; new isolation valves on Alameda Siphons Nos. 1 and 2; ventilation improvements at Alameda East Portal; new chemical injection facilities on Siphon No. 4; relocation and extension of the overflow pipe; and road improvements at the intersection with Calaveras Road.

CUW37001 - Pipeline Repair & Readiness Improvements (Completed)
The project consists of three phases for implementation: Phase A (completed) involves the procurement of varied lengths and sizes of welded steel pipe and fitting for stockpiling at seven locations west of the Coast Range Tunnel; Phase B (completed) includes procurement and installation of a pipe rolling facility at the Sunol Yard; Phase C (completed) involves the development of a pipeline repair prioritization plan as well as on-call emergency repair procedures, contracts, and mutual assistance agreements.

CUW37401 - Calaveras Dam Replacement
Project elements primarily include:
• Constructing a new 210-foot high earth and rock fill dam designed to accommodate a maximum credible earthquake on the Calaveras

Fault. The dam will be constructed immediately downstream of the existing dam and will have a crest length of 1,210 feet, a base thickness of 1,180 feet, and a crest thickness of 80 feet. The total volume of the dam will be approximately 2.8 million cubic yards.

- The materials for construction will primarily originate from onsite sources, while surplus excavated material will be placed at disposal sites around the rim of the Calaveras Reservoir, including two in-water disposal sites and several upland disposal sites.
- The existing spillway will be removed, and a new spillway and stilling basin will be constructed. The overflow weir of the new spillway will be 307 feet long. The spillway will vary from 60 to 80 feet wide and will be 1,100 feet long. The stilling basin below the spillway will be 80 feet wide and 155 feet long.
- A new intake tower and shaft will be constructed. The drain line and three adits from the existing facility will be connected to the new shaft. The existing outlet conduit from the tower will be extended 1,250 feet downstream (beneath the replacement dam) and will be equipped with a high capacity fixed-cone discharge valve (relocated from the existing facility) to accommodate water releases from the reservoir. Fish screens will be added to the existing adits of the intake tower.
- The existing dam will largely remain in place. The downstream face will, however, be partially removed and re-graded, and a channel will be excavated through the dam to form the approach to the new spillway.
- A new 525-foot long fish ladder and flow bifurcation systems at Alameda Creek Diversion Dam (ACDD) will be used in conjunction with new low-flow capacity valves to be added at the base of the replacement Calaveras Dam to provide flows downstream of these facilities to support native aquatic resources and future populations of steelhead trout that are being restored to the Alameda Creek Watershed.
- The fish ladder and a total of four new fish protection screens will be added on the right abutment (looking downstream) of the ACDD. In addition, conveyance pipes will be installed to allow water from Alameda Creek to be delivered to the Calaveras Reservoir via the Alameda Creek Diversion Tunnel (ACDT).
- Landslide A removal beneath the northern half of the left abutment slope located on the left side of the valley (when looking downstream) as well as other associated changes as previously noted in the March 2013 Notice of Change.
- Landslide B removal within the lower left abutment slope as well as other associated change.
- Additional slope reinforcement in Borrow Area B and import of offsite rockfill to supplement rockfill mined from Borrow Area B to mitigate schedule impacts.
- Repairs to a portion of Calaveras Road where a landslide occurred due to unusually wet weather in February 2017.
- Repairs to the West Haul Road which was inundated by the reservoir elevation rise due to unusually wet weather in February 2017.
- For the ACDD fish ladder, to address potential landslide hazard and further protect the fish passage structure, an extension to the contract landslide stabilization wall and an additional reinforced concrete panel wall with tie-backs to reinforce a section of the soil nail wall.

CUW37402 - Calaveras Reservoir Upgrades (Completed)

The project consists of a new hypolimnetic oxygenation system and cryogenic equipment installed near the dam to help maintain reservoir water quality.

CUW37403 - San Antonio Backup Pipeline (Completed)

The SABPL consists of 6,600 feet of 66-inch-diameter steel pipe and extends from the Alameda Siphons at the SAPS to Sunol quarry, SMP-24, near the intersection of Calaveras Road and San Antonio Creek. There are three tie-in facilities with air gap provisions from the SABPL: one connecting to Alameda Siphon No. 3, a second to the SAPL near SAPS, and a third to the SAPL on the west side of Calaveras Road before the SAPL alignment turns and heads west to quarry SMP-24. The alignment of the SABPL parallels that of the existing SAPL, terminating with a control valve and concrete energy

dissipation structure in quarry SMP-24. The project includes new chemical storage, feed, and water-quality-monitoring facilities for de-chlorination and pH adjustment of any discharges through the SABPL, the existing SAPL, and the Alameda East Portal overflow pipe. Water discharged into the SMP-24 quarry pond will be recovered with two submersible pumps and a short section of 24-inch diameter steel pipe which will connect to the existing SAPL to convey water to San Antonio Reservoir. Power to the water recovery pumps will be supplied from the nearby Calaveras Substation, which is owned and operated by Hetch Hetchy Water & Power. Construction of a slurry wall around the quarry pond to minimize groundwater intrusion and to ensure slope stability is also included.

CUW38101 - SVWTP Expansion & Treated Water Reservoir (Completed)
The project consists of a plant expansion which will increase the sustainable capacity to 160 mgd by adding a new flocculation/sedimentation basin, by retrofitting some of the existing filters, by adding a new 17.5-million gallon (MG) circular treated water reservoir (TWR) with a new 3.5-MG rectangular chlorine contact tank on the northern portion of the existing plant site, by adding new chemical storage and feed facilities for disinfection, and by construction of approximately 2,700 feet of 78-in pipe to connect the new TWR to the existing plant.

CUW38102 - SVWTP Calaveras Road
The project consists of safety related improvements to Calaveras Road near the SVWTP access road. The project was deleted because it does not contribute to the WSIP Level of Service goals. This project deletion was approved by the Commission in February of 2008.

CUW38201 - SVWTP Treated Water Reservoir
The project consists of providing improvements to the SVWTP disinfection facilities, including new chemical feed equipment and a 5 MG chlorine contact tank. Additionally, two 8.75 MG balancing reservoirs are planned. These improvements were determined in response to a DOHS requirement.

NOTE THAT THIS PROJECT WAS TERMINATED AND THE REMAINING SCOPE & BUDGET WAS COMBINED WITH PROJECT "CUW38101 - SVWTP EXPANSION & TREATED WATER RESERVOIR."

CUW38601 - San Antonio Pump Station Upgrade (Completed)
The project consisted of:
• Replacement of three 1,000-horsepower electrical pumps.
• Addition of two 1.5-megawatt emergency generators. The generators are sized to power the three electric pumps.
• Seismic retrofit of the pump station, including reinforcement of the walls, foundation improvements, and connection of the roof to the walls.

CUWSVI0101- WSIP Closeout - Sunol Valley
• **AS4 Carrier Water System Modifications** – The CUW35902 Alameda Siphon No. 4 Project was completed in 2013. Since that time, new facilities being brought on-line as well as other changes occurring in water operations have resulted in an apparent drop in water pressure and volume at the Sunol Valley Chloramination Facility. This has reduced the available water needed for the current system to pump the necessary water treatment chemicals into the system. This new sub-project is designed to resolve the deficiency and allow the facility to meet its water delivery reliability LOS goal. This sub-project will be constructed by a job order contract including:
o Modifications of the current chemical injection system to overcome lack of water system pressure and volume,
o New supplemental water facilities, including possible new storage tanks, and monitoring and regulating equipment as needed, and
o Plumbing and control connections between the new facilities and the current system.
• **Erosion Repair at Pond F3 East** – The recently completed CUW37403 San Antonio Backup Pipeline Project included drainage improvements on the east side bank of Quarry Pond F3 East. After completion of construction, it was noted that the rock riprap below a 12-inch drainage pipe had eroded away and undermined the

downstream section of the pipe. This sub-project will repair the erosion with new rockfill and restore the drainage pipe including;
o Grading to remove loose bank debris and prepare the subgrade slope to receive the riprap,
o Extension of the existing drain pipe downslope to the water line of the pond,
o Installation of new rockfill on the east bank of the quarry pond from the current drain pipe to the toe of the bank, and
o Temporary access improvements at the side bank of the pond for a crane and other equipment to deliver and place rock riprap and other materials into the repair area.

• **Sunol Valley Water Treatment Plant Polymer Feed Facility**. The Sunol Valley Water Treatment Plant Expansion and Treated Water Reservoir Project was completed in 2014 and included addition of a new fifth flocculation sedimentation basin (Basin 5) to the existing four (4) basins at the plant. During operations after completion, it was noted that Basin 5 was not able to achieve the optimal water production goal of 40 million gallons per day consistently. This sub-project was originally scoped to change the flocculation aid composition for Basin 5. The March 2018 scope refinement is to build a polymer feed facility that will serve not only Basin 5, but also the four (4) older basins (Basins 1 to 4), to optimize plant water production, and allow this facility to better meet its water quality and delivery reliability LOS goals. The portion of the facility cost attributed to Basin 5 will be funded under the WSIP; the portion of the facility cost attributed to Basins 1 to 4 will be funded under the Water 10-Year Capital Improvement Program. This sub-project will be constructed by a bid contract including:
o Addition of new flocculant aid polymer to optimize water production from the four older basins and the new Basin 5
o Water testing to develop a range of polymer doses for the range of different water quality expected at the plant
o Construction of new structures and facilities to store, monitor and control the application of the new polymer

• **Miscellaneous Work at AWP, IVP and SABPL.** The CUW35901 New Irvington Tunnel (NIT) was completed in 2017, and the CUW37403 San Antonio Backup Pipeline (SABPL) was completed in 2016. This subproject will include the following work:
o Installation of new security doors at Alameda West Portal (AWP) and Irvington Portal (IVP)
o Installation of new couplings between the valve stem and actuator for the cathodic protection at AWP and IVP
o Refurbishment of uninterruptible power supply (UPS) and installation of new enclosures for the UPS at AWP and IVP
o Installation of discharge pipe lateral supports, safety railings, ladder stiffening supports, and sunshades for electrical equipment on SABPL

• **NIT Water Quality Equipment Relocation.** The CUW35901 New Irvington Tunnel (NIT) project installed new water quality monitoring equipment in an underground vault to monitor water quality on Irvington Portal 2 (IP2). After the equipment was installed, problems were noted that related to safe access and water drainage. This sub-project is to relocate the water quality monitoring equipment to Building B10 for Irvington Portal 1 (IP1), and install a new pump to pump water from Irvington Tunnel 2 (IT2) to Irvington Tunnel 1 (IT1) to provide IT2 water for the water quality monitoring.

• **San Antonio Backup Pipeline Carrier Water System Modifications.** The CUW37403 San Antonio Back Pipeline was completed in 2016. Since that time, changes in operations have resulted in an apparent drop in water pressure in the carrier water system for two (2) chemicals including Calcium Thiosulfate for dechlorination and Hydrofluorosilicic acid for pH adjustment. The purpose of this sub-project is to modify the carrier water and chemical injection system to ensure the chemicals will be injected properly.

BAY DIVISION REGION

CUW35301 - BDPL Nos. 3 & 4 Crossover/ Isolation Valves (Completed)

This project is 100 percent complete and has been closed out. The project consists of:

• Two large vaults that are primarily below-ground installations with only the top 30 inches of the structure exposed. Above-ground facilities include security fencing and satellite

communication dishes. The vaults are approximately 2,400 feet apart along the BDPL Nos. 3 and 4.
• Each vault includes four mainline isolation valves and a crossover valve. The isolation valves are hydraulically operated, while the crossover valves are electrically operated.
• The existing BDPL No. 3 is a 78-inch-diameter reinforced concrete pipe, and BDPL No. 4 is a 96-inch-diameter PCCP. At each vault, approximately 170 feet of each pipeline will be replaced with welded steel pipe.
• Each facility will be equipped with connections for portable electric generators, and a battery system will provide immediate emergency power to operate the hydraulic system.
• Valve actuators will have remote monitoring and operating capability through the SFPUC SCADA system.

