



September 1, 2011

The Honorable Mark Church, Chair
 California Seismic Safety Commission
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 Sacramento, CA 95833-3637

Ron Chapman, MD, MPH, Director
 California Department of Public Health
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**Subject: Wholesale Regional Water System Security and Reliability Act
 Notice of Changes to Water System Improvement Program**

Dear Supervisor Church and Dr. Chapman:

Pursuant to the reporting requirements of the Wholesale Regional Water System Security and Reliability Act, the San Francisco Public Utilities Commission (SFPUC) respectfully submits this Change Notice Report, describing changes adopted by the SFPUC Commission (Commission) to the schedule of the Water System Improvement Program (WSIP) that was previously adopted July 28, 2009, and described in the Change Notice Report dated September 1, 2009. Although not required by the Wholesale Regional Water System Security and Reliability Act, the SFPUC is also providing descriptions of projects for which the Commission has adopted significant scope changes.

The SFPUC has made great progress towards the implementation of the WSIP since the Commission last adopted a revised scope, schedule, and budget for the program in July 2009. Between July 1, 2009 and July 1, 2011 the overall completion of the program increased from 16.7% to 42.4%. The program continues its overall transition from pre-construction activities (environmental review/permitting, real estate acquisition, engineering design, and bid & award) to construction. As of the end of June 2011, planning activities are nearing completion at 98%, whereas environmental, design and construction efforts are 85%, 93% and 34% complete, respectively.

In early 2011, WSIP Senior Management recognized the need to assess the cumulative effects of refinements made on the program in the last few years and formally approve revisions in order to:

- Incorporate the latest project schedule and cost forecasts based on the most recent information available, including the status of change orders, trends, risks and contingencies reported by the various construction management (CM) teams;
- Incorporate the latest scope changes and refinements approved by the WSIP Change Management Board and WSIP Director;

Edwin M. Lee
 Mayor

Francesca Viotor
 President

Anson Moran
 Vice President

Ann Moller Caen
 Commissioner

Art Torres
 Commissioner

Vince Courtney
 Commissioner

Ed Harrington
 General Manager



- Incorporate the recent construction bids and the near-term effects of the economic recession into construction cost estimates;
- Provide more realistic project baselines for performance measurements;
- Consolidate project cost savings accumulated to date in a Program Management Reserve; and
- Ensure compliance with the California Water Code (Assembly Bills [AB] 1823 and 2437).

On June 10, 2011, the SFPUC notified the Bay Area Water Supply & Conservation Agency (BAWSCA) that the Commission would be considering changes to the WSIP at a public hearing on July 12, 2011. We also ask BAWSCA to forward the notification to the 26 wholesale agencies it represents and as requested, BAWSCA confirmed the notification was forwarded. This notification was made to comply with the change notice requirements of the Wholesale Regional Water System Security and Reliability Act. In addition, the Notice of Public Hearing and all supporting documents submitted to BAWSCA were posted on the SFPUC Website. On July 12, 2011, following a 30-day review period, the Commission adopted the June 2011 Revised WSIP.

In summary, the June 2011 Revised WSIP is very similar to the June 2009 Revised WSIP. No regional projects were deleted or added to the WSIP since revisions to the program were approved by the Commission. In fact, there were only a few changes made to the scope of the program. Four (4) projects had modifications to their scope. These projects are Project CUW35302: Seismic Upgrade of BDPL Nos. 3 & 4; Project CUW36702: Peninsula Pipelines Seismic Upgrade Project; Project CUW38802: Bioregional Habitat Restoration Project (previously Habitat Reserve Program); and Project CUW39401: Watershed & Environmental Improvement Program

The most significant change adopted by the Commission is the extension of the overall program completion date from December 4, 2015 to July 29, 2016. All but three (3) projects will complete their construction phase prior to the end of 2015 and the construction of two (2) of these projects will be completed in January 2016. Of the forty-six (46) regional projects in the WSIP, fourteen (14) have been completed, three (3) have been accelerated, nine (9) have no schedule variance, and twenty (20) have been extended. Five (5) projects were extended by more than a year. Two (2) of these projects are support projects that do not contribute directly to the program's LOS goals and one (1) is a water supply project.

Please do not hesitate to contact me at (415) 554-1600 if you have questions or need additional information.

