




DATE: November 21, 2023

TO: Commissioner Tim Paulson, President  
 Commissioner Anthony Rivera, Vice President  
 Commissioner Newsha K. Ajami  
 Commissioner Sophie Maxwell  
 Commissioner Kate H. Stacy

FROM: Dennis J. Herrera, General Manager 

SUBJECT: Water System Improvement Program  
 Quarterly Report (1<sup>st</sup> Quarter / FY 2023-2024)

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Enclosed please find the Water System Improvement Program (WSIP) Quarterly Report for the 1<sup>st</sup> Quarter (Q1) of Fiscal Year (FY) 2023-2024. The primary intent of the report is to provide the Commission, stakeholders, and the public with a status summary of the Water System Improvement Program based on data for the period of July 1, 2023 to September 30, 2023. This quarterly report provides a summary update on the Regional WSIP projects. The Local WSIP was completed in June 2020.

Attachment

- London N. Breed**  
Mayor
- Tim Paulson**  
President
- Anthony Rivera**  
Vice President
- Newsha K. Ajami**  
Commissioner
- Sophie Maxwell**  
Commissioner
- Kate H. Stacy**  
Commissioner
- Dennis J. Herrera**  
General Manager



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HETCH HETCHY  
WATER SYSTEM IMPROVEMENT PROGRAM



# QUARTERLY REPORT

Regional Projects  
Q1 FY 2023 | 2024  
July 2023 — September 2023

*Rebuilding Today for a Better Tomorrow*

Published: November 21, 2023

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**EXECUTIVE SUMMARY**

This quarterly report provides a summary update on the regional projects in the Water System Improvement Program (WSIP) for the 1st Quarter (Q1) of Fiscal Year (FY) 2023-2024. 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, 2023 through September 30, 2023.

This quarterly report incorporates program and project changes from the March 2022 Proposed Revised WSIP, which was approved by the Commission on April 26, 2022 by Resolution No. 22-0080.

**Program Current Status:**

Figure A and Table A show the number of WSIP Regional projects and the total approved value of these projects that are active in various project phases.

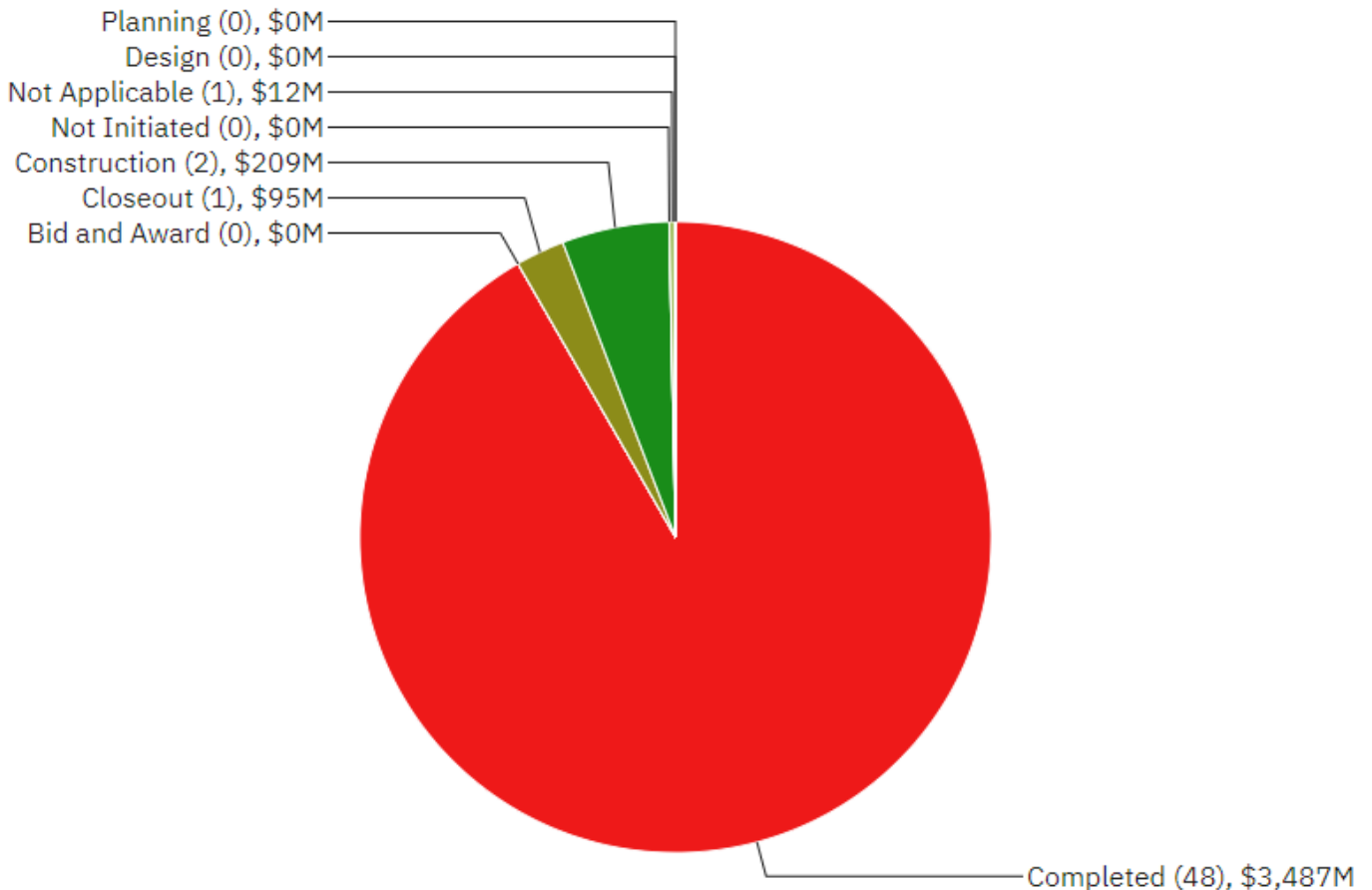


Figure A. Total Current Approved Budget for Regional Projects Active in Each Phase

Table A. Status of WSIP Regional Projects (as of September 30, 2023)

Project Phase	No. of Projects	Percent by No. of Projects	Total Project Value (\$M)	Percent by Project Value
Planning	0	0%	\$0	0%
Design	0	0%	\$0	0%
Bid & Award	0	0%	\$0	0%
Construction	2	4%	\$209	5%
Close-Out	1	2%	\$95	3%
Completed	48	92%	\$3,487	92%
Not Applicable <sup>1</sup>	1	2%	\$12	0%
<b>Total</b>	<b>52</b>	<b>100%</b>	<b>\$3,803</b>	<b>100%</b>

Note: (1) “Not Applicable” category is for the project that does not include construction: Long-Term Mitigation Endowment.

As of the end of the reporting period, two (2) regional projects with a total value of \$209M are in construction and forty-nine (49) projects with a total value of \$3,582M are in close-out or have been completed. Forty-one (41) out of forty-three (43) Regional WSIP projects with specific Level of Service (LOS) goals have achieved their LOS goals to date.

Tables B and C provide an overall program-level cost and schedule summary of the WSIP Regional Program. The total Current Approved WSIP Budget (including Regional and Local Programs, Local Water Supply Projects, and Financing Costs) and the Current Forecasted Cost at completion are each \$4,787.8 million. The Current Approved WSIP Budget and Forecasted Cost at completion for only the Regional Program (including construction contingency) are each \$3,803.1 million. Note that the forecasted project costs are held from last quarter while future costs for completing Alameda Creek Recapture Project are being analyzed.

Table B. Program Cost Summary

Cost Categories	Expenditures To Date (\$ Million) (A)	2005 Baseline Budget (\$ Million) (B)	2022 Approved Budget (\$ Million) (C)	Current Approved Budget <sup>(7)</sup> (\$ Million) (D)	Q1/FY23-24 Forecasted Costs (\$ Million) (E)	Cost Variance (\$ Million) (F = D - E)
<b>REGIONAL PROGRAM</b>	<b>\$3,729.5</b>	<b>\$3,407.3</b>	<b>\$3,803.1</b>	<b>\$3,803.1</b>	<b>\$3,803.1</b>	<b>-</b>
Local Improvement Projects	\$331.9	\$383.2	\$331.9	\$331.9	\$331.9	-
Local Water Supply Projects	\$227.6	-	\$280.9	\$280.9	\$280.9	-
Finance	\$372.0	\$552.0	\$372.0	\$372.0	\$372.0	-
<b>PROGRAM TOTAL</b>	<b>\$4,661.1</b>	<b>\$4,342.5</b>	<b>\$4,787.8</b>	<b>\$4,787.8</b>	<b>\$4,787.8</b>	<b>-</b>

The Current Approved and Forecasted Schedule completion for the Regional WSIP (Local WSIP was completed in June 2020) are both February 2027.