CUW35302 - Seismic Upgrade of BDPL Nos. 3 & 4
The project primarily consists of:
BDPL No. 3:
• A new 300-foot-long concrete vault will be constructed under Mission Boulevard near the I-680 Interchange where Fault Trace B is located. A new 300-foot segment of 72-inch welded steel BDPL No. 3 will be installed inside the vault. Within the vault and on either end of the fault trace zone, 72-inch-diameter ball joints and slip joints will be installed that will accommodate pipeline displacement during a seismic event.
• For the crossing under I-680 at Trace A, about 400 feet of 78-inch-diameter welded steel pipe will be installed in an existing, unused corrugated metal pipe.
• About 1,450 feet of additional new 78-inch diameter welded steel pipe will connect the existing and new segments between the two vaults, and will be buried.
BDPL No. 4:
• About 400 feet of new 80-inch steel liner will be installed inside BDPL No. 4 at Hayward Fault Trace C.
• BDPL No. 4 will be encased with concrete outside the existing slip joint vault at Hayward Fault Trace B.
• Modifications to the existing slip joint vault will be made including enlarging BDPL No. 4 pipe penetrations in the vault, new drainage systems, new roof panels, and adjustments to the existing slip joint.
• Modifications to the existing BDPL No. 3 (to be abandoned in place) to collect and divert water from the area and prevent the undermining of the new BDPL No. 3.
• About 400 feet of new 90-inch diameter welded steel pipe will be installed at Trace A of the Hayward Fault.
• Relocation of the following utilities: two Alameda County Water District water pipelines, one Union Sanitary District sewer pipeline, one conduit of AT&T phone lines, and one six-inch diameter PG&E gas pipeline.

CUW36301 - SCADA System - Phase II (Completed)
The project primarily consists of:
• Establish a common software platform and migrate all elements to this platform.
• Connect existing flow meters and new pressure transmitters, and provide communication to SCADA master station at five major Bay Area Water Supply and Conservation Agency (BAWSCA) customer sites.
• Install pressure transmitters, perform piping modifications, and provide communication to SCADA master station at seven existing regulating valves in the City of San Francisco distribution system.
• Install new flow and pressure monitoring devices at 23 key locations in the City distribution system.

CUW36801 - BDPL Reliability Upgrade – Tunnel (Completed)
• The tunnel extends 5 miles under San Francisco Bay and is adjacent to the marshlands between the vicinity of the Ravenswood Valve Lot and the Newark Valve Lot. The tunnel will be constructed with a Tunnel Boring Machine (TBM). The final tunnel lining will consist of a 9-foot diameter welded steel pipeline. The tunnel will terminate on each end with vertical shafts and a connection to the BDPL Nos. 1, 2, and 5 piping manifolds. The two piping manifolds are provided under the BDPL Reliability Upgrade - Pipeline Project. The

tunnel spoils are anticipated to be used as part of the conversion of adjacent salt ponds to marshland. The portion of the existing BDPL Nos. 1 and 2 that are replaced by the tunnel will be capped on each end and will be abandoned in place.

• Two facilities are proposed to be added to the original scope of work and are necessary to ensure the project will meet LOS goals:

1) SCADA Communications system at Newark Valve Lot

This added scope provides for the installation of a SCADA communications system and integrating such system into the existing water quality monitoring equipment located in the Newark Valve Lot Control Building. The work consists of installing communications equipment, telephone line, wires, conduits, and electrical cabinets.

2) 42–inch diameter Bay Division Pipeline No. 2 (BDPL2) Bypass

The supply from the Newark Valve Lot to the City of Hayward is currently being fed from both Bay Division Pipelines (BDPL) No. 1 and No. 2. Upon the completion of the Bay Tunnel Project, Hayward supply will be fed only by BDPL2. BDPL2, built in the mid-1930s, is a mixture of reinforced concrete cylinder pipe and wrought steel pipe. Thus, with the current scope of the Bay Tunnel project, the reliability of the Hayward service line could be reduced when the project is completed.

The scope of work for this change will provide for the installation of 640 linear feet of new 42-inch diameter welded steel pipe, replacing a portion of BDPL2, thereby increasing the reliability of the Hayward service.

CUW36802 - BDPL Reliability Upgrade – Pipeline (Completed)

The project primarily consists of:

• In the East Bay, 7 miles of 72-inch-diameter pipe will be constructed between the Irvington Portal and the Newark Portal of the new Bay Tunnel. On the Peninsula, 9 miles of 60-inch diameter pipe will be constructed between the Ravenswood Portal of the new Bay Tunnel and the portal of the Pulgas Tunnel.

• A seismically resistant crossing of the Hayward Fault will be constructed. The crossing will include a new crossover valve vault on each side of the fault. The valves will be hydraulically actuated and will include emergency batteries. The pipe between the vaults will be higher strength and will be installed on a special foundation or trench section.

• Isolation valves and an interconnecting pipe manifold will be constructed at each portal of the new Bay Tunnel. The facilities will include new or rehabilitated control buildings with new emergency generators.

• New crossover valves between BDPL Nos. 2 and 5 will be installed at a location in Redwood City. The crossover facility will include a new or rehabilitated control building and connections for a portable emergency generator.

• A new throttling valve will also be added on BDPL No. 5 at the Pulgas Valve Lot. The throttling valve will include a new or rehabilitated control building.

• The project originally included underground concrete vaults for crossover facilities at Newark, Ravenswood, and Redwood City Valve Lots. The current project eliminates the concrete vaults and directly buries the valves with full access to valve actuators at these facilities.

CUW36803 - BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2 (Completed)

This project is 100 percent complete and has been closed out. The project includes relocation of approximately 600 feet of each pipeline (BDPL Nos. 1 and 2) at the BART/railroad crossings. The pipe segments to be relocated will be installed inside new casings that will be placed by the construction contractor doing the other development work in the area. The encased pipes are being installed in accordance with a utility agreement between the City of Fremont and the SFPUC.

CUW38001 - BDPL Nos. 3 & 4 Crossovers (Completed)

The three proposed crossover facilities are located near the Guadalupe River in Santa Clara, near Barron Creek in Palo Alto, and near Bear Gulch in Atherton. The facilities include vaults that are largely below-ground, with only the top 30 inches exposed. They are very similar to one another,

consisting of four mainline valves and a crossover valve. Emergency engine generators will be included as an optional bid item.

CUW38901 - SFPUC/EBMUD Intertie (Completed)

The project primarily consists of:

• Providing new 36-inch-diameter piping and valving at the Newark Turnout to provide an additional connection between BDPL Nos. 1 and 2 to the existing City of Hayward system.

• Using the existing City of Hayward system for conveyance and providing six new valves for isolation.

• Providing 1.3 miles of new 36-inch-diameter pipe to connect the City of Hayward system to the EBMUD system and providing a new pump station along this alignment.

CUW39301 - BDPL No. 4 Condition Assessment PCCP Sections (Completed)

• This project is 100 percent complete and has been closed out. This project includes a detailed condition assessment of the two PCCP segments along BDPL No. 4. The first reach of concern (Reach 1) is 8.6 miles long and 96-inches in diameter. The second reach of concern (Reach 4) is 8.0 miles long and 84-inches in diameter. The condition assessment consists of an electromagnetic survey, seismic risk analysis, corrosion survey, visual inspection, and field investigations.

• The assessment identified six reaches of pipe (144 feet total out of 16 miles) that are potentially distressed. During initial investigations, the condition of one distressed pipe segment (Pipe 1558) was determined visually to be particularly deteriorated, and immediate emergency repair was recommended. The project funded and completed emergency repair using post-tension exterior tendon repair for this segment. For the other five potentially distressed pipe segments that were identified using electromagnetic survey, and determined to be of lower priority, recommendations were made for future excavation to confirm pipe condition in these areas, and repair if needed. A number of future follow-up investigations were recommended, including monitoring of groundwater acidity for a period of one year in the area of Edgewood Road and additional excavations of lower priority pipe pieces. Any additional required repairs will be scheduled based on urgency and funded through the Water Enterprise's Repair and Replacement (R&R) Program.

CUWBDP0101- WSIP Closeout - Bay Division

• **Site Drainage and Pipe Coating Repairs** - This sub-project will focus on providing a drainage system solely within SFPUC's Right-of-Way to address an erosion issue that developed after the construction of the CUW35302 Seismic Upgrades of BDPL Nos. 3 & 4. In addition, this sub-project will include repairs to coatings on the pipe and pipe supports of the Bay Division Pipeline (BDPL) No. 3 to address issues that developed inside the articulated vault after construction was completed. The sub-project includes design, construction, and management of the drainage system work.

• **Bay Tunnel Warranty Inspection and BDPL 1 & 2 EIR Mitigation** – This sub-project advances the planning for a decommissioning study of the existing BDPL Nos. 1 and 2 until such time that the funding for a new Water 10-Year Capital Improvement Project (CIP) to further study mitigation alternatives and pursue removal of the BDPL Nos. 1 and 2 within the Don Edwards San Francisco Bay National Wildlife Refuge becomes available in FY2020-21.

• **Hydro-seeding at Bay Tunnel Project** - The scope of this sub-project provides for monitoring of hydro-seeded areas, removal of noxious weeds, and potentially re-seeding some of the areas at the tunnel portals in Menlo Park and Newark if the storm water performance objectives are not met.

• **Newark Valve Lot Additional Gravel Placement** - The Bay Tunnel Project design plans call for a portion of the Newark Valve Lot to be landscaped and hydro-seeded. However, Operations staff requested that gravel be placed in this area since it will be a high traffic area during shutdowns and other maintenance work. Accordingly, this sub-project provides for the purchase and placement of the gravel.

• **Corrosion Protection for Valve E5OU** – The E50U Valve was installed in 2011 as part of the CUW36802 BDPL Reliability Upgrade – Pipeline

Project. Immediately prior to the Bay Tunnel Project in-service/commissioning date in early Fall 2015, the Bay Tunnel Contractor completed the flanged connection of the manifold to the existing E50U Valve. However, during the installation and testing of the new flanged connection, the Bay Tunnel Contractor discovered an inconsistency in the corrosion protection isolation system of the existing valve E50U (high corrosion potential). It was decided to not authorize a Change Order to fix the corrosion problem of the E50U Valve at that time due to the risk of high cost delays to the Bay Tunnel Project, if leaks were to occur after the solution was implemented. Accordingly, this sub-project includes excavating and shoring the area around the valve, and removal of one bolt at a time for testing, and replacement if necessary. A gasket will be purchased and may be installed if there are leaks that develop after the bolts are removed, cleaned, and replaced.

• **Ventilation and Sump Pump Systems Installation.** This sub-project provides improvements for inspection, monitoring and maintenance associated with the construction of the CUW35302 Seismic Upgrades of BDPL Nos. 3 and 4. The BDPL No. 3 pipe, slip joint, ball joints and pipe supports and seismic monitoring equipment inside the articulated vault require on-going inspection, monitoring and maintenance. The type and frequency of inspection and maintenance were not well defined during the design phase; it is now clear that a fixed ventilation system is required for the BDPL No. 3 vault. Furthermore, the BDPL No. 4 expansion joint vault also requires access for inspection and monitoring; installation of a sump pump is required to remove water from the vault prior to inspections. Accordingly, the scope of this sub-project is to install a fixed ventilation system and a sump pump system to eliminate the need for removing access hatches and installing temporary fans and sump pump prior to accessing the vaults for frequent inspection and maintenance needs.

PENINSULA REGION

CUW35401 - Lower Crystal Springs Dam Improvements (Completed)

The project consists of:

• Spillway modifications that include widening the spillway, constructing two bridge piers within the spillway to accommodate rebuilding of a San Mateo County Bridge, removing the existing timber stop-log system, constructing a new weir system within the spillway, installing access cat-walks for operation and maintenance, and eliminating water ponding on top of the dam.

