



NOTICE OF PUBLIC HEARING
(Posted on Friday, March 25, 2022)

**NOTICE OF PUBLIC HEARING FOR
 CONSIDERATION OF REVISIONS TO THE
 SAN FRANCISCO PUBLIC UTILITIES COMMISSION (SFPUC)
 WATER SYSTEM IMPROVEMENT PROGRAM (WSIP)**

**Tuesday, April 26, 2022
 1:30 P.M.
 City Hall, Room 400
 1 Dr. Carlton B. Goodlett Place
 San Francisco, California**

SUBJECT OF PUBLIC MEETING

Notice is hereby given that the San Francisco Public Utilities Commission (SFPUC) will hold a public hearing as part of its regularly scheduled meeting on Tuesday, April 26, 2022 for the purpose of considering proposed revisions to the Water System Improvement Program (WSIP), referred to as the “March 2022 Proposed Revised WSIP.”

COMMENTS ON PROPOSED REVISIONS

All interested parties are invited to attend the public hearing and provide public comment on the proposed revisions. Individuals who are unable to attend the public hearing may submit to the SFPUC, by the time the hearing begins on April 26, 2022, written comments regarding the subject of the hearing. These comments will be brought to the attention of the Commission and will become part of the official public record. Written comments should be sent to:

Donna Hood, Commission Secretary
 San Francisco Public Utilities Commission
 525 Golden Gate Avenue (13th Floor)
 San Francisco, CA 94102
 Email: Commission@sfwater.org

BACKGROUND

The Wholesale Regional Water System Security and Reliability Act (Water Code § 73500 et seq.) requires that the SFPUC provide notification of certain program changes. Specifically, the SFPUC is required to provide an advance 30-day written notice if the SFPUC is to consider the adoption of program changes that would delay WSIP projects and/or result in the construction of different projects.

London N. Breed
 Mayor

Anson Moran
 President

Newsha Ajami
 Vice President

Sophie Maxwell
 Commissioner

Tim Paulson
 Commissioner

Dennis J. Herrera
 General Manager



OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.



The proposed changes and explanations are provided in this document; additional information about the WSIP can be found in quarterly and annual reports that are available on the SFPUC's website (www.sfpuc.org). The SFPUC last adopted program-wide revisions to the WSIP, including revised program scope, schedule and budget, on April 10, 2018. Subsequently, the SFPUC adopted revisions to the schedule, but not the budget or scope, of five (5) WSIP projects on April 14, 2020. The SFPUC also adopted on April 14, 2020 the revised WSIP program completion date of May 5, 2023.

During early 2022, the SFPUC reviewed the status of the remaining WSIP projects and analyzed the forecasted scopes, schedules, and budgets for each project. The recommended action from this review is for the SFPUC to adopt the proposed project revisions documented in the various attachments to this notice and referred to henceforth as the March 2022 Proposed Revised WSIP.

CHANGE SUMMARY

The overall scope of the WSIP remains unchanged. The most significant proposed change to the WSIP is the extension of the overall program completion date from May 5, 2023 to February 1, 2027. There is no change to the total forecast cost of the Regional WSIP projects at \$3,803.1 million (M); the overall program cost remains at \$4,787.8M.

Of the fifty-two (52) existing regional projects in the WSIP, forty-five (45) have been completed.

The project scopes remain the same as those approved in 2018, except for three (3) projects with minor scope refinements. No regional projects have been deleted from the WSIP since 2018 and there are no project name changes. There is one new sub-project in the WSIP Closeout Project – Sunol Region.

The March 2022 Proposed Revised WSIP includes proposed schedule extensions for four (4) active projects, three (3) support projects, and the Program Management Project.

The project with the longest proposed schedule extension is Regional Groundwater Storage and Recovery, at sixty-one (61) months; the last project forecasted to complete in the March 2022 Proposed Revised WSIP is also Regional Groundwater Storage and Recovery. The Program Management Project account is also proposed to be extended by sixty-one (61) months to provide programmatic support through the end of the program.

The budget revisions proposed for adoption involve a mix of cost increases and cost reductions at the project level. The project with the largest cost increase is Regional Groundwater Storage and Recovery. The projected cost variance of Regional Groundwater Storage and Recovery is \$19.6M higher than the 2018 approved project budget. The project with the largest cost reduction is Calaveras Dam Replacement, with a forecasted cost reduction of \$29.0M.

The SFPUC is undertaking a number of steps to reduce and control the remaining costs of the WSIP. For example, we have significantly reduced the regional management structure of the program and we also have reduced the City and Consultant resources at the program level. Furthermore, we have substantially transitioned much of the work from Consultants to City staff and will continue to do so where practicable.

SUPPORTING DOCUMENTS

This notice and the attached documents focus on the WSIP regional projects (all local projects are excluded). The eleven (11) following attachments are included with this notice to explain the proposed changes to the scope, schedule, and budget of various WSIP projects to be considered for adoption by the Commission at the public hearing on April 26, 2022.

Attachment 1: March 2022 Proposed Revised WSIP - General Project Changes and Additions

Attachment 2: March 2022 Proposed Revised WSIP - Project Status

Attachment 3: March 2022 Proposed Revised WSIP - Summary of Scope Changes

Attachment 4: March 2022 Proposed Revised WSIP - Summary of Schedule Changes

Attachment 5: March 2022 Proposed Revised WSIP - Summary of Budget Changes

Attachment 6: March 2022 Proposed Revised WSIP - Explanation of Schedule Changes

Attachment 7: March 2022 Proposed Revised WSIP - Explanation of Budget Changes

Attachment 8: March 2022 Proposed Revised WSIP - Project Descriptions

Attachment 9: March 2022 Proposed Revised WSIP - Project-Level Schedules

Attachment 10: March 2022 Proposed Revised WSIP - Phase-Level Schedules

Attachment 11: March 2022 Proposed Revised WSIP - Project-Level Cost Summary

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ATTACHMENT 1:

March 2022 Proposed Revised WSIP - General Project Changes and Additions



Overall, the March 2022 Proposed Revised WSIP is similar to the March 2018 Revised WSIP. Changes for the March 2022 Proposed Revised WSIP include three (3) existing projects with scope refinements.

Project Name Changes

There are no proposed project name changes; however, there is one additional sub- project for the one remaining WSIP Closeout Project as described in Attachment 3.

Projects Eliminated

There are no proposed projects to be eliminated.

Projects Modified

Three (3) projects have proposed scope refinements as follows:

- CUW30103: Regional Groundwater Storage and Recovery Project
- CUW39401: Watershed Environmental Improvement Program Project
- CUWSVI: WSIP Closeout – Sunol Valley Region

Projects Added

There are no proposed projects to be added; however, there is one proposed additional sub-project to the one remaining WSIP Closeout Project as described in Attachment 3.

Project Status

Attachment 2 shows the status of WSIP Regional projects by project phase as of March 2022 with the proposed phase completion dates. There are four (4) projects in construction and three (3) projects in close-out; forty-five (45) projects have been completed.

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ATTACHMENT 2: March 2022 Proposed Revised WSIP – Project Status

Projects Not Initiated		
Project No.	Project Name	Proposed Project Start Date
	None	
Projects in Pre-Construction		
Project No.	Project Name	Proposed Notice-to-Proceed (NTP) Date
	None	
Projects in Construction		
Project No.	Project Name	Proposed Construction Phase Completion Date
CUWSVI0101	WSIP Closeout - Sunol Valley ⁽¹⁾	06/30/22
CUW35201	Alameda Creek Recapture Project	01/18/23
CUW30103	Regional Groundwater Storage and Recovery ⁽¹⁾	01/31/26
CUW38804	Long Term Mitigation Endowment ⁽³⁾	N/A
Projects in Closeout		
Project No.	Project Name	Proposed Project Completion Date
CUW39401	Watershed and Environmental Improvement Program ^{(4),(5)}	06/30/22
CUW37401	Calaveras Dam Replacement	03/31/22
CUW38802	Bioregional Habitat Restoration ⁽²⁾	10/01/24
Projects Completed		
Project No.	Project Name	Actual Project Completion Date
CUW36101	Pulgas Balancing - Inlet/Outlet Work	05/11/06
CUW37402	Calaveras Reservoir Upgrades	07/28/06
CUW36601	HTWTP Short-Term Improvements (Demo Filters)	11/14/06
CUW35701	Adit Leak Repair - Crystal Springs/Calaveras	07/31/08
CUW36901	Capuchino Valve Lot Improvements	08/19/08
CUW39301	BDPL No. 4 Condition Assessment PCCP Sections	02/06/09
CUW37001	Pipeline Repair & Readiness Improvements	04/16/09
CUW36501	Cross Connection Controls	04/30/09
CUW35301	BDPL Nos. 3 & 4 Crossover/Isolation Valves	07/31/09
CUW36803	BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2	05/28/10
CUW36102	Pulgas Balancing - Discharge Channel Modifications	07/28/10

ATTACHMENT 2: March 2022 Proposed Revised WSIP – Project Status

Projects Completed		
Project No.	Project Name	Actual Project Completion Date
CUW36603	HTWTP Short-Term Improvements - Coagulation & Flocculation/ Remaining Filters	07/30/10
CUW35801	Sunset Reservoir - North Basin	09/10/10
CUW35501	Standby Power Facilities - Various Locations	12/22/10
CUW38601	San Antonio Pump Station Upgrade	06/29/12
CUW35601	New Crystal Springs Bypass Tunnel	08/17/12
CUW37901	San Andreas Pipeline No. 3 Installation	08/30/12
CUW35401	Lower Crystal Springs Dam Improvements	12/28/12
CUW36103	Pulgas Balancing - Structural Rehabilitation and Roof Replacement	12/28/12
CUW36105	Pulgas Balancing - Modifications of the Existing Dechloramination Facility	03/20/13
CUW37201	University Mound Reservoir - North Basin	03/29/13
CUW39101	Baden and San Pedro Valve Lots Improvements	03/29/13
CUW36301	SCADA System - Phase II	05/28/13
CUW35902	Alameda Siphon #4	06/28/13
CUW36401	Lawrence Livermore Water Quality Improvement	07/31/13
CUW38901	SFPUC/EBMUD Intertie	03/20/14
CUW38001	BDPL Nos. 3 & 4 Crossovers	06/30/14
CUW37302	Rehabilitation of Existing San Joaquin Pipelines	10/31/14
CUW38101	SVWTP Expansion & Treated Water Reservoir	10/31/14
CUW37801	Crystal Springs Pipeline No. 2 Replacement	12/31/14
CUW38401	Tesla Treatment Facility	01/30/15
CUW37101	Crystal Springs/San Andreas Transmission Upgrade	06/30/15
CUW36802	BDPL Reliability Upgrade - Pipeline	03/31/16
CUW37301	San Joaquin Pipeline System	03/31/16
CUW37403	San Antonio Backup Pipeline	06/30/16
CUW38803	Vegetation Restoration of WSIP Construction Sites	06/30/16
CUW36702	Peninsula Pipelines Seismic Upgrade	07/06/16
CUW36801	BDPL Reliability Upgrade / Tunnel	08/30/16
CUW36701	HTWTP Long-Term Improvements	12/30/16
CUW35901	New Irvington Tunnel	03/31/18
CUW35302	Seismic Upgrade of BDPL Nos. 3 & 4	07/30/18
CUW36302	System Security Upgrades	04/09/19
CUWBDP0101	WSIP Closeout - Bay Division	03/31/21
CUWSJI0101	WSIP Closeout - San Joaquin	03/31/21
CUWPWI0101	WSIP Closeout - Peninsula	12/30/21

ATTACHMENT 2: March 2022 Proposed Revised WSIP – Project Status

- (1) Project currently active in multiple phases. Project classified according to the phase in which a majority of the work is taking place.
- (2) The Bioregional Habitat Restoration Project includes 9 construction contracts.
- (3) The Long Term Mitigation Endowment (LTME) fund is to provide a secure source of funds for perpetual monitoring and maintenance of the Bioregional Habitat Restoration sites constructed in the SFPUC watershed. The LTME fund does not involve construction activities. The LTME is scheduled to be completed on 10/01/24.
- (4) The Watershed and Environmental Improvement Program (WEIP) is a program-wide effort to permanently protect watersheds and other lands through perpetual conservation easements and/or fee title purchase of property from willing landowners, and includes funding for construction of educational/outreach facilities. The program is scheduled to be completed on 06/30/22.
- (5) A portion of the WEIP funding will be allocated for construction of educational/outreach facilities. However, construction of these facilities will be managed outside of the WSIP.

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ATTACHMENT 3:

March 2022 Proposed Revised WSIP - Summary of Scope Changes & Additions



The scopes of all but three (3) projects remain the same as those last approved by the San Francisco Public Utilities Commission (SFPUC) on April 10, 2018. Scope refinements are proposed for the following projects: Regional Groundwater Storage and Recovery, Watershed and Environmental Improvement Program, and WSIP Closeout – Sunol Valley Region. The scope refinements and additions are described below.

CUW30103 Regional Groundwater Storage and Recovery

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 may be up to 0.6 mgd. 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.

Below are the Phase 1 modifications and additional work that increased the contract cost for the Phase 1 construction contract:

- Several modifications resulted during the installation of the sodium hydroxide treatment systems (for pH control):
 1. Potential water quality issues were anticipated in blending groundwater with distribution system water at two of the well stations that were planned to connect to Daly City's and Cal Water's systems; these two well stations were subsequently returned to the SFPUC and were connected to the SFPUC's water system. Sodium hydroxide systems needed to be added for these two wells in order to raise the pH to be consistent with SFPUC's water quality.
 2. At five of the well stations, to prevent potential scaling and plugging of the groundwater pipeline after sodium hydroxide addition, modifications to the chemical injection systems were made to improve mixing by moving the injection point closer to the transmission line.
 3. Miscellaneous modifications were implemented including addition of chemical piping double-containment systems; retrofits to the chemical rooms to accommodate the revised sodium hydroxide injection systems; restoration of landscape and hardscape; and installation of new fencing at several well stations.

- During construction, the decision was made to change the ammonia chemical (used to create chloramine for disinfection) from aqueous ammonia to liquid ammonium sulfate, which has been found to be much safer for worker handling. This change required revisions to engineering, operational, and maintenance requirements and documents; revisions to the application for the conditional Division of Drinking Water permit; and modifications to the

- Seven (7) remote water quality analyzer stations were installed to replace manual water sample stations in order to collect real time data needed for water quality compliance at key monitoring point locations.
- Poor pump performance at three locations was investigated and found to be due to internal corrosion and/or presence of a foreign object. The modifications to correct performance issues included investigations and forensic testing, installation of cathodic protection systems, replacement of damaged well column pipes and shafts, and well rehabilitation.
- Modification to the existing access road through Bay Area Rapid Transit's (BART's) right of way into one of the well stations was required to accommodate the turning radius of chemical delivery trucks and fire department emergency vehicles. The acquisition of the access permit from BART was significantly delayed while easement negotiations were ongoing. Additionally, Town of Colma required changes to the access design for traffic control and American Disabilities Act (ADA) requirements.
- Other scope modifications include retrofit of existing transmission line flowmeters; replacement of the chemical metering pumps from progressive cavity type to diaphragm type pumps; electrical, plumbing, mechanical and chemical system modifications; changes to utility connections; programming changes; and fire alarm requirements. Other scope additions include installation of security system, flowmeters, and partition wall; additional time to perform disinfection, start-up, testing, and site restoration; and long-term rental of generators while waiting for permanent electrical connection.

Phase 2 work has been separated into two construction contracts due to the long lead-time required for easements and permits for construction at the South San Francisco well site. Phase 2A contract includes miscellaneous improvement work at multiple existing well sites such as installation of cathodic protection, variable frequency drives, and flowmeters; modification of valves; and rehabilitation of some wells. Phase 2B contract consists of work at the South San Francisco (SSF) Main Well and all related pipeline installation to connect the well to Cal Water's treatment facility and also installation of electrical equipment to be connected to PG&E power. Phase 2A is in bid and award phase, while Phase 2B is still in design phase due to several right of way permits and easements that are estimated to take more than one year to acquire.

CUW39401 Watershed and Environmental Improvement Program

The Watershed and Environmental Improvement Program (WEIP) includes the comprehensive identification and protection of critical watershed lands and ecosystem restoration needs within the hydrologic boundaries of the Alameda Creek, Peninsula (San Mateo and Pilarcitos Creeks) and Tuolumne River watersheds and prioritizes the protection and/or restoration of these lands. Projects under this program will protect source water quality, native species and their habitats and will identify critical watershed and other lands for protection through purchase of fee title and/or perpetual conservation easements.

The approved scope for the Watershed and Environmental Improvement Program (WEIP) remains the same as approved in April 2018. However, since 2018 there is one scope

refinement. Instead of the remaining funding being applied to the Southern Skyline Boulevard Ridge Trail Extension project as envisioned in 2018, the remaining project funding will be used to acquire land within in the Alameda Creek watershed.

WSIP Closeout Projects

The WSIP Closeout Projects were approved as part of the March 2016 Revised WSIP for each of four (4) regions (San Joaquin, Sunol, Bay Division, and Peninsula) in response to miscellaneous identified needs and/or improvements that are needed to supplement the scope of WSIP regional projects to ensure that WSIP Level of Service (LOS) goals are fully achieved. Three (3) of the WSIP Closeout Projects, for San Joaquin, Bay Division, and Peninsula, have been completed. The scope of work for one individual sub-project that is proposed to be added within the remaining Sunol Closeout Project is described below.

CUWSVI WSIP Closeout - Sunol Valley Region

- **Alameda Siphon No. 4 Carrier Water System Modifications** – No proposed scope changes.

- **Erosion Repair at Pond F3 East** – No proposed scope changes.

- **Sunol Valley Water Treatment Plant Polymer Feed Facility** - No proposed scope changes.

- **Miscellaneous Work at Alameda West Portal, Irvington Portal and San Antonio Backup Pipeline**– No proposed changes.

- **New Irvington Tunnel Water Quality Equipment Relocation (new sub-project addition in 2018)** - No proposed scope changes.

- **San Antonio Backup Pipeline Carrier Water System Modifications (new sub-project addition in 2018)** – No proposed scope changes.

- **Alameda Creek Diversion Dam Power and Communication Facilities** (new sub-project addition in 2022) – The CUW37401 Alameda Creek Diversion Dam Fish Passage Facilities (WD-2729 contract) is a sub-project to the Calaveras Dam Replacement Project, which will close out on 3/31/2022. After operating the fish passage facility for over one year, a few deficiencies were discovered in the power system for the communication facilities, the main power system, and a few of the valves and gates. Job Order Contracts (small contracts less than one million dollars in value) will be used to address these issues under this new sub-project.