**Table C. 2022 Approved vs. Q1/FY23-24 Forecasted Schedule Dates**

Category	2005 Baseline Start	2022 Approved Start	Current Approved Start*	Actual Start	2005 Baseline Finish	2022 Approved Finish	Current Approved Finish*	Q1/FY23-24 Forecasted Finish***	Schedule Variance (Months)
Regional Program	03/01/03	03/31/03	03/31/03	03/01/03 A***	06/30/14	05/05/23	02/01/27	02/01/27	-
Local** Program	03/01/03	03/31/03	03/31/03	03/01/03 A***	06/28/13	7/31/18	06/03/20	06/03/20 A	Completed (-)
Overall WSIP	03/01/03	03/01/03	03/01/03	03/01/03 A***	06/30/14	05/05/23	02/01/27	02/01/27	-

- \* The budget and schedule approved as part of the March 2022 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.
- \*\*\* "A" represents the actual date.

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 current Commission Approved Budget. All approved change orders (COs) in contracts total \$21.8M, and the forecasted remaining contingency is \$9.0M. Also, as of the end of the reporting period, all pending and potential COs, and trends total (\$8.1M). Therefore, assuming all pending and proposed COs and trends become approved COs, the current forecasted remaining construction contingency is \$17.1M. Note that contingency has increased since last quarter in the Sunol Valley Region because the Alameda Creek Recapture construction contract was terminated last quarter and terms were being negotiated during this quarter for close out.

**UPDATE ON PROJECTS IN CONSTRUCTION**

As of the end of September 2023, WSIP regional construction contracts (including active, completed, and future contracts) are 99.3% complete overall.

As of the end of September 2023, monitored exposure hours on WSIP regional projects totaled 9.9 million construction person-hours. Since the implementation of the WSIP Safety Approach in April 2009, the total lost time incidence rate is 0.51, compared to the U.S. Bureau of Labor Statistics (BLS) industry average rate (2021) of 1.3.

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

*Alameda Creek Recapture Project*

During the reporting period, negotiations continued with the contractor to agree on final contract close-out terms and costs. Remaining unused materials were auctioned for highest resale price possible. The quarry operator continued the design for slope stabilization of the quarry pond banks.

*Regional Groundwater Storage and Recovery*

For Phase 1 (Contract B), conversion of as-built drawings to computer-aided design (CAD) continued. The Arts Commission approved the civic design review on September 18 for new fencing work at Hickey Blvd, Colma BART, and Linear Park Well and Treatment Facilities. For Phase 2A (Contract C), the condition assessment reports described that the well pump at Lake Merced Well Station is in poor condition due to corrosion. The reports also noted the poor condition of the well pump at Linear Park Well Station due to scale build-up in the bowl assembly. Installation of flowmeter vaults at the Millbrae and Colma BART Well Stations was initiated. For Phase 2B (Contract D), final electrical system design to provide power to the SSF Main Well was received from PG&E on September 11, and preparation of the draft contract package continued.



# **Quarterly Report - Q1 FY2023/2024**

**Water System Improvement Program - Regional Projects**

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- A. Project Descriptions**
- B. WSIP Approved Project-Level Schedule**
- C. List of Acronyms**



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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, the water system has many components 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 are 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 that is in the end stage of 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, 2018, 2020, and 2022, 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, April 10, 2018, April 14, 2020, and April 26, 2022, respectively. Refer to Appendix A for a scope description of all the regional projects included in the WSIP.

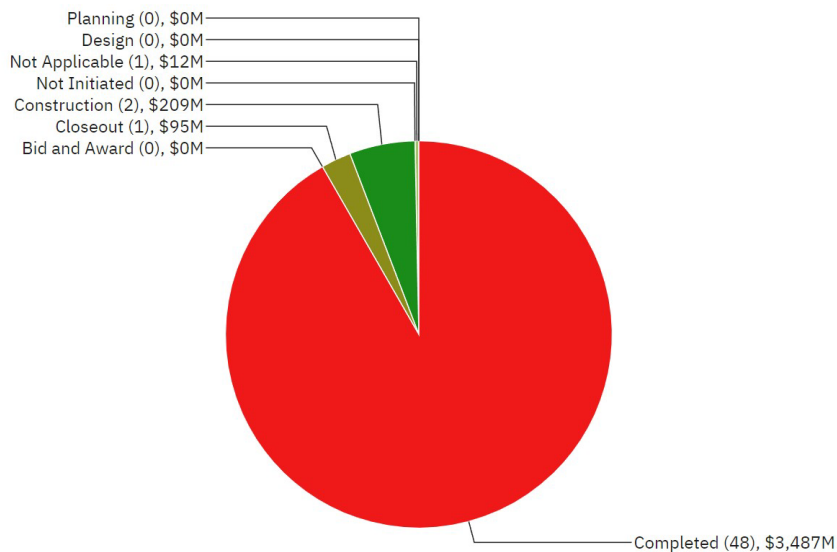
Program Revision	Commission Approval	Budget (\$Million)	Schedule <sup>(*)</sup>
2003 (Original)	March 1, 2003	\$3,628	03/15/16
2005 (Baseline)	November 29, 2005	\$4,343	06/30/14
2007 (Revised)	February 26, 2008	\$4,392	12/18/14
2009 (Revised)	July 28, 2009	\$4,586	12/04/15
2011 (Revised)	July 12, 2011	\$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 (Revised)	April 10, 2018	\$4,788	12/30/21
2020 (Revised)	April 14, 2020	\$4,788	05/05/23
2022 (Revised)	April 26, 2022	\$4,788	02/01/27

\* Final Program Completion Date

## 2. PROGRAM STATUS

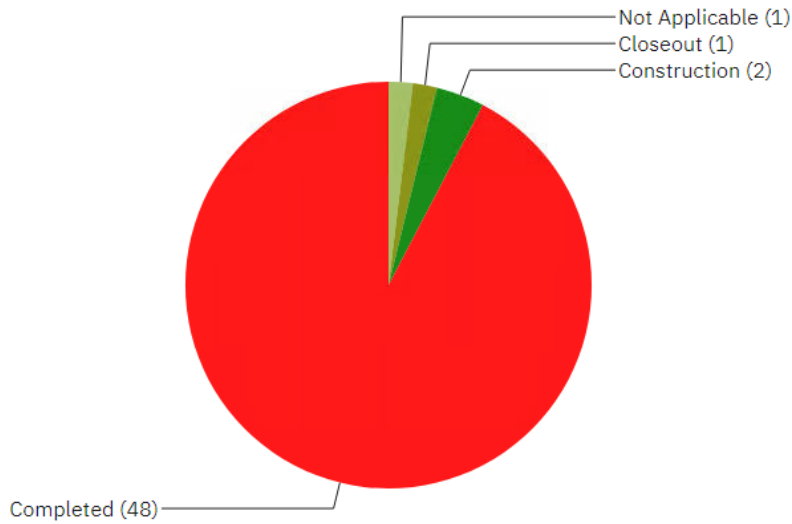
This first (1st) Quarterly Report for Fiscal Year (FY) 2023-2024 presents the progress made on the WSIP Regional Program between July 1, 2023, and September 30, 2023. The program’s schedule and budget were last approved by the San Francisco Public Utilities Commission (SFPUC or Commission) on April 26, 2022. The WSIP Local Program was completed on June 3, 2020.

Figure 2.1 shows the total Current Approved Budget for the regional projects remaining in each phase of the program as of September 30, 2023. The number of projects currently active in each phase is shown in parentheses.



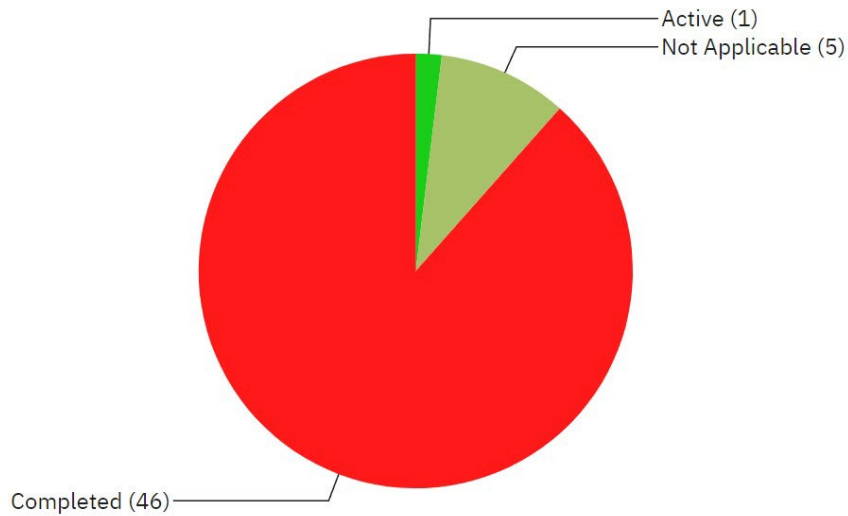
**Figure 2.1 Total Current Approved Budget for Projects Active in Each Phase (\$Million)**

Figure 2.2 shows the number of regional projects in the following phases as of September 30, 2023: 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’s 52 regional projects as of September 30, 2023.