• Parapet wall modifications that include increasing the height of the wall that is located on top of the upstream face of the dam and increasing the height of the approach walls to the spillway.

• Stilling basin modifications at the base of the spillway that include removing the existing basin, constructing a new larger basin, and adding downstream riprap protection at the toe of the basin.

CUW35601 - New Crystal Springs Bypass Tunnel (Completed)

The project consists of:

• A 4,200-foot long tunnel with 8-foot diameter welded steel liner.

• Vertical shafts on each end of the tunnel to accommodate a tunnel boring machine and future maintenance. The southern shaft will include a connection to the existing Crystal Springs Bypass Pipeline; the northern shaft will tie into the southern ends of both Crystal Springs Pipeline No. 2 and Sunset Supply Line.

• New isolation valves and valve vaults.

• Standby power near valve vault G40.

CUW35701 - Adit Leak Repair - Crystal Springs/Calaveras (Completed)

The project consists of :

• Crystal Springs Outlet Tower No. 1: repairing leaks inside the tower, blasting and recoating piping and valves, replacing roof, structurally retrofitting the access footbridge, and installing a marine hatch at the tower drain.

• Crystal Springs Outlet Tower No. 2: installing a marine hatch at the tower drain.

• Calaveras Outlet Tower: installing a dewatering pump, replacing a deteriorated valve actuator, and providing ladder fall protection.

• San Antonio Outlet Tower: installing a dewatering pump and repairing leaks inside the tower.

CUW36101 - Pulgas Balancing - Inlet/Outlet Work (Completed)
The project consists of new inlet and outlet piping designed to direct the path of the water in such a manner as to promote better mixing. The shutdowns associated with construction of these improvements provided an opportunity to perform a condition assessment of the reservoir interior that has been used to help identify work associated with CUW36103 - Pulgas Balancing Reservoir - Structural Rehabilitation and Roof Replacement project. This project was successfully completed in May 2006.

CUW36102 - Pulgas Balancing - Discharge Channel Modifications (Completed)
The project consists of raising the channel walls, repairing concrete cracks and exposed reinforcing steel, strengthening and interconnecting the channel floor sections, and strengthening the wall near the Pulgas Tunnel as needed. The project will restore the Discharge Channel capacity for accommodating flow up to 250 mgd.

CUW36103 - Pulgas Balancing - Structural Rehabilitation and Roof Replacement (Completed)
The project consists of the seismic retrofit of the walls, installation of a new steel frame roof, and repair of concrete cracks and exposed reinforcing steel. The project scope also includes installing a new ventilation system and sampling ports, replacing utility piping, and upgrading the electrical system.

CUW36104 - Pulgas Balancing - Laguna Creek Sedimentation (Completed)
This project consists of the execution of the Laguna Creek Habitat Management and Revegetation Plan. This is a mitigation measure for the Non-WSIP Pulgas Dechlorination Facility Project, which involves the restoration of the Laguna Creek Sedimentation Basin, a 6-8 acre catchment basin that provides habitat for the San Francisco Garter Snake and the California Red Legged Frog. In coordination with regulatory agencies, a strategy was developed to accomplish this habitat restoration, and to have it measured under the Habitat Reserve Program (HRP). This project was closed in December 2007 and combined with Project CUW38802-Habitat Reserve Program (HRP).

CUW36105 - Pulgas Balancing - Modifications of the Existing Dechloramination Facility (Completed)
The project consists of various improvements to the dechloramination and pH control facilities that are necessary to address immediate compliance issues. Anticipated improvements include modifications to the flow measurement and control systems, and to the various process control and chemical feed systems.

CUW36501 - Cross Connection Controls (Completed)
The project consists of providing improvements at 304 different sites to address potential cross connections. The work varies from site to site due to specific site conditions. The major work elements typically include: Install air gaps at blow-off locations and at air valves; install backflow prevention devices; reconstruct or raise existing vaults; install new vault covers; replace existing air valves; and/or modify, relocate, or remove existing blow-off facilities.

CUW36601 - HTWTP Short-Term Improvements (Demo Filters) (Completed)
The project consists of retrofitting two filters and performing full-scale performance demonstration testing of the retrofitted filters. The project was successfully completed in November 2006.

CUW36602 - HTWTP Short-Term Improvements - Remaining Filters (Completed)
This project consists of filtration modification to eight of the ten existing filters, replacement of effluent control valves and backwash supply valves, provision for a filter to waste system, installation of new underdrains and media, and seismic retrofit of basin walls. Combined with CUW36603 - HTWTP Short-term Improvements - Coagulation & Flocculation project.

CUW36603 - HTWTP Short-Term Improvements - Coagulation & Flocculation/ Remaining Filters (Completed)

The project consists of improvements to both the coagulation and flocculation systems. The coagulation improvements include restoring and improving operation of the pumped-jet flash-mix system, increasing capacity of the flash-mix pumps, providing the pumps with variable speed controls to improve efficiency, providing an automated dilution water system, and reconfiguring the chemical injectors to improve performance. Flocculation improvements include reconfiguring the baffling system, adding new mechanical mixers with variable speed controls, and seismically retrofitting the walkways and basin walls.

CUW36701 - HTWTP Long-Term Improvements (Completed)

The project consists of seismic and hydraulic improvements in various treatment units and expansion of the filtration process capacity by the addition of five new filters. In addition, a new 11 million gallon Treated Water Reservoir will be built to replace the two existing treated water reservoirs. The project also includes improvements to the sludge handling and washwater systems and provides a new additional washwater tank to enhance the plant's performance. Additional improvements are also planned for the electrical system, including a new substation, switchgear, and motor control center. The project also includes improvement to key valves and pipelines conveying the raw water supply to the Plant and treated water to the distribution system.

CUW36702 - Peninsula Pipelines Seismic Upgrade (Completed)

The scope of this project includes geotechnical investigations to characterize the Serra Fault in the vicinity of the pipelines and to confirm assumptions about sub-surface conditions along the length of the pipelines (SAPL2 and SAPL3 from HTWTP to San Pedro Valve Lot, SSBPL from HTWTP to Capuchino Valve Lot, and Sunset Supply Pipeline (SSPL) from Capuchino Valve Lot to San Pedro Valve Lot). In addition, hydraulic modeling has been performed to review system/facility requirements to meet system goals. The objectives of the investigations were: 1)to determine the potential fault offset at the Serra Fault crossings and the potential response from the three pipelines to these offsets, and 2) to determine potential for pipeline rupture due to displacement from liquefaction, landslides, and other seismically-triggered hazards along the pipeline alignments. The extensive geotechnical and modeling analyses performed to date have been carefully reviewed to identify specific project recommendations.

The refined project scope (Phase 1) currently includes the following components at five locations on the San Francisco Peninsula:

- Colma Site – Replacement of an approximately 700-ft segment of SAPL2
- South San Francisco Site – Replacement of an approximately 720-ft segment of SAPL2
- San Bruno North Site – Stabilization of SAPL2 where it extends through a tunnel
- San Bruno South Site – Replacement of an approximately 1,170-ft segment of SAPL2 and an approximately 1,050-ft segment of SAPL3; and
- Millbrae Site – Replacement of an approximately 900-ft segment of SSBPL

A common staging area is planned to be located at SFPUC Baden Valve Lot in South San Francisco on El Camino Real.

Phase 2 of the project will include installation of two new isolation valves near the Baden Valve Lot on SAPL No. 2 and No. 3 in the City of South San Francisco. The WSIP construction contract will include both Phases 1 and 2.

Phase 3 has been identified as a non-WSIP project, and includes condition assessment and improvements to SAPL2, installation of new isolation valves, and the potential addition of flexible connections along the alignment within the City of San Francisco.

CUW36901 - Capuchino Valve Lot Improvements (Completed)

The project consists of replacing two existing isolation valves, providing new electric actuators for valve operation, performing concrete crack repair to prevent water leakage into the vault, providing new instrumentation and control

systems for valve operation and pressure monitoring, and relocating the existing electrical and instrumentation systems outside the vault.

CUW37101 - Crystal Springs/San Andreas Transmission Upgrade (Completed)
The project consists of improvements to facilities necessary to transport water from Upper Crystal Springs Reservoir, through the lower Crystal Springs Reservoir to San Andreas Reservoir, and ultimately, to the Harry Tracy Water Treatment Plant (HTWTP) Raw Water Pump Station. Specifically, improvements will be made to the Upper Crystal Springs Dam discharge culverts, the Lower Crystal Springs outlet structures, the Crystal Springs Pump Station (CSPS), the Crystal Springs/San Andreas Pipeline, and the San Andreas outlet structures.

CUW37801 - Crystal Springs Pipeline No. 2 Replacement (Completed)
The project consists of:
• Seismic reliability improvements, which include replacing or relocating a total of 1.7 miles of pipe at 12 locations, sliplining 3.5 miles of pipe, retrofitting pipe bridge pier supports at two creek crossings, providing a new connection at the Crystal Springs Pump Station, and providing a connecting segment with a blind flange for later connection to the New Crystal Springs Bypass Tunnel.
• Facility improvements, which include installing fences and enclosures for exposed facilities, and concealing exposed portions of pipe.
• Upgrading the cathodic protection system along the length of the pipeline.

CUW37901 - San Andreas Pipeline No. 3 Installation (Completed)
The project consists of installation of 4.4 miles of 36-inch-diameter pipe from San Pedro Valve Lot in Daly City to Merced Manor Reservoir in San Francisco. There will be three jack and bore crossings along 19th Avenue and John Daly Boulevard. Work will also include installation of five customer service connections, a new cathodic protection system along the length of the new pipeline, three interconnections to the San Andreas Pipeline No.2, various valves, and a flow meter.

CUW39101 - Baden and San Pedro Valve Lots Improvements (Completed)
This project consists of upgrades to valve vaults, valves, and piping in the Baden Valve Lot and the San Pedro Valve Lot. It also includes the installation of a pressure reducing valve and associated system valving to allow transfer of a portion of the flow from the HTWTP high-pressure zone to the low- pressure zone during emergencies.