Sincerely,



Ed Harrington
General Manager
San Francisco Public Utilities Commission

Attachment: Notice of Changes to WSIP Report

cc: (w/ attachment)

The Honorable Francesca Vietor - President, SFPUC Commission
The Honorable Anson B. Moran - Vice President, SFPUC Commission
The Honorable Ann Moller Caen - Commissioner, SFPUC Commission
The Honorable Art Torres – Commissioner, SFPUC Commission
The Honorable Vince Courtney - Commissioner, SFPUC Commission
Arthur Jensen - Chief Executive Officer and General Manager, BAWSCA
Rufus B. Howell - Deputy Director, Center for Environmental Health, California Department of Public Health
Betty Graham - San Francisco District Engineer, Drinking Water Field Operations Branch, California Department of Public Health

(w/o attachment)

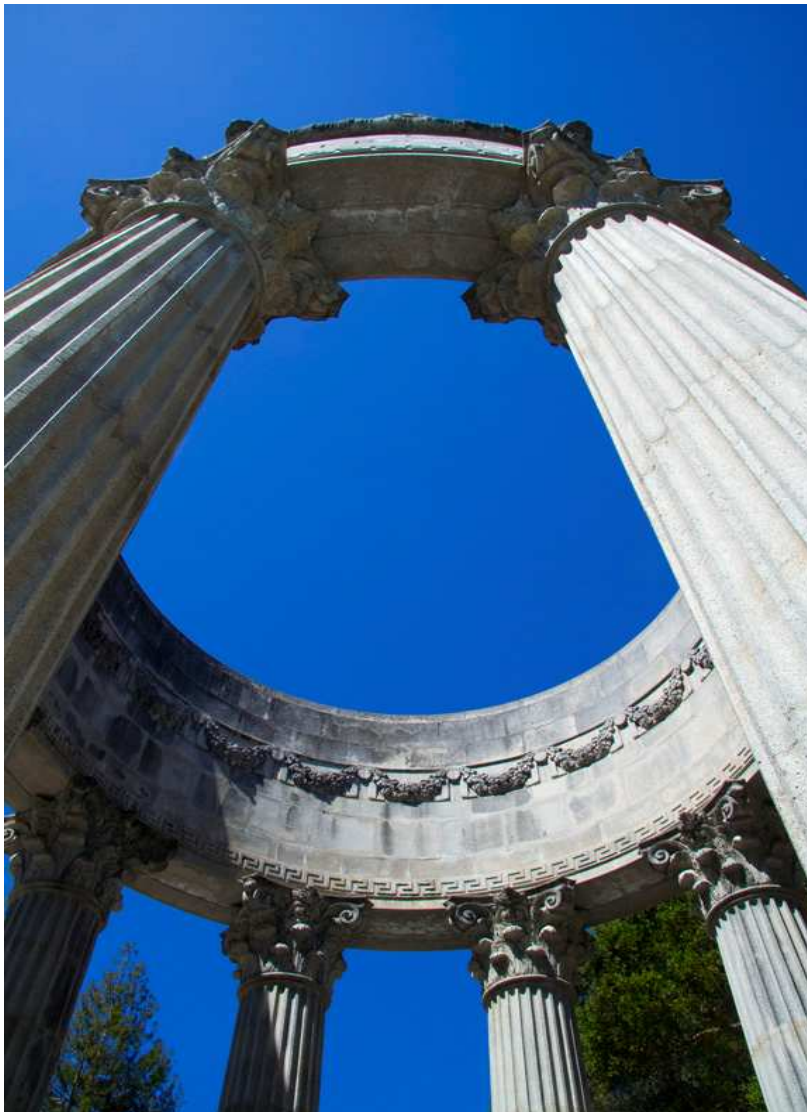
The Honorable Assembly member Ricardo Lara, Chair
California State Assembly - Joint Legislative Audit Committee
The Honorable Senator Robert Dutton, Vice-Chair
California State Assembly - Joint Legislative Audit Committee
Catherine Ma, Regional Engineer, North Coastal Region, Drinking Water Field Operations Branch, California Department of Public Health
Barbara Pierce - Chair, BAWSCA
Irene O'Connell - Vice Chair, BAWSCA
Member Agencies - BAWSCA



HETCH HETCHY
WATER SYSTEM
IMPROVEMENT
PROGRAM

Wholesale Regional Water System
Security and Reliability Act

Notice of Changes Report June 2011 Revised Water System Improvement Program



Services of the San Francisco Public Utilities Commission

September 1, 2011

**Notice of Changes Report
June 2011 Revised
Water System Improvement Program (WSIP)**

TABLE OF CONTENTS

1. INTRODUCTION	1
1.1 Summary of Changes in June 2011 Revised WSIP	3
2. BACKGROUND: PROGRAM DEVELOPMENT	7
2.1 Last Notice of Change Report (June 2009 Revised WSIP)	10
3. WSIP OBJECTIVES AND LEVEL OF SERVICE GOALS	16
3.1 WSIP Goals and Objectives.....	16
3.2 Progress Towards Meeting Level of Service Goals	17
4. PROJECT CHANGES.....	23
4.1 General Project Changes.....	23
4.2 Schedule Revisions.....	23
4.3 Definition of Scope Changes	30
4.4 Scope Modifications and Refinements	31

APPENDICES

Appendix A - SFPUC Resolution 11-0109

Appendix B - 2011 Revised WSIP Project Schedules

Appendix C - 2011 Revised WSIP Project Descriptions

1. INTRODUCTION

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

This report serves to document amendments to the WSIP that were previously adopted by the SFPUC Commission ("Commission") on July 28, 2009 and presented to the State in a report title *Notice of Changes Report June 2009 Revised Water System Improvement Program*, and dated September 1, 2009. Revisions to the WSIP, referred to as the June 2011 Revised WSIP (or June 2011 Revised Program), were adopted by the Commission at a public hearing on July 12, 2011. Changes and refinements at both program and project levels that have occurred since June 2009 are herein described, and updated project schedules and descriptions are presented in the appendices.