**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 41 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 <sup>(1)</sup>**

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		
<b>San Joaquin Projects</b>								
CUW36401	Lawrence Livermore Water Quality Improvement <i>(Completed)</i>	08/31/10	P				08/31/10	100%
CUW37301	San Joaquin Pipeline System <i>(Completed)</i> (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; <i>Completed</i> )	05/13/11			P		05/13/11	100%
CUW38401	Tesla Treatment Facility <i>(Completed)</i> (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%
<b>Sunol Valley Projects</b>								
CUW35201	Alameda Creek Recapture	11/18/22				P		48%
CUW35501	Standby Power Facilities - Various Locations <i>(Completed)</i> (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 <i>(Completed)</i>	09/19/15		S	P		02/27/15	100%
CUW35902	Alameda Siphon #4 <i>(Completed)</i>	12/16/11		P	S		12/16/11	100%
CUW37001	Pipeline Repair & Readiness Improvements <i>(Completed)</i> (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 <i>(Completed)</i> (A) WD-2551 Calaveras Dam Replacement (B) WD-2729 Alameda Creek Diversion Dam	(A) 04/12/19 (B) 02/15/19		S	P	S	(A) 04/12/19 (B) 02/15/19	(A) 100% (B) 100%
CUW37402	Calaveras Reservoir Upgrades <i>(Completed)</i>	10/06/05	P				10/06/05	100%
CUW37403	San Antonio Backup Pipeline <i>(Completed)</i>	12/31/14			P		12/31/14	100%
CUW38101	SVWTP Expansion & Treated Water Reservoir <i>(Completed)</i>	05/17/13	P		P		05/17/13	100%
CUW38601	San Antonio Pump Station Upgrade <i>(Completed)</i>	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		
<b>Bay Division Projects</b>								
CUW35301	BDPL Nos. 3 & 4 Crossover/Isolation Valves <i>(Completed)</i>	11/15/07		P			11/15/07	100%
CUW35302	Seismic Upgrade of BDPL Nos. 3 & 4 <i>(Completed)</i>	10/26/15		P			06/20/14	100%
CUW36301	SCADA System - Phase II <i>(Completed)</i>	11/29/10			P		11/29/10	100%
CUW36801	BDPL Reliability Upgrade – Tunnel <i>(Completed)</i>	05/20/15		P	S		10/15/14	100%
CUW36802	BDPL Reliability Upgrade – Pipeline <i>(Completed)</i> (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 <i>(Completed)</i>	05/28/10			P		05/28/10	100%
CUW38001	BDPL Nos. 3 & 4 - Crossovers <i>(Completed)</i>	08/15/12		P	S		08/15/12	100%
CUW38901	SFPUC/EBMUD Intertie <i>(Completed)</i>	09/07/07			P		09/07/07	100%
CUW39301	BDPL No. 4 Condition Assessment PCCP Sections <i>(Completed)</i>	02/06/09		P	S		02/06/09	100%
<b>Peninsula Projects</b>								
CUW35401	Lower Crystal Springs Dam Improvements <i>(Completed)</i>	11/20/11			P	S	11/20/11	100%
CUW35601	New Crystal Springs Bypass Tunnel <i>(Completed)</i>	07/14/11		P	S		07/14/11	100%
CUW35701	Adit Leak Repair - Crystal Springs/Calaveras <i>(Completed)</i>	11/30/07			P		11/30/07	100%
CUW36101	Pulgas Balancing - Inlet/Outlet Work <i>(Completed)</i>	02/02/06	P		S		02/02/06	100%
CUW36102	Pulgas Balancing - Discharge Channel Modifications <i>(Completed)</i>	10/23/09			P		10/23/09	100%
CUW36103	Pulgas Balancing - Structural Rehabilitation & Roof Replacement <i>(Completed)</i>	07/26/11	P		S		07/26/11	100%
CUW36105	Pulgas Balancing - Modifications of the Existing Dechloramination Facility <i>(Completed)</i>	08/27/12	P		S		08/27/12	100%
CUW36501	Cross Connection Controls <i>(Completed)</i>	11/26/08	P				11/26/08	100%
CUW36601	HTWTP Short-Term Improvements - Demo Filters <i>(Completed)</i>	01/11/06		P	S		01/11/06	100%
CUW36603	HTWTP Short-Term Improvements - Coagulation & Flocculation/Remaining Filters <i>(Completed)</i>	12/21/09		P	S		12/21/09	100%
CUW36701	HTWTP Long -Term Improvements <i>(Completed)</i>	09/08/15		P	S		09/08/15	100%
CUW36702	Peninsula Pipelines Seismic Upgrade <i>(Completed)</i>	10/30/15		P			10/30/15	100%
CUW36901	Capuchino Valve Lot Improvements <i>(Completed)</i>	02/14/08			P		02/14/08	100%
CUW37101	Crystal Springs/San Andreas Transmission Upgrade <i>(Completed)</i>	06/30/14		P	S		09/02/14	100%
CUW37801	Crystal Springs Pipeline No. 2 Replacement <i>(Completed)</i>	01/31/13		P	S		01/31/13	100%
CUW37901	San Andreas Pipeline No. 3 Installation <i>(Completed)</i>	03/29/11		P	S		03/29/11	100%
CUW39101	Baden & San Pedro Valve Lots Improvements <i>(Completed)</i>	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		
<b>San Francisco Regional Projects</b>								
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 2A) (D) Regional Groundwater Storage and Recovery (Phase 2B)	(A) 07/23/12 (B) 12/31/17 (C) 12/22/23 (D) 10/31/25				P	(A) 07/23/12 (B) 07/27/22	(A) 100% (B) 100% (C) 33% (D) 0%
CUW35801	Sunset Reservoir - North Basin <i>(Completed)</i>	09/19/08		P	S		09/19/08	100%
CUW37201	University Mound Reservoir - North Basin <i>(Completed)</i>	05/25/11		P	S		05/25/11	100%

Notes:

- 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, 2022 Approved, Current Approved and Q1/FY23-24 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 the Current Forecasted Cost at completion are both \$4,787.8 million. The Current Approved WSIP Budget and Forecasted Cost at Completion for only the Regional Program (including construction contingency) are both \$3,803.1 million. The Current Approved Budget and final expenditures for the Local Improvement Projects are both \$331.9 million. Note that the forecasted project costs are held from last quarter while future costs for completing Alameda Creek Recapture Project are being analyzed.

**Table 3.1 Program Cost Summary**

Cost Categories	Expenditures To Date (\$ Million) (A)	2005 Baseline Budget (\$ Million) (B)	2022 Approved Budget (\$ Million) (C)	Current Approved Budget <sup>(7)</sup> (\$ Million) (D)	Q1/FY23-24 Forecasted Costs (\$ Million) (E)	Cost Variance (\$ Million) (F = D - E)
<b>Regional Improvement Projects</b>	<b>\$3,470.6</b>	<b>\$3,181.3</b>	<b>\$3,513.8</b>	<b>\$3,513.8</b>	<b>\$3,513.5</b>	<b>\$0.2</b>
Construction Costs <sup>(1)</sup>	\$2,464.5	\$2,322.3	\$2,495.1	\$2,495.1	\$2,491.5	\$3.6
Program Delivery Costs <sup>(2)</sup>	\$976.6	\$758.0	\$984.2	\$984.2	\$983.8	\$0.4
Other Costs <sup>(3)</sup>	\$29.5	\$101.0	\$34.5	\$34.5	\$38.3	(\$3.8)
<b>Support Projects <sup>(4)</sup></b>	<b>\$239.8</b>	<b>\$32.8</b>	<b>\$262.0</b>	<b>\$262.0</b>	<b>\$258.8</b>	<b>\$3.2</b>
<b>Construction Contingency for Regional &amp; Support Projects <sup>(5)</sup></b>	<b>\$19.2</b>	<b>\$193.2</b>	<b>\$27.3</b>	<b>\$27.3</b>	<b>\$30.7</b>	<b>(\$3.5)</b>
<b>REGIONAL PROGRAM WITH CONTINGENCY</b>	<b>\$3,729.5</b>	<b>\$3,407.3</b>	<b>\$3,803.1</b>	<b>\$3,803.1</b>	<b>\$3,803.1</b>	<b>-</b>
Local Improvement Projects	\$331.9	\$383.2	\$331.9	\$331.9	\$331.9	-
Local Water Supply Projects <sup>(6)(8)</sup>	\$227.6	-	\$280.9	\$280.9	\$280.9	-
<b>Finance <sup>(9,10,11)</sup></b>	<b>\$372.0</b>	<b>\$552.0</b>	<b>\$372.0</b>	<b>\$372.0</b>	<b>\$372.0</b>	<b>-</b>
<b>PROGRAM TOTAL</b>	<b>\$4,661.1</b>	<b>\$4,342.5</b>	<b>\$4,787.8</b>	<b>\$4,787.8</b>	<b>\$4,787.8</b>	<b>-</b>

Notes:

- 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.
- Delivery Costs** include project management, planning, environmental (CEQA, permitting, construction compliance), design, construction management, and engineering support during construction.
- Other Costs** include environmental mitigation, art enrichment, security improvements, and real estate expenses.
- 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.
- 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 2022 Approved Budget for construction contingency includes all change orders and trends as identified at the time of the March 2022 Revised WSIP, or projects in pre-construction, the 2022 Approved Budget for construction contingency includes 10% of the estimated construction base bid
- 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.
- The budget approved as part of the March 2022 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 \$552M 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 2022 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 Forecasted Construction Contingency as of Q4/FY22-23; 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/FY23-24 Forecasted Construction Contingency; and the Forecasted Remaining Contingency as of the end of the reporting quarter. As of September 30, 2023, the Forecasted Construction Contingency is \$30.7 million, and the Forecasted Remaining Contingency is \$9.0 million. Note that contingency has increased since last quarter in the Sunol Valley Region because the Alameda Creek Recapture construction contract was terminated last quarter and terms were being negotiated during this quarter for close out.