CUWPWI0101- WSIP Closeout - Peninsula
• **LCSD Stilling Basin Modifications & Dissipation Structure Riprap** – This sub-project is provided in response to concerns that fish may be "trapped" in the Lower Crystal Springs Dam (LCSD) stilling basin during low flow summer periods, and that high flow discharges from the new LCSD dissipation structure and potential high water levels in Pool 2 may cause erosion of the bank adjacent to the dissipation structure. The dissipation structure includes 60-inch diameter pipes with a maximum flow of 600 cubic feet per second (cfs) each and two 8-inch diameter pipes with maximum flow of 7 cfs each. During flow testing of the dissipation structure, released water could be observed flowing over the dissipation structure, potentially eroding the bank adjacent to the structure. It was also observed that during summer periods, of low flow in the channel downstream of the stilling basin, fish trapped in the basin were dying due to warm water temperatures. The purposes of this sub-project are to hydraulically connect the stilling basin with Pool 2 in order to allow fish to escape the basin in summer, and to add rip-rap behind the dissipation structure to prevent erosion. Specifically, this sub-project consists of:
o A new deeper channel between the dissipation structure and the Pool 2, which would prevent fish from being trapped in the stilling basin,
o Installation of a new SCADA controls to the existing 8-in discharge pipeline and re-routing one line to the stilling basin,
o Installation of additional rip-rap around the dissipation structure,
o Installation of a new 24-inch HDPE pipeline

through an existing abandoned 60-inch pipe directed to the stilling basin
o Coordination and facilitation of access for a piezometer drilling contractor during periods of concurrent work in the stilling basin
o Deletion of landscaping around the new Crystal Springs Pump Station
o Addition of tree, shrub and grass plantings along the creek bank in accordance with the approved re-vegetation plan

• **LCSD Valve H53/ Pipeline Investigation & Fisheries Release Valve** – As stipulated by the US Army Corps of Engineers 404 permit and the associated biological opinion by NOAA's National Marine Fisheries Service (NMFS) covering the SFPUC activities at the Crystal Springs Pump Station (CSPS), the SFPUC is to take measures to protect the threatened Central California Coast (CCC) steelhead present in San Mateo Creek at CSPS site. One measure requires the release of fresh water at a rate of 3 to 17 cubic feet per second (cfs) depending on the season in recorded dry and wet years. This sub-project will utilize modification of an existing pipeline to release the required flows to the LCSD stilling basin feeding San Mateo Creek. Specifically, this sub-project consists of:
o Condition assessment of the existing 60-in diameter pipeline from Valve H-53 to the stilling basin. In addition, valve H-53 will be exposed and visually inspected to determine its condition, requiring excavation and shoring of a pit approximately 20 feet long by 20 feet wide by 20 feet deep.
o Depending on the verified condition, viable alternatives, including abandonment of the option to use H-53 pipeline, will be evaluated.
o The approved option will include a SCADA controlled 12-inch valve installed at the discharge end of the pipeline. Depending on the condition of the pipeline, the approved option may also include repairs to the pipeline lining. Options may also include slip-lining the existing line with a smaller diameter pipeline such as 12 to 24-in diameter flexible polypropylene pipe.
o Use of a temporary pipeline "line stop" and associated shoring upstream of Valve H-53 to allow for potential installation of a permanent blind flange.
o Replacement of leaking plug valves that discharge from an existing concrete vault to the stilling basin with new knife gate valves.
o Installation of new flow control valves, isolation valves and appurtenances for Pool 2.
o Connections to the existing 72-inch pipeline using hot taps.
o Construction of a new concrete walkway from the access road to the existing stairs at the flow dissipation structure adjacent to the stilling basin.

• **New Crystal Springs Bypass Tunnel Electrical Modifications** – The New Crystal Springs Bypass Tunnel (CUW35601) was commissioned in July 2011, and the project administratively closed in August 2012. Various inspections of the above ground facilities discovered excessive groundwater intrusion and resultant corrosion of equipment and electrical components. This sub-project will develop a thorough documentation of the above ground facilities at the north and south shafts, and design and implement repairs as warranted. Possible repairs may include replacement of damaged equipment and electrical components, water proofing of the affected vaults, and rechanneling of surface runoff as necessary. Preliminary inspections identified the following in the South Shaft: groundwater seepage into the venturi meter and valve G32 vaults through pipe/conduit wall penetrations, resulting in coating failure and localized corrosion. In the North Shaft, preliminary investigations identified surface runoff is entering electrical boxes. In addition, groundwater is seeping through wall penetrations into G36 and G38 vaults. Due to the high moisture, some electrical switches and two actuators failed and required replacement. This sub-project developed a thorough documentation of the above ground facilities at the north and south shafts and designed and implemented repairs as warranted. Repairs included replacement of damaged equipment and electrical components, water proofing of the affected vaults, and rechanneling of surface runoff as necessary. This subproject is 100% complete and has been closed out.

• **Closeout of DSOD Permit Applications for LCSDI and CSSA Projects** – California Department of Water Resources, Division of

Safety of Dams (DSOD) issued Alteration Permits allowing the start of construction of CUW35401, Lower Crystal Springs Dam Improvements (LCSDI) Project (Application No. 10-6) and the construction of CUW37101, Crystal Springs / San Andreas Transmission Upgrade (CSSA) Project (Application No.10-10). In June 2015, DSOD issued an approval of the completed work and requested the SFPUC to submit the final documentation of each project. Under this sub-project, the following information and documents will be extracted from the project files and submitted in a format acceptable to DSOD: affidavit of actual costs of construction and design; full size as-built drawings stamped and signed by a California registered Civil Engineer; and final concrete testing summary reports.

• **Coordination with San Mateo County Bridge Construction over LCSI** - The implementation of the CUW35401 Lower Crystal Springs Dam Improvement (LCSDI) Project required the demolition of an existing San Mateo County (SMC) Bridge that spanned over the LCSD crest. With the completion of the LCSDI Project, SMC awarded the construction contract for the new bridge and gave notice-to-proceed to the construction contractor in January 2016. To support this, SMC and the SFPUC executed a Memorandum of Understanding outlining the roles and responsibilities and expectations of both organizations. Accordingly, this sub-project will support the coordination between the SFPUC and SMC Bridge Project team. Typical activities may include response to relevant Requests for Information (RFI) such as existing site conditions, existing dam design, coordination with SFPUC Operations and Watershed groups; field inspection of placement of the bridge piers over the dam and the construction of the SFPUC funded catwalk; attendance at construction meetings; and activities concerning the water quality in Lower Crystal Springs Reservoir, security measures, and other aspects of SFPUC assets.

• **Harry Tracy Water Treatment Plant (HTWTP) Improvements.** The Harry Tracy Long-Term Improvements Project (CUW36701) was completed in 2014. Since 2014, the following needs were identified to address construction issues and improve operations at the plant to fully meet the LOS goals and objectives:

o Automate the 12-inch gate valve at the High Rate Clarifiers' filter to waste manhole to eliminate the need for Operations to manually operate the valve on a frequent basis

o Modify Sludge Tank No. 1 piping to eliminate cavitation in the washwater pumps

o Upgrade the filters of three (3) emergency generators from passive filters to active filters to increase the effectiveness of the exhaust filtration and to reduce the need for Operations to constantly clean the filters

o Repair leaks in the filter gallery channels where stainless steel angle plates were added to support several concrete walls

o Automate flushing of the sludge transfer pumps and piping to eliminate the need for Operations to manually flush on a frequent basis

o Replace and relocate failed variable frequency drives (VFDs) for the wash water and sludge transfer pumps to address an over-heating issue

o Install double containment for the diesel fuel supply lines for the exterior generator to protect against leaks into the environment

o Provide training and programming modifications to the Raw Water Pump Station switchgear equipment to enable remote SCADA control

o Install vibration control monitoring system on the electrical panels at the Raw Water Pump Station to replace the existing obsolete system

o Evaluate/Assess condition of failed mixers in the equalization basin

• **Crystal Springs/San Andreas Pipeline (CSSA) Erosion Repairs.** The heavy winter storms of 2017 exacerbated erosion at two (2) watershed culvert locations, OW-13 and OW-18, along the CSSA Pipeline. Erosion has caused the CSSA Pipeline to be exposed and potentially undermined. The scope of this sub-project is to repair the erosion with systems consistent with the requirements of permitting agencies such as the State Water Resources Control Board.

SAN FRANCISCO REGIONAL REGION

CUW30103 - Regional Groundwater Storage and Recovery

The goal of the project is to provide up to 7.2 million gallons per day (mgd) of dry year water supply over 7.5 years. The original project design included the construction of up to 16 groundwater wells and well stations in the South Westside Basin to be connected to three wholesale customers on the Upper Peninsula and the SFPUC transmission system to achieve the water supply goal. Phase 1 included the installation of 13 well stations to produce approximately 6.2 mgd, and the original scope of Phase 2 included construction of 2 to 3 additional well stations, based upon well yield. Due to difficulties with siting well stations in the central portion of the groundwater basin, Phase 2 has been modified to install up to 3 test wells (Ludeman North, Ludeman South and Centennial Trail), complete the South San Francisco Main well and pipeline, and complete other Phase 1 scope items, including chemical system monitoring, sampling and storage at various sites. The Phase 2 test wells will not be converted to production wells at this time, but will allow for determination as to whether the identified sites could be viable future production wells, and will provide valuable information related to water quality and potential pumping capacities that can be used for future planning and decision making.

CUW35801 - Sunset Reservoir - North Basin (Completed)

This project consists of:

- Seismic rehabilitation, which includes stabilization of the soil dam embankment; a retrofit of the walls and roof using seismic joints, shear walls, diagonal bracing, and struts; and foundation improvements.
- General rehabilitation, which includes repairing deteriorated concrete, replacing part of the reservoir lining material, replacing inlet piping, installing security fencing, upgrading the landscaping, and other miscellaneous site improvements.

CUW37201 - University Mound Reservoir - North Basin (Completed)

This project consists of:

- Seismic rehabilitation of the reservoir walls and roof using seismic joints, shear walls, diagonal bracing, and struts and foundation improvements. A geotechnical investigation was conducted that verified that the reservoir embankments are not subject to seismically induced failure.
- General rehabilitation, which includes repairing deteriorated concrete; replacing the reservoir lining material; replacing inlet/outlet, drain, and overflow piping; replacing outlet and drain valves; and performing landscaping and other miscellaneous site improvements.

SUPPORT PROJECTS

CUW36302 - System Security Upgrades

The purpose of this project is to develop and integrate security components at critical water system facilities including those identified in previous vulnerability assessments and to ensure that security functions such as deterrence, detection, assessment, delay, and response will be effective. As part of this project, SFPUC Security has evaluated all WSIP projects. The project includes the identification of all necessary security components including security fencing, intrusion detection, and vehicle barriers for applicable WSIP projects. The project provides for the necessary planning and design of these facilities, while the individual WSIP projects will fund the installation and construction of civil security work such as conduit lay out, fencing, and gate installation. This project will fund the furnishing and installation of Access Control and Alarm Monitoring System (ACAMS) and Digital Video Surveillance System (DVSS) equipment, and necessary security systems.

CUW38801 - Programmatic EIR (Completed)

A Program Environmental Impact Report (PEIR) has been prepared for the WSIP under the California Environmental Quality Act (CEQA). The WSIP includes a number of projects that will improve the Regional Water System with respect to water quality, seismic reliability, delivery reliability, and water supply. The PEIR will (1) identify and analyze, at a programmatic level, the potential environmental impacts of proposed system improvements, (2) describe and evaluate feasible alternatives to the proposed program,

and (3) propose mitigation measures.

CUW38802 - Bioregional Habitat Restoration
The Bioregional Habitat Restoration project was created to provide a coordinated and consolidated approach to compensate for habitat impacts that may result from implementation of the WSIP projects in the San Joaquin, Sunol Valley, Bay Division, and Peninsula Regions of the SFPUC Regional Water System. The previously approved scope of the Bioregional Habitat Restoration project included projects to preserve, enhance, restore, or create approximately 2,350 acres of tidal marsh, vernal pools, white alder riparian forest, sycamore alluvial woodland, arroyo willow riparian habitat, oak woodland and savannah, sage scrub habitat, serpentine grasslands, coastal live oak woodland, annual grasslands, and oak riparian forest.
The project includes design, environmental permitting, construction, construction management, maintenance and performance monitoring during a 3-year plant establishment period.
The wide variety of the types of impacts from WSIP projects resulted in the need for development of 18 compensation sites on SFPUC property and for contracting with 7 property owners to secure compensation on property outside the Alameda and Peninsula watersheds. There are 7 compensation sites on SFPUC property in the Alameda watershed with an average size of 250 acres, demonstrating a significant commitment to the continued protection of species habitat. Although the average size of the 11 Peninsula compensation sites is 15 acres, the projects have been strategically placed to best benefit the San Francisco garter snake and the fountain thistle. The increase in habitat compensation addresses mitigation for the fountain thistle and for changes in the Calaveras Dam Replacement Project.
Under the March 2014 Revised WSIP, some scope for the Bioregional Habitat Restoration project associated with Lower Crystal Springs Dam and long term monitoring and maintenance of the compensation sites was reduced. The remaining wetland development at Upper San Mateo Creek and Boat Ramp and most of the oak woodland compensation for the Lower Crystal Springs Dam Improvement Project has been deferred until the operating elevation of the reservoir has increased, estimated to be around 2020. This work will be completed in the future by SFPUC Water Enterprise.