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ATTACHMENT 4: March 2022 Proposed Revised WSIP – Summary of Schedule Changes

Project No.	Project Name	Current Approved ⁽¹⁾			March 2022 Proposed			Variance (in months)		
		Construction NTP ⁽²⁾	Construction Phase Completion	Project Completion	Construction NTP ⁽²⁾	Construction Phase Completion	Project Completion	Construction NTP ⁽²⁾	Construction Phase Completion	Project Completion
San Joaquin Region										
36401	Lawrence Livermore Water Quality Improvement <i>(Completed)</i>	08/26/09	03/11/11	07/31/13	08/26/09	03/11/11	07/31/13	-	-	-
37301	San Joaquin Pipeline System <i>(Completed)</i>	06/02/10	03/31/16	03/31/16	06/02/10	03/31/16	03/31/16	-	-	-
37302	Rehabilitation of Existing San Joaquin Pipelines <i>(Completed)</i>	08/26/09	11/01/11	10/31/14	08/26/09	11/01/11	10/31/14	-	-	-
38401	Tesla Treatment Facility <i>(Completed)</i>	03/31/09	10/31/14	01/30/15	03/31/09	10/31/14	01/30/15	-	-	-
SJ10101	WSIP Closeout – San Joaquin <i>(Completed)</i>	05/09/17	12/31/20	03/31/21	05/09/17	03/31/21	03/31/21	-	3 (Late)	-
Sunol Valley Region										
35201	Alameda Creek Recapture Project ⁽¹⁾	01/15/21	11/07/22	05/05/23	06/21/21	01/18/23	06/18/24	5 (Late)	2(Late)	13 (Late)
35501	Standby Power Facilities - Various Locations <i>(Completed)</i>	12/10/07	05/28/10	12/22/10	12/10/07	05/28/10	12/22/10	-	-	-
35901	New Irvington Tunnel <i>(Completed)</i>	07/22/10	09/30/17	03/31/18	07/22/10	09/30/17	03/31/18	-	-	-
35902	Alameda Siphon #4 <i>(Completed)</i>	08/26/09	08/24/12	06/28/13	08/26/09	08/24/12	06/28/13	-	-	-
37001	Pipeline Repair & Readiness Improvements <i>(Completed)</i>	01/30/06	10/15/08	04/16/09	01/30/06	10/15/08	04/16/09	-	-	-
37401	Calaveras Dam Replacement	08/15/11	02/01/21	03/31/21	08/15/11	09/30/21	03/31/22	-	8 (Late)	12 (Late)
37402	Calaveras Reservoir Upgrades <i>(Completed)</i>	N/A	02/14/06	07/28/06	N/A	02/14/06	07/28/06	-	-	-
37403	San Antonio Backup Pipeline <i>(Completed)</i>	03/29/13	12/31/15	06/30/16	03/29/13	12/31/15	06/30/16	-	-	-
38101	SVWTP Expansion & Treated Water Reservoir <i>(Completed)</i>	06/23/10	09/20/13	10/31/14	06/23/10	09/20/13	10/31/14	-	-	-

ATTACHMENT 4: March 2022 Proposed Revised WSIP – Summary of Schedule Changes

Project No.	Project Name	Current Approved ⁽¹⁾			March 2022 Proposed			Variance (in months)		
		Construction NTP ⁽²⁾	Construction Phase Completion	Project Completion	Construction NTP ⁽²⁾	Construction Phase Completion	Project Completion	Construction NTP ⁽²⁾	Construction Phase Completion	Project Completion
38601	San Antonio Pump Station Upgrade <i>(Completed)</i>	11/02/09	09/30/11	06/29/12	11/02/09	09/30/11	06/29/12	-	-	-
SVI0101	WSIP Closeout – Sunol Valley ⁽²⁾	06/26/17	12/31/20	06/30/21	06/26/17	06/30/22	06/30/22	-	18 (Late)	12 (Late)
Bay Division Region										
35301	BDPL Nos. 3 & 4 Crossover/Isolation Valves <i>(Completed)</i>	08/21/06	03/19/08	07/31/09	08/21/06	03/19/08	07/31/09	-	-	-
35302	Seismic Upgrade of BDPL Nos. 3 & 4 <i>(Completed)</i>	09/04/12	06/25/18	07/30/18	09/04/12	06/25/18	07/30/18	-	-	-
36301	SCADA System - Phase II <i>(Completed)</i>	12/15/09	12/28/12	05/28/13	12/15/09	12/28/12	05/28/13	-	-	-
36801	BDPL Reliability Upgrade – Tunnel <i>(Completed)</i>	04/01/10	05/30/16	08/30/16	04/01/10	05/30/16	08/30/16	-	-	-
36802	BDPL Reliability Upgrade – Pipeline <i>(Completed)</i>	01/07/10	03/31/16	03/31/16	01/07/10	03/31/16	03/31/16	-	-	-
36803	BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2 <i>(Completed)</i>	01/07/10	05/28/10	05/28/10	01/07/10	05/28/10	05/28/10	-	-	-
38001	BDPL Nos. 3 & 4 Crossovers <i>(Completed)</i>	07/13/09	09/11/13	06/30/14	07/13/09	09/11/13	06/30/14	-	-	-
38901	SFPUC/EBMUD Intertie <i>(Completed)</i>	01/25/05	03/20/14	03/20/14	01/25/05	03/20/14	03/20/14	-	-	-
39301	BDPL No. 4 Condition Assessment PCCP Sections <i>(Completed)</i>	N/A	N/A	02/06/09	N/A	N/A	02/06/09	-	-	-
BDP0101	WSIP Closeout – Bay Division <i>(Completed)</i> ⁽²⁾	07/06/16	09/30/20	12/31/20	07/06/16	03/31/21	03/31/21	-	6 (Late)	3 (Late)
Peninsula Region										
35401	Lower Crystal Springs Dam Improvements <i>(Completed)</i>	01/31/11	05/01/12	12/28/12	01/31/11	05/01/12	12/28/12	-	-	-
35601	New Crystal Springs Bypass Tunnel <i>(Completed)</i>	12/01/08	08/17/12	08/17/12	12/01/08	08/17/12	08/17/12	-	-	-

ATTACHMENT 4: March 2022 Proposed Revised WSIP – Summary of Schedule Changes

Project No.	Project Name	Current Approved ⁽¹⁾			March 2022 Proposed			Variance (in months)		
		Construction NTP ⁽²⁾	Construction Phase Completion	Project Completion	Construction NTP ⁽²⁾	Construction Phase Completion	Project Completion	Construction NTP ⁽²⁾	Construction Phase Completion	Project Completion
35701	Adit Leak Repair - Crystal Springs/Calaveras <i>(Completed)</i>	04/09/07	03/05/08	07/31/08	04/09/07	03/05/08	07/31/08	-	-	-
36101	Pulgas Balancing - Inlet/Outlet Work <i>(Completed)</i>	N/A	02/02/06	05/11/06	N/A	02/02/06	05/11/06	-	-	-
36102	Pulgas Balancing - Discharge Channel Modifications <i>(Completed)</i>	04/02/09	12/07/09	07/30/10	04/02/09	12/07/09	07/30/10	-	-	-
36103	Pulgas Balancing - Structural Rehabilitation and Roof Replacement <i>(Completed)</i>	11/30/09	09/01/11	12/28/12	11/30/09	09/01/11	12/28/12	-	-	-
36105	Pulgas Balancing - Modifications of the Existing Dechloramination Facility <i>(Completed)</i>	09/22/10	10/25/12	03/20/13	09/22/10	10/25/12	03/20/13	-	-	-
36501	Cross Connection Controls <i>(Completed)</i>	07/31/08	11/26/08	04/30/09	07/31/08	11/26/08	04/30/09	-	-	-
36601	HTWTP Short-Term Improvements (Demo Filters) <i>[Completed]</i>	09/14/05	02/27/06	11/14/06	09/14/05	02/27/06	11/14/06	-	-	-
36603	HTWTP Short-Term Improvements - Coagulation & Flocculation/ Remaining Filters <i>(Completed)</i>	07/10/08	03/31/10	07/28/10	07/10/08	03/31/10	07/28/10	-	-	-
36701	HTWTP Long-Term Improvements <i>(Completed)</i>	03/16/11	09/30/16	12/30/16	03/16/11	09/30/16	12/30/16	-	-	-
36702	Peninsula Pipelines Seismic Upgrade <i>(Completed)</i>	04/28/14	02/29/16	07/06/16	04/28/14	02/29/16	07/06/16	-	-	-
36901	Capuchino Valve Lot Improvements <i>(Completed)</i>	01/29/07	03/05/08	08/19/08	01/29/07	03/05/08	08/19/08	-	-	-
37101	Crystal Springs/San Andreas Transmission Upgrade <i>(Completed)</i>	12/01/10	06/30/15	06/30/15	12/01/10	06/30/15	06/30/15	-	-	-
37801	Crystal Springs Pipeline No. 2 Replacement <i>(Completed)</i>	03/07/11	12/31/14	12/31/14	03/07/11	12/31/14	12/31/14	-	-	-
37901	San Andreas Pipeline No. 3 Installation <i>(Completed)</i>	08/27/09	06/30/11	08/30/12	08/27/09	06/30/11	08/30/12	-	-	-
39101	Baden and San Pedro Valve Lots Improvements <i>(Completed)</i>	04/08/09	12/30/11	03/29/13	04/08/09	12/30/11	03/29/13	-	-	-
PWI0101	WSIP Closeout - Peninsula ⁽²⁾ <i>(Completed)</i>	07/01/16	02/06/21	08/05/21	07/01/16	12/30/21	12/30/21	-	11 (Late)	5 (Late)

ATTACHMENT 4: March 2022 Proposed Revised WSIP – Summary of Schedule Changes

Project No.	Project Name	Current Approved ⁽¹⁾			March 2022 Proposed			Variance (in months)		
		Construction NTP ⁽²⁾	Construction Phase Completion	Project Completion	Construction NTP ⁽²⁾	Construction Phase Completion	Project Completion	Construction NTP ⁽²⁾	Construction Phase Completion	Project Completion
San Francisco Regional Region										
30103	Regional Groundwater Storage and Recovery ⁽²⁾	01/30/12	12/26/21	12/30/21	01/30/12	01/31/26	02/01/27	-	49 (Late)	61 (Late)
35801	Sunset Reservoir - North Basin <i>(Completed)</i>	10/10/06	11/09/09	09/10/10	10/10/06	11/09/09	09/10/10	-	-	-
37201	University Mound Reservoir - North Basin <i>(Completed)</i>	08/03/09	08/23/11	03/29/13	08/03/09	08/23/11	03/29/13	-	-	-
Support Projects										
36302	System Security Upgrades <i>(Completed)</i> ⁽²⁾	11/13/06	03/31/18	09/28/18	11/13/06	04/09/19	04/09/19	-	12 (Late)	6 (Late)
38801	Programmatic EIR <i>(Completed)</i> ⁽³⁾	N/A	N/A	06/30/09	N/A	N/A	06/30/09	-	-	-
38802	Bioregional Habitat Restoration ⁽²⁾	06/27/11	05/31/18	09/30/21	06/27/11	05/31/18	10/01/24	-	-	36 (Late)
38803	Vegetation Restoration of WSIP Construction Sites <i>(Completed)</i>	N/A	N/A	06/30/16	N/A	N/A	06/30/16	-	-	-
38804	Long Term Mitigation Endowment ⁽⁴⁾	N/A	N/A	09/30/21	N/A	N/A	10/01/24	-	-	36 (Late)
39201	Program Management Project ⁽³⁾	N/A	N/A	12/30/21	N/A	N/A	02/01/27	-	-	61 (Late)
39401	Watershed and Environmental Improvement Program ⁽⁵⁾	05/06/19	07/06/20	01/08/21	N/A	N/A	06/30/22	-	-	18 (Late)

- (1) Schedule approved as part of the March 2020 Revised WSIP, plus any additional schedule changes approved by the Commission as part of additional contingencies on construction contracts.
- (2) For projects with multiple construction contracts, the NTP date reported is that of the earliest contract.
- (3) Program activities managed and tracked separately but not included in 52 regional project count.
- (4) The Long Term Mitigation Endowment (LTME) fund is to provide a secure source of funds for perpetual monitoring and maintenance of the Bioregional Habitat Restoration sites constructed in the SFPUC watershed. The LTME fund does not involve construction activities.
- (5) The Watershed and Environmental Improvement Program (WEIP) is a program-wide effort to permanently protect watersheds and other lands through perpetual conservation easements and/or fee title purchase of property from willing landowners, and includes funding for construction of educational/outreach facilities.

Completed Projects

ATTACHMENT 5: March 2022 Proposed Revised WSIP - Summary of Budget Changes

PROJECT NO.	Project Name	CONSTRUCTION COSTS ⁽¹⁾			DELIVERY COSTS ⁽²⁾			OTHER COSTS ⁽³⁾			TOTAL PROJECT COSTS		
		Current Approved *	March 2022 Proposed	Variance	Current Approved *	March 2022 Proposed	Variance	Current Approved *	March 2022 Proposed	Variance	Current Approved *	March 2022 Proposed	Variance
San Joaquin Region		\$222,552,903	\$221,877,376	\$675,527	\$117,461,543	\$117,137,282	\$324,261	\$8,184,486	\$8,184,486	\$0	\$348,198,932	\$347,199,144	\$999,788
CUW36401	Lawrence Livermore Water Quality Improvement <i>(Completed)</i>	\$1,481,801	\$1,481,801	-	\$2,716,446	\$2,716,446	-	-	-	-	\$4,198,247	\$4,198,247	-
CUW37301	San Joaquin Pipeline System <i>(Completed)</i>	\$125,965,937	\$125,965,937	-	\$73,780,110	\$73,780,110	-	\$3,431,968	\$3,431,968	-	\$203,178,014	\$203,178,014	-
CUW37302	Rehabilitation of Existing San Joaquin Pipelines <i>(Completed)</i>	\$11,434,583	\$11,434,583	-	\$9,695,039	\$9,695,039	-	\$24,000	\$24,000	-	\$21,153,622	\$21,153,622	-
CUW38401	Tesla Treatment Facility <i>(Completed)</i>	\$81,277,518	\$81,277,518	-	\$27,205,570	\$27,205,570	-	\$4,728,519	\$4,728,519	-	\$113,211,607	\$113,211,607	-
CUW38701	Tesla Portal Disinfection Station <i>(Combined with CUW38401)</i>	-	-	-	\$2,081,278	\$2,081,278	-	-	-	-	\$2,081,278	\$2,081,278	-
CUWSJI0101	WSIP Closeout - San Joaquin <i>(Completed)</i>	\$2,393,064	\$1,717,537	\$675,527	\$1,983,100	\$1,658,839	\$324,261	-	-	-	\$4,376,164	\$3,376,376	\$999,788
Sunol Valley Region		\$1,124,510,895	\$1,104,065,973	\$20,444,922	\$359,409,638	\$358,236,832	\$1,172,806	\$5,528,648	\$8,088,321	(\$2,559,673)	\$1,489,449,181	\$1,470,391,126	\$19,058,055
CUW35201	Alameda Creek Recapture Project	\$15,402,000	\$21,663,000	(\$6,261,000)	\$18,550,006	\$20,199,645	(\$1,649,639)	\$48,000	\$2,104,750	(\$2,056,750)	\$34,000,006	\$43,967,394.56	(\$9,967,389)
CUW35501	Standby Power Facilities - Various Locations <i>(Completed)</i>	\$9,602,901	\$9,602,901	-	\$3,347,665	\$3,347,665	-	-	-	-	\$12,950,566	\$12,950,566	-
CUW35901	New Irvington Tunnel <i>(Completed)</i>	\$272,130,689	\$272,130,689	\$0	\$65,812,902	\$65,813,793	(\$891)	\$2,462,767	\$2,461,876	\$891	\$340,406,358	\$340,406,358	-
CUW35902	Alameda Siphon #4 <i>(Completed)</i>	\$41,479,253	\$41,479,253	-	\$23,209,275	\$23,209,275	-	\$261,978	\$261,978	-	\$64,950,507	\$64,950,507	-
CUW37001	Pipeline Repair & Readiness Improvements <i>(Completed)</i>	\$2,763,325	\$2,763,325	-	\$2,432,056	\$2,432,056	-	-	-	-	\$5,195,381	\$5,195,381	-
CUW37401	Calaveras Dam Replacement	\$644,509,688	\$617,883,876	\$26,625,812	\$176,296,031	\$173,392,587	\$2,903,444	\$2,286,046	\$2,789,860	(\$503,815)	\$823,091,765	\$794,066,323	\$29,025,442
CUW37402	Calaveras Reservoir Upgrades <i>(Completed)</i>	\$1,274,600	\$1,274,600	-	\$415,953	\$415,953	-	-	-	-	\$1,690,552	\$1,690,552	-
CUW37403	San Antonio Backup Pipeline <i>(Completed)</i>	\$33,339,396	\$33,339,396	-	\$20,255,287	\$20,255,287	-	-	-	-	\$53,594,683	\$53,594,683	-
CUW38101	SVWTP Expansion & Treated Water Reservoir <i>(Completed)</i>	\$94,121,180	\$94,121,180	-	\$35,002,638	\$35,002,638	-	\$469,856	\$469,856	-	\$129,593,674	\$129,593,674	-
CUW38102	SVWTP Calaveras Road <i>(Eliminated)</i>	-	-	-	\$34,654	\$34,654	-	-	-	-	\$34,654	\$34,654	-
CUW38201	SVWTP Treated Water Reservoir <i>(Combined with CUW38101)</i>	-	-	-	\$5,056,596	\$5,056,596	-	-	-	-	\$5,056,596	\$5,056,596	-
CUW38601	San Antonio Pump Station Upgrade <i>(Completed)</i>	\$7,516,865	\$7,516,865	-	\$5,377,727	\$5,377,727	-	-	-	-	\$12,894,592	\$12,894,592	-
CUWSVI0101	WSIP Closeout - Sunol Valley	\$2,370,998	\$2,290,887	\$80,111	\$3,618,848	\$3,698,958	(\$80,110)	-	-	-	\$5,989,845	\$5,989,845	-

ATTACHMENT 5: March 2022 Proposed Revised WSIP - Summary of Budget Changes

PROJECT NO.	Project Name	CONSTRUCTION COSTS ⁽¹⁾			DELIVERY COSTS ⁽²⁾			OTHER COSTS ⁽³⁾			TOTAL PROJECT COSTS		
		Current Approved *	March 2022 Proposed	Variance	Current Approved *	March 2022 Proposed	Variance	Current Approved *	March 2022 Proposed	Variance	Current Approved *	March 2022 Proposed	Variance
Bay Division Region		\$462,880,470	\$464,148,073	(\$1,267,603)	\$176,186,163	\$173,288,209	\$2,897,954	\$8,763,089	\$8,014,106	\$748,983	\$647,829,723	\$645,450,387	\$2,379,336
CUW35301	BDPL Nos. 3 & 4 Crossover/Isolation Valves (Completed)	\$20,649,649	\$20,649,649	-	\$6,389,500	\$6,389,500	-	-	-	-	\$27,039,149	\$27,039,149	-
CUW35302	Seismic Upgrade of BDPL Nos. 3 & 4 (Completed)	\$43,114,117	\$41,685,040	\$1,429,077	\$30,435,863	\$30,435,863	-	\$73,316	\$73,316	-	\$73,623,296	\$72,194,219	\$1,429,077
CUW36301	SCADA System - Phase II (Completed)	\$5,390,903	\$5,390,903	-	\$4,061,569	\$4,061,570	(\$1)	\$18,450	\$18,450	-	\$9,470,922	\$9,470,922	-
CUW36801	BDPL Reliability Upgrade - Tunnel (Completed)	\$220,454,710	\$220,454,710	-	\$50,077,878	\$50,077,878	-	\$1,831,502	\$1,831,502	-	\$272,364,089	\$272,364,089	-
CUW36802	BDPL Reliability Upgrade - Pipeline (Completed)	\$145,692,701	\$148,577,665	(\$2,884,964)	\$65,477,542	\$62,592,578	\$2,884,964	\$5,700,912	\$5,551,929	\$148,983	\$216,871,156	\$216,722,172	\$148,984
CUW36803	BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2 (Completed)	\$2,363,367	\$2,363,366	\$1	\$683,615	\$683,615	-	-	-	-	\$3,046,981	\$3,046,981	-
CUW38001	BDPL Nos. 3 & 4 Crossovers (Completed)	\$14,794,660	\$14,794,660	-	\$14,576,880	\$14,576,880	-	\$538,909	\$538,909	-	\$29,910,449	\$29,910,449	-
CUW38901	SFPUC/EBMUD Intertie (Completed)	\$8,489,689	\$8,489,689	-	\$677,617	\$677,617	-	-	-	-	\$9,167,306	\$9,167,306	-
CUW39301	BDPL No. 4 Condition Assessment PCCP Sections (Completed)	-	-	-	\$1,937,599	\$1,937,599	-	-	-	-	\$1,937,599	\$1,937,599	-
CUWBPD0101	WSIP Closeout - Bay Division (Completed)	\$1,930,675	\$1,742,391	\$188,284	\$1,868,100	\$1,855,109	\$12,991	\$600,000	-	\$600,000	\$4,398,775	\$3,597,500	\$801,275
Peninsula Region		\$547,050,940	\$544,185,287	\$2,865,653	\$255,133,493	\$257,999,146	(\$2,865,653)	\$2,940,047	\$2,940,047	-	\$805,124,480	\$805,124,480	-
CUW35401	Lower Crystal Springs Dam Improvements (Completed)	\$20,357,967	\$20,357,967	-	\$14,451,073	\$14,451,073	-	\$50,000	\$50,000	-	\$34,859,040	\$34,859,040	-
CUW35601	New Crystal Springs Bypass Tunnel (Completed)	\$57,409,887	\$57,409,887	-	\$23,933,121	\$23,933,121	-	\$123,725	\$123,725	-	\$81,466,732	\$81,466,732	-
CUW35701	Adit Leak Repair - Crystal Springs/Calaveras (Completed)	\$1,706,478	\$1,706,478	-	\$1,080,845	\$1,080,845	-	-	-	-	\$2,787,322	\$2,787,322	-
CUW36101	Pulgas Balancing - Inlet/Outlet Work (Completed)	\$638,020	\$638,020	-	\$1,127,918	\$1,127,918	-	-	-	-	\$1,765,938	\$1,765,938	-
CUW36102	Pulgas Balancing - Discharge Channel Modifications (Completed)	\$903,240	\$903,240	-	\$1,942,236	\$1,942,236	-	\$64,531	\$64,531	-	\$2,910,007	\$2,910,007	-
CUW36103	Pulgas Balancing - Structural Rehabilitation and Roof Replacement (Completed)	\$13,283,050	\$13,283,050	-	\$6,804,183	\$6,804,183	-	\$151,483	\$151,483	-	\$20,238,716	\$20,238,716	-
CUW36104	Pulgas Balancing - Laguna Creek Sedimentation (Eliminated)	-	-	-	\$503,928	\$503,928	-	-	-	-	\$503,928	\$503,928	-
CUW36105	Pulgas Balancing - Modifications of the Existing Dechloramination Facility (Completed)	\$2,054,696	\$2,054,696	-	\$3,285,334	\$3,285,334	-	\$50,000	\$50,000	-	\$5,390,031	\$5,390,031	-
CUW36501	Cross Connection Controls (Completed)	\$1,835,224	\$1,835,224	-	\$2,090,210	\$2,090,210	-	\$23,509	\$23,509	-	\$3,948,944	\$3,948,944	-
CUW36601	HTWTP Short-Term Improvements (Demo Filters) (Completed)	\$1,683,042	\$1,683,042	-	\$1,384,862	\$1,384,862	-	-	-	-	\$3,067,903	\$3,067,903	-