The total costs of Change Orders approved in Q1/FY23-24 are shown in Table 3.2.

**Table 3.2 Current Remaining Construction Contingency**

Region	Q4/FY22-23 Forecasted Construction Contingency <sup>(1)</sup> (\$ Million) (A)	Total Approved Change Orders as of Q4/FY22-23 <sup>(2,3)</sup> (\$ Million) (B)	Change Orders Approved in Q1/FY23-24 <sup>(2)</sup> (\$ Million) (C)	Total Approved Change Orders as of Q1/FY23-24 (\$ Million) (D = B+C)	Project Savings or Director's Reserves (+) Moved to Contingency/ Funds (-) Moved out of Contingency during Q1/FY23-24 <sup>(4)</sup> (\$ Million) (E)	Q1/FY23-24 Forecasted Construction Contingency (\$ Million) (F = A + E)	Q1/FY23-24 Forecasted Remaining Contingency (\$ Million) (G = F - D)
San Joaquin Region	-	-	-	-	-	-	-
Sunol Valley Region	\$5.5	\$2.8	\$0.1	\$2.9	-	\$5.5	\$2.6
Bay Division Region	-	-	-	-	-	-	-
Peninsula Region	-	-	-	-	-	-	-
San Francisco Regional Region	\$25.2	\$18.9	-	\$18.9	-	\$25.2	\$6.3
Support Projects	-	-	-	-	-	-	-
<b>Regional Total</b>	<b>\$30.7</b>	<b>\$21.7</b>	<b>\$0.1</b>	<b>\$21.8</b>	<b>-</b>	<b>\$30.7</b>	<b>\$9.0</b>

Notes:

1. Construction Contingency approved as part of the March 2022 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 after the Commission adopted the March 2022 Revised WSIP.

Table 3.3 provides a breakdown of forecast change orders and trends comprising the forecasted remaining construction contingency. For each region as of Q1/FY23-24, it shows the Remaining Construction Contingency, Pending Change Orders, Potential Change Orders, Trends, and Forecasted Remaining Construction Contingency. As of September 30, 2023, the Total Forecasted Remaining Construction Contingency for the Regional WSIP is \$17.1 million. This amount does not include funds that are currently held in Director’s Reserve.

**Table 3.3 Forecasted Remaining Construction Contingency**

Region	Q1/FY23-24 Remaining Construction Contingency <sup>(1)</sup> (\$ Million) (A)	Pending Change Orders as of Q1/FY23-24 <sup>(2)</sup> (\$ Million) (B)	Potential Change Orders as of Q1/FY23-24 <sup>(3)</sup> (\$ Million) (C)	Trends as of Q1/FY23-24 <sup>(4)</sup> (\$ Million) D	Q1/FY23-24 Forecasted Remaining Construction Contingency (\$ Million) (E =A-B-C-D)
San Joaquin Region	-	-	-	-	-
Sunol Valley Region	\$2.6	-	\$0.5	(\$8.8)	\$11.0
Bay Division Region	-	-	-	-	-
Peninsula Region	-	-	-	-	-
San Francisco Regional Region	\$6.3	\$0.1	\$0.1	\$0.1	\$6.1
Support Projects	-	-	-	-	-
<b>Regional Total</b>	<b>\$9.0</b>	<b>\$0.1</b>	<b>\$0.6</b>	<b>(\$8.7)</b>	<b>\$17.1</b>

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 the construction contract management database but are still being negotiated.
4. Trends are any expected impact that the CM team believes may become a change order but are yet to be entered into the construction contract management database as a Potential Change Order.

The Program Management project includes programmatic activities that span multiple regions and benefit several WSIP projects (Table 3.4). 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 Controls, and Program Construction Management. The remaining balance in the Director’s Reserve is \$7.9M.

**Table 3.4 Status of Program Management Project Cost Breakdown**

<b>Category</b>	<b>Expenditures To Date (\$ Million) (A)</b>	<b>2022 Approved Budget (\$ Million) (B)</b>	<b>Current Approved Budget (\$ Million) (C)</b>	<b>Q1/FY23-24 Forecasted Cost (\$ Million) (D)</b>	<b>Cost Variance (\$ Million) (E = C-D)</b>
Management Support	\$38.0	\$46.5	\$46.5	\$42.0	\$4.4
Project Labor Agreement	\$3.7	\$3.8	\$3.8	\$3.8	-
Planning and Project Development	\$18.0	\$18.3	\$18.3	\$18.3	-
Program Controls	\$20.9	\$20.9	\$20.9	\$20.9	-
Program Construction Management	\$27.8	\$27.8	\$27.8	\$27.8	-
<b>Program Management Total</b>	<b>\$108.4</b>	<b>\$117.3</b>	<b>\$117.3</b>	<b>\$112.9</b>	<b>\$4.4</b>

### 4. PROGRAM SCHEDULE SUMMARY

Figure 4.1 and Table 4.1 compare the 2005 Baseline, 2022 Approved, Current Approved, and Q1/FY23-24 Forecasted Schedules for the WSIP Regional Program. The Current Approved Finish and the Forecasted Finish for the Regional WSIP (Local WSIP was completed in June 2020) are each February 2027. Consult Appendix B for a graphical presentation of the WSIP Approved Project-Level Schedule.

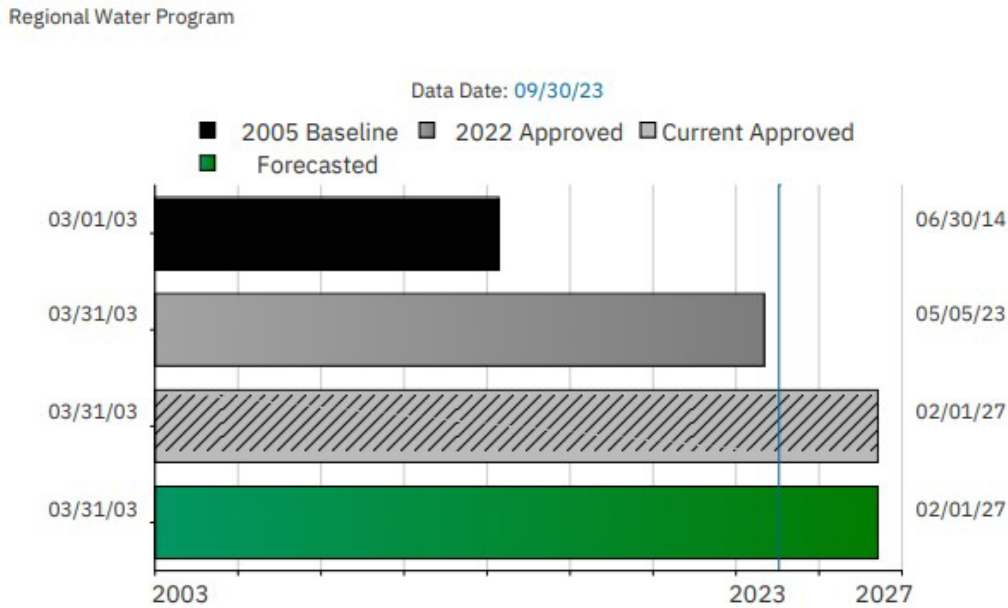


Figure 4.1 Program Schedule Summary

Table 4.1 2022 Approved vs. Q1/FY23-24 Forecasted Schedule Dates

Category	2005 Baseline Start	2022 Approved Start	Current* Approved Start	Actual Start	2005 Baseline Finish	2022 Approved Finish	Current* Approved Finish	Q1/FY23-24 Forecasted Finish	Schedule Variance (Months)
Regional Program	03/01/03	03/31/03	03/31/03	03/01/03 A***	06/30/14	05/05/23	02/01/27	02/01/27	-
Local** Program	03/01/03	03/31/03	03/31/03	03/01/03 A***	06/28/13	7/31/18	06/03/20	06/03/20A	Completed
Overall WSIP	03/01/03	03/01/03	03/01/03	03/01/03 A***	06/30/14	05/05/23	02/01/27	02/01/27	-

\* The budget and schedule approved as part of the March 2022 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

\*\*\* "A" represents the actual date.