The SFPUC has made great progress towards the implementation of the WSIP since the Commission last adopted a revised scope, schedule, and budget for the program in June 2009. This progress is reflected in the percent complete figures in the table below.

Table 1-1: Percent Complete for WSIP Regional Program

Phase	As of 06/30/09	As of 06/30/11
Planning	96.4%	98.5%
Environmental	66.5%	85.4%
Design	74.6%	92.8%
Construction	6.2%	33.3%
Overall	16.7	42.4%

The program continued its overall transition from pre-construction activities (environmental review/permitting, real estate acquisition, engineering design, and bid & award) to construction. As of June 30, 2011, one (1) regional project with a value of \$431 million is in bid and award (only a few month away from construction), twenty (20) regional projects are in construction with a total value of \$2,219 million and eighteen (18) regional projects with a total value of \$227 million are in closeout or have been completed. The remaining seven (7) regional projects remain in pre-construction. Indicative of the Program's transition to construction, forty-three (43) separate construction contracts have been awarded for WSIP regional projects through June 2011.

In early 2011, WSIP Senior Management recognized the need to assess the cumulative effects of refinements made on the program in the last few years and formally approve revisions in order to:

- Incorporate the latest project schedule and cost forecasts based on the most recent information available, including the status of change orders, trends, risks and contingencies reported by the various construction management (CM) teams;
- Incorporate the latest scope changes and refinements approved by the WSIP Change Management Board and WSIP Director;
- Incorporate the recent construction bids and the near-term effects of the economic recession into construction cost estimates;
- Provide more realistic project baselines for performance measurements;
- Consolidate project cost savings accumulated to date in a Program Management Reserve; and
- Ensure compliance with the California Water Code (Assembly Bills [AB] 1823 and 2437).

On June 10, 2011, the SFPUC notified the Bay Area Water Supply & Conservation Agency (BAWSCA) that the Commission would be considering changes to the WSIP at a public hearing on July 12, 2011. We also ask BAWSCA to forward the notification to the 26 wholesale agencies it represents and as requested, BAWSCA confirmed the notification was forwarded. This notification was made to comply with the change notice requirements of the Wholesale Regional Water System Security and Reliability Act. In addition, the Notice of Public Hearing and all supporting documents submitted to BAWSCA were posted on the SFPUC Website. On July 12, 2011, following a 30-day review period, the Commission adopted the June 2011 Revised WSIP.

In response to the recommendations made by BAWSCA as part of their July 6, 2011 letter, the Commission amended Resolution 11-0109 by adding the following conditions:

- The Commission directs staff to include in its Notice of Change report to the State of California a discussion on the progress being made towards meeting the Regional system's levels of service (LOS) goals as well as definitions of the terms "major scope changes" and "scope refinements."
- The Commission directs staff to report to this Commission by August 31, 2011 specifically what actions are proposed to replace the amount of water supply dedicated to in-stream flows pursuant to environmental regulatory permits issued for WSIP projects.
- The Commission directs staff to determine whether the Regional Groundwater Storage and Recovery Project remains feasible and, if not, report by October 31, 2011 and identify feasible alternatives to the Project and an estimated schedule and cost for their completion.
- The Commission directs the WSIP Director to periodically update the Commission on the WSIP trends in project delivery costs and include in future WSIP Quarterly

Reports and update on any proposed changes to the Program Management Reserve.

- It is the intent of the Commission that any savings at the conclusion of the WSIP will result in lower than otherwise projected proposed rates consistent with the 2009 Water Supply Agreement.
- The Commission fully intends to abide by the schedule adopted today, but understands that the completion date for WSIP is later than the date called for in the Water Supply Agreement and directs staff to work with our Wholesale Customers and the Bay Area Water Supply and Conservation Agency to resolve the different WSIP completion dates.

A copy of the SFPUC Resolution 11-0109 is included in Appendix A.

1.1 Summary of Changes in June 2011 Revised WSIP

The June 2011 Revised WSIP scope is very similar to that of the June 2009 Revised WSIP.

Table 1 is a list of all project titles included in the June 2011 Revised WSIP and the project titles previously reported in the June 2009 Revised WSIP. One (1) project name was modified to better reflect its scope and objectives, and one (1) project was re-aligned within the WSIP regions for more effective management and reporting. Figure 1 illustrates the locations of the various WSIP projects along the SFPUC regional water system.