ATTACHMENT 5: March 2022 Proposed Revised WSIP - Summary of Budget Changes

PROJECT NO.	Project Name	CONSTRUCTION COSTS ⁽¹⁾			DELIVERY COSTS ⁽²⁾			OTHER COSTS ⁽³⁾			TOTAL PROJECT COSTS		
		Current Approved *	March 2022 Proposed	Variance	Current Approved *	March 2022 Proposed	Variance	Current Approved *	March 2022 Proposed	Variance	Current Approved *	March 2022 Proposed	Variance
CUW36602	HTWTP Short-Term Improvements - Remaining Filters <i>(Combined with CUW36603)</i>	-	-	-	\$1,424,510	\$1,424,510	-	-	-	-	\$1,424,510	\$1,424,510	-
CUW36603	HTWTP Short-Term Improvements - Coagulation & Flocculation/ Remaining Filters <i>(Completed)</i>	\$15,214,291	\$15,214,291	-	\$3,390,646	\$3,390,646	-	-	-	-	\$18,604,937	\$18,604,937	-
CUW36701	HTWTP Long-Term Improvements <i>(Completed)</i>	\$196,615,628	\$196,529,072	\$86,556	\$76,482,504	\$76,569,060	(\$86,556)	\$983,837	\$983,837	-	\$274,081,969	\$274,081,969	-
CUW36702	Peninsula Pipelines Seismic Upgrade <i>(Completed)</i>	\$23,097,596	\$23,048,700	\$48,896	\$15,165,614	\$15,214,511	(\$48,897)	\$562,136	\$562,136	-	\$38,825,346	\$38,825,346	-
CUW36901	Capuchino Valve Lot Improvements <i>(Completed)</i>	\$1,576,733	\$1,576,733	-	\$1,226,420	\$1,226,420	-	-	-	-	\$2,803,153	\$2,803,153	-
CUW37101	Crystal Springs/San Andreas Transmission Upgrade <i>(Completed)</i>	\$133,915,522	\$133,465,522	\$450,000	\$56,257,341	\$56,707,341	(\$450,000)	\$136,590	\$136,590	-	\$190,309,453	\$190,309,453	-
CUW37801	Crystal Springs Pipeline No. 2 Replacement <i>(Completed)</i>	\$34,750,123	\$34,750,123	-	\$20,932,509	\$20,932,509	-	\$387,877	\$387,877	-	\$56,070,509	\$56,070,509	-
CUW37901	San Andreas Pipeline No. 3 Installation <i>(Completed)</i>	\$17,087,803	\$17,087,803	-	\$10,001,396	\$10,001,396	-	\$406,359	\$406,359	-	\$27,495,558	\$27,495,558	-
CUW39101	Baden and San Pedro Valve Lots Improvements <i>(Completed)</i>	\$15,646,639	\$15,646,639	-	\$9,344,164	\$9,344,164	-	-	-	-	\$24,990,803	\$24,990,803	-
CUWPW10101	WSIP Closeout - Peninsula <i>(Completed)</i>	\$9,275,000	\$6,994,800	\$2,280,200	\$4,304,680	\$6,584,880	(\$2,280,200)	-	-	-	\$13,579,680	\$13,579,680	-
San Francisco Regional Region		\$164,477,403	\$180,985,000	(\$16,507,597)	\$76,578,193	\$77,609,454	(\$1,031,261)	\$5,274,995	\$7,293,256	(\$2,018,261)	\$246,330,591	\$265,887,710	(\$19,557,119)
CUW30103	Regional Groundwater Storage and Recovery	\$80,539,000	\$97,046,597	(\$16,507,597)	\$52,979,319	\$54,010,580	(\$1,031,261)	\$5,274,995	\$7,293,256	(\$2,018,261)	\$138,793,314	\$158,350,433	(\$19,557,119)
CUW35801	Sunset Reservoir - North Basin <i>(Completed)</i>	\$52,777,386	\$52,777,386	-	\$11,493,339	\$11,493,339	-	-	-	-	\$64,270,725	\$64,270,725	-
CUW37201	University Mound Reservoir - North Basin <i>(Completed)</i>	\$31,161,017	\$31,161,017	-	\$12,105,535	\$12,105,535	-	-	-	-	\$43,266,552	\$43,266,552	-
Support Projects		\$21,265,068	\$6,981,242	\$14,283,826	\$171,592,696	\$173,255,024	(\$1,662,328)	\$73,274,990	\$88,776,547	(\$15,501,557)	\$266,132,754	\$269,012,813	(\$2,880,059)
CUW36302	System Security Upgrade <i>(Completed)</i>	\$6,166,652	\$5,601,047	\$565,605	\$9,034,659	\$8,818,761	\$215,898	-	\$280,862	(\$280,862)	\$15,201,311	\$14,700,669	\$500,642
CUW38801	Programmatic EIR <i>(Completed)</i>	-	-	-	\$10,730,684	\$10,730,684	-	-	-	-	\$10,730,684	\$10,730,684	-
CUW38802	Bioregional Habitat Restoration	-	-	-	\$35,381,866	\$35,731,733	(\$349,867)	\$57,960,117	\$56,434,014	\$1,526,103	\$93,341,983	\$92,165,746	\$1,176,237
CUW38803	Vegetation Restoration of WSIP Construction Sites <i>(Completed)</i>	-	-	-	\$1,177,223	\$1,177,223	-	\$934,323	\$934,323	-	\$2,111,546	\$2,111,546	-
CUW38804	Long Term Mitigation Endowment	-	-	-	-	-	-	\$12,000,000	\$12,000,000	-	\$12,000,000	\$12,000,000	-
CUW39201	Program Management Project	-	-	-	\$112,747,230	\$112,747,230	-	-	\$4,556,936	(\$4,556,936)	\$112,747,230	\$117,304,166	(\$4,556,936)
CUW39401	Watershed and Environmental Improvement Program	\$15,098,416	\$1,380,195	\$13,718,221	\$2,521,034	\$4,049,393	(\$1,528,359)	\$2,380,550	\$14,570,412	(\$12,189,862)	\$20,000,000	\$20,000,000	-

ATTACHMENT 5: March 2022 Proposed Revised WSIP - Summary of Budget Changes

PROJECT NO.	Project Name	CONSTRUCTION COSTS ⁽¹⁾			DELIVERY COSTS ⁽²⁾			OTHER COSTS ⁽³⁾			TOTAL PROJECT COSTS		
		Current Approved *	March 2022 Proposed	Variance	Current Approved *	March 2022 Proposed	Variance	Current Approved *	March 2022 Proposed	Variance	Current Approved *	March 2022 Proposed	Variance
	<i>Regional Program Sub-Total</i>	\$2,542,737,679	\$2,522,242,951	\$20,494,728	\$1,156,361,726	\$1,157,525,947	(\$1,164,221)	\$103,966,255	\$123,296,764	(\$19,330,509)	\$3,803,065,661	\$3,803,065,661	-
	San Francisco Local Program												
	All Original Local Projects	\$238,000,793	\$238,682,678	(\$681,885)	\$92,164,339	\$92,311,149	(\$146,810)	\$1,240,344	\$862,883	\$377,461	\$331,405,476	\$331,856,710	(\$451,234)
	Water Supply Projects	\$186,792,234	\$186,792,234	-	\$91,502,404	\$91,051,170	\$451,234	\$3,017,895	\$3,017,895	-	\$281,312,533	\$280,861,299	\$451,234
	<i>Local Program Sub-Total</i>	\$424,793,027	\$425,474,912	(\$681,885)	\$183,666,743	\$183,362,319	\$304,424	\$4,258,240	\$3,880,778	\$377,462	\$612,718,010	\$612,718,010	-
	<i>Regional + Local Programs Sub-Total</i>	\$2,967,530,706	\$2,947,717,863	\$19,812,843	\$1,340,028,469	\$1,340,888,266	(\$859,797)	\$108,224,495	\$127,177,542	(\$18,953,047)	\$4,415,783,671	\$4,415,783,671	-
	<i>Financing Cost</i>										\$371,991,469	\$371,991,469	-
	PROGRAM TOTAL										\$4,787,775,140	\$4,787,775,140	-

LEGEND:

* It should be noted that there was no change in budget since March 2018, the last WSIP revision. The approved Budget in March 2020 Revised WSIP was the same as budget in March 2018. The Current Approved budget includes budget approved in March 2020 Revised WSIP, plus any additional budget changes approved by the Commission as part of additional contingencies on construction contracts.

- (1) **Construction Costs** include the Construction Base Bid, Construction Contingency and owner-provided equipment/material.
- (2) **Delivery Costs** include program and project management, planning, environmental (CEQA, permitting, construction compliance), design, construction management, and engineering support during construction.
- (3) **Other Costs** include environmental mitigation, art enrichment, security Improvements, and real estate expenses.

ATTACHMENT 6:

March 2022 Proposed Revised WSIP - Explanation of Schedule Changes



The proposed project schedules in the March 2022 Proposed Revised Water System Improvement Program (WSIP) reflect the latest available information on each active regional project based on the status of ongoing implementation efforts as of early March 2022. It is standard practice to refine project schedules as more knowledge is gained about project-specific needs and challenges. The recent schedule forecasting and review efforts have led to more accurate and realistic project-specific schedules.

Attachment 4: March 2022 Proposed Revised WSIP - Summary of Schedule Changes, compares the Current Approved and Proposed March 2022 dates for Construction Notice-to-Proceed (NTP), Construction Phase Completion, and Project Completion for all active WSIP regional projects. Provided below is a brief explanation as to why the Proposed March 2022 completion dates for the remaining seven (7) projects of the WSIP, and the Program Management Project which is not counted as one of the 52 projects, have been extended beyond the Current Approved completion dates. Note that this document does not provide explanations for the 45 projects that have been completed.

Projects with Completion Dates Extended Less than 6 Months

None

Projects with Completion Dates Extended by 6 to 12 Months

Calaveras Dam Replacement (12-Month Change)

The proposed schedule revision is needed to complete negotiation and administrative closeout for the construction contract WD-2729 Fish Passage Facility Project within the Alameda Watershed, which is a subproject to Calaveras Dam Replacement Project. The Current Approved Project Completion date is March 31, 2021 and the Proposed Project Completion date is March 31, 2022.

WSIP Closeout - Sunol Valley (12-Month Change):

The proposed schedule revision is to accommodate a new sub-project, Alameda Creek Diversion Dam Power and Communication Facilities Project. After operating the fish passage facility for a year, a few deficiencies were found in the power and communication systems and also with respect to a few valves and gates. This sub-project will address these deficiencies through small construction contracts. The Current Approved Project Completion date is June 30, 2021 and the Proposed Project Completion date is June 30, 2022.

Projects with Completion Dates Extended by Greater than 12 Months

Alameda Creek Recapture Project (13-Month Change):

The proposed schedule revision is to accommodate construction delays related to securing the Department of Water Resources encroachment permit; minor design changes; coordination with Hanson Quarry related to ongoing erosion around the project site; and additional time for facility startup and testing, operator training, and preparation of closeout

documentation. The Current Approved Project Completion date is May 5, 2023 and the Proposed Project Completion date is June 18, 2024.

Watershed and Environmental Improvement Program (18-Month Change):

The proposed schedule revision is to allow time for final closing of purchasing transactions to acquire land and conservation easements within the Alameda Creek Watershed. The Current Approved Project Completion is January 8, 2021, and the Proposed Project Completion date is June 30, 2022.

Bioregional Habitat Restoration (36-Month Change):

The proposed schedule revision is required due to the delay in securing permitting for the Trousdale Oaks Tree Removal sub-project. The Trousdale Oaks Tree Removal sub-project is anticipated to start construction in April 2022, with sub-project completion by October 2024. The Current Approved Project Completion date is September 30, 2021, and the Proposed Project Completion date is October 1, 2024.

Long Term Mitigation Endowment (36-Month Change)

The proposed schedule extension is to align funding with the schedule for the Bioregional Habitat Restoration project. The Current Approved Project Completion date is September 30, 2021, and the Proposed Project Completion date is October 1, 2024.

Regional Groundwater Storage and Recovery (61-Month Change):

The proposed schedule revision is needed due to changes and delays during the Phase 1 contract work as well as delays to issuing the two Phase 2 contracts for various reasons. The schedule extension to achieve final completion for the Phase 1 work is related to correction of flowmeter inaccuracies; modifications to the chemical feed systems, pumps, utility systems, and site configurations; repairs to internal corrosion in several of the well systems; delays to obtaining encroachment and power permits; and delays during start-up and testing. The schedule extension for the implementation of Phase 2 work is related to the addition of cathodic protection for multiple wells, splitting the work into two contracts (Phase 2A and Phase 2B), and longer time needed to obtain easements and right of way permits. Phase 2A includes installation of cathodic protection, variable frequency drives, flowmeters, valve modifications, and wells rehabilitation, which is currently in bid and award phase. Phase 2B includes installation of mechanical, electrical, and plumbing at South San Francisco (SSF) Main Well, and pipeline installation to connect the well to Cal Water's treatment facility, which is in the final design phase. The Current Approved Project Completion date is December 30, 2021 and the Proposed Project Completion date is February 1, 2027.

Program Management Project (61-Month Change)

The Program Management Project, not counted as one of the 52 Regional Projects, includes program management activities such as reporting and controls. Funding has been increased and extended for the duration of the WSIP. While effective cost controls have been put into place, some overhead funding is still required to continue program controls and reporting until the completion of the WSIP. The Current Approved Project Completion date is December 30, 2021 and the Proposed Completion date is February 1, 2027.

ATTACHMENT 7:

March 2022 Proposed Revised WSIP - Explanation of Budget Changes



The proposed project budgets in the March 2022 Proposed Revised Water System Improvement Program (WSIP) reflect the latest available information on each active project based on the status of ongoing implementation efforts as of early March 2022. It is standard practice to refine project budgets as more knowledge is gained about project-specific needs and challenges. The recent budget forecasting and review efforts have led to more accurate and realistic project-specific budgets.

Attachment 5: March 2022 Proposed Revised WSIP - Summary of Budget Changes, compares the Current Approved and Proposed March 2022 project budgets allocated for Construction Costs, Delivery Costs, Other Costs, and Total Costs for all WSIP regional projects. Provided below is an explanation as to why the Proposed March 2022 project budgets for certain active projects are different than the Current Approved project budget. Note that this document does not provide explanations for the 45 projects that have been completed.

Projects with Budget Decreases

Calaveras Dam Replacement (-\$29.0M Change)

The proposed budget revision is due to successful completion and negotiation of change orders for construction contract WD-2729 Alameda Creek Diversion Dam Fish Passage Facility Project within the Alameda Watershed. The project team was proactive in using separate small construction contracts to resolve the many miscellaneous issues, resulting in a cost savings of \$29M. The Current Approved Project Budget is \$823M and the Proposed Project Budget is \$794M, which represents a \$29M decrease.

Bioregional Habitat Restoration (-\$1.2M Change)

The project is forecasted to be completed and to meet all of its goals with cost savings of \$1.2M. The Current Approved Project Budget is \$93.3M and the Proposed Project Budget is \$92.1M, which represents a \$1.2M decrease.

Projects with Budget Increases

Projects with Budget Increases Less than \$2 Million

None.

Projects with Budget Increases of \$2 to \$5 Million

Program Management Project (+\$4.6M Change)

The Program Management Project, not counted as one of the 52 Regional Projects, includes program management activities such as reporting and controls. Funding has been increased and extended for the duration of the WSIP. While effective cost controls have been put into place, some overhead funding is still required to continue program controls and reporting until the completion of the WSIP. The Current Approved Project Budget is \$112.7M and the Proposed Project Budget is \$117.3M, which represents a \$4.6M increase.

Projects with Budget Increases of \$5 to \$10 Million

Alameda Creek Recapture (+\$10.0M Change):

The proposed budget revision is due to higher construction bid cost over the engineer's estimate and approved baseline budget; additional construction cost for escalation due to the project delay during the environmental phase; and additional operational requirements that increased the project cost. The Current Approved Project Budget is \$34M and the Proposed Project Budget is \$44M, which represents a \$10M increase.

Projects with Budget Increases Greater than \$10 Million

Regional Groundwater Storage and Recovery (+\$19.6M Change):

The proposed budget revision is due to both construction cost and delivery cost increases for Phase 1, Phase 2A and Phase 2B work of the project. The additional cost for Phase 1 includes repairs to internal well damage caused by corrosion, reinstallation of several well pump systems, modifications to the chemical feed systems, installation of remote analyzers and eyewash stations, upsizing of water heaters, construction of wall partition between two different chemicals, acquisition of permanent access road and temporary construction easements, construction of new access into one of the well stations, and acquisition of permanent power. As a result of the delays, extended overhead costs will continue to be incurred until the construction completion. The Phase 1 project is currently in the final Construction Phase and is 99% complete. The budget revision is also needed to provide funding for additional work for Phase 2A and Phase 2B work, which includes installation of cathodic protection and well rehabilitation for 10 out of the 13 existing wells, construction of a secondary power vault and interrupter, and increased costs for purchase of easements. The Current Approved Project Budget is \$138.8M and the Proposed Project Budget is \$158.4M, which represents a \$19.6M increase.



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WATER SYSTEM IMPROVEMENT PROGRAM

ATTACHMENT 8:

March 2022 Proposed Revised WSIP Project Descriptions



Services of the San Francisco Public Utilities Commission

San Francisco Public Utilities Commission

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Contents

Introduction	1
San Joaquin Region	2
36401, Lawrence Livermore Water Quality Improvement.....	2
37301, San Joaquin Pipeline System.....	2
37302, Rehabilitation of Existing San Joaquin Pipelines	3
38401, Tesla Treatment Facility.....	4
SJI, WSIP Closeout – San Joaquin Region.....	4
Sunol Valley Region	5
35201, Alameda Creek Recapture Project.....	5
35501, Standby Power Facilities – Various Locations.....	6
35901, New Irvington Tunnel.....	7
35902, Alameda Siphon #4	8
37001, Pipeline Repair and Readiness Improvements.....	9
37401, Calaveras Dam Replacement.....	9
37402, Calaveras Reservoir Upgrades	11
37403, San Antonio Backup Pipeline	11
38101, SVWTP Expansion & Treated Water Reservoir	12
38601, San Antonio Pump Station Upgrade.....	13
SVI, WSIP Closeout – Sunol Region.....	14
Bay Division Region	16
35301, BDPL Nos. 3 & 4 Crossover/Isolation Valves	16
35302, Seismic Upgrade of BDPL Nos. 3 & 4	16
36301, SCADA System – Phase II.....	18
36801, BDPL Reliability Upgrade – Tunnel.....	18
36802, BDPL Reliability Upgrade – Pipeline	19
36803, BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2	20
38001, BDPL Nos. 3 & 4 Crossovers	21
38901, SFPUC/EBMUD Intertie	21
39301, BDPL No. 4 Condition Assessment PCCP Sections	22
BDP, WSIP Closeout – Bay Division Region.....	22
Peninsula Region	25
35401, Lower Crystal Springs Dam Improvements	25
35601, New Crystal Springs Bypass Tunnel	25
35701, Adit Leak Repair - Crystal Springs/Calaveras.....	26
36101, Pulgas Balancing - Inlet/Outlet Work.....	26
36102, Pulgas Balancing - Discharge Channel Modifications	27
36103, Pulgas Balancing - Structural Rehabilitation & Roof Replacement.....	27
36105, Pulgas Balancing - Modification of the Existing Dechloramination Facility.....	28
36501, Cross Connection Controls	28
36601/02/03, Harry Tracy Water Treatment Plant Short-Term Improvements	29
36701, Harry Tracy Water Treatment Plant Long-Term Improvements	30
36702, Peninsula Pipelines Seismic Upgrade	31
36901, Capuchino Valve Lot Improvements.....	32
37101, Crystal Springs/San Andreas Transmission System Upgrade	32
37801, Crystal Springs Pipeline No. 2 Replacement.....	34
37901, San Andreas Pipeline No. 3 Installation.....	34

39101, Baden and San Pedro Valve Lots Improvements	35
PNI, WSIP Closeout – Peninsula Region	35
San Francisco Regional Region	38
30103, Regional Groundwater Storage and Recovery	38
35801, Sunset Reservoir Upgrades - North Basin.....	41
37201, University Mound Reservoir Upgrades - North Basin	42
Support Projects.....	42
36302, System Security Upgrades	42
38801, Programmatic Environmental Impact Report.....	43
38802, Bioregional Habitat Restoration Project.....	43
38803, Vegetation Restoration of WSIP Construction Sites	44
38804, Long Term Mitigation Endowment	44
39401, Watershed and Environmental Improvement Program	45

Introduction

This document includes updated descriptions for all of the Water System Improvement System (WSIP) regional projects as part of the March 2022 Proposed Revised WSIP to be considered for approval by the San Francisco Public Utilities Commission (SFPUC) on April 26, 2022.