5. PROJECT PERFORMANCE SUMMARY\*

All costs are shown in \$1,000s

Project Name	Active Phase (**)	2005 Baseline Budget (a)	2022 Approved Budget (b)	Current Approved Budget (c)	Current Forecast Cost (d)	Expenditures to Date (e)	Cost Variance (f=c-d) (+++)	% Cost Changes (g=f/c) (+++)	2005 Completion Date (h)	2022 Completion Date (i)	Approved Completion Date (j) (++)	Forecast Completion Date (k)	Schedule Variance (Days) (l=j-k) (+++)
<b>Sunol Valley Region</b>													
10015281 Alameda Creek Recapture Project	CN	\$18,809	\$43,967	\$43,967	\$54,189	\$31,915	(\$10,221)	(23%)	05/25/12	06/18/24	06/18/24	06/18/24	0
<b>San Francisco Regional Region</b>													
10015241 Regional Groundwater Storage and Recovery	CN	\$39,233	\$158,350	\$158,350	\$158,350	\$127,261	\$0	0%	02/27/14	02/01/27	02/01/27	02/01/27	0
<b>Support Projects</b>													
10015337 Long Term Mitigation Endowment	N/A		\$12,000	\$12,000	\$12,000	\$0	\$0	0%		10/01/24	10/01/24	10/01/24	0

\* Does not include projects in closeout, completed, not initiated, on hold, deleted projects, and projects combined with other projects.

<b>** Phase Status Legend</b>			
PL	Planning	DS	Design
BA	Bid & Award	CN	Construction

**Footnotes:**

- (+) **2022 Approved Budget and Project Completion Date:** The budget and schedule approved by the San Francisco Public Utilities Commission (SFPUC or Commission) on April 26, 2022.
- (++) **Current Approved Budget and Schedule:** The budget and schedule approved as part of "2022 Approved", plus any additional budget and schedule changes approved by the Commission as part of construction contract award.
- (+++)  
(+) Negative number reflects cost overrun (or schedule delay) and positive number reflects cost underrun (or ahead of schedule). Projects with a forecasted cost overrun greater than 10%, or forecasted delay of greater than 6 months or 10%, will be highlighted in grey.

**6. PROJECT STATUS REPORT**

**10015281 - Alameda Creek Recapture Project**

**Project Description:** The planned facilities include the following components: four (4) identical vertical turbine pumps mounted on floating barges located in existing Pond F2; four (4) flexible discharge pipelines extending from each pump to a new pipe manifold located on shore; a 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; power lines from the existing Hetch Hetchy Water & Power Calaveras Electrical Substation installed on new power poles; and general site improvements.

<b>Program:</b> Sunol Valley Region	<b>Project Status:</b> Construction	<b>Environmental Status:</b> Completed (Various)
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<b>Project Cost:</b>		<b>Project Schedule:</b>	
Approved	\$ 43.97 M	Approved 09/30/03	06/18/24
Forecast	\$ 54.19 M	Forecast 09/30/03	06/18/24
Actual	\$ 31.91 M	Project Percent Complete: 61.3%	

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	04/28/20 A	12/18/20 A	06/21/21 A	02/29/24

**Progress and Status:**

During the reporting period, negotiations continued with the contractor on contract termination and final costs. Materials that could not be re-used in the Regional Water System were uploaded to auction sites and many of the items were sold to the highest bidder. As contract terms for close-out were being negotiated, potential and pending change orders and trends were closed out, freeing up construction contingency. Future potential project strategy, schedule, and costs were discussed. The quarry operator continued the design for slope stabilization of the quarry pond banks.

**Issues and Challenges:**

The cost and schedule impacts to the project continue to be evaluated as the team negotiates with the contractor on various terms to terminate the contract. The cost and schedule forecasts for the reporting period remained the same as the previous quarter. The project team issued deductive change orders to closeout bid items and reallocated the budget to the construction contingency for use on final contract termination costs. The final contract costs will be negotiated with the contractor upon receipt of the final closeout proposal.








*Alternative Access Road into Pond F2*

**10015241 - Regional Groundwater Storage and Recovery**

**Project Description:** The current scope was planned to be constructed in two (2) phases. Phase 1 included construction of 13 wells to produce 6.2 mgd of dry year supply over 7.5 years. Operating the wells during drought will provide data and insights into how much water can be reasonably expected to be produced, and if additional well stations are needed to reach the desired drought period pumping capacity. Phase 2 included construction of two (2) installed test wells, completion of the South San Francisco (SSF) Main well, pipeline, and other work. The test wells which would not be converted to production wells at this time will allow for determination as to whether the identified sites could be viable production wells, and will provide information to water quality and pumping capacities that can be used for future planning. Phase 2 has been separated into two contracts due to the long lead-time required for easements and permits for work at the SSF Main Well site. Phase 2A includes installation of cathodic protection, well rehabilitation, and other mechanical work. Phase 2B consists of work at the SSF Main Well and pipeline installation to connect the well to Cal Water's treatment facility.

<b>Program:</b> San Francisco Regional Region	<b>Project Status:</b> Construction	<b>Environmental Status:</b> Active (Various)
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<b>Project Cost:</b>		<b>Project Schedule:</b>	
Approved		\$ 158.35 M	Approved 06/01/03  02/01/27
Forecast		\$ 158.35 M	Forecast 06/01/03  02/01/27
Actual		\$ 127.26 M	Project Percent Complete: 83.2%

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion	
Current Forecast	A	09/07/09 A	09/07/11 A	01/30/12 A	09/05/12 A
	B	08/07/14 A	09/22/14 A	04/06/15 A	09/02/22 A
	C	11/10/20 A	09/27/21 A	06/23/22 A	02/20/24
	D	04/01/23 A	10/27/23	02/01/24	01/31/26

**Progress and Status:**

This project includes multiple construction contracts: (A) WD-2600 Test well drilling (completed); (B) Phase 1 WD-2668 Well station (13 wells); (C) Phase 2A WD-2878A; and (D) Phase 2B. For Phase 1 (Contract B) WD-2668 conversion of as-built drawings to computer-aided design (CAD) continued. For the remaining work under Phase 1, design was completed for electrical work for the sample station at Treasure Island Well Station, and preparation of design drawings continued for installation of fencing and gates at several well stations. On September 18, the Arts Commission completed the civic design review and approved the design for new fencing at Hickey Blvd, Colma BART, and Linear Park Well and Treatment Facilities. For Phase 2A (Contract C) WD-2878A, condition assessment reports for both Lake Merced and Linear Park well pumps were completed, and installation of flowmeter vaults at the Millbrae and Colma BART Well Stations started. The condition assessment reports described that the well pump at Lake Merced is in poor condition due to corrosion, while the one for Linear Park is also in poor condition due to scale build-up in the bowl assembly. For Phase 2B (Contract D), final electrical system design to provide power to the SSF Main Well was received from PG&E on September 11, and preparation of the draft contract package continued. South San Francisco continued review of the updated draft license agreement for the use of its vacant lot adjacent to Cal Water's property for construction staging.



Well brushing at Colma BART Well Facility

**Issues and Challenges:**

For Phase 2A (Contract C) WD-2878A, the contractor's schedule is being updated to reflect the latest anticipated delays in delivery of the refurbished pumps and the new variable frequency drives (VFD) for the pump motors. The schedule will also reflect the recent delay for recommendation for full bowl replacement of the pumps at the Lake Merced and Linear Park Well Stations. These delays due to supply chain issues for needed materials will be better understood by next quarter. For Phase 2B (Contract D), PG&E's submittal of final design of an electrical system was delayed, which has impacted final design completion. Update to the project schedule will be reflected in the next quarterly report.



7. On-Going Construction

Construction Contract	Schedule			Budget		Variance (Approved - Forecast)		Actual % Complete
	NTP Date	Approved Construction Final Completion*	Q1/FY23-24 Forecast Construction Final Completion**	Approved Contract Cost +	Q1/FY23-24 Forecast Cost++	Schedule (Cal. Days)	Cost	
<b>Sunol Valley Region</b>								
10015281 - Alameda Creek Recapture Project – WD-2825R	06/21/21	12/19/22	02/29/24	\$22,390,524	\$22,860,524	(437)	(\$470,000)	48.0%
<b>San Francisco Regional Region</b>								
10015241 - Regional GW Storage and Recovery (Contract C) – WD-2878A	06/23/22	02/20/24	02/20/24	\$6,561,394	\$6,753,148	0	(\$191,754)	33.0%

Program Total for On-Going Construction	Approved Contract Cost	Q1/FY23-24 Forecast	Variance	
			Cost	Percent
		\$ 28,951,918	\$ 29,613,672	(\$661,754)

\* Approved Construction Final Completion Date includes approved change orders.