No regional projects were deleted or added to the WSIP since revisions to the program were approved by the Commission. In fact, there were only a few changes made to the scope of the program. Most project scopes remain the same as those previously approved. Four (4) projects had modifications to their scope. These projects are Project CUW35302: Seismic Upgrade of BDPL Nos. 3 & 4; Project CUW36702: Peninsula Pipelines Seismic Upgrade Project; Project CUW38802: Bioregional Habitat Restoration Project (previously Habitat Reserve Program); and Project CUW39401: Watershed & Environmental Improvement Program

Schedule refinements led to more accurate and realistic project-specific schedules. While a number of the proposed schedule changes are related to construction (i.e., issues encountered in the field or new projected construction timeline), other reasons for changes include scope changes during pre-construction, permitting and environmental requirements, required extension of the construction bidding period, and standardization of the project closeout period to 6 months.

The most significant change reported is the extension of the overall program completion date from December 4, 2015 to July 29, 2016. All but three (3) projects will complete their construction phase prior to the end of 2015 and the construction of two (2) of these projects will be completed in January 2016. Of the forty-six (46) regional projects in the WSIP, fourteen (14) have been completed, three (3) have been accelerated, nine (9) have no schedule variance, and twenty (20) have been extended. Five (5) projects were extended by more than a year. Two (2) of these projects are support projects that do not contribute directly to the program's LOS goals and one (1) is a water supply project.

Table 1-2: WSIP Project Titles

Region	Project No.	2011 Project Name	2009 Project Name
San Joaquin	CUW36401	Lawrence Livermore Water Quality Improvement	Lawrence Livermore Water Quality Improvement
	CUW37301	San Joaquin Pipeline System	San Joaquin Pipeline System
	CUW37302	Rehabilitation of Existing San Joaquin Pipelines	Rehabilitation of Existing San Joaquin Pipelines
	CUW38401	Tesla Treatment Facility	Tesla Treatment Facility
Sunol Valley	CUW35201	Upper Alameda Creek Filter Gallery	Upper Alameda Creek Filter Gallery
	CUW35501	Standby Power Facilities - Various Locations	Standby Power Facilities - Various Locations
	CUW35901	New Irvington Tunnel	New Irvington Tunnel
	CUW35902	Alameda Siphon #4	Alameda Siphon #4
	CUW37001	Pipeline Repair and Readiness Improvements	Pipeline Repair and Readiness Improvements
	CUW37401	Calaveras Dam Replacement	Calaveras Dam Replacement
	CUW37402	Calaveras Reservoir Upgrades	Calaveras Reservoir Upgrades
	CUW37403	San Antonio Backup Pipeline	San Antonio Backup Pipeline
	CUW38101	SVWTP Expansion & Treated Water Reservoir	SVWTP Expansion & Treated Water Reservoir
	CUW38601	San Antonio Pump Station Upgrade	San Antonio Pump Station Upgrade
Bay Division	CUW35301	BDPL Nos. 3 & 4 Crossover/Isolation Valves	BDPL Nos. 3 & 4 Crossover/Isolation Valves
	CUW35302	Seismic Upgrade of BDPL Nos. 3 & 4	Seismic Upgrade of BDPL Nos. 3 & 4
	CUW36301	SCADA System - Phase II	SCADA System - Phase II
	CUW36302	Move to Support Projects	System Security Upgrades
	CUW36801	Bay Division Pipeline Reliability Upgrade - Tunnel	Bay Division Pipeline Reliability Upgrade - Tunnel
	CUW36802	Bay Division Pipeline Reliability Upgrade - Pipeline	Bay Division Pipeline Reliability Upgrade - Pipeline
	CUW36803	BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2	BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2
	CUW38001	BDPL Nos. 3 and 4 Crossovers	BDPL Nos. 3 and 4 Crossovers
	CUW38901	SFPUC/EBMUD Intertie	SFPUC/EBMUD Intertie
	CUW39301	BDPL No. 4 Condition Assessment PCCP Sections	BDPL No. 4 Condition Assessment PCCP Sections
Peninsula	CUW35401	Lower Crystal Springs Dam Improvements	Lower Crystal Springs Dam Improvements
	CUW35601	New Crystal Springs Bypass Tunnel	New Crystal Springs Bypass Tunnel
	CUW35701	Adit Leak Repair - Crystal Springs/Calaveras	Adit Leak Repair - Crystal Springs/Calaveras
	CUW36101	Pulgas Balancing - Inlet/Outlet Work	Pulgas Balancing - Inlet / Outlet Work
	CUW36102	Pulgas Balancing - Discharge Channel Modifications	Pulgas Balancing - Discharge Channel Modifications
	CUW36103	Pulgas Balancing - Structural Rehabilitation & Roof Replacement	Pulgas Balancing - Structural Rehabilitation & Roof Replacement
	CUW36105	Pulgas Balancing - Modifications of the Existing Dechlorination Facility	Pulgas Balancing - Modification of the Existing Dechlorination Facility
	CUW36501	Cross Connection Controls	Cross Connection Controls
	CUW36601	HTWTP Short-Term Improvements - Demo Filters	HTWTP Short-Term Improvements - Demo Filters
	CUW36603	HTWTP Short-Term Improvements - Coagulation & Flocculation/ Remaining Filters	HTWTP Short-Term Improvements - Coagulation & Flocculation
	CUW36701	HTWTP Long-Term Improvements	HTWTP Long-Term Improvements