The project descriptions each include the three (3) following sections:

- 1) The Project Background section discusses the purpose of the project and the Level of Service (LOS) goals the project is designed to achieve;
- 2) The Description section summarizes the project's major scope elements; and
- 3) The Scope Refinements section highlights the changes made to the project's scope since publication of the March 2018 Notice of Change to WSIP report.

Note that only three(3) projects have scope refinements since these descriptions were last published in March 2018. These projects are:

- Project CUW30103: Regional Groundwater Storage and Recovery
- Project CUW39401: Watershed and Environmental Improvement Program
- Project CUW39602: WSIP Closeout – Sunol Valley

San Joaquin Region

36401, Lawrence Livermore Water Quality Improvement

Background

This project is provided in response to the Water Quality LOS goals. Water services to the Lawrence Livermore National Laboratory are located at the Thomas Shaft and Mocho Shaft on the Coast Range Tunnel. At the Thomas Shaft, water does not reliably comply with either current or anticipated disinfection requirements. This will be the case even after completion of the Tesla Treatment Facility Project. However, water from the Mocho Shaft will meet current and anticipated standards after completion of the Tesla Treatment Facility Project. The purpose of this project is to provide facilities at Thomas Shaft to reliably disinfect the water and ensure compliance at both service locations.

Description

The project consists of:

- Ultraviolet (UV) disinfection, including two (2) 150-gallon-per-minute, parallel UV units and ancillary facilities. The units will be installed in the existing Thomas Shaft building.
- Two (2) pumps that will pump water from the Coast Range Tunnel to the new disinfection system.

Scope Refinements

There are no scope refinements to this project.

37301, San Joaquin Pipeline System

Background

The project is provided in response to the Delivery Reliability LOS goals. The San Joaquin Pipeline (SJPL) system spans the San Joaquin Valley, nearly 48 miles, to link the Oakdale Portal of the Foothill Tunnel to the Tesla Portal of the Coast Range Tunnel. The system includes three (3) large-diameter pipes that range in age from 43 to 79 years. The original 300 million gallons per day (mgd) design capacity of the system has decreased due, in part, to general deterioration of pipe linings. Also, as the system is now configured, shutdowns for inspection or maintenance require that an entire length of pipeline be removed from service, which greatly reduces the system's hydraulic capacity. The purposes of this project are to reduce the outage time and lost capacity associated with having to take an entire length of pipe out of service, and to increase the design capacity of the SJPL system to 313 mgd.

Description

This 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, railroads, and irrigation canals. 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.

Scope Refinements

There are no scope refinements to this project.

37302, Rehabilitation of Existing San Joaquin Pipelines

Background

This project is provided in response to the Delivery Reliability LOS goals. The three (3) existing SJPLs are each approximately 48 miles long and range in age and size from 43 to 79 years old, and 56 to 78-inches diameter. Due to the age of the system, certain segments are experiencing deterioration that will likely result in increased unplanned outages, potentially impacting overall system reliability. The purpose of this project is to establish a program of intensified condition assessment, monitoring, and rehabilitation that will increase reliability and minimize unplanned outages.

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.

Scope Refinements

- There are no scope refinements to this project.

38401, Tesla Treatment Facility

Background

This project, which is a combination of the originally identified Tesla Portal Disinfection Facility Project and the Advanced Disinfection Project, is provided in response to the Water Quality, Seismic Reliability and Delivery Reliability LOS goals. Planning studies have determined that the advanced disinfection facilities should be constructed at the Tesla Portal site. Facilities for advanced disinfection to comply with the United States Environmental Protection Agency's Long Term 2 Enhanced Surface Water Treatment Rule must be implemented by April 2012. The Tesla Treatment Facility Project will ensure compliance by providing a new 315 mgd treatment facility using ultra-violet (UV) disinfection and new chemical feed facilities. The new chemical storage and feed facilities will replace the functions of the existing Tesla Portal Disinfection Facility, eliminating the need to rehabilitate that facility.

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 building for sodium hypochlorite, hydrofluosilicic acid (i.e., fluoride), and carbon dioxide.
- Office, laboratory, and control facilities, emergency engine generators, and security-related site and access road improvements.

Scope Refinements

There are no scope refinements to this project.

SJI, WSIP Closeout – San Joaquin Region

Background

A new WSIP Closeout Project for the San Joaquin Region was added in the March 2016 Revised WSIP in response to miscellaneous identified needs and/or improvements that are needed to supplement the scope of WSIP regional projects to ensure that WSIP Level of Service (LOS) goals are fully achieved. The scopes of work of the individual sub-projects that are included within the WSIP Closeout Project for the San Joaquin Region are described below.

Description

- **Supplemental Solar Panel Installations** – The CUW37301 San Joaquin Pipeline System, including the western segment, eastern segment and facilities, and crossover pipeline projects achieved final completion in 2013, 2014 and 2015, respectively. During the initial course of operations, it was noted the solar panel arrays designed to provide power for the facility equipment were not sufficient to meet all modes of operational demands. This sub-project will provide additional solar panels to cover power shortfalls

and allow the facility to better meet its water delivery reliability LOS goal. This sub-project consists of three (3) job order contracts at three (3) sites: Oakdale, Knight Ferry Throttling Station, and San Joaquin Junction No. 4. The scope of work as noted in the March 2016 Notice of Change includes:

- Minor site preparation and grading work
 - Furnishing and installing new supplemental solar arrays mounted on concrete pads within security fence enclosures
 - Connections and integration of the new solar panels into the existing power system and controls
 - Installation of batteries for solar power storage on-site
 - Minor site preparation and grading work
- **Tesla Portal Facility Interior Floor Slab** – The Tesla Portal Facility, a sub-project of the CUW38401 Tesla Treatment Facility, was completed in January 2015. During construction, the concrete interior floor slab was deleted from the project construction documents to allow easier access to repair corrosion of the existing pipelines discovered during construction beneath the new Tesla Portal Facility. Due to drainage issues at the site, the Operations staff at the facility has now requested the interior slab be incorporated into the structure with a small access opening for future maintenance and corrosion repairs of the existing buried pipelines. As noted in the March 2016 Notice of Change, this sub-project will be constructed through use of a job order contract including:
 - A new interior concrete slab slope to drain to a new catch basin
 - A new catch basin with grating and sump
 - A small sump pump and drain through the slab or existing concrete wall to a discharge point

Scope Refinements

There are no scope refinements to this project.

Sunol Valley Region

35201, Alameda Creek Recapture Project

Background

The Alameda Creek Recapture (ACR) Project, formerly known as Upper Alameda Creek Filter Gallery (UACFG) project is provided in response to the Water Supply LOS goals. The purpose of this project is to recapture water diverted from Calaveras Reservoir or bypassed around Alameda Creek Diversion Dam for fisheries habitat enhancement in Alameda Creek and return it to the SFPUC water system through facilities in the Sunol Valley. The original project involved recapturing water released from the upstream dams via use of an in-stream infiltration gallery that would allow the water to flow by gravity to a new pump station, thereby returning the water to the SFPUC system. The re-scoped project (March 2013) is being planned to recapture water that naturally infiltrates from Alameda Creek into an existing quarry pond. A new pump station and pipeline would be constructed to return flows captured in the pond to the SFPUC system.

Description

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

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.

Scope Refinements

There are no scope refinements.

35501, Standby Power Facilities – Various Locations

Background

The project is provided in response to both the Seismic Reliability and Delivery Reliability LOS goals. The project provides for standby power at six (6) critical facilities to allow these facilities to remain in operation during power outages and other emergencies.

Description

Standby power requirements are provided at six (6) sites in the East Bay and on the Peninsula. Each site is either provided with an emergency generator or the electrical receptacles to accommodate a portable emergency generator.

The facilities at the six (6) sites include:

- Alameda West Portal: standby power improvements include installing a permanent 20-kilowatt (kW) emergency generator in a sound-attenuated masonry wall enclosure.
- San Antonio Reservoir and Dam: standby power improvements include providing electrical receptacles for a portable 37-kW emergency generator at two (2) locations.
- Harry Tracy Water Treatment Plant (HTWTP): standby power improvements include removing the four (4) existing, smaller emergency generators and providing two (2) permanently installed 2-megawatt (MW) emergency generators.
- Millbrae Yard: standby power improvements include replacing the existing emergency generator with a permanently installed 300-kW unit to enable this facility to function as an emergency operations center.
- San Pedro Valve Lot: standby power improvements include installing a permanent 20-kW emergency generator in a sound-attenuated masonry wall enclosure.
- Capuchino Valve Lot: standby power improvements include providing an electrical receptacle for a portable 30-kW engine generator.
- The project will also provide the trailer mounted engine generator that will be stored at the Millbrae Yard.

Scope Refinements

There are no scope refinements to this project.

35901, New Irvington Tunnel

Background

This project is provided in response to both the Seismic Reliability and Delivery Reliability LOS goals. Unlike the other transmission facilities upstream of the Alameda East Portal which transmit water only from Hetch Hetchy, the existing Irvington Tunnel carries water from two (2) supply sources: Hetch Hetchy and the SVWTP. The tunnel cannot be taken out of service for inspection or maintenance without severely reducing delivery of water to customers. Additionally the Irvington Tunnel is located close to both the seismically active Hayward and Calaveras Fault Zones. The New Irvington Tunnel (NIT) provides a redundant tunnel and new seismically reinforced Alameda West and Irvington Portals.

Description

The NIT alignment will be located just to the south of the existing tunnel. It will be 18,660 feet long and have 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, and where it intersects inactive fault zones or in locations of poor ground conditions.

The NIT project is currently in construction and approximately 99% complete. Major project elements are listed below.

- Conventional mining methods were used for excavation 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 was completed by multiple road header tunneling machines, and limited, controlled detonation in areas of hard rock. Spoils disposal was taken to fill sites just north of the San Antonio Pump Station (SAPS) near the intersection of Calaveras Road and Interstate 680. The completed spoils fills will create a visual barrier to new quarry operation located near Calaveras Road. Potentially contaminated spoils were screened, separated, and if found to contain contaminants, hauled to a permitted landfill.
- At the Irvington Portal, tunnel connections were made to Bay Division Pipeline (BDPL) Nos. 1, 2, and 5 and to BDPL Nos. 3 and 4. Control valves were directly buried with instrumentation and electrical gear in a small control building. At the Alameda West Portal, the tunnel was 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.
- A new access bridge was constructed across Alameda Creek to accommodate temporary construction traffic and on-going SFPUC Alameda West Portal operations.
- A Groundwater Management Program was developed that includes two (2) years of pre-construction monitoring of wells, springs, creeks, ponds, and wetlands; environmental habitat construction mitigation measures; and two (2) 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 were constructed, including undergrounding of portal structures and new card access controlled gates and security fences.

-
- In the March 2014 Notice of Change, simplifications were made to the design of the new security structure for the existing Alameda West Portal. The design changes included a more secure structure with a smaller footprint and removal of pipe manifolds that will no longer be in service.

Scope Refinements

There are no new scope refinements to this project.

35902, Alameda Siphon #4

Background

This project is provided in response to the Seismic Reliability and Delivery Reliability LOS goals. The three (3) existing Alameda Siphons extend approximately 3,000 feet across the Sunol Valley. They cross the Calaveras Fault and are vulnerable to a major earthquake on that fault. The primary purpose of this project is to provide a seismically reliable pipeline that will withstand a major earthquake on the Calaveras Fault.

Description

The Alameda Siphon #4 Project extends approximately 3,000 feet from the Alameda East Portal across both the Calaveras Fault and Alameda Creek to the Alameda West Portal.

The project primarily consists of:

- A 66-inch-diameter welded steel pipeline with 310 feet of special trench design and thicker-walled pipe in the fault rupture zone, and a tunneled crossing of Alameda Creek.
- A 96-inch-diameter “blending structure” consisting of a pipe and valve manifold near the Alameda West Portal that will blend SVWTP and Hetch Hetchy water so that the existing and new Irvington Tunnels will receive a uniform quality of water.
- New isolation/throttling valves on Alameda Siphons No. 3 and 4 and new isolation valves on Alameda Siphons No. 1 and 2. The valves will be installed upstream of the blending structure.
- Ventilation improvements at Alameda East Portal for the Coast Range Tunnel required for construction access.
- New chemical injection facilities on Alameda Siphon No. 4.
- Relocation and extension of the existing overflow pipe from the Alameda East Portal about 500 feet to an existing quarry, and site fencing at Alameda East Portal. The overflow to the existing quarry includes a grouted rock riprap channel down the side of the quarry for erosion protection.
- Road improvements at the intersection with Calaveras Road for construction access.

Scope Refinements

There are no scope refinements to this project.

37001, Pipeline Repair and Readiness Improvements

Background

This project is provided in response to the Seismic Reliability and Delivery Reliability LOS goals. These goals, in part, require that facilities be repaired in the 30 days following a major seismic event to restore the ability to meet system average day demand. The facilities provided in this project are intended to facilitate the repair and replacement of damaged (damage resulting from seismic activity and other causes) sections of the system pipelines.

Description

This project is 100% complete and has been closed out. The project was separated into the three (3) following implementation phases:

- Phase A: Procurement of varied lengths and sizes of welded steel pipe and fittings for stockpiling at new storage facilities at seven (7) locations along the transmission system, west of the Coast Range Tunnel.
- Phase B: Procurement and installation of a pipe rolling machine at the Sunol Yard. The rolling machine, which has the capability to roll pipe sections up to 9 feet in diameter, will be housed in a new building with an emergency power supply.
- Phase C: Development of a pipeline repair prioritization plan, on-call emergency repair procedures and contracts, and mutual assistance agreements.

Scope Refinements

There are no scope refinements to this project.

37401, Calaveras Dam Replacement

Background

This project is provided in response to the Seismic Reliability, Delivery Reliability and Water Supply LOS goals. The dam was originally designed to store up to 96,850 acre-feet of water in the Calaveras Reservoir. Water from the reservoir is treated at the SVWTP before delivery to customers. The California Department of Water Resources Division of Safety of Dams (DSOD) has, however, mandated that the maximum reservoir level be significantly reduced because the dam is located near the active Calaveras Fault and has been determined to be seismically vulnerable. The storage volume associated with the reduced level is approximately 38,100 acre-feet (39% of original capacity). The replacement dam will restore the original reservoir capacity, and it will be designed such that it can be raised to accommodate a potential reservoir enlargement in the future.

In addition, the Alameda Creek Diversion Dam (ACDD), which diverts water from Alameda Creek to the Calaveras Reservoir, will be modified with a new fish ladder and new flow bypass tunnel and valve to allow for downstream flows below the ACDD. Fish screens will be added at the inlet to the existing Alameda Creek Diversion Tunnel (ACDT), immediately upstream of the ACDD, to prevent entrainment of fish into the tunnel. The bypass flows at ACDD, together with flow releases from new low-flow capacity valves installed at the base of the replacement Calaveras Dam, will provide water downstream of these facilities to support native aquatic

resources and future populations of steelhead trout that are being restored to the Alameda Creek Watershed. Fish screens that are compliant with current criteria of the California Department of Fish and Wildlife (CDFW) will also be added on to the existing intake adits of the intake tower at Calaveras Dam.

Description

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.

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- 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.

Scope Refinements

There are no scope refinements to this project.

37402, Calaveras Reservoir Upgrades

Background

This project, which was originally included as a sub-project to the Calaveras Dam Replacement Project, is provided in response to the Water Quality LOS goals. As a result of restricted reservoir operating levels, the reservoir experienced algal blooms that can adversely impact raw water quality and subsequently limited the ability of the SVWTP to deliver water of suitable quality. The purpose of the project is to enhance interim operations and improve raw water quality prior to completion of the replacement dam.

Description

The project consists of installing a hypolimnetic oxygenation system and associated cryogenic (oxygen generation) equipment near the dam. 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 Calaveras Dam. The project primarily consists of the new cryogenic equipment, two (2) diffuser systems in the reservoir, and miscellaneous site work.

Scope Refinements

There are no scope refinements to this project.

37403, San Antonio Backup Pipeline

Background

This project is provided in response to the Delivery Reliability LOS goals. The purpose of the San Antonio Backup Pipeline (SABPL) is to provide a means of discharging up to 313 mgd of Hetch Hetchy flow that does not meet water quality requirements due to a treatment failure or raw water quality event. This discharge can also be used in the event of an emergency shutdown of the transmission system downstream of the Alameda East Portal. The pipeline allows discharge of the Hetch Hetchy flow while simultaneously pumping water from San Antonio Reservoir to the SVWTP through the existing San Antonio Pipeline (SAPL). This new pipeline will enable the SVWTP to serve 160 mgd of treated local reservoir water while the Hetch Hetchy water is being discharged; since the Calaveras Reservoir supply to the SVWTP is limited to only 90 mgd (San Antonio needs to supply the additional 70 mgd). This function meets the LOS goals for providing average day demand to the system during an unplanned

outage of the Hetch Hetchy supply. The SABPL will also serve as a partial redundant facility to the existing SAPL, which is aging and is constructed of PCCP.

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 (3) 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.

Scope Refinements

There are no scope refinements to this project.

38101, SWWTP Expansion & Treated Water Reservoir

Background

This project is provided in response to the Delivery Reliability LOS goals. It includes two major components that were formerly separate projects. The plant expansion, which was originally included in the Additional 40 mgd Treated Water Supply Project, is provided to increase the plant's sustainable capacity (capacity with the largest unit out of service) to 160 mgd to meet the LOS goal that requires delivery of the average day demand during an outage of the Hetch Hetchy supply. The treated water reservoir (TWR), which was originally included in the Sunol Valley Treated Water Reservoir Project, is provided to meet the Water Quality LOS goals and is required in response to a California Department of Public Health compliance order. The project will significantly increase plant sustainable capacity and reliability, and system operational flexibility.

Description

The project primarily consists of:

- The expansion improvements, which increase the sustainable capacity to 160 mgd, include the addition of a new flocculation/sedimentation basin and the retrofit of six (6) of the twelve (12) existing filters. Design of improvements to the remaining six (6) filters was performed under the project, and was included as an optional bid item in the construction contract. As a result, upgrades to all 12 filters were able to be performed under the construction contract, providing an additional factor of safety for reliable and sustainable production of 160 mgd required to meet the LOS goals established for the system.
- A single 17.5-million-gallon (mg) circular TWR which was constructed along with a new 3.5-MG rectangular chlorine contact tank on the northern portion of the existing plant site.

Roughly 400,000 cubic yards of excavated material was hauled to a disposal site immediately east of the plant for disposal.

- New chemical storage and feed facilities for disinfection are constructed including sodium hypochlorite and ammonia. New fluoride facilities were also added.
- Construction of approximately 2,700 feet of 78-inch-diameter pipe that connects the new TWR to the existing plant discharge pipeline. This included a tunneled crossing of Alameda Creek.
- Nine (9) existing chemical tanks and associated electrical and instrumentation components were replaced under the construction contract. The existing chemical tanks and the associated electrical and instrumentation had reached the end of their useful life and were in jeopardy of failure.
- Miscellaneous plant improvements include a new emergency generator and improvements to the plant electrical system, substation, electrical panels, and motor control centers; an upgrade of the instrumentation and controls; a new filter washwater recovery basin; improvements to the flow distribution structure and associated facilities; replacement of the plant's existing boiler; improvements to the influent chemical mixing system; and repaving of the existing plant access road.

Scope Refinements

There are no scope refinements to this project.

38601, San Antonio Pump Station Upgrade

Background

This project is provided in response to the Delivery Reliability LOS goals. The SAPS pumps water from the San Antonio Reservoir to the SVWTP when it cannot flow by gravity; and it pumps Hetch Hetchy transmission system water to either the San Antonio Reservoir or the SVWTP when it does not meet water quality standards for delivery or is required for reservoir replenishment. The SAPS is required to have a 160 mgd sustainable capacity including during periods of power outages.