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

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

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

**8. PROJECTS IN CLOSEOUT**

Project Title	2005 Baseline Construction Phase Completion	2022 Approved Construction Phase Completion	Current Approved Construction Phase Completion	Actual Construction Phase Completion	2005 Approved Project Completion	2022 Approved Project Completion	Current Approved Project Completion	Forecast Project Completion	2005 Construction Budget	2022 Approved Construction Phase Budget	Current Approved Construction Phase Budget	Construction Phase Expenditures To Dates
<b>Support Projects</b>												
10015335 - Bioregional Habitat Restoration		05/31/18	05/31/18	05/31/18		10/01/24	10/01/24	10/01/24		\$51,367,076	\$51,367,076	\$51,287,090

9. COMPLETED PROJECTS

Project Title	2005 Baseline Project Completion	2022 Approved Project Completion	Current Approved Project Completion	Actual Project Completion	2005 Baseline Project Budget	2022 Approved Project Budget	Current Approved Project Budget	Project Expenditures To Date
<b>San Joaquin Region</b>								
10015301 - 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
10015315 - 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	\$203,178,014
10015316 - 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
10015330 - 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
10015487 - WSIP Closeout - San Joaquin		03/31/21	03/31/21	03/31/21	\$0	\$3,376,376	\$3,376,376	\$2,011,448
<b>Sunol Valley Region</b>								
10015286 - 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
10015290 - New Irvington Tunnel	09/17/13	03/31/18	03/31/18	03/31/18	\$214,650,004	\$340,406,358	\$340,406,358	\$339,901,806
10015291 - 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
10015312 - 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
10015317 - Calaveras Dam Replacement	05/25/12	03/31/22	03/31/22	03/31/22	\$256,511,407	\$794,066,323	\$794,066,323	\$793,274,126
10015318 - 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
10015319 - 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
10015325 - 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
10015332 - 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
10015492 - WSIP Closeout - Sunol Valley		06/30/22	06/30/22	12/31/22	\$0	\$5,989,845	\$5,989,845	\$5,269,590
<b>Bay Division Region</b>								
10015282 - 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	\$27,037,926
10015283 - Seismic Upgrade of BDPL Nos. 3 & 4	10/15/12	07/30/18	07/30/18	07/30/18	\$66,792,849	\$72,194,219	\$72,194,219	\$70,530,532
10015299 - 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
10015308 - 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	\$271,823,525
10015309 - BDPL Reliability Upgrade - Pipeline		03/31/16	03/31/16	03/31/16	\$0	\$216,722,172	\$216,722,172	\$216,722,172
10015310 - BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2		05/28/10	05/28/10	05/28/10	\$0	\$3,046,981	\$3,046,981	\$3,046,981
10015324 - 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
10015338 - 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
10015341 - 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
10015484 - WSIP Closeout - Bay Division		03/31/21	03/31/21	03/31/21	\$0	\$3,597,500	\$3,597,500	\$3,322,156
<b>Peninsula Region</b>								
10015285 - 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
10015287 - 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

Project Title	2005 Baseline Project Completion	2022 Approved Project Completion	Current Approved Project Completion	Actual Project Completion	2005 Baseline Project Budget	2022 Approved Project Budget	Current Approved Project Budget	Project Expenditures To Date
10015288 - 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
10015293 - 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
10015294 - 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
10015295 - 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
10015297 - Pulgas Balancing - Modifications of the Existing Dechloramination Facility		03/20/13	03/20/13	03/20/13	\$0	\$5,390,031	\$5,390,031	\$5,390,031
10015302 - 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
10015303 - 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
10015305 - 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
10015306 - 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	\$273,833,162
10015307 - Peninsula Pipelines Seismic Upgrade		07/06/16	07/06/16	07/06/16	\$0	\$38,825,346	\$38,825,346	\$38,773,912
10015311 - 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
10015313 - 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
10015322 - 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
10015323 - 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
10015339 - 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
10015486 - WSIP Closeout - Peninsula		12/30/21	12/30/21	12/30/21	\$0	\$13,579,680	\$13,579,680	\$13,470,099
<b>San Francisco Regional Region</b>								
10015289 - 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
10015314 - 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
<b>Support Projects</b>								
10015300 - System Security Upgrades		04/19/19	04/19/19	04/19/19	\$0	\$14,700,669	\$14,700,669	\$14,431,749
10015334 - 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
10015336 - Vegetation Restoration of WSIP Construction Sites		06/30/16	06/30/16	06/30/16	\$0	\$2,111,546	\$2,111,546	\$2,099,755
10015342 - Watershed and Environmental Improvement Program	06/28/13	06/30/22	06/30/22	06/30/22	\$20,000,000	\$20,000,000	\$20,000,000	\$20,071,685
<b>TOTAL</b>					<b>\$2,916,581,656</b>	<b>\$3,370,176,951</b>	<b>\$3,370,176,951</b>	<b>\$3,363,201,969</b>

**APPENDICES**

- A. PROJECT DESCRIPTIONS**
  - B. WSIP APPROVED PROJECT-LEVEL SCHEDULE**
  - C. LIST OF ACRONYMS**
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## APPENDIX A. PROJECT DESCRIPTIONS

### REGIONAL WATER PROGRAM

#### San Joaquin Region

##### **10015301 Lawrence Livermore Water Quality Improvement**

Project Description: 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.

##### **10015315 San Joaquin Pipeline System**

Project Description: 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, 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.

##### **10015316 Rehabilitation of Existing San Joaquin Pipelines**

Project Description: 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.

##### **10015330 Tesla Treatment Facility**

Project Description: 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, hydrofluorosilicic acid (i.e., fluoride), and carbon dioxide. \* Office, laboratory, and control facilities, emergency engine generators, and security related site and access road improvements.

##### **10015333 Tesla Portal Disinfection Station**

Project Description: 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".

### **10015487 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**

### **10015281 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 (4) identical vertical turbine pumps Page 6 of 46 mounted on floating barges located in existing Pond F2 (including a mooring system); four (4) 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.

### **10015286 Standby Power Facilities - Various Locations**

The project consists of installing standby electrical power facilities at five 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, and San Pedro Valve Lot.

### **10015290 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.

### **10015291 Alameda Siphon #4**

Project Description: 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 and 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.

### **10015312 Pipeline Repair & Readiness Improvements**

Project Description: 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, on-call emergency repair procedures and contracts, and mutual assistance agreements.

### **10015317 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 (2) 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 (3) 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 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 (4) 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 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 as noted in the March 2016 Notice of Change. • Repairs to the landslide portion of Calaveras Road and restoration of the West Haul Road as noted in the scope refinements listed below for this March 2018 Notice of Change. Page 11 of 46 • For the ACDD fish ladder, to address the potential landslide hazard and further protect the fish passage structure, as noted in the scope refinements listed below for this March 2018 Notice of Change, 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.

### **10015318 Calaveras Reservoir Upgrades**

The project consists of installing two hypolimnetic oxygen diffuser systems, associated cryogenic (oxygen generation) equipment near the dam and miscellaneous site work. The addition of oxygen into the reservoir will limit the negative effects of algal blooms and may promote a healthier fish habitat. The system will continue to be usable following completion of the replacement dam.

### **10015319 San Antonio Backup Pipeline**

Project Description: 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 to 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 is included around the quarry pond to minimize groundwater intrusion and to ensure slope stability.

#### **10015325 SVWTP Expansion & Treated Water Reservoir**

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

#### **10015326 SVWTP Calaveras Road**

Project Description: 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 and it was determined to be no longer needed. This action was approved by the Commission in February of 2008.

#### **10015328 SVWTP Treated Water Reservoir**

Project Description: The project consists of providing improvements to the disinfection facilities including new chemical feed equipment and a 5 MG chlorine contact tank. Additionally, two 8.75 MG balancing reservoirs are included. These improvements are provided in response to a DOHS requirement. NOTE THAT THIS PROJECT HAS BEEN TERMINATED AND THE REMAINING SCOPE & BUDGET HAS BEEN COMBINED WITH PROJECT "CUW38101 - SVWTP EXPANSION & TREATED WATER RESERVOIR."

#### **10015332 San Antonio Pump Station Upgrade**

Project Description:

The project consisted of:

- Replacement of the 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.

#### **10015492 WSIP Closeout - Sunol Valley**

Project Description: Alameda Siphon No. 4 Carrier Water System Modifications – The CUW35902 Alameda Siphon No. 4 Project was completed in 2013. Since that time, new facilities that have been brought on-line as well as other changes have occurred in water operations, have resulted in an apparent drop in water pressures and volumes at the Sunol Valley Chloramination Facility. This has reduced the available water needed for the current carrier watersystem 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 better 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
- o Plumbing and control connections between the new facilities and the current system

• Erosion Repair at Pond F3 East – The 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 and restore the drainage pipe through a job order contract including:

o New rockfill on the east back of the quarry pond from the current drainpipe to the toe of the bank  
 o Excavation and grading to remove loose bank debris and prepare the subgrade slope to receive new rockfill  
 o Extension of the existing drainpipe downslope to the water line of the pond  
 o Temporary access improvements at the side bank of the pond for a crane and other equipment to deliver to, and place new rockfill and other materials into, the repair area

• Sunol Valley Water Treatment Plant Basin 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 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 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
- o Possible extension of the new polymer to optimize water production from the four (4) older basins

• Miscellaneous Work at Alameda West Portal, Irvington Portal and San Antonio Back-Up Pipeline –The CUW 35901 New Irvington Tunnel (NIT) was completed in 2017, and the CUW 37403 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.