Region	Project No.	2011 Project Name	2009 Project Name
Peninsula	CUW36702	Peninsula Pipelines Seismic Upgrade	Peninsula Pipelines Seismic Upgrade
	CUW36901	Capuchino Valve Lot Improvements	Capuchino Valve Lot Improvements
	CUW37101	Crystal Springs/San Andreas Transmission Upgrade	Crystal Springs/San Andreas Transmission Upgrade
	CUW37801	Crystal Springs Pipeline No. 2 Replacement	Crystal Spring Pipeline No. 2 Replacement
	CUW37901	San Andreas Pipeline No. 3 Installation	San Andreas Pipeline No. 3 Installation
	CUW39101	Baden and San Pedro Valve Lots Improvements	Baden and San Pedro Valve Lot Improvements
San Francisco Regional	CUW30103	Regional Groundwater Storage and Recovery	Regional Groundwater Storage and Recovery
	CUW35801	Sunset Reservoir - North Basin	Sunset Reservoir - North Basin
	CUW37201	University Mound Reservoir - North Basin	University Mound Reservoir - North Basin
Support Projects	CUW36302	System Security Upgrades	Moved from Bay Division Region
	CUW38801	Programmatic EIR	Programmatic EIR
	CUW38802	Bioregional Habitat Restoration	Habitat Reserve Program
	CUW39201	Program Management Project	Program Management
	CUW39401	Watershed Environmental Improvement Program	Watershed Environmental Improvement Program