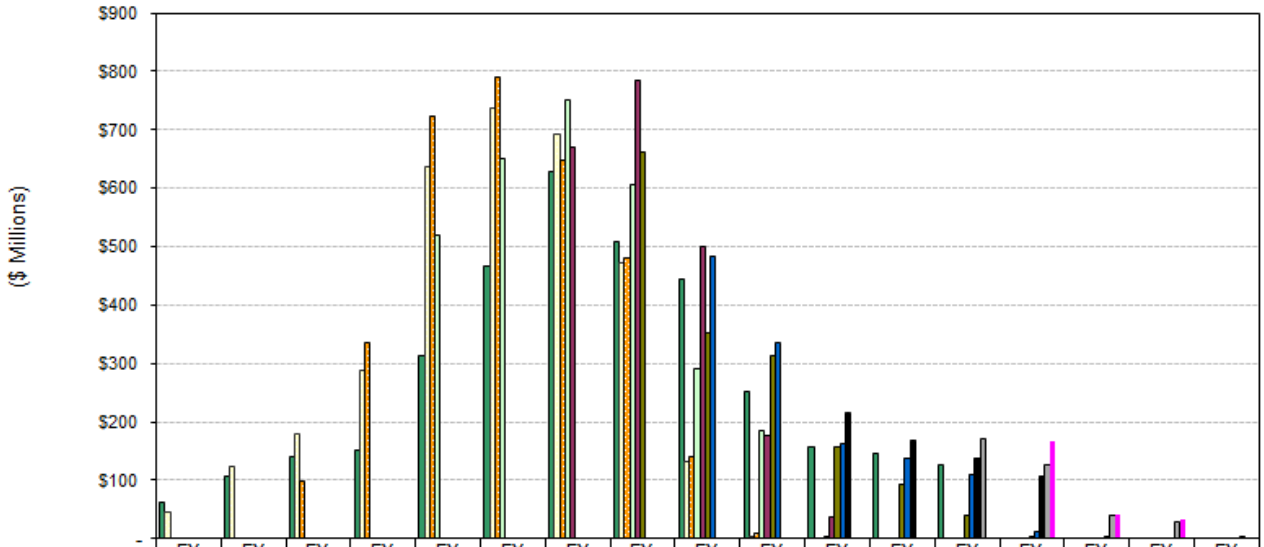
CUW38803 - Vegetation Restoration of WSIP Construction Sites (Completed)
The Vegetation Restoration of WSIP Construction Sites is a WSIP project that received Commission approval on October 9, 2012. This project is required to comply with the CEQA and resource agency permit requirements to restore and re-vegetate habitat areas temporarily impacted by construction at the various WSIP sites to preconstruction condition.

CUW38804 - Long Term Mitigation Endowment
The scope of work and budget for this Long Term Mitigation Endowment was previously included and reported within the WSIP Regional project CUW38802 Bioregional Habitat Restoration; however, the office of the City Controller has established a separate project, specific for this endowment fund, in project CUW38804 Long Term Mitigation Endowment. This perpetual endowment fund, was required by the United States Army Corps of Engineers and California Department of Fish and Wildlife permits issued for WSIP projects. It provides a secure source of funds for the perpetual monitoring and maintenance of the Bioregional Habitat Restoration sites constructed in the SFPUC watershed.

CUW39401 - Watershed and Environmental Improvement Program
The Watershed and Environmental Improvement Program (WEIP) includes the comprehensive identification and protection of critical watershed lands and ecosystem restoration needs within the hydrologic boundaries of the Alameda Creek, Peninsula (San Mateo and Pilarcitos Creeks) and Tuolumne River watersheds, and prioritizes the protection and/or restoration of these lands. Projects under this program will protect source water quality, native species, and their habitat as well as identifying critical watershed lands for

protection through purchase of fee title or perpetual conservation easement. The program also supports projects that enhance public awareness and provide education opportunities related to water quality, water supply, conservation, and environmental stewardship. Consistent with the SFPUC Water Enterprise Environmental Stewardship Policy, a portion of the funding under the WEIP will be allocated to support projects that enhance public awareness and provide education opportunities related to water quality, water supply, conservation, and environmental stewardship issues. Accordingly, construction of the Southern Skyline Boulevard Ridge Trail Extension will be funded using a portion of the WEIP funds.

APPENDIX B. BUDGET AND EXPENDITURE HISTOGRAM*



	FY 05-06	FY 06-07	FY 07-08	FY 08-09	FY 09-10	FY 10-11	FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22
Actual Total Cost	$62	$108	$140	$151	$312	$468	$628	$509	$444	$253	$158	$145	$126				
2005 Approved Budget	$46	$123	$180	$287	$638	$738	$692	$473	$133	$1							
2007 Approved Budget			$99	$335	$724	$790	$649	$481	$140	$10							
2009 Approved Budget					$519	$651	$751	$606	$290	$186	$5						
2011 Approved Budget							$669	$784	$501	$176	$38	$0					
2013 Approved Budget								$662	$352	$314	$156	$94	$41	$4			
2014 Approved Budget									$484	$335	$164	$138	$109	$11			
2016 Approved Budget											$215	$168	$138	$106	$3		
2018 Approved Budget													$171	$126	$41	$30	$2
Current Forecast														$168	$42	$32	$2
Percentage Spent**	136%	88%	142%	45%	60%	72%	94%	77%	92%	76%	73%	86%	74%				

All costs are shown in $ Millions.

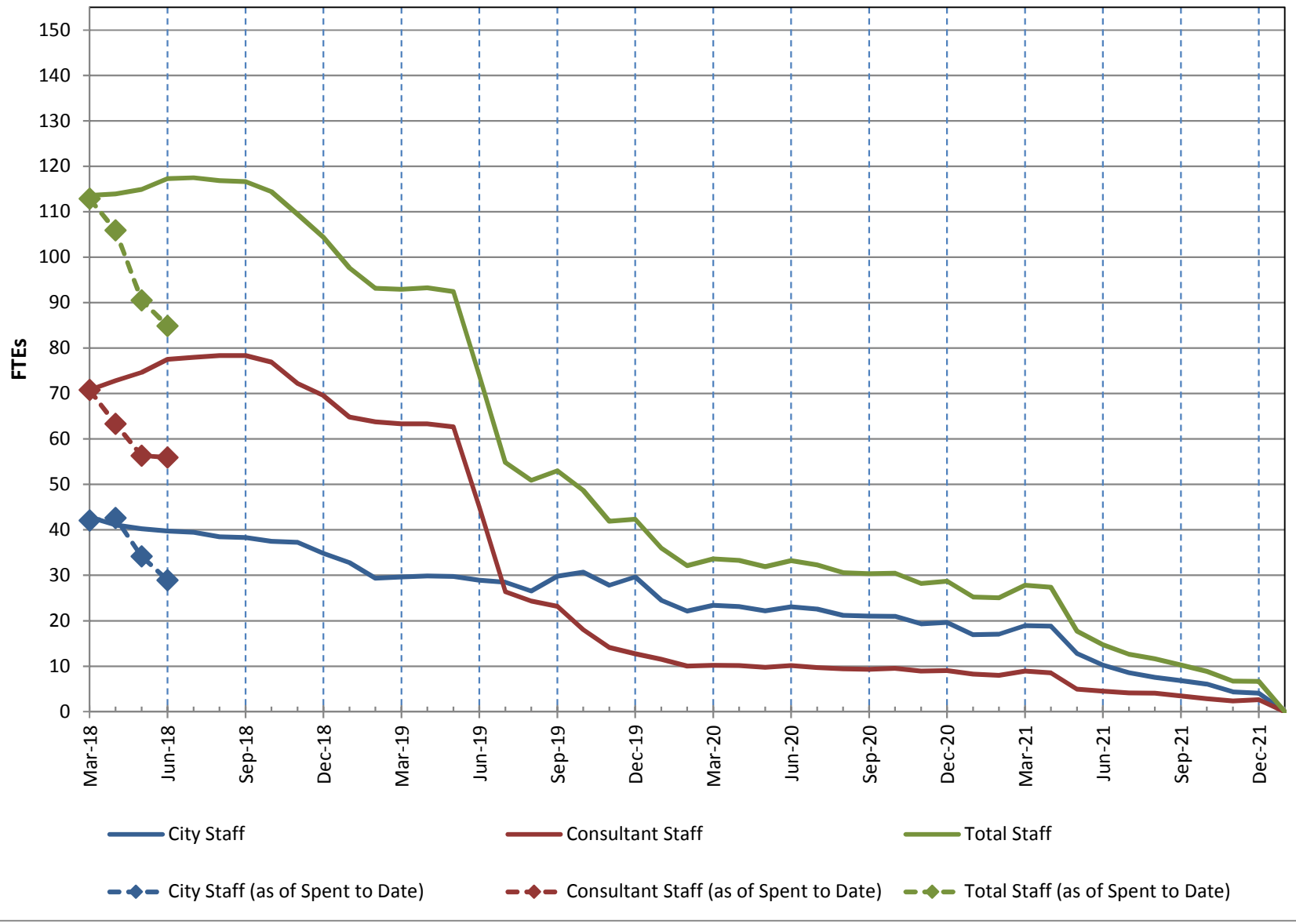
* The histogram does not reflect budget and expenditures prior to FY 2005-2006.

** Percentage Spent calculated as Actual Expenditures over the most current Approved Budget for each individual Fiscal Year.

Figure B1 Annual Budgeted Spending Plans vs. Actual Expenditures

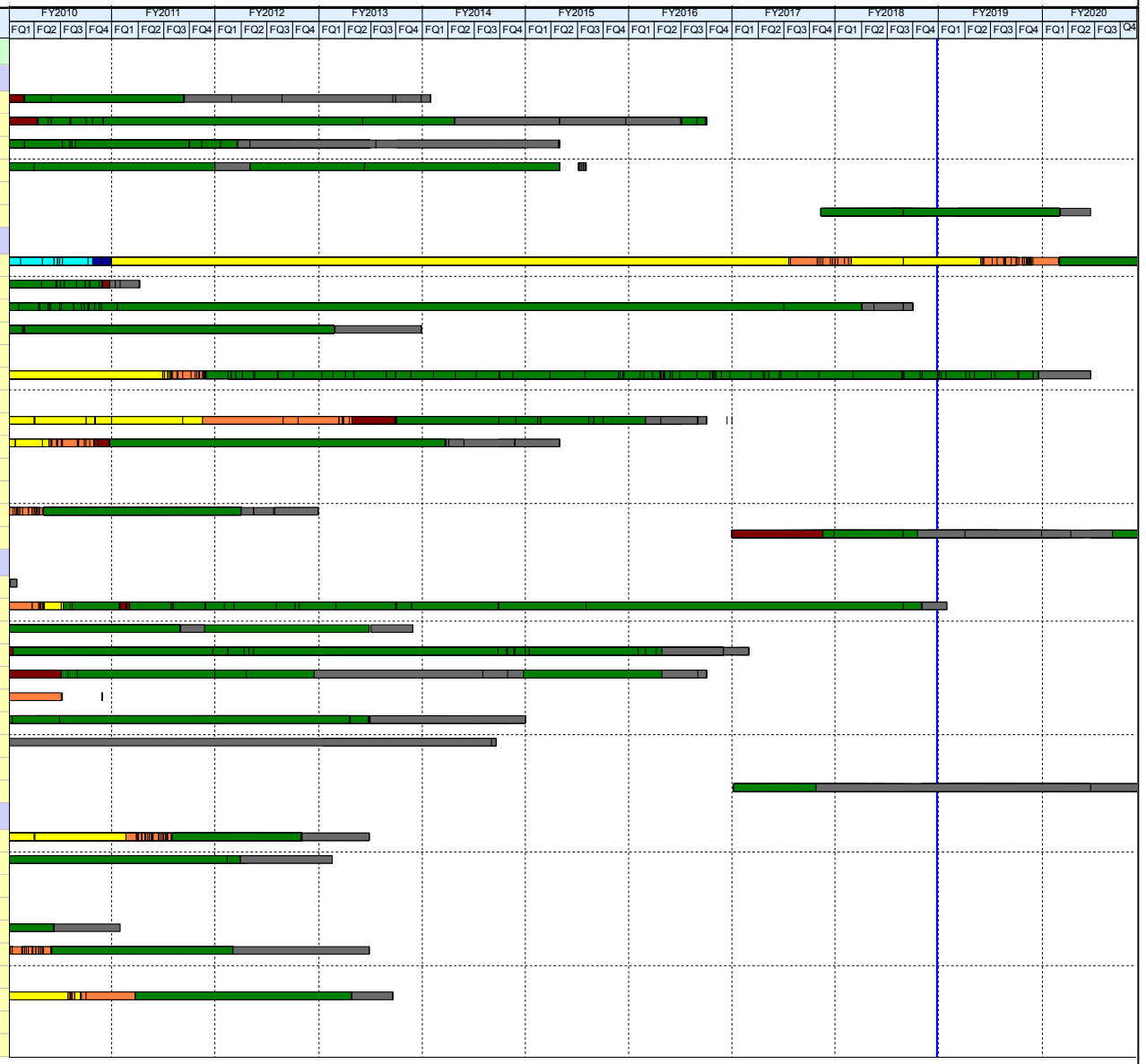
Figure B compares the spending plans associated with the various WSIP Approved Budgets to Actual Expenditures. It shows total annual expenditures from FY05-06 through Q4/FY17-18 and cost projections (Current Forecast) from FY17-18 through program completion in December 2021. Actual annual expenditures have ranged from 45% to 142% of planned expenditures.