## Bay Division Region

### 10015282 BDPL Nos. 3 & 4 Crossover/Isolation Valves

Project Description: 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.

### 10015283 Seismic Upgrade of BDPL Nos. 3 & 4

Project Description: 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.

### **10015299 SCADA System - Phase II**

Project Description:

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.

### **10015308 BDPL Reliability Upgrade / Tunnel**

Project Description: • 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 640 lineal feet of new 42-inch diameter welded steel pipe, replacing a portion of BDPL2, thereby increasing the reliability of the Hayward service.

### **10015309 BDPL Reliability Upgrade - Pipeline**

Project Description: 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.

#### **10015310 BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2**

Project Description: 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.

#### **10015324 BDPL Nos. 3 & 4 Crossovers**

Project Description: 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.

#### **10015338 SFPUC/EBMUD Intertie**

Project Description: 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.

#### **10015341 BDPL No. 4 Condition Assessment PCCP Sections**

Project Description: • 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.

### **10015484 WSIP Closeout - Bay Division**

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.

## **Peninsula Region**

### **10015285 Lower Crystal Springs Dam Improvements**

Project Description: 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 raising the wall that is located on top of the upstream face of the dam and raising 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.

#### **10015287 New Crystal Springs Bypass Tunnel**

Project Description: 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 tunnel boring machine and future maintenance (Southern shaft to include a connection to the existing Crystal Springs Bypass Pipeline; northern shaft to 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.

#### **10015288 Adit Leak Repair - Crystal Springs/Calaveras**

Project Description: 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.

#### **10015293 Pulgas Balancing - Inlet/Outlet Work**

Project Description: 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.

#### **10015294 Pulgas Balancing - Discharge Channel Modifications**

Project Description: 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.

#### **10015295 Pulgas Balancing - Structural Rehabilitation and Roof Replacement**

Project Description: 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.

#### **10015296 Pulgas Balancing - Laguna Creek Sedimentation**

Project Description: 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 San Francisco Garter Snake and the California Red Legged Frog. In coordination with



regulatory agencies, a strategy was developed to address these measured under the Habitat Reserve Program (HRP). This project was closed in December 2007 and combined with Project CUW38802-Habitat Reserve Program (HRP).

### **10015297 Pulgas Balancing - Modifications of the Existing Dechloramination Facility**

Project Description: 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.

### **10015302 Cross Connection Controls**

Project Description: 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.

### **10015303 HTWTP Short-Term Improvements (Demo Filters)**

Project Description: 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.

### **10015304 HTWTP Short-Term Improvements - Remaining Filters**

Project Description: 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.

### **10015305 HTWTP Short-Term Improvements - Coagulation & Flocculation/ Remaining Filters**

Project Description: 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.

### **10015306 HTWTP Long-Term Improvements**

Project Description: The project consists of: seismic and hydraulic improvements in various treatment units and includes expansion of the filtration process capacity by adding five new filters. In addition, a new 11 million gallon Treated Water Reservoir will be built to replace the existing two 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.

### **10015307 Peninsula Pipelines Seismic Upgrade**

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 currently includes the following components: The refined project scope (Phase 1) currently includes the following components at five locations on the San Francisco Peninsula to address Serra Fault Crossing locations and liquefaction hazard potential in the Colma Creek area: • 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 Phase 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.

#### **10015311 Capuchino Valve Lot Improvements**

Project Description: 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.

#### **10015313 Crystal Springs/San Andreas Transmission Upgrade**

Project Description: 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.

#### **10015322 Crystal Springs Pipeline No. 2 Replacement**

Project Description: 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.

#### **10015323 San Andreas Pipeline No. 3 Installation**

Project Description: 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.

### **10015339 Baden and San Pedro Valve Lots Improvements**

Project Description: 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.

### **10015486 WSIP Closeout - Peninsula**

This project consists of miscellaneous improvements to ensure the WSIP Levels of Service (LOS) 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.

## **San Francisco Regional Region**

### **10015241 Regional Groundwater Storage and Recovery**

The original scope of the Regional Groundwater Storage and Recovery (RGWSR) project was planned to be constructed in two (2) phases. The original scope of Phase 1 included construction of 13 new deep groundwater wells, and the original scope of Phase 2 included construction of 2 to 3 additional wells, depending upon well yield. Based on the modelling data inputs and results, it is projected that the 13 new wells constructed in Phase 1 would produce approximately 6.2 mgd of dry year supply over 7.5 years. Operating the RGSR Project during times of drought will provide data and insights into how much water can be reasonably expected to be produced by the project and if additional well stations are needed to reach the desired drought period pumping capacity. In addition to the need for collecting operational data to determine the pumping capacity of the 13 new wells, the Daly City Recycled Water Expansion Project proposes to serve recycled water to existing irrigated properties (gold courses and cemeteries) in the Colma area for irrigation use. Replacing groundwater with recycled water for irrigation use will decrease or eliminate the cemeteries' use of the aquifer, creating more in lieu of storage in the aquifer for water supply use. The SFPUC will identify potential benefits to the aquifer resulting from the Daly City Recycled Water Expansion Project during project planning and design, as well as monitor operation of the project. Given the considerations noted above, the SFPUC modified the scope of Phase 2 in 2018 to install up to three (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 test wells will allow for determination as to whether the identified sites could be viable 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. The test wells would not be converted to production wells at this time. Proceeding with these changes to Phase 2 will allow all 13 new Phase 1 RGWSR wells to be operated to gain experience and insight into the pumping capacities of each individual well in addition to how the wells work in combination with each other and existing municipal and irrigation wells. Staff will gain valuable experience regarding the relationship of RGWSR drought year pumping to the management of the groundwater basin. Operational experience will allow refinement of the modeled dry year water supply

of the RGWSR project. The changes to RGWSR Phase 2 also allows for the collection of test well data at up to 3 locations for use in future planning if the operational experience with the 13 wells shows the need for more pumping capacity. This option also allows for the basin effects of the Daly City Recycled Water Expansion Project to be identified and may provide greater flexibility in the future to utilize the basin for water supply. The approved scope for the RGWSR remains the same as approved in April 2018. However, since 2018 several scope refinements and some additions have been required for successful implementation of the project. Two out of three of the proposed test wells, Ludeman North and Centennial Trail, were installed. The third well, Ludeman South, was not built due to siting and constructability issues. The initial test results from the two test wells indicated that the combined yield of the two wells might be up to 0.6MGD. Based on the relatively low yield from both locations and additional costs required to upsize the Millbrae treatment facility in order to accept and treat these additional flows, it was decided that the test wells would not be converted to production wells at this time. However, these wells will provide valuable information related to water quality and potential pumping capacities that can be used for future planning and decision making.

#### **10015289 Sunset Reservoir - North Basin**

Project Description: This project consists of: \* Seismic rehabilitation, which includes stabilization of the soil dam embankment (completed); a retrofit of the walls and roof using seismic joints, shear walls, diagonal bracing, and struts; and foundation improvements (completed). \* 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 (completed).

#### **10015314 University Mound Reservoir - North Basin**

Project Description: 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**

#### **10015300 System Security Upgrades**

Project Description: 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 layout, fencing, gate installation. This project will however fund the furnishing and installing Access Control and Alarm Monitoring System (ACAMS) and Digital Video Surveillance System (DVSS) equipment, and necessary security systems.

#### **10015334 Programmatic EIR**

Project Description: A Program Environmental Impact Report (PEIR) is being 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.

### **10015335 Bioregional Habitat Restoration**

2014 Approved Project Long Description: 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 description includes development of compensation sites to preserve, enhance, restore, or create approximately 2,350 acres of tidal marsh, vernal pools, sycamore and oak riparian woodland, oak woodland and savannah, and serpentine and annual grasslands. 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 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 the addition of mitigation for the fountain thistle and changes in the Calaveras Dam Replacement Project.