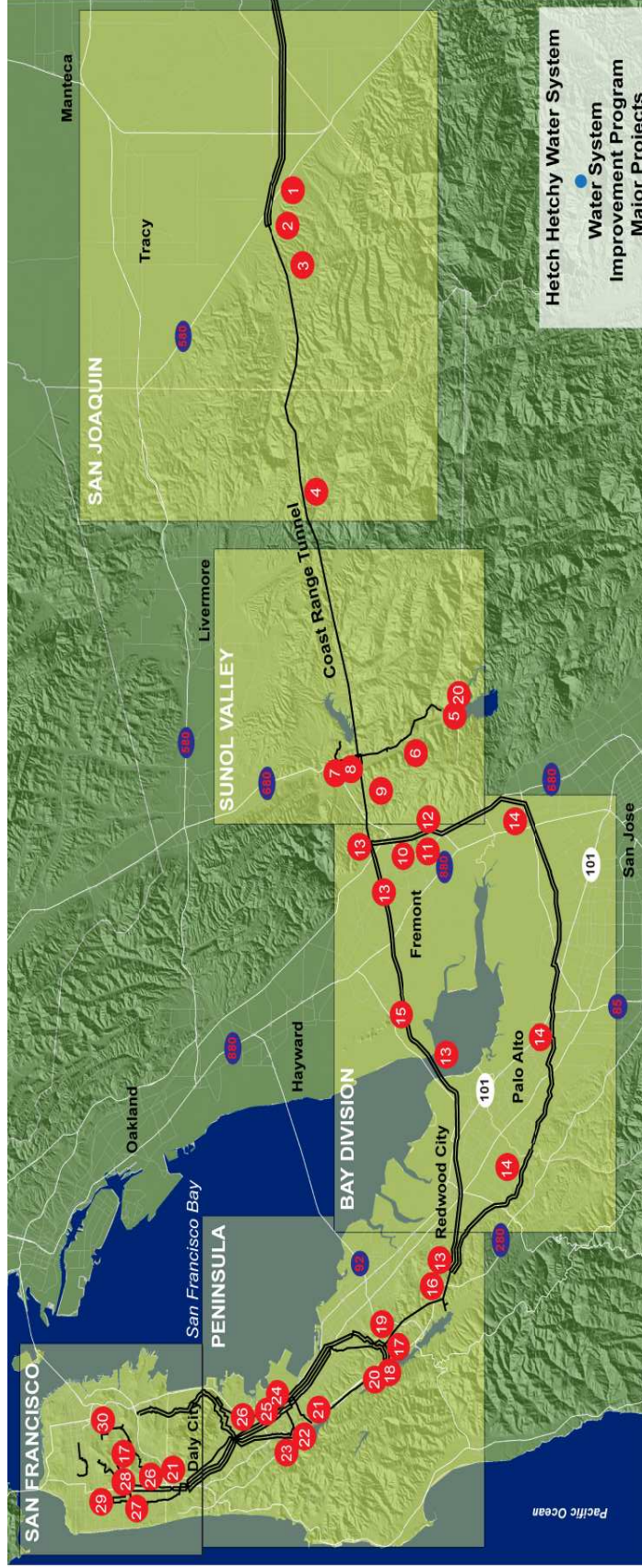


Projects moved to a different Region



Name changes

FIGURE 1-1: WATER SYSTEM IMPROVEMENT PROGRAM MAP



- 1. San Joaquin Pipeline System
- 2. Rehabilitation of Existing San Joaquin Pipelines
- 3. Tesla Treatment Facility
- 4. Lawrence Livermore Water Quality Improvement
- 5. Calaveras Dam Replacement
- 5. Calaveras Reservoir Upgrades
- 6. San Antonio Backup Pipeline
- 6. SWWTP Expansion & Treated Water Reservoir
- 7. Upper Alameda Creek Filter Gallery
- 8. Alameda Siphon #4
- 8. San Antonio Pump Station Upgrade
- 9. New Irvington Tunnel
- 10. BDPL No. 4 Condition Assessment PCCP Sections
- 11. Seismic Upgrade of BDPL Nos. 3 & 4
- 12. BDPL Nos. 3 & 4 Cross-over/Tunnel
- 13. BDPL Reliability Upgrade - Tunnel
- 13. BDPL Reliability Upgrade - Pipeline

- 13. BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2
- 14. BDPL Nos. 3 & 4 Crossovers
- 15. SFPUC / EBMUD Intertie
- 16. Puigas Balancing - Inlet/Outlet Work
- 16. Puigas Balancing - Discharge Channel Modifications
- 16. Puigas Balancing - Structural Rehabilitation & Roof Replacement
- 17. Puigas Balancing - Modifications of the Existing Dechlorination Facility
- 17. Crystal Springs Pipeline No. 2 Replacement
- 18. Lower Crystal Springs Dam Improvements
- 19. New Crystal Springs Bypass Tunnel
- 20. Adit Leak Repair - Crystal Springs/Calaveras
- 21. Crystal Springs/San Andreas Transmission Upgrade
- 22. HTWTP Long-Term Improvements
- 23. HTWTP Short-Term Improvements - Dense Filters
- 23. HTWTP Short-Term Improvements - Coagulation & Flocculation/Retaining Filters
- 24. Catching Valve Let Improvements

- 25. Peninsula Pipelines Seismic Upgrade
- 26. Baden and San Pedro Valve Lots Improvements
- 27. Regional Groundwater Storage and Recovery
- 28. San Andreas Pipeline No. 3 Installation
- 29. Sunset Reservoir - North Basin
- 30. University Mound Reservoir - North Basin

WSIP Project in Various Locations

- Standby Power Facilities - Various Locations
- Pipeline Repair & Readiness Improvements
- SCADA System - Phase II
- System Security Upgrades
- Cross Connection Controls
- Programmatic EIR
- Hatched Reservoirs Program
- Watershed Environment Improvement Program

2. BACKGROUND: PROGRAM DEVELOPMENT

The SFPUC began development of the Capital Improvement Program (CIP) in the late 1990's through a series of studies, reports and authorizations. The SFPUC initiated a water supply planning effort that culminated in the Water Supply Master Plan (WSMP), issued in April 2000. Concurrent with the WSMP efforts, reliability studies of the water system facilities were conducted to assess their vulnerability to earthquakes, landslides, fire, flood and power outages.

On May 28, 2002, the Commission approved a Long-Term Strategic Plan (LTSP) for Capital Improvements, a Long-Range Financial Plan (LRFP) and a Capital Improvement Program (CIP) and Appendices (Resolution No. 02-0101). These reports document the SFPUC CIP. On November 5, 2002, San Francisco residents approved Proposition A, a \$1.6 billion revenue bond measure to fund the CIP. The program at the time contained seventy-seven (77) water infrastructure projects designed to replace or repair, and improve the seismic condition of facilities; enhance water quality; and improve water supply reliability. Projects were chosen and ranked based on the need to reduce risk and improve reliability.

On February 26, 2003, in accordance with Assembly Bill 1823, as codified in Chapter 841 of the California Water Code, Section 73502(a), the SFPUC submitted to the California Department of Health Services (CDHS), now the California Department of Public Health (CDPH), a copy of the SFPUC CIP, including the LRFP and LTSP. The CIP specified the list of projects for the regional water system and local water system with project schedules and cost estimates. The LRFP presented the financing plan for the CIP, while the LTSP presented objectives and performance measures related to the SFPUC's capital improvements.

The Local Water CIP, consisting of forty (40) projects totaling approximately \$715 million, was designed to enhance reliable water deliveries within San Francisco City limits, update outmoded equipment, and rehabilitate aging infrastructure to withstand seismic events. The Regional Water CIP, consisting of thirty-seven (37) projects totaling approximately \$2.9 billion of the overall Water CIP, was designed to reduce exposure to risk from seismic events and to improve system reliability by ensuring transmission system redundancy for facilities that bring water from the Sierra Nevada and local watersheds to the San Francisco Bay Area.

In 2004, additional program development efforts were completed including the evaluation of customer demand and conservation potential for the 2030 planning horizon; the analysis of system performance under various operating conditions; and the development of a draft regional operational strategy/principles document to explain current and future system operating strategies, goals and constraints.