Appendix C. WSIP Regional Program
Staffing Plan



APPENDIX D. WSIP Approved Project-Level Schedule

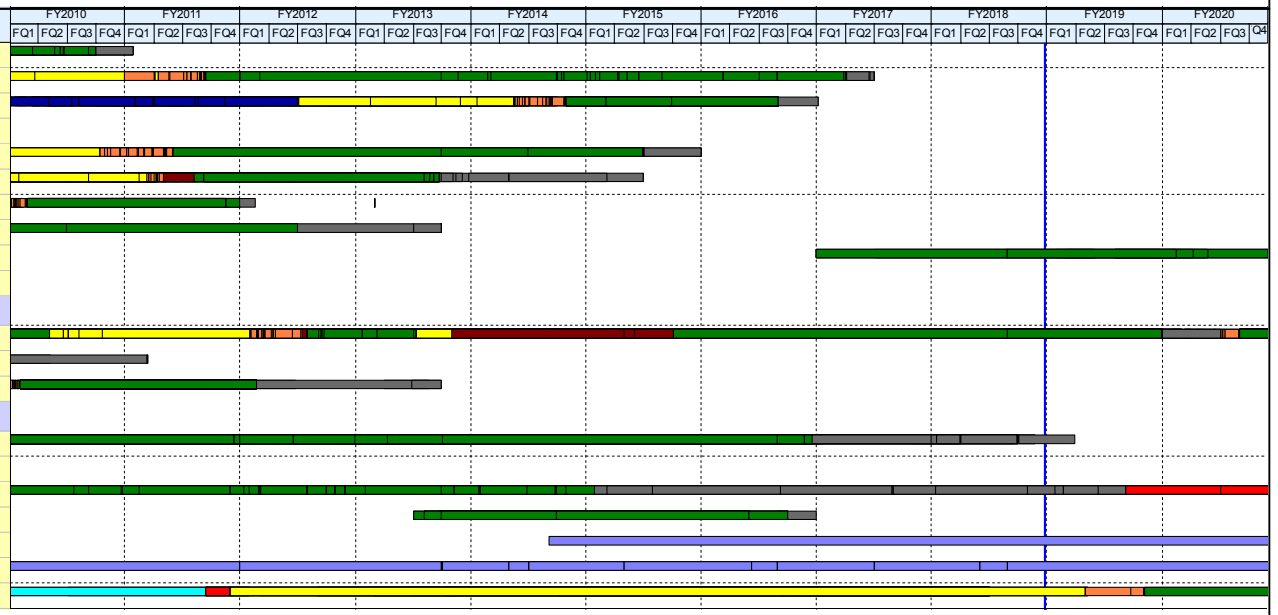
Project Name	Start	Finish
Regional Improvement Projects	31-Mar-00	30-Dec-21
San Joaquin Region	01-Jul-02	20-Dec-19
CUW36401 Lawrence Livermore Water Quality Impr	02-Feb-04	31-Jul-13
CUW37301 San Joaquin Pipeline System	19-Aug-02	31-Mar-16
CUW37302 Rehabilitation of Existing San Joaquin Pi	03-Jul-06	31-Oct-14
CUW38401 Tesla Treatment Facility	01-Jul-02	30-Jan-15
CUW38701 Tesla Portal Disinfection Station	01-Jul-02	29-Jun-07
CUWSJI0101 WSIP Closeout - San Joaquin	20-Jun-16	20-Dec-19
Sunol Valley Region	19-Dec-01	03-Nov-21
CUW35201 Alameda Creek Recapture Project	30-Sep-03	03-Nov-21
CUW35501 Standby Power Facilities - Various Locat	11-Jul-02	22-Dec-10
CUW35901 New Irvington Tunnel	19-Dec-01	31-Mar-18
CUW35902 Alameda Siphon #4	19-Dec-01	28-Jun-13
CUW37001 Pipeline Repair & Readiness Improveme	21-Apr-03	16-Apr-09
CUW37401 Calaveras Dam Replacement	03-Sep-02	20-Dec-19
CUW37402 Calaveras Reservoir Upgrades	19-Nov-03	28-Jul-06
CUW37403 San Antonio Backup Pipeline	17-Dec-03	30-Jun-16
CUW38101 SVWTP Expansion & Treated Water Re	22-Apr-05	31-Oct-14
CUW38102 SVWTP Calaveras Road	01-Feb-07	14-Dec-07
CUW38201 SVWTP Treated Water Reservoir	15-Sep-03	02-Mar-07
CUW38601 San Antonio Pump Station Upgrade	01-Jul-04	29-Jun-12
CUWSVI0101 WSIP Closeout - Sunol Valley	01-Jul-16	30-Jun-21
Bay Division Region	19-Dec-01	30-Jun-20
CUW35301 BDPL Nos. 3 & 4 Crossover/Isolation Va	06-Jan-03	31-Jul-09
CUW35302 Seismic Upgrade of BDPL Nos. 3 & 4	22-Oct-04	30-Jul-18
CUW36301 SCADA System - Phase II	22-Apr-05	28-May-13
CUW36801 BDPL Reliability Upgrade / Tunnel	19-Dec-01	30-Aug-16
CUW36802 BDPL Reliability Upgrade - Pipeline	19-Dec-01	31-Mar-16
CUW36803 BDPL Reliability Upgrade - Relocation o	24-Apr-06	28-May-10
CUW38001 BDPL Nos. 3 & 4 Crossovers	17-Feb-04	30-Jun-14
CUW38901 SFPUC/EBMUD Intertie	24-Jun-02	20-Mar-14
CUW39301 BDPL No. 4 Condition Assessment PCC	04-Aug-06	06-Feb-09
CUWBDP0101 WSIP Closeout - Bay Division	06-Jul-16	30-Jun-20
Peninsula Region	01-Nov-00	19-May-21
CUW35401 Lower Crystal Springs Dam Improvement	01-Nov-00	28-Dec-12
CUW35601 New Crystal Springs Bypass Tunnel	07-Jan-02	17-Aug-12
CUW35701 Adit Leak Repair - Crystal Springs/Calav	01-Apr-05	31-Jul-08
CUW36101 Pulgas Balancing - Inlet/Outlet Work	15-May-02	11-May-06
CUW36102 Pulgas Balancing - Discharge Channel M	01-Apr-05	30-Jul-10
CUW36103 Pulgas Balancing - Structural Rehabilitati	03-Apr-06	28-Dec-12
CUW36104 Pulgas Balancing - Laguna Creek Sedim	31-Mar-06	31-Dec-07
CUW36105 Pulgas Balancing - Modifications of the E	02-Apr-07	20-Mar-13
CUW36501 Cross Connection Controls	01-Jul-03	30-Apr-09
CUW36601 HTWTP Short-Term Improvements (Der	04-Sep-02	14-Nov-06



Planning
Design
Bid & Award
Construction
Program Management
Environmental
Right-of-Way
Construction Management
Closeout

APPENDIX D. WSIP Approved Project-Level Schedule

Project Name	Start	Finish
CUW36603 HTWTP Short-Term Improvements - Co	03-Jul-06	28-Jul-10
CUW36701 HTWTP Long-Term Improvements	01-Jul-03	30-Dec-16
CUW36702 Peninsula Pipelines Seismic Upgrade	01-Jul-09	06-Jul-16
CUW36901 Capuchino Valve Lot Improvements	22-Apr-05	19-Aug-08
CUW37101 Crystal Springs/San Andreas Transmissi	18-Aug-03	30-Jun-15
CUW37801 Crystal Springs Pipeline No. 2 Replacem	15-Jan-04	31-Dec-14
CUW37901 San Andreas Pipeline No. 3 Installation	15-Jan-04	30-Aug-12
CUW39101 Baden and San Pedro Valve Lots Impro	03-Oct-05	29-Mar-13
CUWPWI0101 WSIP Closeout - Peninsula	01-Jul-16	19-May-21
CUW36602 HTWTP Short-Term Improvements - Re	12-Jan-06	22-Feb-08
San Francisco Regional Region	31-Mar-00	30-Dec-21
CUW30103 Regional Groundwater Storage and Rec	01-Jun-03	30-Dec-21
CUW35801 Sunset Reservoir - North Basin	31-Mar-00	10-Sep-10
CUW37201 University Mound Reservoir - North Basin	24-Oct-05	29-Mar-13
Support Projects	13-Apr-04	30-Dec-21
CUW36302 System Security Upgrades	07-Jan-06	28-Sep-18
CUW38801 Programmatic EIR	13-Apr-04	30-Jun-09
CUW38802 Bioregional Habitat Restoration	06-Sep-06	30-Sep-21
CUW38803 Vegetation Restoration of WSIP Constru	02-Jan-13	30-Jun-16
CUW38804 Long Term Mitigation Endowment	05-Mar-14	30-Sep-21
CUW39201 Program Management Project	01-Aug-05	30-Dec-21
CUW39401 Watershed and Environmental Improvem	02-Jan-07	08-Jan-21



Planning
Design
Bid & Award
Construction
Program Management
Environmental
Right-of-Way
Construction Management
Closeout

APPENDIX E. PROJECTS WITHIN BUDGET AND SCHEDULE

CUWSJI0101 - WSIP Closeout - San Joaquin

Project Description: This project includes miscellaneous improvements to ensure the WSIP Level of Service (LOS) goals and objectives are fully achieved in the San Joaquin Region. The work will be completed by means of two sub-projects: (1) re-evaluation of existing photo-voltaic systems and potential addition of new solar panels to supplement existing solar panels for existing onsite equipment operations at San Joaquin No.4 Junction, at the Throttling Station at Knight's Ferry, and at Oakdale Portal, eliminating the need for propane generators at these sites; and (2) the installation of an interior concrete slab and drainage improvements at Tesla Portal as the original slab was deleted during the portal construction to allow access for repairs of existing corroded pipelines beneath the slab.

Region: San Joaquin	**Project Status:** Construction	**Environmental Status:** Not Applicable

Project Cost:		**Project Schedule:**	
Approved	$4.38 M	Approved Jun-16	Dec-19
Forecast*	$4.38 M	Forecast* Jun-16	Dec-19
Actual	$0.43 M	Project Percent Complete: 36.5%	

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	**Environmental Approval**	**Bid Advertisement**	**Construction NTP**	**Construction Final Completion**
Current Forecast	N/A	N/A	Various	08/30/19

Progress and Status:

• The contractor for the Tesla Portal site, Sierra Mountain Construction, has substantially completed JOC49-21. Completion of punchlist items is in progress. Project will be closed once punchlist is completed, closeout deliverables are received, and final payment is released.