Description

The project consists of:

- Replacement of the three (3) 1,000-horsepower electrical pumps.
- Addition of two (2) 1.5-megawatt emergency generators. The generators are sized to power the three (3) electric pumps.
- Seismic retrofit of the pump station, including reinforcement of the walls, foundation improvements, and connection of the roof to the walls.

Scope Refinements

There are no scope refinements to this project.

SVI, WSIP Closeout – Sunol Region

Background

This WSIP Closeout Project for the Sunol Region was added in the March 2016 Notice of Change in response to miscellaneous identified needs and/or improvements that are needed to supplement the scope of WSIP regional projects to ensure that WSIP Level of Service (LOS) goals are fully achieved. The scopes of work of the individual sub-projects that are included within the WSIP Closeout Project for the Sunol Region are described below.

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:
 - Modifications of the current chemical injection system of overcome lack of water system pressure and volume
 - New supplemental water facilities, including possible new storage tanks, and monitoring and regulating equipment as needed
 - 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:
 - New rockfill on the east back of the quarry pond from the current drainpipe to the toe of the bank
 - Excavation and grading to remove loose bank debris and prepare the subgrade slope to receive new rockfill
 - Extension of the existing drainpipe downslope to the water line of the pond
 - 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:

- Addition of new flocculant aid polymer to Basin 5
 - Water testing to develop a range of polymer doses for the range of different water quality expected at the plant
 - Construction of new structures and facilities to store, monitor and control the application of the new polymer
 - 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:
 - Installation of new security doors at Alameda West Portal (AWP) and Irvington Portal (IVP)
 - Installation of new couplings between the valve stem and actuator for the cathodic protection at AWP and IVP
 - Refurbishment of uninterruptible power supply (UPS) and installation of new enclosures for the UPS at AWP and IVP
 - Installation of discharge pipe lateral supports, safety railings, ladder stiffening supports, and sunshades for electrical equipment on SABPL
 - **New Irvington Tunnel Water Quality Equipment Relocation** – The CUW35901 New Irvington Tunnel (NIT) project installed new water quality monitoring equipment in an underground vault to monitor water quality on Irvington Portal 2 (IP2). After the equipment was installed, problems were noted that related to safe access and water drainage. This sub-project is to relocate the water quality monitoring equipment to Building B10 for Irvington Portal 1 (IP1), and install a new pump to pump water from Irvington Tunnel 2 (IT2) to Irvington Tunnel 1 (IT1) to provide IT2 water for the water quality monitoring.
 - **San Antonio Backup Pipeline Carrier Water System Modifications** – The CUW37403 San Antonio Backup Pipeline was completed in 2016. Since that time, changes in operations have resulted in an apparent drop in water pressure in the carrier water system for two (2) chemicals including Calcium Thiosulfate for dechlorination and Hydrofluorosilicic acid for pH adjustment. The purpose of this sub-project is to modify the carrier water and chemical injection system to ensure the chemicals will be injected properly.

Scope Refinements

The following new sub-project is being added.

- **Alameda Creek Diversion Dam Power and Communication Facilities** (new sub-project addition in 2022) – The CUW37401 Alameda Creek Diversion Dam Fish Passage Facilities (WD-2729 contract) is a sub-project to the Calaveras Dam Replacement Project, which will close out on 3/31/2022. After operating the fish passage facility for over one year, a few deficiencies were discovered in the power system for the communication facilities, the main power system, and a few of the valves and gates. Job Order Contracts (small contracts less than one million dollars in value) will be used to address these issues under this new sub-project.

Bay Division Region

35301, BDPL Nos. 3 & 4 Crossover/Isolation Valves

Background

This project is provided in response to the Seismic Reliability LOS goals. The project consists of two (2) new crossover/isolation valve vaults located on either side of the Hayward Fault in Fremont. The purpose of the facilities is to automatically and/or remotely be able to shut down flow in either or both pipelines should damage occur as a result of a seismic event or other emergency and to divert flow into one pipeline in the event one survives the earthquake.

Description

The project consists of:

- Two (2) 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 (4) 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.

Scope Refinements

There are no scope refinements to this project.

35302, Seismic Upgrade of BDPL Nos. 3 & 4

Background

This project provides a seismically resistant pipeline crossing of the Hayward Fault in response to the Seismic Reliability LOS goals. BDPL Nos. 3 and 4 cross the Hayward Fault near the intersection of Mission Blvd and Interstate 680 (I-680). In fact, one of the traces of the fault intersects the pipelines under I-680. The maximum credible seismic event will cause a strike-slip displacement that will result in probable failure of both pipelines. This project provides a seismically reliable conduit between the two (2) crossover/isolation valve vaults constructed under the BDPL Nos. 3 & 4 Crossover/Isolation Valves Project for transmission of water following a maximum credible seismic event to meet LOS goals.

Description

The existing pipeline fault crossing between the two (2) crossover/isolation valve vaults constructed under the BDPL Nos. 3 & 4 Crossover/Isolation Valves Project is about 2,400 feet in length, and consists of BDPL No. 3, a 78-inch-diameter reinforced concrete cylinder pipe, and BDPL No. 4, a 96-inch-diameter PCCP. These vaults are located east and west of I-680 near the intersection of Mission Boulevard. The current project scope includes replacement of about 2,300 feet of BDPL No. 3. Ongoing investigations have determined that improvements to BDPL No. 4 are also required to facilitate the failure of BDPL No. 4 in a controlled manner that does not cause the failure of BDPL No. 3. It is planned that about 400 feet of the new BDPL No. 3 will cross Trace A under I-680 in an existing oversized corrugated metal pipe; about 300 feet that crosses Trace B under Mission Blvd. will be in a newly constructed concrete vault (“box culvert”); and the remaining new pipeline will be buried. All new construction will be in the SFPUC’s existing right-of-way (ROW).

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 (2) 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 (2) Alameda County Water District water pipelines, one (1) Union Sanitary District sewer pipeline, one (1) conduit of AT&T phone lines, and one (1) six-inch diameter PG&E gas pipeline.

Scope Refinements

There are no scope refinements to this project.

36301, SCADA System – Phase II

Background

This project is provided in response to the Delivery Reliability LOS goals. In addition, the California Department of Public Health mandated improvements to remote monitoring and operating capabilities in a compliance order to the SFPUC. The purpose of this project is to upgrade the SCADA system to allow for system-wide monitoring and control of remote facilities. The upgraded system, as well as additional monitoring and control facilities at several sites, will reduce the risks associated with unplanned outages, improve the efficiency of making planned outages, and generally improve the ability to remotely monitor and control system pressure and flow from a centralized location.

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 (5) 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 (7) 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.

Scope Refinements

There are no scope refinements to this project.

36801, BDPL Reliability Upgrade – Tunnel

Background

This project is provided in response to the Seismic Reliability and Delivery Reliability LOS goals. Previously the project included both the tunnel and pipelines at both ends in a single project. The two (2) components were separated because they each represent a significant amount of work that may best be constructed by contractors with different skill sets. The pipeline portion is included in the - BDPL Reliability Upgrade - Pipeline Project. The tunnel links the existing segments of BDPL Nos. 1 and 2 and the future BDPL No. 5 in the East Bay with those on the Peninsula. The existing portions of BDPL Nos. 1 and 2 in this very environmentally sensitive marsh location are a combination of submarine pipe and pipe on a trestle-support (the pipe and the trestle are in a deteriorated condition). The tunnel is being utilized, in part, because construction in the marsh is not environmentally acceptable.

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 (2) 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 (2) facilities were added to the original scope of work as part of the March 2014 Revised WSIP and are necessary to ensure the project will meet LOS goals:

- 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.
- 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 original 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 provides 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.

Scope Refinements

There are no scope refinements to this project.

36802, BDPL Reliability Upgrade – Pipeline

Background

This project is provided in response to the Seismic Reliability and Delivery Reliability LOS goals. This project was originally combined with the BDPL Reliability Upgrade - Tunnel Project. A critical component of the upgrade to the Bay Division transmission system is the addition of this BDPL No. 5. This new large-diameter pipeline to be built parallel to BDPL Nos. 1 and 2 in the SFPUC ROW will provide redundancy and improve seismic reliability to the transmission system. The BDPL No. 5 will include two segments: one in the East Bay and one on the Peninsula, with the new Bay Tunnel linking them.

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.

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- 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.

Scope Refinements

There are no scope refinements to this project.

36803, BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2

Background

The project is provided in response to the Delivery Reliability LOS goals. BDPL Nos. 1 and 2 are located above-ground near their crossing with the Bay Area Rapid Transit (BART) system in Fremont and are enclosed in a concrete culvert under the adjacent railroad. The objectives of this project are to reduce the risk of unplanned outages and improve system reliability in conjunction with other development in this area by relocating facilities below-ground.

Description

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.

Scope Refinements

There are no scope refinements to this project.

38001, BDPL Nos. 3 & 4 Crossovers

Background

This project is provided in response to the Seismic Reliability and Delivery Reliability LOS goals. BDPL Nos. 3 and 4 extend approximately 34 miles around the south end of San Francisco Bay. While there are currently two (2) isolation/crossover points on these pipelines, the distance between them is approximately 8 miles. This relatively large distance makes it difficult to take segments of pipe out of service for planned inspection and maintenance, and results in a large number of customers that may be impacted by an emergency outage of a pipeline. The purpose of this project is to add three (3) additional isolation/crossover facilities so that the distance between them will be approximately 4 miles, making the system easier to maintain and repair, and increasing the number of customers that would be likely to receive water within 24 hours following a major seismic event.

Description

The three (3) 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 (4) mainline valves and a crossover valve. Emergency engine generators will be included as an optional bid item.

Scope Refinements

There are no scope refinements to this project.

38901, SFPUC/EBMUD Intertie

Background

This project is provided in response to the Delivery Reliability LOS goals. The purpose of the project is to inter-connect the SFPUC and the East Bay Municipal Utility District (EBMUD) systems. The connection uses existing water system piping in the City of Hayward with connections to EBMUD and SFPUC systems on each end. The connection allows up to 30 mgd of water to flow between the two water systems in the event of critical shutdowns for emergency repairs, maintenance and/or construction activities.

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 (6) 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.

Scope Refinements

There are no scope refinements to this project.

39301, BDPL No. 4 Condition Assessment PCCP Sections

Background

This project is provided in response to the Seismic Reliability and Delivery Reliability LOS goals. An alternatives analysis and a partial condition assessment of the BDPLs were performed as part of the BDPL Reliability Upgrade - Pipeline Project. The study raised concerns about the two (2) pipeline reaches of BDPL No. 4 that are constructed of PCCP. It is recognized that PCCP has a potential for sudden failures, and the SFPUC has experienced two major failures prior to 2003. The original condition assessment, which included a desktop study and limited field investigations, identified potential for both seismic risks (associated with the gasketed joints) and questionable life expectancy (due to concerns for corrosion of the pre-stressed wires).

Description

This project is 100% 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 (6) reaches of pipe (144 feet total out of 16 miles) that are potentially distressed. During initial investigations, the condition of one (1) 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 (5) 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 (1) 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.

Scope Refinements

There are no scope refinements to this project.

BDP, WSIP Closeout – Bay Division Region

Background

This WSIP Closeout Project for the Bay Division Region was added in March 2016 Notice of Change in response to miscellaneous identified needs and/or improvements that are needed to supplement the scope of WSIP regional projects to ensure that WSIP Level of Service (LOS) goals are fully achieved. The scopes of work of the individual sub-projects that are included within the WSIP Closeout Project for the Bay Division Region are described below.

Description

- **Site Drainage and Pipe Coating Repairs** - This sub-project will focus on providing a drainage system solely within SFPUC's Right-of-Way to address an erosion issue that developed after the construction of the CUW35302 Seismic Upgrades of BDPL Nos. 3 & 4. In addition, this sub-project will include repairs to coatings on the pipe and pipe supports of the Bay Division Pipeline (BDPL) No. 3 to address issues that developed inside the articulated vault after construction was completed. The sub-project includes design, construction, and management of the drainage system work.
- **Bay Tunnel Warranty Inspection and BDPL 1 & 2 EIR Mitigation** – This sub-project advances the planning for a decommissioning study of the existing BDPL Nos. 1 and 2 until such time that the funding for a new Water 10-Year Capital Improvement Project (CIP) to further study mitigation alternatives and pursue removal of the BDPL Nos. 1 and 2 within the Don Edwards San Francisco Bay National Wildlife Refuge becomes available in FY2020-21.
- **Hydro-seeding at Bay Tunnel Project** - Due to the drought conditions and timing of hydro-seeding performed for the Bay Tunnel Project outside of the typical seasonal window, it may not be possible to file the Notice of Termination (NOT) to close out the storm water permit prior to the Bay Tunnel Project closeout date, as the 70% growth take requirement, with less than 10% noxious weeds, may not be achieved by that time. Accordingly, the scope of this sub-project provides for monitoring of the hydro-seeded areas, removal of noxious weeds and potentially re-seeding some of the areas at the tunnel portals in Menlo Park and Newark if the storm water performance objectives are not met.
- **Newark Valve Lot Additional Gravel Placement** - The Bay Tunnel Project design plans call for a portion of the Newark Valve Lot to be landscaped and hydro-seeded. However, based on recent discussions, Operations staff are requesting that gravel be placed in this area since it will be a high traffic area during shutdowns and other maintenance work. Accordingly, this sub-project provides for the purchase and placement of the gravel.
- **Corrosion Protection for Valve E50U** – The E50U Valve was installed in 2011 as part of the CUW36802 BDPL Reliability Upgrade – Pipeline Project. Immediately prior to the Bay Tunnel Project in-service/commissioning date in early Fall 2015, the Bay Tunnel Contractor completed the flanged connection of the manifold to the existing E50U Valve. However, during the installation and testing of the new flanged connection, the Bay Tunnel Contractor discovered an inconsistency in the corrosion protection isolation system of the existing valve E50U (high corrosion potential). It was decided to not authorize a Change Order to fix the corrosion problem of the E50U Valve at that time due to the risk of potential delays to the Bay Tunnel Project, at high cost, if leaks were to occur after the solution was implemented. Accordingly, this sub-project includes excavating and shoring the area around the valve, and removal of one bolt at a time for testing and replacing of the bolts (if necessary). A gasket will be purchased and may be installed if there are leaks that develop after the bolts are removed, cleaned and replaced. The proposed work on the valve will be done during the shutdown of the Bay Tunnel for warranty inspection in Winter 2016/2017.

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- **Ventilation and Sump Pump Systems Installation (new sub-project in 2018)** - This sub-project provides improvements for inspection, monitoring and maintenance associated with the construction of the CUW35302 Seismic Upgrades of BDPL Nos. 3 and 4. The BDPL No. 3 pipe, slip joint, ball joints and pipe supports and seismic monitoring equipment inside the articulated vault require on-going inspection, monitoring and maintenance. The type and frequency of inspection and maintenance were not well defined during the design phase; it is now clear that a fixed ventilation system is required for the BDPL No. 3 vault. Furthermore, the BDPL No. 4 expansion joint vault also requires access for inspection and monitoring; installation of a sump pump is required to remove water from the vault prior to inspections. Accordingly, the scope of this sub-project is to install a fixed ventilation system and a sump pump system to eliminate the need for removing access hatches and installing temporary fans and sump pump prior to accessing the vaults for frequent inspection and maintenance needs.

Scope Refinements

- There are no scope refinements to this project.

Peninsula Region

35401, Lower Crystal Springs Dam Improvements

Background

The project is provided in response to the Delivery Reliability and Water Supply LOS goals. The Lower Crystal Springs Reservoir System (Upper and Lower Crystal Springs Reservoirs) is the primary impoundment facility on the San Francisco Peninsula. Water stored in this reservoir is pumped to the San Andreas Reservoir, which subsequently provides raw water to the Harry Tracy Water Treatment Plant (HTWTP). In 1983, the California DSOD dictated that the maximum allowable water surface elevation of the reservoir be lowered by 8 feet because the dam's spillway was inadequate to safely pass a Probable Maximum Flood event. The lower maximum operating elevation reduces the storage capacity of the reservoir by 2.6 billion gallons. The purpose of this project is to make the necessary improvements to the dam so that it can safely pass the Probable Maximum Flood event, thereby allowing the ability to restore the maximum operating elevation of the reservoir.

Description

The project consists of:

- Spillway modifications that include widening the spillway, constructing two (2) 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.

Scope Refinements

There are no scope refinements to this project.

35601, New Crystal Springs Bypass Tunnel

Background

The project is provided in response to the Seismic Reliability and Delivery Reliability LOS goals. The New Crystal Springs Bypass Tunnel (NCSBT) is being constructed to provide redundancy to the existing Crystal Springs Bypass Pipeline (CSBPL). This pipeline is a critical link in the transmission system, transmitting all of the water from the East Bay to the Peninsula and City of San Francisco. The CSBPL is a PCCP and is located below a hillside along Polhemus Road in the unincorporated area of San Mateo County. The soils in this area are vulnerable to landslides and subject to failure in a major seismic event.

Description

The project consists of:

- A 4,200-foot-long tunnel with an 8-foot-diameter welded steel liner.

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- Vertical shafts on each end of the tunnel to accommodate the TBM and future maintenance.
 - The southern shaft will include a connection to the existing CSBPL near the north end of the existing Crystal Springs Bypass Tunnel; the existing pipeline has been determined to be seismically reliable in this area.
 - The northern shaft of the new tunnel will tie into the southern ends of both the Crystal Springs Pipeline (CSPL) No. 2 and the Sunset Supply Pipeline (SSPL). The connecting segment and tie-in to the SSPL will be provided by this project. However, the connecting segment and a blind flange for CSPL No. 2 will be provided by the Crystal Springs Pipeline No. 2 Replacement Project, and this project will tie into the blind flange. This contractual arrangement is used to prevent two (2) shutdowns of the CSPL No. 2.
 - New isolation valves and valve vaults.
 - Standby power near valve vault G40.
 - The existing pipeline will remain in service to provide redundancy for inspection of the tunnel.

Scope Refinements

There are no scope refinements to this project.

35701, Adit Leak Repair - Crystal Springs/Calaveras

Background

The project is provided in response to the Delivery Reliability LOS goals. The adit structures function as the outlet facilities from the reservoirs; as such they are critical links in the water supply system. The adit structures in the Lower Crystal Springs, Calaveras, and San Antonio Reservoirs have been damaged by leakage. These facilities contain the valves and piping used to control withdrawal of water from the reservoirs through horizontal tunnels. Leakage into the structures makes access difficult and unsafe and also results in deterioration of equipment. The purpose of this project is to repair the adit structures.

Description

The project consists of:

- Crystal Springs Outlet Tower No. 1: repairing leaks inside the tower, blasting and recoating piping and valves, replacing the 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.

Scope Refinements

There are no scope refinements to this project.

36101, Pulgas Balancing - Inlet/Outlet Work

Background

The project is provided in response to the Water Quality and Delivery Reliability LOS goals.

Originally this was a single project with multiple phases of work. The phases have subsequently been allocated to separate projects to facilitate construction scheduling and work by contractors with different skill sets. The Pulgas Balancing Reservoir is a 60-mg facility that helps the transmission system meet daily peak demands and dampens fluctuations of the water level in the Pulgas Tunnel. Because of its relatively large size and configuration, the water is not mixed well. The inadequate mixing results in some water remaining in the reservoir significantly longer than other water. This condition tends to degrade water quality.

Description

The project includes 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 also provided an opportunity to perform a condition assessment of the reservoir interior that has been used to help identify work associated with the Pulgas Balancing - Structural Rehabilitation & Roof Replacement Project.

Scope Refinements

There are no scope refinements to this project.

36102, Pulgas Balancing - Discharge Channel Modifications

Background

The project is provided in response to the Delivery Reliability LOS goals. As previously noted the original project has been divided into separate projects to facilitate construction. The Pulgas Balancing Reservoir includes a discharge channel to convey water from the transmission system to the Upper Crystal Springs Reservoir. The channel is over 70 years old, does not have sufficient capacity to accommodate peak flow rates, and is in need of repair.

Description

The discharge channel modifications to be built under this project will accommodate the anticipated maximum flow of 250 mgd. Project components include raising the channel walls, repairing concrete cracks and exposed reinforcing steel, strengthening and interconnecting the channel floor sections, and strengthening the tall tapered wall near the Pulgas Tunnel.

Scope Refinements

There are no scope refinements to this project.

36103, Pulgas Balancing - Structural Rehabilitation & Roof Replacement

Background

The project is provided in response to the Water Quality and Delivery Reliability LOS goals. As previously noted, the original project has been divided into separate projects to facilitate construction. The Pulgas Balancing Reservoir is seismically vulnerable, requires improvements for sanitary protections, and requires general rehabilitation of miscellaneous structural, mechanical and electrical systems. During the shutdown to enable inlet/outlet construction associated with the Pulgas Balancing – Inlet/Outlet Work Project, a general condition assessment was conducted that documented areas of general structural deterioration on the interior of the reservoir.