From October 2004 through January 2005, through a series of public workshops before the Commission, program-specific goals and objectives were developed to ensure the system-wide integration of the projects within the program and that all system improvement needs were addressed by the CIP. The Commission adopted the four (4) following categories of LOS goals in early 2005: Water Quality, Seismic Reliability, Delivery Reliability and Water Supply. The scope, schedule and budget of the program were revised based upon the

selected LOS goals. The program revisions to meet the newly adopted LOS goals were so significant that the program name was changed from CIP to Water System Improvement Program (WSIP). In February 2005, the SFPUC published its revised program, entitled Water System Improvement Program Prepared for the Programmatic Environmental Impact Report (PEIR), which documented the LOS goals used to define the WSIP for the PEIR.

Following an extensive review of the February 2005 revised program description, Parsons Water & Infrastructure (Parsons), in their report Water System Improvement Program Assessment Report (Assessment), published on October 21, 2005, confirmed that in general, the overall program met the established LOS goals, and the necessity and scope of individual projects in the WSIP. The assessment also identified some specific recommendations for changes in the overall program and individual projects.

In addition to this independent review, a Seismic Safety Task Force was convened to provide guidance on the seismic design requirements. This group, comprised of five (5) eminent experts in the fields of structural and seismic engineering, was directed to assess potential system vulnerabilities and propose seismic design criteria for projects.

The revised program was formally adopted by the Commission on November 29, 2005. The revised program is described in Water System Improvement Program (SFPUC, January 2006). This revised version of the program, the first approved by the Commission following the adoption of LOS goals, is referred to as the November 2005 WSIP. Because the adoption of the LOS goals resulted in so many significant changes to the overall scope of the program which was first provided to the State of California in February 2003, this version of the program (November 2005 WSIP) is used as the original baseline for performance tracking purposes.

On January 19, 2006, a change notice report, AB1823: Notice of Changes to Water System Improvement Program (SFPUC, January 2006), was submitted to the State of California, along with the January 2006 program description document. The Change Notice described in detail changes to the program since the previously adopted program in May 2002 (and submitted to the State of California in February 2003), including development of the LOS goals and subsequent project descriptions. Appendix A to that report (Seismic Risk Profile Comparison) was revised in response to clarifications requested by the California Seismic Safety Commission (CSSC) and the change notice report with the revised Appendix A was resubmitted to the State on March 8, 2006.

Throughout 2006, project teams focused on further developing project designs, including specific design criteria to meet LOS goals, without significant project changes. A few programmatic efforts assisted in guiding development of the project-specific design criteria as well as assuring conformance with LOS goals. The Facilities Sizing Report, published January 26, 2006 by Parsons and their sub-consultant CH2MHill, provided interpretation of the LOS goals into sizing criteria for specific projects using results from hydrologic and hydraulic system modeling. The WSIP System Assessment for Levels of Service Objectives, published November 22, 2006 by Parsons, better defined and quantified the goals for seismic reliability and delivery reliability, and confirmed the projects that are required to meet these goals.

The SFPUC's Engineering Management Bureau (EMB) published the General Seismic Requirements for Design of New Facilities and Upgrade of Existing Facilities on August 15, 2006. That design manual was prepared in collaboration with the SFPUC's SSTF and the criteria in that document were reviewed by the CSSC. The criteria provide guidance for determining project-specific seismic criteria based on LOS goals, facility usage and site-specific geotechnical information.

As projects evolved during 2006 and 2007, more information became available about project design details, environmental compliance and permitting needs, right-of-way (ROW) challenges, and facility shutdown and construction sequencing requirements. The WSIP Team initiated the WSIP Re-alignment Initiative to evaluate how adjustments could best be made to scopes, schedules and budgets in order to minimize program risks and assure that all program goals could be effectively achieved, with the underlying assumption that all current LOS goals for the program must continue to be met. On February 26, 2008, the Commission adopted scope, schedule and budget revisions. The revised program approved at that time is referred to as the November 2007 Revised WSIP. A notice of change report documenting these latest revisions approved by the Commission was submitted to the CSSC and CDHS (now CDPH) on March 31, 2008. This was the second such report submitted to the State.

On October 30, 2008, the San Francisco Planning Commission certified the PEIR for the WSIP as required under the California Environmental Quality Act (CEQA). On the same day, the SFPUC Commission approved the Phased WSIP, including the Goals and Objectives, and adopted the CEQA findings. The Phased WSIP is a variant of the originally proposed WSIP and includes full implementation of the WSIP facility projects to ensure that the public health, water quality, seismic safety and delivery reliability goals are achieved, with phased implementation of the water supply portion of the program. Under the Phased WSIP, the SFPUC will establish an interim, mid-term implementation horizon of 2018. The Phased WSIP includes water supply delivery to wholesale and retail customers through 2018.

The Phased WSIP goals and objectives are founded on two (2) fundamental principles pertaining to the existing regional water system: (1) maintain a clean, unfiltered water source from the Hetch Hetchy system; and (2) maintain a gravity-driven system.