### **10015336 Vegetation Restoration of WSIP Construction Sites**

2014 Project Description: 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.

### **10015337 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.

**10015340 Program Management Project**

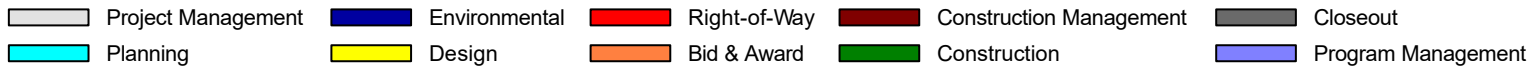
Project Description: None

**10015342 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; and identify critical watershed lands for protection by purchasing fee title and/or perpetual conservation easements. The program also supports projects that enhance public awareness and provide education opportunities related to water quality, water supply, conservation, and environmental stewardship issues. 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. WSIP Approved Project-Level Schedule

Project Name	Start	Finish	FY2013				FY2014				FY2015				FY2016				FY2017				FY2018				FY2019				FY2020				FY2021				FY2022				FY2023				FY2024					
			F	F	F	F	F	FQ2	F	F	F	FQ2	F	F	FQ1	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	FQ2	F	F	F	F	F	F	F	F	F	F	F	F	F	F						
<b>Regional Improvement Projects</b>			31-Mar-00	01-Feb-27																																																
<b>San Joaquin Region</b>			01-Jul-02	31-Mar-21																																																
CUW36401	Lawrence Livermore Water Quality Im	02-Feb-04	31-Jul-13																																																	
CUW37301	San Joaquin Pipeline System	19-Aug-02	31-Mar-16																																																	
CUW37302	Rehabilitation of Existing San Joaquin	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																																																	
CUWSJ0101	WSIP Closeout - San Joaquin	20-Jun-16	31-Mar-21																																																	
<b>Sunol Valley Region</b>			19-Dec-01	18-Jun-24																																																
CUW35201	Alameda Creek Recapture Project	30-Sep-03	18-Jun-24																																																	
CUW35501	Standby Power Facilities - Various Loc	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 Improve	21-Apr-03	16-Apr-09																																																	
CUW37401	Calaveras Dam Replacement	03-Sep-02	31-Mar-22																																																	
CUW37402	Calaveras Reservoir Upgrades	19-Nov-03	28-Jul-06																																																	
CUW37403	San Antonio Backup Pipeline	03-Sep-02	30-Jun-16																																																	
CUW38101	SVWTP Expansion & Treated Water F	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																																																	
CUWSV0101	WSIP Closeout - Sunol Valley	01-Jul-16	30-Jun-22																																																	
<b>Bay Division Region</b>			19-Dec-01	31-Mar-21																																																
CUW35301	BDPL Nos. 3 & 4 Crossover/Isolation	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	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 PC	04-Aug-06	06-Feb-09																																																	
CUWBDP0101	WSIP Closeout - Bay Division	06-Jul-16	31-Mar-21																																																	
<b>Peninsula Region</b>			01-Nov-00	30-Dec-21																																																
CUW35401	Lower Crystal Springs Dam Improvem	01-Nov-00	28-Dec-12																																																	
CUW35601	New Crystal Springs Bypass Tunnel	07-Jan-02	17-Aug-12																																																	
CUW35701	Adit Leak Repair - Crystal Springs/Ca	01-Apr-05	31-Jul-08																																																	
CUW36101	Pulgas Balancing - Inlet/Outlet Work	15-May-02	11-May-06																																																	
CUW36102	Pulgas Balancing - Discharge Channe	01-Apr-05	30-Jul-10																																																	
CUW36103	Pulgas Balancing - Structural Rehabili	03-Apr-06	28-Dec-12																																																	
CUW36104	Pulgas Balancing - Laguna Creek Sec	31-Mar-06	31-Dec-07																																																	
CUW36105	Pulgas Balancing - Modifications of th	02-Apr-07	20-Mar-13																																																	
CUW36501	Cross Connection Controls	01-Jul-03	30-Apr-09																																																	
CUW36601	HTWTP Short-Term Improvements (D	04-Sep-02	14-Nov-06																																																	



### APPENDIX B. WSIP Approved Project-Level Schedule

Project Name	Start	Finish	FY2013				FY2014				FY2015				FY2016				FY2017				FY2018				FY2019				FY2020				FY2021				FY2022				FY2023				FY2024			
			F	F	F	F	F	FQ2	F	F	F	FQ2	F	F	FQ1	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	FQ2	F	F	F	F	F	F	F	F	F	F	F	F	F	F				
CUW36602 HTWTP Short-Term Improvements - F	12-Jan-06	22-Feb-08																																																
CUW36603 HTWTP Short-Term Improvements - C	03-Jul-06	28-Jul-10																																																
CUW36701 HTWTP Long-Term Improvements	01-Jul-03	30-Dec-16	[Green bar spanning from FY2013 to FY2016]																																															
CUW36702 Peninsula Pipelines Seismic Upgrade	01-Jul-09	06-Jul-16	[Yellow bar from FY2013, [Red bar] in FY2014, [Green bar] from FY2015 to FY2016]																																															
CUW36901 Capuchino Valve Lot Improvements	22-Apr-05	19-Aug-08	[Grey bar from FY2013 to FY2014]																																															
CUW37101 Crystal Springs/San Andreas Transmi	18-Aug-03	30-Jun-15	[Green bar from FY2013 to FY2015]																																															
CUW37801 Crystal Springs Pipeline No. 2 Replac	15-Jan-04	31-Dec-14	[Green bar from FY2013 to FY2015]																																															
CUW37901 San Andreas Pipeline No. 3 Installatio	15-Jan-04	30-Aug-12	[Grey bar from FY2013 to FY2014]																																															
CUW39101 Baden and San Pedro Valve Lots Imp	03-Oct-05	29-Mar-13	[Grey bar from FY2013 to FY2014]																																															
CUW39101 WSIP Closeout - Peninsula	01-Jul-16	30-Dec-21	[Green bar from FY2017 to FY2021]																																															
<b>San Francisco Regional Region</b>	31-Mar-00	01-Feb-27																																																
CUW30103 Regional Groundwater Storage and R	01-Jun-03	01-Feb-27	[Green bar from FY2013 to FY2021]																																															
CUW35801 Sunset Reservoir - North Basin	31-Mar-00	10-Sep-10	[Green bar from FY2013 to FY2015]																																															
CUW37201 University Mound Reservoir - North B	24-Oct-05	29-Mar-13	[Grey bar from FY2013 to FY2014]																																															
<b>Support Projects</b>	13-Apr-04	01-Feb-27																																																
CUW36302 System Security Upgrades	07-Jan-06	19-Apr-19	[Green bar from FY2013 to FY2017]																																															
CUW38801 Programmatic EIR	13-Apr-04	30-Jun-09	[Green bar from FY2013 to FY2014]																																															
CUW38802 Bioregional Habitat Restoration	06-Sep-06	01-Oct-24	[Green bar from FY2013 to FY2015]																																															
CUW38803 Vegetation Restoration of WSIP Cons	02-Jan-13	30-Jun-16	[Green bar from FY2013 to FY2015]																																															
CUW38804 Long Term Mitigation Endowment	05-Mar-14	01-Oct-24	[Blue bar from FY2013 to FY2021]																																															
CUW39201 Program Management Project	01-Aug-05	01-Feb-27	[Blue bar from FY2013 to FY2021]																																															
CUW39401 Watershed and Environmental Improv	02-Jan-07	30-Jun-22	[Yellow bar from FY2013 to FY2019], [Green bar from FY2020 to FY2022]																																															

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



**APPENDIX C. LIST OF ACRONYMS**

<b>AAR</b>	Alternatives Analysis Report
<b>ACAMS</b>	Access Control and Alarm Monitoring System
<b>AWP</b>	Alameda West Portal
<b>BAWSCA</b>	Bay Area Water Supply and Conservation Agency
<b>BDPL</b>	Bay Division Pipeline
<b>CCC</b>	Central California Coast
<b>CEQA</b>	California Environmental Quality Act
<b>CIP</b>	Capital Improvement Program
<b>CM</b>	Construction Management
<b>CO</b>	Change Order
<b>DB</b>	Design, Build
<b>DVSS</b>	Digital Video Surveillance System
<b>DWR</b>	Department of Water Resource
<b>EBMUD</b>	East Bay Municipal Utility District
<b>EIR</b>	Environmental Impact Report
<b>FY</b>	Fiscal Year
<b>HH</b>	Hetch Hetchy
<b>HRP</b>	Habitat Reserve Program
<b>HTWTP</b>	Harry Tracy Water Treatment Plant
<b>IVP</b>	Irvington Portal
<b>LCSD</b>	Lower Crystal Springs Dam
<b>LOS</b>	Levels of Service
<b>MG</b>	Million Gallon
<b>N/A</b>	Not Applicable
<b>NIT</b>	New Irvington Tunnel
<b>NMFS</b>	National Marine Fisheries Service
<b>NTP</b>	Notice to Proceed
<b>PCCP</b>	Pre-stressed Concrete Cylinder Pipe
<b>PEIR</b>	Program Environmental Impact Report
<b>PG&amp;E</b>	Pacific Gas and Electric Company
<b>RGWSR</b>	Regional Groundwater Storage and Recovery
<b>SABPL</b>	San Antonio Backup Pipeline
<b>SAPL</b>	San Antonio Pipeline
<b>SAPS</b>	San Antonio Pump Station
<b>SCADA</b>	Supervisory Control and Data Acquisition
<b>SFPUC</b>	San Francisco Public Utilities Commission
<b>SJPL</b>	San Joaquin Pipeline
<b>SQS</b>	Supplier Quality Surveillance
<b>SSF</b>	South San Francisco Sunset
<b>SSPL</b>	Supply Pipeline
<b>SVWTP</b>	Sunol Valley Water Treatment Plant
<b>TBM</b>	Tunnel Boring Machine
<b>TWR</b>	Treated Water Reservoir
<b>UPS</b>	Uninterruptible Power Supply
<b>UV</b>	Ultra Violet
<b>VFD</b>	Variable Frequency Drives
<b>WEIP</b>	Watershed and Environmental Improvement Program
<b>WSIP</b>	Water System Improvement Program

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