• For the Solar Panels Project, the design consultant (AECOM) will complete the shadow analysis and power requirements at three different sites by the end of next quarter. Design will also begin in the next quarter.

Issues and Challenges:

None at this time.

Oakdale Portal Site

CUW35201 - Alameda Creek Recapture Project

Project Description: The scope of this project includes conveyance of the water to various existing storage sites within the Sunol Valley or the Sunol Valley Water Treatment Plant by addition of the following:

- Four vertical turbine pumps mounted on floating barges located in existing Pond F2.
- Flexible discharge pipelines which are connected between the new pipe manifold and the existing Sunol Pipeline to discharge the recaptured water to the SFPUC system.
- Throttling valves, a flow meter, and other electrical and general site improvements.

Region: Sunol Valley	**Project Status:** Design	**Environmental Status:** Active (EIR)

Project Cost:		**Project Schedule:**	
Approved	$34.00 M	Approved Sep-03	Nov-21
Forecast*	$34.00 M	Forecast* Sep-03	Nov-21
Actual	$11.92 M	Project Percent Complete: 37.8%	

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	**Environmental Approval**	**Bid Advertisement**	**Construction NTP**	**Construction Final Completion**
Current Forecast	11/27/18	01/07/19	08/30/19	05/04/21

Progress and Status:

The project team continued to work on the EIR recirculation. Meetings were held with California Department of Fish and Wildlife (CDFW) and National Marine Fisheries Services to present and discuss SFPUC updates that are intended to address their EIR comments. A comment letter on SFPUC's proposed updates was received from CDFW requesting additional modeling and information and suggesting a change in the operation strategy for Pond F2.

Issues and Challenges:

The Team is discussing the CDFW comment letter internally with the City Attorney's Office and Management to identify options to address the concerns. The schedule will be re-evaluated once a definitive plan for addressing the most recent agency comments is established.

Existing Access Road to Pond F2

CUW37401 - Calaveras Dam Replacement

Project Description: The main construction project at Calaveras Reservoir provides for construction of a new 210-foot-high earth and rock fill dam, spillway, stilling basin, and intake tower and shaft to replace the existing facilities. A fish ladder will be added on the right abutment (looking downstream) of the Alameda Creek Diversion Dam (ACDD), a dam which acts to divert water through the Alameda Creek Diversion Tunnel (ACDT) to Calaveras Reservoir.

Region: Sunol Valley	**Project Status:** Construction	**Environmental Status:** Completed (EIR)

Project Cost:		**Project Schedule:**	
Approved	$823.09 M	Approved Sep-02	Dec-19
Forecast*	$823.09 M	Forecast* Sep-02	Dec-19
Actual	$727.59 M	Project Percent Complete: 90.5%	

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	**Environmental Approval**	**Bid+ Advertisement**	**Construction+ NTP**	**Construction+ Final Completion**
Current Forecast	01/27/11✓	(A) 01/31/11✓ (B) 01/04/16✓	(A) 08/15/11✓ (B) 04/19/16✓	(A) 06/19/19 (B) 12/16/18

\+ Project includes multiple construction contracts.
(A) Calaveras Dam Replacement (WD-2551); (B) Alameda Creek Diversion Dam (WD-2729)

Progress and Status:

WD-2551 CDRP: The contractor continued with dam embankment placement during the reporting period, reaching elevation 751 feet. The dam will top out in the next reporting period. During the current reporting period, the contractor continued to excavate the Approach Channel, continue mined material from Borrow Areas B and E, started removal of rocks and boulders from Calaveras Creek, and continued to install instrumentation for the dam embankment and foundation.

WD-2729 ACDD: The contractor completed the upper sections of the fish ladder, transition structure and soil stabilization wall. Work continued on the fish monitoring equipment, access stairs, handrails, fish ladder grating, control building, debris racks and underground utilities to the control building.

Fish Screens Installed at the Intake Structure

Issues and Challenges:

None at this time.

CUWSVI0101 - WSIP Closeout - Sunol Valley

Project Description: The project includes miscellaneous improvements to ensure WSIP Level of Service (LOS) goals and objectives are fully achieved in the Sunol Valley Region. The work will be completed by means of six sub-projects: (1) AS4 Carrier Water System Modifications will modify the chemical injection system of the Alameda Siphons No.4 Pipeline to overcome lack of water system volume and pressure needed to inject water treatment chemicals; (2) Erosion Repairs at Pond F3 East will repair the existing outfall pipe erosion at Quarry Pond F3 East with new rockfill and restore the drain pipe. The outfall drainage system was originally installed as part of the San Antonio Backup Pipeline; (3)Sunol Valley Water Treatment Plant (SVWTP) Polymer Feed Facility will build a polymer feed facility that will serve all five sedimentation basins to optimize plant water production (only the portion of the facility cost attributable to basin No. 5 will be funded under the WSIP); (4) Miscellaneous Work at Alameda West Portal (AWP), Irvington Portal (IVP), and San Antonio Backup Pipeline (SABPL) will install security doors at AWP, provide cathodic protection at IVP, refurbish uninterruptable power supply (UPS) at AWP and IVP, and install discharge pipe lateral supports, safety railings, ladder stiffening supports, and sunshades for electrical equipment at SABPL; (5) NIT Water Quality Equipment Relocation will relocate water quality monitoring equipment from an underground vault to a dedicated building together with a pump to the building to provide the water for water quality monitoring; (6) San Antonio Backup Pipeline Carrier Water System Modifications will modify the carrier water and chemical injection systems to ensure proper chemical injection.

Region: Sunol Valley	**Project Status:** Design	**Environmental Status:** Active (Various)

Project Cost:

Approved		$5.99 M
Forecast*		$5.99 M
Actual		$0.69 M

Project Schedule:

Approved Jul-16		Jun-21
Forecast* Jul-16		Jun-21

Project Percent Complete: 32.0%

Approved; Actual Cost; * Forecast Status: Meet Requirements; Need Attention; Exceed Limits

Key Milestones:	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	Various	Various	Various	05/30/21

Progress and Status:

• Alameda Siphon Carrier Water System Modifications. During the reporting period, the project team continued with the design effort for this sub-project.

• Erosion Repair at Pond F3E. The project team received a proposal from the JOC Contractor, and the proposed cost of the work exceeds the JOC task order limit. Currently evaluating if this task should be completed under Alameda Creek Recapture Project or a new project.

• SVWTP Polymer Feed Facility Notice to Proceed (NTP) for the As-Needed Engineering Contract to complete CER, design criteria, and to perform full scale testing, was issued to Stantec, and work will begin in the next reporting period.

• NIT Water Quality Equipment Relocation. Project team has completed negotiation with the contractor for the work to be performed under JOC 60-20. NTP is anticipated to be issued in July.

• San Antonio Backup Pipeline Carrier Water System Modifications. Design team continued to prepare final design for Phase 1 work, which includes installation of a pipeline to provide a reliable water source for the carrier water system.

• Miscellaneous Work at AWP, IVP and SABPL. The JOC task order has been closed. There are two other outstanding items that will be completed by SFPUC staff including installation of several components for the Cathodic Protection system and the evaluation of the vibration for the SABPL discharge valve vault riser.

Issues and Challenges:

None at this time.

CUWBDP0101 - WSIP Closeout - Bay Division

Project Description: This project includes miscellaneous improvements to ensure the WSIP Level of Service (LOS) goals and objectives are fully achieved in the Bay Division Region. The work will be completed by means of six sub-projects, including: (1) providing a drainage system to address erosion issues that developed after Seismic Upgrades to Bay Division Pipeline Nos. 1 and 2 was constructed; (2) planning for a decommissioning study of the existing BDPL Nos. 1 and 2 pending funding for removal of the portion within the Don Edwards San Francisco Bay Wildlife Refuge and other mitigation measures; (3) monitoring of hydro-seeded areas at the Bay Tunnel Project; (4) placement of gravel at the Newark Valve Lot; (5) uncovering of previously installed valve E50U to provide for removal, cleaning, and re-installation of bolts for corrosion protection purposes; and (6) installation of a ventilation and sump pump system to improve conditions for inspection and monitoring of the pipe, slip, ball joints, and pipe supports inside the articulated vaults of Bay Division Pipeline Nos. 3 and 4.

Region: Bay Division	**Project Status:** Construction	**Environmental Status:** Not Applicable

Project Cost:

Approved		$4.40 M
Forecast*		$4.40 M
Actual		$1.56 M

Project Schedule:

Approved Jul-16		Jun-20
Forecast* Jul-16		Jun-20

Project Percent Complete: 61.1%

Approved; Actual Cost; * Forecast Status: Meet Requirements; Need Attention; Exceed Limits

Key Milestones:	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	N/A	N/A	Various	N/A

Progress and Status:

- Ventilation and Sump Pump System Installation – JOC Contractor proposal has been accepted, and currently waiting for the issuance of NTP.
- Site Drainage and Pipe Coating Repairs – Design is complete. Once construction for the ventilation and sump pump system has started, the project team will issue the design package to the JOC Contractor for the JOC Contractor to provide a cost proposal.
- BDPL 1&2 EIR Mitigation – Continued with the initial planning work for the project.
- Bay Tunnel Warranty Inspection - Construction has been completed. The Project Team is in the process of releasing retention.
- Hydro-seeding at Bay Tunnel Project – Completed
- Newark Valve Lot Additional Gravel Placement - Completed Corrosion Protection for Valve E50U - Completed

Erosion Across ROW Due to Caltrans Drainage Pipe

Issues and Challenges:

None at this time.

CUWPWI0101 - WSIP Closeout - Peninsula

Project Description: This project consists of miscellaneous improvements to ensure the WSIP Level of Service (LOS) goals and objectives are fully achieved in the Peninsula Region. The work will be completed by means of seven sub-projects: (1) the Lower Crystal Springs Dam (LCSD) stilling basin modifications and dissipation structure riprap; (2) valve modifications to accommodate stipulated releases of fresh water into San Mateo Creek for fish passage at the same site; (3) New Crystal Springs Bypass Tunnel electrical modifications due to groundwater intrusion into vaults housing it; (4) closeout of California Division of Safety of Dams permit applications; (5) coordination with San Mateo County for bridge construction over LCSD; (6) Harry Tracy Water Treatment Plant Improvements in automating operations to aid reliability in meeting LOS goals; and (7) Crystal Springs/San Andreas pipeline erosion repairs.

Region: Peninsula	**Project Status:** Design	**Environmental Status:** Not Applicable

Project Cost:		**Project Schedule:**	
Approved	$13.58 M	Approved Jul-16	May-21
Forecast*	$13.58 M	Forecast* Jul-16	May-21
Actual	$1.77 M	Project Percent Complete: 16.8%	

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	**Environmental Approval**	**Bid Advertisement**	**Construction NTP**	**Construction Final Completion**
Current Forecast	N/A	Various	Various	N/A

Progress and Status:

Crystal Springs / San Andreas Items:

1. WD-2822R – Crystal Springs Dam Stilling Basin, Dissipation Structure, and H53 Valve - Will rebid in August 2018, with Final Completion forecasted for June 24, 2020. 2.Lower Crystal Springs Dam Bridge Replacement- joint project with San Mateo County (SMC). Bridge opening is forecasted for late 2018. A JOC will be set up to address a gap between the Lower Crystal Springs Dam north parapet wall and the bridge abutment, with a forecasted start date for construction in early 2019. Another separate JOC will be needed to address leftover bridge punch list items. 3. Erosion Mitigation/Repairs – Post construction environmental monitoring of sites associated with major WSIP projects. A technical memorandum for erosion mitigation is expected to be issued in early Fall 2018. Construction forecast is late Fall 2018.