Description

The project includes structural rehabilitation of the reservoir, which consists of seismic retrofit of the walls, installation of a new steel frame roof, and repairs of concrete cracks and exposed reinforcing steel. The general rehabilitation also includes the installation of a new ventilation system and sampling ports, the replacement of utility piping, and the upgrade of the electrical system.

Scope Refinements

There are no scope refinements to this project.

36105, Pulgas Balancing - Modification of the Existing Dechloramination Facility

Background

The project is provided in response to the Water Quality and Delivery Reliability LOS goals. Water in the transmission system is chloraminated for disinfection and pH adjusted for corrosion control. The Dechloramination Facility removes chlorine and ammonia and adjusts the pH of the drinking water prior to the water being discharged to Upper Crystal Springs Reservoir to maintain compliance with Regional Water Quality Control Board requirements and to reduce nutrient loading to the reservoir. The flow rate of water that is discharged to the reservoir is affected by the continuing changes in system demand that occur throughout the day. Therefore, the flows through the existing Dechloramination Facility change frequently, causing added complexity to the process control requirements. The facility has experienced difficulty in treatment due to the flow fluctuations and process complexity. This project is intended to, at a minimum, modify the pH and dechlorination systems to provide more reliable compliance with existing regulations.

Description

Improvements to the dechloramination and pH control facilities are necessary to address immediate compliance issues. The modifications are anticipated to primarily be made to the flow measurement and control system, and to the various process control and chemical feed systems. Emphasis will be placed on chlorine removal and pH adjustment first to comply with existing regulations, with consideration towards the interdependent secondary goal of maximizing ammonia removal for nutrient control in the reservoirs. The scope of this project will be refined further as design efforts continue to move forward.

Scope Refinements

There are no scope refinements to this project.

36501, Cross Connection Controls

Background

The project is provided in response to the Water Quality LOS goals. The Cross Connection Controls Project addresses requirements of the California Department of Public Health. Throughout the transmission system there are 304 sites, such as air valves and blow-off points, where potential cross connections exist.

Description

The project consists of providing improvements at the 304 sites identified 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 protection devices
- Reconstruct or raise existing vaults
- Install new vault covers
- Replace existing air valves
- Modify, relocate, or remove existing blow-off facilities

Scope refinements

There are no scope refinements to this project.

36601/02/03, Harry Tracy Water Treatment Plant Short-Term Improvements

Background

These three (3) projects are provided in response to the Seismic Reliability and Delivery Reliability LOS goals. The HTWTP treats surface water supplies from the Peninsula reservoirs for delivery to customers in Northern San Mateo County and the City of San Francisco. These projects include process and seismic improvements to the existing coagulation, flocculation, and filtration systems to facilitate the ability to reliably deliver treated water. The work has been divided into three (3) projects to facilitate full-scale performance testing and subsequent construction of the improvements.

Description

The projects consist of:

- CUW36601 (HTWTP Short-Term Improvements - Demo Filters): Retrofit of two (2) filters and full-scale performance demonstration testing (project has been completed).
- CUW36602 (HTWTP Short-Term Improvements - Remaining Filters): Scope of that project combined with Project CUW36602.
- CUW36603 (HTWTP Short-Term Improvements – Coagulation & Flocculation/Remaining Filters):
 - Coagulation improvements that 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 that include reconfiguring the baffling system to reduce headloss by widening the channels, adding new mechanical mixers with variable speed controls to improve performance and efficiency, and seismically retrofitting the walkways and basin walls.
 - Filtration modifications to eight (8) of the ten (10) existing filters (two (2) were replaced in Project CUW36601), replacing effluent control valves and backwash supply valves, providing a filter to waste system, installing new underdrains and media, and seismically retrofitting the basin walls.

Scope Refinements

There are no scope refinements to this project.

36701, Harry Tracy Water Treatment Plant Long-Term Improvements

Background

The project is provided in response to the Seismic Reliability and Delivery Reliability LOS goals, and also addresses maintaining regulatory compliance in the Water Quality LOS goals. The purpose of the HTWTP Long-Term Improvements Project is to improve delivery reliability and provide seismic upgrades to achieve a sustained capacity of 140 mgd for at least 60 days, and to provide 140 mgd within 24 hours following a seismic event on the San Andreas Fault. The raw water quality from the Peninsula reservoirs, while typically of very high quality, can vary significantly and may occasionally be relatively poor due to sporadic filter-clogging algae blooms and high turbidity events. Planning studies for this project concluded that the direct filtration process can adequately treat poor raw water quality and meet all water quality requirements, but that the plant capacity may be diminished since the filters clog more rapidly. In order to assure capacity under all raw water quality conditions, implementation of a clarification process was recommended. During the planning process, it was decided that the frequency of occurrence of poor raw water quality events was acceptable to continue employing the direct filtration process, but that new filters should be added to ensure capacity under most water quality conditions. It was acknowledged that the plant may not be capable of achieving a sustained capacity of 140 mgd during some poor raw water quality conditions. The process design associated with this project will employ direct filtration (sedimentation basins are not included upstream of the filters). However, reliability will be added through the addition of new filters.

Description

The project consists of:

- Hydraulic improvements in the various treatment units to reduce headloss and increase capacity.
- Improvements to the disinfection process by upgrading the ozone generation system and backup oxygen supply.
- Expansion of the filtration process capacity by adding five (5) new filters.
- Improvements to the sludge handling system, including the addition of improved thickening and dewatering systems.
- Improvements to the washwater system, including the addition of a second washwater tank, associated equipment and piping.
- Seismic upgrade to all critical process units.
- Electrical upgrade, including a new substation, switchgear, and motor control center. New emergency generators are being provided as part of the Standby Power Facilities - Various Locations Project.
- Interim seismic response improvements, such as automated valves, to minimize seismic hazards until the long-term improvements are complete.
- New 11.0 mg TWR and subsequent abandonment of the existing 6.5 mg and 8.0 mg TWRs.
- New seismically reliable pipelines just east of the existing TWRs.
- Miscellaneous improvements to chemical feed systems, site piping, drainage, and roads.
- Addition of a third 2-megawatt generator set to satisfy emergency power needs of new facilities added as part of the project;

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- Replacement of parallel switchgear and motor control center to accommodate addition of third generator set and to provide additional operational flexibility;
 - Improvements to plant's recloser to increase reliability of PG&E power to the plant;
 - Additional seismic anchorage of existing equipment; and
 - Hydraulic modifications to coagulation and flocculation basins.

Scope Refinements

There are no scope refinements to this project.

36702, Peninsula Pipelines Seismic Upgrade

Background

This project was created in response to Seismic Reliability LOS goals. The San Andreas Pipeline No. 2 (SAPL2), San Andreas Pipeline No. 3 (SAPL3), and Sunset Supply Branch Pipelines (SSBPL) are three (3) drinking water transmission pipelines that deliver water from the HTWTP to customers within the Regional Water System and City and County of San Francisco. Portions of these pipelines traverse the Serra Fault, a "secondary" fault along the peninsula in San Mateo County that may experience fault rupture during a large seismic event on the San Andreas Fault. During geotechnical investigations performed for the HTWTP Long-Term Improvement Project, it was determined that fault offset on the Serra Fault during a design San Andreas event may be capable of causing pipeline failure at the fault crossings. Failure of these pipelines may prevent delivery of water required to meet post-seismic LOS goals.

Description

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 (3) 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 (5) 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 (2) new isolation valves near the Baden Valve Lot on SAPL No. 2 and No. 3 in the City of South San Francisco.

The WSIP construction contract will include both Phases 1 and 2.

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

Scope Refinements

There are no scope refinements to this project.

36901, Capuchino Valve Lot Improvements

Background

The project is provided in response to the Delivery Reliability LOS goals. The Capuchino Valve Lot is a pressure reducing station that allows water to flow from the HTWTP high-pressure zone to the low-pressure supply zone. The station includes two (2) pressure-reducing valves located in a vault.

Description

This project is 100% complete and has been closed out. The project primarily consists of replacing two (2) 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.

Scope Refinements

There are no scope refinements to this project.

37101, Crystal Springs/San Andreas Transmission System Upgrade

Background

The project is provided in response to the Seismic Reliability and Delivery Reliability LOS goals. The project includes all facilities necessary to move water from the Upper Crystal Springs Reservoir, through the Lower Crystal Springs Reservoir to San Andreas Reservoir and, ultimately, to the HTWTP Raw Water Pump Station. All of these facilities are located in very close proximity to the San Andreas Fault. The purpose of the project is to improve system reliability so that raw water will be supplied to the HTWTP as necessary to meet its sustainable capacity requirements.

Description

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 CSSA Pipeline, and the San Andreas outlet structures.

The project primarily consists of:

- The Upper Crystal Springs Dam includes two (2) discharge culverts. During geotechnical investigations, it was confirmed that the lower culvert crosses the 1906 San Andreas Fault. Improvements will be made to the lower culvert to ensure its operation following a San Andreas Event. This will involve lining the culvert to provide operational and seismic protection and providing a second discharge riser on the east side of the San Andreas Fault.
- The Lower Crystal Springs Outlet Structures Nos. 1 and 2 improvements include removal of all equipment from the outlet towers and installation of new submerged adit valves; removal of the free-standing portion of the towers and bridge to address seismic concerns; installation of reliable adit selection system; and installation of fish screens. Additionally, the tunnels and pipe systems leading from the outlet structures to the CSPA will be improved.
- A new CSPA, together with site piping and valving, will be constructed with increased capacity to meet LOS goals and other functionalities, similar to those provided by the existing pump station. Additionally, a new electrical substation; emergency backup electrical generators for emergency demands, yard valves and small auxiliary pump (but not for large pumps); and security-related site improvements will be provided.
- The emergency chlorination system at the existing CSPA will be replaced with a portable chlorination system to provide more reliable response during an emergency.
- The CSSA Pipeline improvements include improvements to the first 800 feet of pipeline (upstream end of pipeline) to provide reliable operation at a higher operating pressure; replacement of the last 1,400 feet of the pipeline (downstream end of pipeline) to address seismic hazards; replacement and refurbishment of all appurtenances and lining to provide a 50-year life and protect against surge and seismic hazards; improvements, installation, and repair to 31 drainages that cross the pipeline alignment; and road improvements to provide access for maintenance and emergency response.
- The San Andreas Reservoir Outlet Structure Nos. 2 and 3 improvements include seismic retrofit to the structures; construction of an approach channel; modifications to the adits; replacement of all equipment in the towers; and installation of emergency isolation valves, reliable adit selection systems, and fish screens.
- The pipe in the tunnel leading from the San Andreas Outlet Structure No. 2 to the raw water pump station at the HTWTP will be replaced with a tunnel liner system.
- The tunnel portal of San Andreas Outlet Structure No. 3 will be retrofitted to protect the pipeline from the Serra Fault crossing.
- The isolation valves at Upper Crystal Springs Dam were removed from the contract per direction from DSOD. The concern was that the installation of these valves would bring the Upper Crystal Springs Dam (Hwy 92) under DSOD's jurisdiction.
- Part of one segment of pipeline from the Crystal Springs Pipeline No. 2 project was added to this contract. This segment runs along the access road to the pump station and was added to avoid conflict between different Contractors.

Scope Refinements

There are no scope refinements to this project.

37801, Crystal Springs Pipeline No. 2 Replacement

Background

The project is provided in response to the Seismic Reliability and Delivery Reliability LOS goals. Crystal Springs Pipeline (CSPL) No. 2 extends from a point near the CSPA in unincorporated San Mateo County to the University Mound Reservoir in San Francisco. The pipeline is primarily 60-inch-diameter pipe with a 3.2 mile section that is 54-inch-diameter pipe. The purpose of the project is to improve the seismic reliability of the pipeline.

Description

The major project elements consist of:

- Seismic reliability improvements, which include replacing or relocating a total of 1.7 miles of pipe at 12 different locations, sliplining 3.5 miles of pipe, retrofitting pipe bridge pier supports at two (2) creek crossings, providing a new connection at the CSPA, and providing a connecting segment with a blind flange for later connection to the NCSBT. The tie-in to the NCSBT will be performed under the NCSBT Project, eliminating the need for a second shutdown of the CSPL No. 2.
- Installing a new isolation valve near the CSPA area.
- Performing site improvements, including the installing fences and enclosures for exposed facilities, concealing exposed portions of pipe, and painting exposed portions of pipe.
- Upgrading the cathodic protection system along the length of the pipeline.

Scope Refinements

There are no scope refinements to this project.

37901, San Andreas Pipeline No. 3 Installation

Background

The project is provided in response to the Seismic Reliability and Delivery Reliability LOS goals. The existing San Andreas Pipeline No. 3 (SAPL3) extends from the HTWTP to the San Pedro Valve Lot. The original extension of this pipeline to the Merced Manor Reservoir was provided by the Baden-Merced Pipeline. The Baden-Merced Pipeline is out of service and beyond repair. The purpose of this project is to replace the currently abandoned Baden-Merced Pipeline by extending the SAPL3 from the San Pedro Valve Lot in Daly City to the Merced Manor Reservoir in San Francisco.

Description

This project is 100% complete and has been closed out. The major project elements include:

- Installation of 4.4 miles of 36-inch-diameter pipe with three (3) bore-and-jack street crossings along 19th Avenue and John Daly Boulevard.
- Installation of five (5) service connections.

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- Installation of one (1) altitude valve at Merced Manor Reservoir, six (6) isolation valves, and a flow meter.
 - Installation of a new cathodic protection system.
 - Installation of three (3) connections to the San Andreas Pipeline No. 2 (SAPL2).

Scope Refinements

There are no scope refinements to this project.

39101, Baden and San Pedro Valve Lots Improvements

Background

The project is provided in response to the Seismic Reliability and Delivery Reliability LOS goals. Both of these facilities are critical to the transmission of water in the northern portion of the Peninsula.

Description

The project includes a general mechanical and seismic upgrade of existing facilities and the addition of a pressure-reducing station. Miscellaneous work will also be performed at the Pulgas Pump Station and the Pulgas Tunnel Air Shaft to facilitate moving flow southward through the system at higher pressures than normal.

The major work elements at the various sites primarily include:

- The Baden Valve Lot improvements include installation of a new pressure-reducing valve to allow water to flow from the HTWTP high-pressure zone to the low-pressure supply zone, installation of five (5) new isolation valves, replacement of three (3) existing valves, seismic retrofit of eight (8) existing vaults, replacement of onsite piping segments, replacement of the existing electrical switchgear and transformer, replacement of three (3) pumps, installation of variable frequency drives, and other miscellaneous improvements
- The San Pedro Valve Lot improvements include seismic retrofit of two (2) valve vaults, modification of the electric valve operators, installation of a new air valve, and miscellaneous site drainage improvements
- The Pulgas Pump Station improvements include replacement of one (1) isolation valve
- The Pulgas Tunnel Air Shaft improvements include site work to stabilize slopes

Scope Refinements

There are no scope refinements to this project.

PNI, WSIP Closeout – Peninsula Region

Background

A new WSIP Closeout Project for the Peninsula Region was added in the March 2016 Notice of Change in response to miscellaneous identified needs and/or improvements that are needed to supplement the scope of WSIP regional projects to ensure that WSIP Level of Service (LOS) goals are fully achieved. The scopes of work of the individual sub-projects that are included within the WSIP Closeout Project for the Peninsula Region are described below.

Description

- **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 (2) 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, due to 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:
 - A new deeper channel between the dissipation structure and the Pool 2, which would prevent fish from being trapped in the stilling basin
 - Installation of a new SCADA controls to the existing 8-in discharge pipeline and re-routing one (1) line to the stilling basin
 - Installation of additional rip-rap around the dissipation structure
 - Installation of a new 24-inch HDPE pipeline through an existing abandoned 60-inch pipe directed to the stilling basin
 - Coordination and facilitation of access for a piezometer drilling contractor during periods of concurrent work in the stilling basin
 - 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:
 - 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.
 - Depending on the verified condition, viable alternatives, including abandonment of the option to use H-53 pipeline, will be evaluated.
 - 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.
 - 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.

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- Replacement of leaking plug valves that discharge from an existing concrete vault to the stilling basin with new knife gate valves.
 - Installation of new flow control valves, isolation valves and appurtenances for Pool 2.
 - Connections to the existing 72-inch pipeline using hot taps.
 - Construction of a new concrete walkway from the access road to the existing stairs at the flow dissipation structure adjacent to the stilling basin.
- **New Crystal Springs Bypass Tunnel Electrical Modifications** – The New Crystal Springs Bypass Tunnel (CUW35601) was commissioned in July 2011 and the project administratively closed in August 2012. Various inspections of the above ground facilities discovered excessive groundwater intrusion and resultant corrosion of equipment and electrical components. Preliminary inspections identified the following in the South Shaft: groundwater seepage into the venturi meter and valve G32 vaults through pipe/conduit wall penetrations, resulting in coating failure and localized corrosion. In the North Shaft, preliminary investigations identified surface runoff is entering electrical boxes. In addition, groundwater was seeping through wall penetrations into G36 and G38 vaults. Due to the high moisture, some electrical switches and two (2) actuators failed and required replacement. This sub-project developed a thorough documentation of the above ground facilities at the north and south shafts and designed and implemented repairs as warranted. Repairs included replacement of damaged equipment and electrical components, water proofing of the affected vaults, and rechanneling of surface runoff as necessary. This subproject is 100% complete and has been closed out.
 - **Closeout of DSOD Permit Applications for LCSDI and CSSA Projects** – California Department of Water Resources, Division of Safety of Dams (DSOD) issued Alteration Permits allowing the start of construction of CUW35401, Lower Crystal Springs Dam Improvements (LCSDI) Project (Application No. 10-6) and the construction of CUW37101, Crystal Springs / San Andreas Transmission Upgrade (CSSA) Project (Application No.10-10). In June 2015, DSOD issued an approval of the completed work and requested the SFPUC to submit the final documentation of each project. Under this sub-project, the following information and documents will be extracted from the project files and submitted in a format acceptable to DSOD: affidavit of actual costs of construction and design; full size as-built drawings stamped and signed by a California registered Civil Engineer; and final concrete testing summary reports.
 - **Coordination with San Mateo County Bridge Construction over LCS** - The implementation of the CUW35401 Lower Crystal Springs Dam Improvement (LCSDI) Project required the demolition of an existing San Mateo County (SMC) Bridge that spanned over the LCSD crest. With the completion of the LCSDI Project, SMC awarded the construction contract for the new bridge and gave notice-to-proceed to the construction contractor in January 2016. To support this, SMC and the SFPUC executed a Memorandum of Understanding outlining the roles and responsibilities and expectations of both organizations. Accordingly, this sub-project will support the coordination between the SFPUC and SMC Bridge Project team. Typical activities may include response to relevant Requests for Information (RFI) such as existing site conditions, existing dam design, coordination with SFPUC Operations and Watershed groups; field inspection of placement of the bridge piers over the dam and the

construction of the SFPUC funded catwalk; and attendance of construction meetings and participating in other activities concerning the water quality in Lower Crystal Springs Reservoir, security measures, and other aspects affecting SFPUC assets.

- **Harry Tracy Water Treatment Plant (HTWTP) Improvements (new sub-project in 2018)** - The Harry Tracy Long-Term Improvements Project (CUW36701) was completed in 2014. Since 2014, the following needs were identified to address construction issues and improve operations at the plant to fully meet the LOS goals and objectives:
 - Automate the 12-inch gate valve at the High Rate Clarifiers' filter to waste manhole to eliminate the need for Operations to manually operate the valve on a frequent basis
 - Modify Sludge Tank No. 1 piping to eliminate cavitation in the washwater pumps
 - Upgrade the filters of three (3) emergency generators from passive filters to active filters to increase the effectiveness of the exhaust filtration and to reduce the need for Operations to constantly clean the filters
 - Repair leaks in the filter gallery channels where stainless steel angle plates were added to support several concrete walls
 - Automate flushing of the sludge transfer pumps and piping to eliminate the need for Operations to manually flush on a frequent basis
 - Replace and relocate failed variable frequency drives (VFDs) for the wash water and sludge transfer pumps to address an over-heating issue
 - Install double containment for the diesel fuel supply lines for the exterior generator to protect against leaks into the environment
 - Provide training and programming modifications to the Raw Water Pump Station switchgear equipment to enable remote SCADA control
 - Install vibration control monitoring system on the electrical panels at the Raw Water Pump Station to replace the existing obsolete system
 - Evaluate/Assess condition of failed mixers in the equalization basin
- **Crystal Springs/San Andreas Pipeline (CSSA) Erosion Repairs (new sub-project in 2018)** - The heavy winter storms of 2017 exacerbated erosion at two (2) watershed culvert locations, OW-13 and OW-18, along the CSSA Pipeline. Erosion has caused the CSSA Pipeline to be exposed and potentially undermined. The scope of this sub-project is to repair the erosion with systems consistent with the requirements of permitting agencies such as the State Water Resources Control Board.