Harry Tracy Water Treatment Plant Items:

1. JOC 59-01 – Electrical & Mechanical Piping Modifications. Long lead items are being fabricated with construction scheduled for next quarter. 2. JOC-59-17 - Emergency Generators Filters Upgrades. Bids received for pre-purchase of filters and proposal from JOC contractor for installation of filters approved and being processed. 3. JOC-59-19 – Leak at Filter Gallery Channels. Project closed. 4. Variable Frequency Drive Controllers (VFDs) – No issues with the VFDs have been reported this quarter. Testing of the VFDs was completed and a preferred alternative will be selected next quarter to automate flushing of the sludge transfer pumps' piping. 5. Vibration Control Panel and Circuit Breakers. Engineers are developing alternatives for upgrading the vibration control equipment. 6. Equalization Basin Mixers – No issues with the mixers have been reported this quarter. A report, including reviews of mixers used by other agencies, will be prepared next quarter. 7. Erosion on CSSA Pipeline – Design is at 95% complete and project is scheduled to be advertised for bids early next quarter.

Issues and Challenges:

None at this time.

CUW30103 - Regional Groundwater Storage and Recovery

Project Description: The goal of the project is to provide up to 7.2 million gallons per day (mgd) of dry year water supply over 7.5 years. The original project design included the construction of up to 16 groundwater wells and well stations to be connected to three wholesale customers on the Upper Peninsula and the SFPUC transmission system to achieve the water supply goal. Phase 1 included the installation of 13 well stations to produce approximately 6.2 mgd, and the original scope of Phase 2 included construction of 2 to 3 additional well stations, based upon well yield. Due to difficulties with siting well stations in the central portion of the groundwater basin, Phase 2 has been modified to install up to 3 test wells (Ludeman North, Ludeman South and Centennial Trail), complete the South San Francisco Main well and pipeline, and complete other Phase 1 scope items, including chemical system monitoring, sampling and storage at various sites. The Phase 2 test wells will not be converted to production wells at this time, but will allow for determination as to whether the identified sites could be viable future production wells, and will provide valuable information related to water quality and potential pumping capacities that can be used for future planning and decision making.

Region: San Francisco Regional	**Project Status:** Construction	**Environmental Status:** Active (Various)

Project Cost:

Approved		$138.79 M
Forecast*		$138.79 M
Actual		$93.99 M

Project Schedule:

Approved Jun-03		Dec-21
Forecast* Jun-03		Dec-21

Project Percent Complete: 73.7%

Approved; Actual Cost; * Forecast Status: Meet Requirements; Need Attention; Exceed Limits

Key Milestones:	Environmental Approval	Bid+ Advertisement	Construction+ NTP	Construction+ Final Completion
Current Forecast	(A) 09/07/09✓ (B) 08/07/14✓ (C) 08/30/19	(A) 09/07/11✓ (B) 09/22/14✓ (C) 10/01/19	(A) 01/30/12✓ (B) 04/06/15✓ (C) 03/02/20	(A) 09/05/12✓ (B) 06/28/19 (C) 06/30/21

\+ Project includes multiple construction contracts.

(A) Test well drilling; (B) Well station construction; (C) Well sites in Millbrae and South San Francisco

Progress and Status:

For Contact B, retrofit of the existing sodium hydroxide system at five well stations, installation of the remote sampling analyzers for seven wells, and installation of a new sodium hydroxide system at two well stations are in progress. Re-evaluation of the fluoridation system for all seven wells with treatment facilities is continuing. The 7-day test for nine wells will start after the completion of major construction work including the access modifications of two well stations and the acquisition of the Division of Drinking Water permit. For Phase 2 (associated with Contract C), the JOC contractor completed construction of a test well at Ludeman North in Millbrae. The pumping test and water quality data results will be available in early August. The JOC Contractor mobilized on 5/21/18 to drill a test well at Centennial Trail.

High levels of ammonia were observed in the groundwater at the Southwood Drive Well and Treatment Facility (Funeral Home Well Station), and during the 7-day test at the South Spruce Avenue Well and Treatment Facility (Linear Park Well Station). The 7-day test is on hold until the ammonia issue is resolved. The project team is currently addressing the short-term solution for the South Spruce Avenue Well which includes possible installation of additional pumps and an analyzer.

Issues and Challenges:

None at this time.

CUW36302 - System Security Upgrades

Project Description: The project includes the identification, planning, design, and construction of all necessary security components associated with WSIP facilities. Phase A design consists of security appurtenances such as conduit routing incorporated into the overall design of projects. This work provides for the security infrastructure and is bid as part of the specific WSIP construction project. Phase B design consists of completion of project security system components which will be purchased, installed, and tested by a Security Integrator specialist.

Region: Support Projects	**Project Status:** Construction	**Environmental Status:** Completed (CatEx)

Project Cost:

Approved		$15.20 M
Forecast*		$15.20 M
Actual		$13.16 M

Project Schedule:

Approved	Jan-06	Sep-18
Forecast*	Jan-06	Sep-18

Project Percent Complete: 99.8%

Approved; Actual Cost; * Forecast Status: Meet Requirements Need Attention Exceed Limits

Key Milestones:	Environmental Approval	Bid+ Advertisement	Construction+ NTP	Construction+ Final Completion
Current Forecast	03/28/12✓	01/07/06✓ - 08/15/13✓	11/13/06✓ - 05/08/14✓	07/13/07 ✓ - 08/31/18

\+ Date range for the first and last project among the 28 WSIP projects that require security improvements.

Progress and Status:

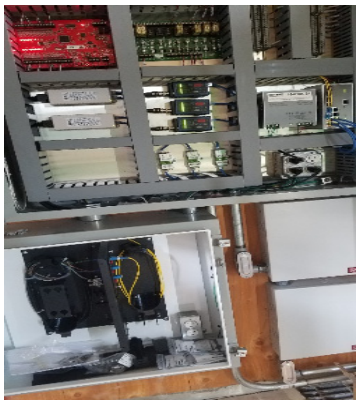
The project team is working with the Contract Modification Division (CMD) regarding the close out memo for the WD2661 contract.

The project team completed construction at the Sunol Valley Treatment Plant and continued work at New Irvington Tunnel.

For the third As-Needed Security Integration Services Construction Contract, WD-2707, the project team is working on punchlist items to be completed both at Harry Tracy Water Treatment Plant and Crystal Springs Dam/San Andreas Reservoir.

Issues and Challenges:

None at this time.



Security Panel installed at NIT

CUW39401 - Watershed and Environmental Improvement Program

Project Description: The Watershed and Environmental Improvement Program (WEIP) includes the comprehensive identification of critical watershed lands and ecosystem restoration needs within the hydrologic boundaries of the Alameda Creek, Peninsula (San Mateo and Pilarcitos Creeks), and Tuolumne River watersheds, and prioritizes the protection and/or restoration of these lands. This program will manage watershed activities and resources to protect source water quality, native species, and their habitat and to identify critical watershed lands, key ecosystem restoration needs, and restoration priorities. The program also supports projects that enhance public awareness and provide educational opportunities related to water quality, water supply, conservation, and environmental stewardship issues. Consistent with the SFPUC Water Enterprise Stewardship Policy, a portion of the WEIP funding will be used to fund construction of the Southern Skyline Boulevard Ridge Trail Extension.

Region: Support Projects	**Project Status:** Design	**Environmental Status:** Active (TBD)

Project Cost:

Approved		$20.00 M
Forecast*		$20.00 M
Actual		$4.41 M

Project Schedule:

Approved Jan-07		Jan-21
Forecast* Jan-07		Jan-21

Project Percent Complete: 23.7%

Approved; Actual Cost; * Forecast Status: Meet Requirements; Need Attention; Exceed Limits

Key Milestones:	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	06/06/19	TBD	TBD	TBD

Progress and Status:

CUW39401 funds will be used for the construction of the Southern Skyline Boulevard Ridge Trail Extension (CUW2751801). The design of the SFPUC Southern Skyline Boulevard Ridge Trail Extension (Bay Area Ridge Trail Extension) is complete and the project is now undergoing environmental review. The Federal environmental review process will be completed in Spring 2019; the State process (CEQA) will be completed in Summer of 2019. Project construction will commence late 2019.

Issues and Challenges:

The WEIP will fund an environmentally focused construction project – the Skyline Ridge Trail Extension. Issues related to CUW275180 are reported in the June 2018 Quarterly Water Enterprise CIP report.

Sulfur Creek in the Alameda Creek Watershed

APPENDIX F. LIST OF ACRONYMS

AAR	Alternative Analysis Report
AB	Assembly Bill
ACAMS	Access Control and Alarm Monitoring System
ACDD	Alameda Creek Diversion Dam
ACDT	Alameda Creek Diversion Tunnel
ACWD	Alameda County Water District
AWP	Alameda West Portal
BART	Bay Area Rapid Transit
BAWSCA	Bay Area Water Supply and Conservation Agency
BDPL	Bay Division Pipeline
BHR	Bioregional Habitat Restoration
BO	Biological Opinion
CATEX	Categorical Exemption
CCSF	City and County of San Francisco
CDD	City Distribution Division
CDRP	Calaveras Dam Replacement Project
CEQA	California Environmental Quality Act
CER	Conceptual Engineering Report
CIP	Capital Improvement Program
CM	Construction Management
CMB	Construction Management Bureau
CMD	Contract Monitoring Department
CMD	Contract Monitoring Division
CMIS	Construction Management Information System
CO	Change Order
CPI	Cost Performance Index
CSPS	Crystal Springs Pump Station
CSSA	Crystal Springs/San Andreas
DB	Design, Build
DSOD	Division of Safety of Dams (State of California)
DVSS	Digital Video Surveillance System
EBMUD	East Bay Municipal Utility District
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EV	Earned Value
EVM	Earned Value Management
FY	Fiscal Year
HH	Hetch Hetchy
HTLTIP	Harry Tracy Long Term Improvements Project
HTWTP	Harry Tracy Water Treatment Plant
IVP	Irvington Portal
JOC	Job Order Contract
LCSD	Lower Crystal Springs Dam
LCSDI	Lower Crystal Springs Dam Improvements
LMPS	Lake Merced Pump Station
LOS	Levels of Service
MG	Million Gallons
MGD	Million Gallons per Day
MND	Mitigated Negative Declaration
MOU	Memorandum of Understanding
NEG DEC	Negative Declaration (also shown as ND)
NEPA	National Environmental Policy Act
NIT	New Irvington Tunnel
NMFS	National Marine Fisheries Service (under NOAA)
NOAA	National Oceanic and Atmospheric Agency
NOT	Notice of Termination
NTP	Notice to Proceed
O&M	Operation and Maintenance
PCCP	Pre-stressed Concrete Cylinder Pipe
PCE	Project Controls Engineer
PE	Project Engineer
PEIR	Program Environmental Impact Report
PG&E	Pacific Gas and Electric Company
PPSU	Peninsula Pipeline Seismic Upgrade
QA	Quality Assurance
RFI	Request For Information
ROW	Right-of-Way
SABPL	San Antonio Backup Pipeline
SAPL	San Antonio Pipeline
SAPS	San Antonio Pump Station
SCADA	Supervisory Control and Data Acquisition
SFPUC	San Francisco Public Utilities Commission
SJPL	San Joaquin Pipeline
SMC	San Mateo County
SMP	Surface Mining Permit
SPI	Schedule Performance Index
SQS	Supplier Quality Surveillance
SSBPL	Sunset Supply Branch Pipeline

SSPL	Sunset Supply Pipeline
SVWTP	Sunol Valley Water Treatment Plant
TBD	To be determined
TBM	Tunnel Boring Machine
TWR	Treated Water Reservoir
UM	University Mound
UPS	Uninterruptable Power Supply
UV	Ultra Violet
VFD	Variable Frequency Drive
WEIP	Watershed Environmental Improvement Program
WSIP	Water System Improvement Program

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