Scope Refinements

There are no scope refinements to this project.

San Francisco Regional Region

30103, Regional Groundwater Storage and Recovery

Background

The project is provided in response to the Water Supply LOS goals. The purpose of the project is to develop groundwater supply in the South Westside Basin for use during drought conditions. In normal and wet years, the SFPUC will supply supplemental surface water to Daly City, San

Bruno, and the California Water Service Company (South San Francisco District) to be used in place of groundwater pumping. The reduced pumping during the normal and wet years will thereby increase the volume of groundwater in storage that can be pumped in dry years.

Description

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 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 modelled dry year water supply yield 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.

Scope Refinements

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 0.6 mgd. 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.

Below are the Phase 1 modifications and additional work that increased the contract cost for the Phase 1 construction contract:

- Several modifications resulted during the installation of the sodium hydroxide treatment systems (for pH control):
 1. Potential water quality issues were anticipated in blending groundwater with distribution system water at two of the well stations that were planned to connect to Daly City's and Cal Water's systems; these two well stations were subsequently returned to the SFPUC and were connected to the SFPUC's water system. Sodium hydroxide systems needed to be added for these two wells in order to raise the pH to be consistent with SFPUC's water quality.
 2. At five of the well stations, to prevent potential scaling and plugging of the groundwater pipeline after sodium hydroxide addition, modifications to the chemical injection systems were made to improve mixing by moving the injection point closer to the transmission line.
 3. Miscellaneous modifications were implemented including addition of chemical piping double-containment systems; retrofits to the chemical rooms to accommodate the revised sodium hydroxide injection systems; restoration of landscape and hardscape; and installation of new fencing at several well stations.
- During construction, the decision was made to change the ammonia chemical (used to create chloramine for disinfection) from aqueous ammonia to liquid ammonium sulfate, which has been found to be much safer for worker handling. This change required revisions to engineering, operational, and maintenance requirements and documents; revisions to the application for the conditional Division of Drinking Water permit; and modifications to the chemical metering pumps, chemical piping and feed systems, and programming and controls systems.
- Seven (7) remote water quality analyzer stations were installed to replace manual water sample stations in order to collect real time data needed for water quality compliance at key monitoring point locations.
- Poor pump performance at three locations was investigated and found to be due to internal corrosion and/or presence of a foreign object. The modifications to correct performance issues included investigations and forensic testing, installation of cathodic protection systems, replacement of damaged well column pipes and shafts, and well rehabilitation.
- Modification to the existing access road through Bay Area Rapid Transit's (BART's) right of way into one of the well stations was required to accommodate the turning radius of chemical delivery trucks and fire department emergency vehicles. The acquisition of the access permit from BART was significantly delayed while easement negotiations were ongoing. Additionally, Town of Colma required changes to the access design for traffic control requirements.

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- Other scope modifications include retrofit of existing transmission line flowmeters; replacement of the chemical metering pumps from progressive cavity type to diaphragm type pumps; electrical, plumbing, mechanical and chemical system modifications; changes to utility connections; programming changes; and fire alarm requirements. Other scope additions include installation of security system, flowmeters, and partition wall; additional time to perform disinfection, start-up, testing, and site restoration; and long-term rental of generators while waiting for permanent electrical connection.

Phase 2 work has been separated into two construction contracts due to the long lead-time required for easements and permits for construction at the South San Francisco well site. Phase 2A contract includes miscellaneous improvement work at multiple existing well sites such as installation of cathodic protection, variable frequency drives, and flowmeters; modification of valves; and rehabilitation of some wells. Phase 2B contract consists of work at the South San Francisco (SSF) Main Well and all related pipeline installation to connect the well to Cal Water's treatment facility and also installation of electrical equipment to be connected to PG&E power. Phase 2A is in bid and award phase, while Phase 2B is still in design phase due to several right of way permits and easements that are estimated to take more than one year to acquire.

35801, Sunset Reservoir Upgrades - North Basin

Background

The project is provided in response to the Seismic Reliability and Delivery Reliability LOS goals. Sunset Reservoir is one of three (3) terminal reservoirs in the Regional Water System that is located in San Francisco. The reservoir, which was constructed in 1938, is seismically vulnerable and in need of general rehabilitation. This upgrade project will address both areas of need.

Description

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

- Seismic rehabilitation, which includes stabilization of the soil dam embankment; a retrofit of the walls and roof using seismic joints, shear walls, diagonal bracing, and struts; and foundation improvements.
- General rehabilitation, which includes repairs of deteriorated concrete, replacement of part of the reservoir lining material, replacement of the inlet piping, installation of security fencing, landscaping upgrades, and other miscellaneous site improvements.

Scope Refinements

There are no scope refinements to this project.

37201, University Mound Reservoir Upgrades - North Basin

Background

The project is 100% complete and has been closed out. The project is provided in response to the Seismic Reliability and Delivery Reliability LOS goals. The University Mound Reservoir is one of three (3) terminal reservoirs of the Regional Water System that is located in San Francisco. The reservoir, which was constructed in 1885, is seismically vulnerable and in need of general rehabilitation. This upgrade project addresses both areas of need.

Description

The project primarily 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 repairs of deteriorated concrete; replacement of the reservoir lining material; replacement of the inlet/outlet, drain, and overflow piping; replacement of outlet and drain valves; landscaping upgrades and other miscellaneous site improvements.

Scope Refinements

There are no scope refinements to this project.

Support Projects

36302, System Security Upgrades

Background

This project is provided in response to the Delivery Reliability LOS goals. It is being implemented to reduce the risk of unplanned system outages associated with potential breaches of security.

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 lay out, 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.

Scope Refinements

There are no scope refinements to this project.

38801, Programmatic Environmental Impact Report

This project includes the preparation of a Programmatic Environmental Impact Report (PEIR) in compliance with the California Environmental Quality Act (CEQA). The WSIP establishes LOS goals and system performance objectives and includes a number of projects that will improve the Regional Water System in respect to water quality, seismic reliability, delivery reliability, and water supply to meet delivery needs through the year 2030. 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.

The PEIR was certified by the San Francisco Planning Commission on October 30, 2008. On that same day the SFPUC approved the WSIP Goals and Objectives and adopted the CEQA Findings, including a statement of overriding consideration and the Mitigation Monitoring and Reporting Program (MMRP).

Phased WSIP Variant

At the request of the SFPUC, the San Francisco Planning Department studied the Phased WSIP Variant as part of the environmental analysis. The Phased WSIP Variant establishes a mid-term planning milestone in 2018 when the SFPUC will reevaluate water demands through 2030 in the context of then-current information, analysis and available water resources. The SFPUC currently delivers approximately 265 mgd from local watersheds (Peninsula and Alameda Creek) and the Tuolumne River Watershed. By 2030, demand on the SFPUC system is expected to increase to 300 mgd. The Phased WSIP Variant will meet the 2018 purchase requests of 285 mgd by capping purchases at 265 mgd. The remaining 20 mgd will be met through water conservation, recycling and groundwater use - 10 mgd by wholesale customers and 10 mgd in San Francisco. Before 2018, the SFPUC and its 26 wholesale customers will engage in a new planning process to reevaluate water system demands and supply options, including conducting additional studies and environmental reviews necessary to address water supply needs after 2018.

Scope Refinements

There are no scope refinements to this project.

38802, Bioregional Habitat Restoration Project

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.

Scope Refinements

There are no scope refinements to this project.

38803, Vegetation Restoration of WSIP Construction Sites

Background

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.

Description

The purpose of this project is to provide maintenance, monitoring and reporting of onsite habitat restoration installed at the various WSIP construction sites after project construction work is completed.

Scope Refinements

There are no scope refinements to this project.

38804, Long Term Mitigation Endowment

Background

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.

Description

This perpetual endowment fund was requested by the United States Army Corps of Engineers and California Department of Fish and Wildlife to provide a secure source of funds for the

perpetual monitoring and maintenance of the Bioregional Habitat Restoration sites constructed in the SFPUC watershed.

Scope Refinements

There are no scope refinements to this project.

39401, 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.

Scope Refinements

The approved scope for the Watershed and Environmental Improvement Program (WEIP) remains the same as approved in April 2018. However, since 2018 there is one scope refinement. Instead of the remaining funding being applied to the Southern Skyline Boulevard Ridge Trail Extension project as envisioned in 2018, the remaining project funding will be used to acquire land and conservation easements within the Alameda Creek Watershed.

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Attachment 9: March 2022 Proposed Revised WSIP - Project-Level Schedules

Project Name	Start	Finish	FY2016				FY2017				FY2018				FY2019				FY2020				FY2021				FY2022				FY2023				FY2024			
			FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4
Regional Improvement Projects	31-Mar-00 A	01-Feb-27																																				
San Joaquin Region	01-Jul-02 A	31-Mar-21 A	<i>COMPLETED</i>																																			
Lawrence Livermore Water Quality Imprc	02-Feb-04 A	31-Jul-13 A	<i>COMPLETED</i>																																			
San Joaquin Pipeline System	19-Aug-02 A	31-Mar-16 A	<i>COMPLETED</i>																																			
Rehabilitation of Existing San Joaquin Pit	03-Jul-06 A	31-Oct-14 A	<i>COMPLETED</i>																																			
Tesla Treatment Facility	01-Jul-02 A	30-Jan-15 A	<i>COMPLETED</i>																																			
Tesla Portal Disinfection Station	01-Jul-02 A	29-Jun-07 A	<i>COMBINED WITH CUV38401</i>																																			
WSIP Closeout - San Joaquin	20-Jun-16 A	31-Mar-21 A	<i>COMPLETED</i>																																			
Sunol Valley Region	19-Dec-01 A	18-Jun-24																																				
Alameda Creek Recapture Project	30-Sep-03 A	18-Jun-24																																				
Standby Power Facilities - Various Locations	11-Jul-02 A	22-Dec-10 A	<i>COMPLETED</i>																																			
New Irvington Tunnel	19-Dec-01 A	31-Mar-18 A	<i>COMPLETED</i>																																			
Alameda Siphon #4	19-Dec-01 A	28-Jun-13 A	<i>COMPLETED</i>																																			
Pipeline Repair & Readiness Improvement	21-Apr-03 A	16-Apr-09 A	<i>COMPLETED</i>																																			
Calaveras Dam Replacement	03-Sep-02 A	31-Mar-22																																				
Calaveras Reservoir Upgrades	19-Nov-03 A	28-Jul-06 A	<i>COMPLETED</i>																																			
San Antonio Backup Pipeline	03-Sep-02 A	30-Jun-16 A	<i>COMPLETED</i>																																			
SVWTP Expansion & Treated Water Reservoir	22-Apr-05 A	31-Oct-14 A	<i>COMPLETED</i>																																			
SVWTP Calaveras Road	01-Feb-07 A	14-Dec-07 A	<i>ELIMINATED</i>																																			
SVWTP Treated Water Reservoir	15-Sep-03 A	02-Mar-07 A	<i>COMBINED WITH CUV38101</i>																																			
San Antonio Pump Station Upgrade	01-Jul-04 A	29-Jun-12 A	<i>COMPLETED</i>																																			
WSIP Closeout - Sunol Valley	01-Jul-16 A	30-Jun-22	<i>COMPLETED</i>																																			
Bay Division Region	19-Dec-01 A	31-Mar-21 A	<i>COMPLETED</i>																																			
BDPL Nos. 3 & 4 Crossover/Isolation Valve	06-Jan-03 A	31-Jul-09 A	<i>COMPLETED</i>																																			
Seismic Upgrade of BDPL Nos. 3 & 4	22-Oct-04 A	30-Jul-18 A	<i>COMPLETED</i>																																			
SCADA System - Phase II	22-Apr-05 A	28-May-13 A	<i>COMPLETED</i>																																			
BDPL Reliability Upgrade / Tunnel	19-Dec-01 A	30-Aug-16 A	<i>COMPLETED</i>																																			
BDPL Reliability Upgrade - Pipeline	19-Dec-01 A	31-Mar-16 A	<i>COMPLETED</i>																																			
BDPL Reliability Upgrade - Relocation of	24-Apr-06 A	28-May-10 A	<i>COMPLETED</i>																																			
BDPL Nos. 3 & 4 Crossovers	17-Feb-04 A	30-Jun-14 A	<i>COMPLETED</i>																																			
SFPUC/EBMUD Intertie	24-Jun-02 A	20-Mar-14 A	<i>COMPLETED</i>																																			
BDPL No. 4 Condition Assessment PCCF	04-Aug-06 A	06-Feb-09 A	<i>COMPLETED</i>																																			
WSIP Closeout - Bay Division	06-Jul-16 A	31-Mar-21 A	<i>COMPLETED</i>																																			
Peninsula Region	01-Nov-00 A	30-Dec-21 A	<i>COMPLETED</i>																																			
Lower Crystal Springs Dam Improvement	01-Nov-00 A	28-Dec-12 A	<i>COMPLETED</i>																																			
New Crystal Springs Bypass Tunnel	07-Jan-02 A	17-Aug-12 A	<i>COMPLETED</i>																																			
Adit Leak Repair - Crystal Springs/Calaveras	01-Apr-05 A	31-Jul-08 A	<i>COMPLETED</i>																																			
Pulgas Balancing - Inlet/Outlet Work	15-May-02 A	11-May-06 A	<i>COMPLETED</i>																																			
Pulgas Balancing - Discharge Channel Modification	01-Apr-05 A	30-Jul-10 A	<i>COMPLETED</i>																																			
Pulgas Balancing - Structural Rehabilitation	03-Apr-06 A	28-Dec-12 A	<i>COMPLETED</i>																																			
Pulgas Balancing - Laguna Creek Sedimentation	31-Mar-06 A	31-Dec-07 A	<i>COMPLETED</i>																																			
Pulgas Balancing - Modifications of the E	02-Apr-07 A	20-Mar-13 A	<i>COMPLETED</i>																																			
Cross Connection Controls	01-Jul-03 A	30-Apr-09 A	<i>COMPLETED</i>																																			
HTWTP Short-Term Improvements (Demonstration)	04-Sep-02 A	14-Nov-06 A	<i>COMPLETED</i>																																			

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

Attachment 9: March 2022 Proposed Revised WSIP - Project-Level Schedules

Project Name	Start	Finish	FY2016				FY2017				FY2018				FY2019				FY2020				FY2021				FY2022				FY2023				FY2024			
			FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4
HTWTP Short-Term Improvements - Ren	12-Jan-06 A	22-Feb-08 A	<i>COMBINED WITH CUW36603</i>																																			
HTWTP Short-Term Improvements - Coa	03-Jul-06 A	28-Jul-10 A	<i>COMPLETED</i>																																			
HTWTP Long-Term Improvements	01-Jul-03 A	30-Dec-16 A	<i>COMPLETED</i>																																			
Peninsula Pipelines Seismic Upgrade	01-Jul-09 A	06-Jul-16 A	<i>COMPLETED</i>																																			
Capuchino Valve Lot Improvements	22-Apr-05 A	19-Aug-08 A	<i>COMPLETED</i>																																			
Crystal Springs/San Andreas Transmissic	18-Aug-03 A	30-Jun-15 A	<i>COMPLETED</i>																																			
Crystal Springs Pipeline No. 2 Replacem	15-Jan-04 A	31-Dec-14 A	<i>COMPLETED</i>																																			
San Andreas Pipeline No. 3 Installation	15-Jan-04 A	30-Aug-12 A	<i>COMPLETED</i>																																			
Baden and San Pedro Valve Lots Improv	03-Oct-05 A	29-Mar-13 A	<i>COMPLETED</i>																																			
WSIP Closeout - Peninsula	01-Jul-16 A	30-Dec-21 A	<i>COMPLETED</i>																																			
San Francisco Regional Region	31-Mar-00 A	01-Feb-27																																				
Regional Groundwater Storage and Rec	01-Jun-03 A	01-Feb-27																																				
Sunset Reservoir - North Basin	31-Mar-00 A	10-Sep-10 A	<i>COMPLETED</i>																																			
University Mound Reservoir - North Basir	24-Oct-05 A	29-Mar-13 A	<i>COMPLETED</i>																																			
Support Projects	13-Apr-04 A	01-Feb-27																																				
System Security Upgrades	07-Jan-06 A	19-Apr-19 A	<i>COMPLETED</i>																																			
Programmatic EIR	13-Apr-04 A	30-Jun-09 A	<i>COMPLETED</i>																																			
Bioregional Habitat Restoration	06-Sep-06 A	01-Oct-24																																				
Vegetation Restoration of WSIP Construc	02-Jan-13 A	30-Jun-16 A	<i>COMPLETED</i>																																			
Long Term Mitigation Endowment	05-Mar-14 A	01-Oct-24																																				
Program Management Project	01-Aug-05 A	01-Feb-27																																				
Watershed and Environmental Improven	02-Jan-07 A	30-Jun-22																																				

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

Attachment 10: March 2022 Proposed Revised WSIP - Phase-Level Schedules

Project Name	Start	Finish	FY2016				FY2017				FY2018				FY2019				FY2020				FY2021				FY2022				FY2023				FY2024				FY2025			
			FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4
Regional Improvement Projects	31-Mar-00 A	01-Feb-27																																								
San Joaquin Region	01-Jul-02 A	31-Mar-21 A	COMPLETED																																							
Lawrence Livermore Water Quality Imprc	02-Feb-04 A	31-Jul-13 A	COMPLETED																																							
Project Management	02-Feb-04 A	31-Jul-13 A																																								
Planning	02-Feb-04 A	28-Sep-07 A																																								
Environmental	31-Aug-06 A	25-Feb-09 A																																								
Design	01-Oct-07 A	31-Mar-09 A																																								
Bid & Award	01-Dec-08 A	25-Aug-09 A																																								
Construction Management	27-Feb-09 A	11-Mar-11 A																																								
Construction	26-Aug-09 A	11-Mar-11 A																																								
Closeout	14-Mar-11 A	31-Jul-13 A																																								
San Joaquin Pipeline System	19-Aug-02 A	31-Mar-16 A	COMPLETED																																							
Project Management	19-Aug-02 A	31-Mar-16 A																																								
Planning	19-Aug-02 A	28-Dec-06 A																																								
Environmental Review	17-Feb-04 A	27-Mar-12 A																																								
Right of Way	02-Jan-07 A	29-Mar-13 A																																								
Design	02-Jan-07 A	23-Mar-11 A																																								
Bid & Award	27-Apr-09 A	21-Jul-11 A																																								
Construction Management	03-Feb-09 A	31-Mar-16 A																																								
Construction	13-Oct-09 A	31-Mar-16 A																																								
Closeout	24-Oct-13 A	31-Mar-16 A																																								
Rehabilitation of Existing San Joaquin Pij	03-Jul-06 A	31-Oct-14 A	COMPLETED																																							
Project Management	03-Jul-06 A	31-Oct-14 A																																								
Planning	03-Jul-06 A	27-Jun-14 A																																								
Environmental Review	26-Sep-06 A	31-Dec-12 A																																								
Design	31-Jul-06 A	31-Mar-11 A																																								
Bid & Award	02-May-08 A	31-Mar-11 A																																								
Construction Management	03-Jul-06 A	19-Sep-11 A																																								
Construction	02-Oct-06 A	01-Nov-11 A																																								
Closeout	20-Sep-11 A	31-Oct-14 A																																								
Tesla Treatment Facility	01-Jul-02 A	30-Jan-15 A	COMPLETED																																							
Project Management	01-Jul-02 A	30-Jan-15 A																																								
Planning	01-Jul-02 A	29-Jun-07 A																																								
Environmental	30-Jun-06 A	25-Feb-09 A																																								
Right of Way	17-Mar-08 A	16-Oct-08 A																																								
Design	15-Feb-07 A	20-Nov-09 A																																								
Bid & Award	30-Jan-08 A	10-Nov-08 A																																								
Construction Management	02-Feb-09 A	31-Oct-14 A																																								
Construction	08-Sep-08 A	31-Oct-14 A																																								
Closeout	01-Jul-11 A	30-Jan-15 A																																								
Tesla Portal Disinfection Station	01-Jul-02 A	29-Jun-07 A	COMBINED WITH C UW38401																																							
Project Management	01-Jul-02 A	29-Jun-07 A																																								
Planning	01-Jul-02 A	29-Jun-07 A																																								
Environmental	19-Aug-04 A	29-Dec-06 A																																								

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

Attachment 10: March 2022 Proposed Revised WSIP - Phase-Level Schedules

Project Name	Start	Finish	FY2016				FY2017				FY2018				FY2019				FY2020				FY2021				FY2022				FY2023				FY2024				FY2025			
			FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4				
WSIP Closeout - San Joaquin	20-Jun-16 A	31-Mar-21 A	COMPLETED																																							
Project Management	20-Jun-16 A	31-Mar-21 A	[Gantt bar: Project Management]																																							
Design	02-Oct-17 A	21-Sep-19 A	[Gantt bar: Design]																																							
Bid & Award (JOC Process)	23-Sep-19 A	28-Feb-20 A	[Gantt bar: Bid & Award]																																							
Construction Management	09-May-17 A	31-Mar-21 A	[Gantt bar: Construction Management]																																							
Construction	09-May-17 A	31-Mar-21 A	[Gantt bar: Construction]																																							
Close Out	01-May-18 A	31-Mar-21 A	[Gantt bar: Close Out]																																							
Sunol Valley Region	19-Dec-01 A	18-Jun-24																																								
Alameda Creek Recapture Project	30-Sep-03 A	18-Jun-24																																								
Project Management	30-Sep-03 A	18-Jun-24	[Gantt bar: Project Management]																																							
Planning	30-Sep-03 A	14-Nov-14 A	[Gantt bar: Planning]																																							
Environmental	23-Apr-10 A	13-Apr-21 A	[Gantt bar: Environmental]																																							
Design	01-Jul-10 A	18-Dec-20 A	[Gantt bar: Design]																																							
Bid & Award	17-Jan-17 A	21-Jun-21 A	[Gantt bar: Bid & Award]																																							
Construction Management	01-Jun-21 A	18-Jan-23	[Gantt bar: Construction Management]																																							
Construction	21-Jun-21 A	18-Jan-23	[Gantt bar: Construction]																																							
Closeout	19-Jan-23	18-Jun-24	[Gantt bar: Closeout]																																							
Standby Power Facilities - Various Locati	11-Jul-02 A	22-Dec-10 A	COMPLETED																																							
Project Management	11-Jul-02 A	22-Dec-10 A	[Gantt bar: Project Management]																																							
Planning	11-Jul-02 A	30-Jun-05 A	[Gantt bar: Planning]																																							
Environmental (CatEx)	26-May-05 A	23-Sep-05 A	[Gantt bar: Environmental]																																							
Design	01-Jul-05 A	04-May-07 A	[Gantt bar: Design]																																							
Bid & Award	16-Apr-07 A	31-Dec-07 A	[Gantt bar: Bid & Award]																																							
Construction Management	10-Dec-07 A	22-Jun-10 A	[Gantt bar: Construction Management]																																							
Construction	10-Dec-07 A	28-May-10 A	[Gantt bar: Construction]																																							
Closeout	10-Sep-08 A	07-Oct-10 A	[Gantt bar: Closeout]																																							
New Irvington Tunnel	19-Dec-01 A	31-Mar-18 A	COMPLETED																																							
Project Management	19-Dec-01 A	31-Mar-18 A	[Gantt bar: Project Management]																																							
Planning	19-Dec-01 A	07-Oct-05 A	[Gantt bar: Planning]																																							
Environmental	25-Aug-04 A	07-Mar-11 A	[Gantt bar: Environmental]																																							
Right of Way	03-Jul-06 A	29-Dec-17 A	[Gantt bar: Right of Way]																																							
Design	11-Oct-05 A	12-Jan-10 A	[Gantt bar: Design]																																							
Bid & Award	05-Jan-09 A	21-Jul-10 A	[Gantt bar: Bid & Award]																																							
Construction Management	28-Sep-09 A	30-Mar-18 A	[Gantt bar: Construction Management]																																							
Construction	31-Mar-09 A	30-Sep-17 A	[Gantt bar: Construction]																																							
Close Out	02-Oct-17 A	31-Mar-18 A	[Gantt bar: Close Out]																																							
Alameda Siphon #4	19-Dec-01 A	28-Jun-13 A	COMPLETED																																							
Project Management	19-Dec-01 A	28-Jun-13 A	[Gantt bar: Project Management]																																							
Planning	19-Dec-01 A	07-Oct-05 A	[Gantt bar: Planning]																																							
Environmental	25-Aug-04 A	30-Mar-10 A	[Gantt bar: Environmental]																																							
Right of Way	04-Jun-07 A	09-Feb-09 A	[Gantt bar: Right of Way]																																							
Design	11-Oct-05 A	13-Mar-09 A	[Gantt bar: Design]																																							
Bid & Award	03-Nov-08 A	25-Aug-09 A	[Gantt bar: Bid & Award]																																							

- [Grey] Project Management
- [Blue] Environmental
- [Red] Right-of-Way
- [Dark Red] Construction Management
- [Grey] Closeout
- [Cyan] Planning
- [Yellow] Design
- [Orange] Bid & Award
- [Green] Construction
- [Purple] Program Manage...

Attachment 10: March 2022 Proposed Revised WSIP - Phase-Level Schedules

Project Name	Start	Finish	FY2016				FY2017				FY2018				FY2019				FY2020				FY2021				FY2022				FY2023				FY2024				FY2025			
			FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4				
Construction	01-Jul-03 A	31-Jan-26																																								
Closeout	18-Feb-22 A	01-Feb-27																																								
Sunset Reservoir - North Basin	31-Mar-00 A	10-Sep-10 A	COMPLETED																																							
Project Management	31-Mar-00 A	10-Sep-10 A																																								
Planning	31-Mar-00 A	28-Sep-01 A																																								
Environmental	21-May-04 A	21-Dec-04 A																																								
Design	01-Oct-01 A	12-Apr-06 A																																								
Bid & Award	22-Oct-04 A	10-Oct-06 A																																								
Construction Management	11-Apr-05 A	26-Mar-09 A																																								
Construction	11-Apr-05 A	09-Nov-09 A																																								
Close Out	13-Nov-06 A	10-Sep-10 A																																								
University Mound Reservoir - North Basin	24-Oct-05 A	29-Mar-13 A	COMPLETED																																							
Project Management	24-Oct-05 A	29-Mar-13 A																																								
Planning	24-Oct-05 A	06-Apr-07 A																																								
Environmental	26-Dec-06 A	18-Jul-07 A																																								
Design	07-Apr-07 A	24-Mar-09 A																																								
Bid & Award	02-Feb-09 A	31-Jul-09 A																																								
Construction Management	03-Aug-09 A	23-Dec-11 A																																								
Construction	27-Jul-09 A	23-Aug-11 A																																								
Close Out	23-Aug-11 A	29-Mar-13 A																																								
Support Projects	13-Apr-04 A	01-Feb-27																																								
System Security Upgrades	07-Jan-06 A	19-Apr-19 A	COMPLETED																																							
Project Management	19-Jun-06 A	19-Apr-19 A																																								
Planning	19-Jun-06 A	08-Jul-09 A																																								
Environmental	19-Jun-06 A	28-Mar-12 A																																								
Right of Way	26-Nov-08 A	26-Nov-08 A																																								
Design	19-Jun-06 A	03-Aug-15 A																																								
Bid & Award	07-Jan-06 A	10-Mar-14 A																																								
Construction Management	13-Nov-06 A	09-Apr-19 A																																								
Construction	13-Nov-06 A	09-Apr-19 A																																								
Close Out	24-Sep-07 A	09-Apr-19 A																																								
Programmatic EIR	13-Apr-04 A	30-Jun-09 A	COMPLETED																																							
Project Management	13-Apr-04 A	30-Jun-09 A																																								
Planning	13-Apr-04 A	28-Feb-07 A																																								
Environmental Review	15-Jun-04 A	30-Jun-09 A																																								
Bioregional Habitat Restoration	06-Sep-06 A	01-Oct-24																																								
Project Management	01-Nov-06 A	01-Oct-24																																								
Planning	06-Sep-06 A	31-Dec-07 A																																								
Environmental Review	03-Jan-07 A	13-Feb-15 A																																								
Right of Way	02-Jul-08 A	01-Oct-24																																								
Design	16-Jul-07 A	27-Jul-15 A																																								
Bid & Award	04-Dec-09 A	29-Jan-16 A																																								
Construction Management	22-Jun-10 A	27-Jul-18 A																																								
Construction	06-Mar-09 A	31-May-18 A																																								
Closeout	29-Jul-14 A	01-Oct-24																																								

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

Attachment 10: March 2022 Proposed Revised WSIP - Phase-Level Schedules

Project Name	Start	Finish	FY2016				FY2017				FY2018				FY2019				FY2020				FY2021				FY2022				FY2023				FY2024				FY2025			
			FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4				
Vegetation Restoration of WSIP Construc	02-Jan-13 A	30-Jun-16 A	COMPLETED																																							
Project Management	02-Jan-13 A	30-Jun-16 A	[Grey bar]																																							
Construction Management	02-Jan-13 A	31-Mar-16 A	[Dark Red bar]																																							
Construction (Maintenance)	02-Jan-13 A	31-Mar-16 A	[Green bar]																																							
Closeout	01-Apr-16 A	30-Jun-16 A	[Grey bar]																																							
Long Term Mitigation Endowment	05-Mar-14 A	01-Oct-24	[Grey bar]																																							
Program Management Project	01-Aug-05 A	01-Feb-27	[Blue bar]																																							
Watershed and Environmental Improven	02-Jan-07 A	30-Jun-22	[Grey bar]																																							
Project Management	02-Jul-07 A	30-Jun-22	[Grey bar]																																							
Planning	02-Jan-07 A	29-Jul-11 A	[Cyan bar]																																							
Environmental	05-Mar-12 A	31-Mar-20 A	[Blue bar]																																							
Right of Way	14-Mar-11 A	31-Dec-17 A	[Red bar]																																							
Design	31-May-11 A	30-Sep-19 A	[Yellow bar]																																							
Bid & Award	30-Sep-19 A	30-Sep-19 A	[Orange bar]																																							
Construction Management	01-Oct-19 A	30-Jun-22	[Dark Red bar]																																							
Construction	01-Oct-19 A	30-Jun-22	[Green bar]																																							
Closeout	22-Feb-22	30-Jun-22	[Grey bar]																																							

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

Attachment 11: March 2022 Proposed Revised WSIP - Summary of Project Level Cost

PROJECT NO.	Project Name	CONSTRUCTION COSTS ⁽¹⁾	DELIVERY COSTS ⁽²⁾	OTHER COSTS ⁽³⁾	TOTAL PROJECT COSTS
San Joaquin Region		\$221,877,376	\$117,137,282	\$8,184,486	\$347,199,144
CUW36401	Lawrence Livermore Water Quality Improvement <i>(Completed)</i>	\$1,481,801	\$2,716,446	-	\$4,198,247
CUW37301	San Joaquin Pipeline System <i>(Completed)</i>	\$125,965,937	\$73,780,110	\$3,431,968	\$203,178,014
CUW37302	Rehabilitation of Existing San Joaquin Pipelines <i>(Completed)</i>	\$11,434,583	\$9,695,039	\$24,000	\$21,153,622
CUW38401	Tesla Treatment Facility <i>(Completed)</i>	\$81,277,518	\$27,205,570	\$4,728,519	\$113,211,607
CUW38701	Tesla Portal Disinfection Station <i>(Combined with CUW38401)</i>	-	\$2,081,278	-	\$2,081,278
CUWSJI0101	WSIP Closeout - San Joaquin <i>(Completed)</i>	\$1,717,537	\$1,658,839	-	\$3,376,376
Sunol Valley Region		\$1,104,065,973	\$358,236,832	\$8,088,321	\$1,470,391,126
CUW35201	Alameda Creek Recapture Project	\$21,663,000	\$20,199,645	\$2,104,750	\$43,967,395
CUW35501	Standby Power Facilities - Various Locations <i>(Completed)</i>	\$9,602,901	\$3,347,665	-	\$12,950,566
CUW35901	New Irvington Tunnel <i>(Completed)</i>	\$272,130,689	\$65,813,793	\$2,461,876	\$340,406,358
CUW35902	Alameda Siphon #4 <i>(Completed)</i>	\$41,479,253	\$23,209,275	\$261,978	\$64,950,507
CUW37001	Pipeline Repair & Readiness Improvements <i>(Completed)</i>	\$2,763,325	\$2,432,056	-	\$5,195,381
CUW37401	Calaveras Dam Replacement	\$617,883,876	\$173,392,587	\$2,789,860	\$794,066,323
CUW37402	Calaveras Reservoir Upgrades <i>(Completed)</i>	\$1,274,600	\$415,953	-	\$1,690,552
CUW37403	San Antonio Backup Pipeline <i>(Completed)</i>	\$33,339,396	\$20,255,287	-	\$53,594,683
CUW38101	SVWTP Expansion & Treated Water Reservoir <i>(Completed)</i>	\$94,121,180	\$35,002,638	\$469,856	\$129,593,674
CUW38102	SVWTP Calaveras Road <i>(Eliminated)</i>	-	\$34,654	-	\$34,654
CUW38201	SVWTP Treated Water Reservoir <i>(Combined with CUW38101)</i>	-	\$5,056,596	-	\$5,056,596
CUW38601	San Antonio Pump Station Upgrade <i>(Completed)</i>	\$7,516,865	\$5,377,727	-	\$12,894,592
CUWSVI0101	WSIP Closeout - Sunol Valley	\$2,290,887	\$3,698,958	-	\$5,989,845
Bay Division Region		\$464,148,073	\$173,288,209	\$8,014,106	\$645,450,387
CUW35301	BDPL Nos. 3 & 4 Crossover/Isolation Valves <i>(Completed)</i>	\$20,649,649	\$6,389,500	-	\$27,039,149
CUW35302	Seismic Upgrade of BDPL Nos. 3 & 4 <i>(Completed)</i>	\$41,685,040	\$30,435,863	\$73,316	\$72,194,219
CUW36301	SCADA System - Phase II <i>(Completed)</i>	\$5,390,903	\$4,061,570	\$18,450	\$9,470,922
CUW36801	BDPL Reliability Upgrade - Tunnel <i>(Completed)</i>	\$220,454,710	\$50,077,878	\$1,831,502	\$272,364,089
CUW36802	BDPL Reliability Upgrade - Pipeline <i>(Completed)</i>	\$148,577,665	\$62,592,578	\$5,551,929	\$216,722,172
CUW36803	BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2 <i>(Completed)</i>	\$2,363,366	\$683,615	-	\$3,046,981
CUW38001	BDPL Nos. 3 & 4 Crossovers <i>(Completed)</i>	\$14,794,660	\$14,576,880	\$538,909	\$29,910,449
CUW38901	SFPUC/EBMUD Intertie <i>(Completed)</i>	\$8,489,689	\$677,617	-	\$9,167,306
CUW39301	BDPL No. 4 Condition Assessment PCCP Sections <i>(Completed)</i>	-	\$1,937,599	-	\$1,937,599
CUWBDP0101	WSIP Closeout - Bay Division <i>(Completed)</i>	\$1,742,391	\$1,855,109	-	\$3,597,500
Peninsula Region		\$544,185,287	\$257,999,146	\$2,940,047	\$805,124,480
CUW35401	Lower Crystal Springs Dam Improvements <i>(Completed)</i>	\$20,357,967	\$14,451,073	\$50,000	\$34,859,040
CUW35601	New Crystal Springs Bypass Tunnel <i>(Completed)</i>	\$57,409,887	\$23,933,121	\$123,725	\$81,466,732
CUW35701	Adit Leak Repair - Crystal Springs/Calaveras <i>(Completed)</i>	\$1,706,478	\$1,080,845	-	\$2,787,322
CUW36101	Pulgas Balancing - Inlet/Outlet Work <i>(Completed)</i>	\$638,020	\$1,127,918	-	\$1,765,938
CUW36102	Pulgas Balancing - Discharge Channel Modifications <i>(Completed)</i>	\$903,240	\$1,942,236	\$64,531	\$2,910,007
CUW36103	Pulgas Balancing - Structural Rehabilitation and Roof Replacement <i>(Completed)</i>	\$13,283,050	\$6,804,183	\$151,483	\$20,238,716

Attachment 11: March 2022 Proposed Revised WSIP - Summary of Project Level Cost

PROJECT NO.	Project Name	CONSTRUCTION COSTS ⁽¹⁾	DELIVERY COSTS ⁽²⁾	OTHER COSTS ⁽³⁾	TOTAL PROJECT COSTS
CUW36104	Pulgas Balancing - Laguna Creek Sedimentation <i>(Eliminated)</i>	-	\$503,928	-	\$503,928
CUW36105	Pulgas Balancing - Modifications of the Existing Dechloramination Facility <i>(Completed)</i>	\$2,054,696	\$3,285,334	\$50,000	\$5,390,031
CUW36501	Cross Connection Controls <i>(Completed)</i>	\$1,835,224	\$2,090,210	\$23,509	\$3,948,944
CUW36601	HTWTP Short-Term Improvements (Demo Filters) <i>(Completed)</i>	\$1,683,042	\$1,384,862	-	\$3,067,903
CUW36602	HTWTP Short-Term Improvements - Remaining Filters <i>(Combined with CUW36603)</i>	-	\$1,424,510	-	\$1,424,510
CUW36603	HTWTP Short-Term Improvements - Coagulation & Flocculation/ Remaining Filters <i>(Completed)</i>	\$15,214,291	\$3,390,646	-	\$18,604,937
CUW36701	HTWTP Long-Term Improvements <i>(Completed)</i>	\$196,529,072	\$76,569,060	\$983,837	\$274,081,969
CUW36702	Peninsula Pipelines Seismic Upgrade <i>(Completed)</i>	\$23,048,700	\$15,214,511	\$562,136	\$38,825,346
CUW36901	Capuchino Valve Lot Improvements <i>(Completed)</i>	\$1,576,733	\$1,226,420	-	\$2,803,153
CUW37101	Crystal Springs/San Andreas Transmission Upgrade <i>(Completed)</i>	\$133,465,522	\$56,707,341	\$136,590	\$190,309,453
CUW37801	Crystal Springs Pipeline No. 2 Replacement <i>(Completed)</i>	\$34,750,123	\$20,932,509	\$387,877	\$56,070,509
CUW37901	San Andreas Pipeline No. 3 Installation <i>(Completed)</i>	\$17,087,803	\$10,001,396	\$406,359	\$27,495,558
CUW39101	Baden and San Pedro Valve Lots Improvements <i>(Completed)</i>	\$15,646,639	\$9,344,164	-	\$24,990,803
CUWPWI0101	WSIP Closeout - Peninsula <i>(Completed)</i>	\$6,994,800	\$6,584,880	-	\$13,579,680
San Francisco Regional Region		\$180,985,000	\$77,609,454	\$7,293,256	\$265,887,710
CUW30103	Regional Groundwater Storage and Recovery	\$97,046,597	\$54,010,580	\$7,293,256	\$158,350,433
CUW35801	Sunset Reservoir - North Basin <i>(Completed)</i>	\$52,777,386	\$11,493,339	-	\$64,270,725
CUW37201	University Mound Reservoir - North Basin <i>(Completed)</i>	\$31,161,017	\$12,105,535	-	\$43,266,552
Support Projects		\$6,981,242	\$173,255,024	\$88,776,547	\$269,012,813
CUW36302	System Security Upgrade <i>(Completed)</i>	\$5,601,047	\$8,818,761	\$280,862	\$14,700,669
CUW38801	Programmatic EIR <i>(Completed)</i> ⁽⁴⁾	-	\$10,730,684	-	\$10,730,684
CUW38802	Bioregional Habitat Restoration	-	\$35,731,733	\$56,434,014	\$92,165,746
CUW38803	Vegetation Restoration of WSIP Construction Sites <i>(Completed)</i>	-	\$1,177,223	\$934,323	\$2,111,546
CUW38804	Long Term Mitigation Endowment	-	-	\$12,000,000	\$12,000,000
CUW39201	Program Management Project ⁽⁴⁾	-	\$112,747,230	\$4,556,936	\$117,304,166
CUW39401	Watershed and Environmental Improvement Program	\$1,380,195	\$4,049,393	\$14,570,412	\$20,000,000
Regional Program Sub-Total		\$2,522,242,951	\$1,157,525,947	\$123,296,764	\$3,803,065,661
San Francisco Local Program					
All Original Local Projects		\$238,682,678	\$92,311,149	\$862,883	\$331,856,710
Water Supply Projects		\$186,792,234	\$91,051,170	\$3,017,895	\$280,861,299
Local Program Sub-Total		\$425,474,912	\$183,362,319	\$3,880,778	\$612,718,010
Regional + Local Programs Sub-Total		\$2,947,717,863	\$1,340,888,266	\$127,177,542	\$4,415,783,671
Financing Cost					\$371,991,469
PROGRAM TOTAL					\$4,787,775,140

LEGEND:

- (1) **Construction Costs** include the Construction Base Bid, Construction Contingency and owner-provided equipment/material.
- (2) **Delivery Costs** include program and project management, planning, environmental (CEQA, permitting, construction compliance), design, construction management, and engineering support during construction.
- (3) **Other Costs** include environmental mitigation, art enrichment, security Improvements, and real estate expenses.
- (4) Not included in 52 regional project count.