The overall goals of the Phased WSIP for the regional water system are the same as for the originally proposed WSIP, and are to:

- Maintain high-quality water and a gravity-driven system;
- Reduce vulnerability to earthquakes;
- Increase delivery reliability;
- Meet customer water supply needs;
- Enhance sustainability; and
- Achieve a cost-effective, fully operational system.

To meet the program goals and objectives, the Phased WSIP includes the following program elements:

- Full implementation of WSIP facility improvement projects;
- Water supply delivery to regional water system customers through 2018 with an average annual target delivery of 265 million gallons per day (mgd) originating from the watersheds. This includes 81 mgd for the retail customers and 184 mgd for the wholesale customers;
- Water supply sources include 265 mgd average annual delivery from the Tuolumne River watershed and the local watersheds plus 20 mgd of conservation, recycled water, and groundwater developed in the service area (10 mgd retail; 10 mgd wholesale);
- Implementation of delivery and drought reliability elements of the WSIP, including dry-year water transfers coupled with Project CUW30103: Regional Groundwater Storage and Recovery, to meet the drought-year goal of limiting rationing to no more than 20 percent (20%) on a system wide basis;
- Reevaluation of 2030 demand projections, potential regional system demand (purchase requests), and water supply options by 2018, and SFPUC decision in 2018 regarding regional water system deliveries after 2018; and
- Financial incentives to limit water sales to an average annual amount of 265 mgd from the SFPUC watersheds.

Through monthly forecasting and change management processes over the following few years, and a comprehensive program-wide review undertaken by WSIP Senior Management team in April 2009, required adjustments to the scope, schedule and budget of specific projects were identified. The Commission formally adopted these latest revisions to the program on July 28, 2009. The revised program approved at that time is referred to as the June 2009 Revised WSIP.

2.1 Last Notice of Change Report (June 2009 Revised WSIP)

The third change notice report, Notice of Changes Report June 2009 Revised Water System Improvement Program was submitted to the State of California on September 1, 2009. This Change Notice described in detail changes to the program since the previously adopted program of February 20, 2008, which was described in the March 31, 2008 Notice of Change Report submitted to the State of California.

CDPH Review Comments and Recommendations

Following issuance of this change notice report, the CDPH responded with comments and recommendations in a letter to the Chairman of the Joint Legislative Audit Committee and SFPUC General Manager Ed Harrington dated December 8, 2009. These comments and the SFPUC response are summarized below.

Comment 1: CDPH notes that each Change Notice has reported compression of the Program schedule. Successful completion of the WSIP will require careful integration

between project schedules and planned shutdowns; a highly disciplined program management and support structure; and detailed contingency planning.

Response 1: SFPUC recognizes the importance of this comment. To ensure our ongoing efforts in these areas are sufficient, we directed our Program Management Consultant (Parsons) to perform a schedule compression analysis and commissioned an Independent Review Panel of outside experts to review the implementation of the WSIP CM Program. Both efforts, which were completed in January 2011, highlighted the pro-active and comprehensive efforts, systems, processes and procedures in place, and made recommendations for continuing in these efforts that the SFPUC is following up on.

Comment 2: *CDPH supports refinement of project level engineering design concepts to assure that the Regional Water System can be operated, at all times and under all design scenarios, to meet Safe Drinking Water Act requirements.*

Response 2: Engineers from the SFPUC Water Quality Division (WQD) are involved in the planning and design of all WISP projects that may impact the Regional Water System's water quality. This ensures that the operational objectives and design criteria developed for each project take into consideration all existing requirements of the Safe Drinking Water Act. In some cases, the WQD also advises the WSIP team on regulatory requirements that they believe may be enacted in the future and impact the design of WSIP improvements.

Comment 3: *SFPUC further refine its LOS goals to include the provision of reliable and adequately sized disinfection facilities at all locations where raw water could be introduced into the RWS, activation of an emergency notification plan for issuance of a BWN, and a detailed operation plan for flushing, biological monitoring and disinfection of the RWS to restore potable water service as quickly as possible.*

Response 3: The SFPUC initiated a project called "Emergency Disinfection and Recovery Plan Project" to address the issues that were raised as part of Comment 3. The project consists of the development of a guidance document (plan) describing the policy and implementation procedure for initiating (i) emergency disinfection of the San Francisco Regional Water System in the aftermath of a major catastrophic event that significantly and adversely affects the operations of water treatment plants and critical conveyance facilities, and (ii) recovery after the regional system is fed with partially treated water. The plan is intended to supplement, but not to replace, the existing SFPUC's Emergency Response and Recovery Plan and other emergency operations plans.

The first phase of the project focuses on the development a decision-making process and trigger-criteria for the activation and deactivation of the plan. The second phase will begin when the first phase is complete, and will focus on the development of implementation procedures for the plan activation and deactivation. Both phases involve the SFPUC's wholesale customers and State regulators in formulating the critical elements of the plan and procedures.

The first phase of the project is now nearly complete. In the past few months, two workshops were conducted for the purpose of soliciting input from wholesale customers, State regulators, and the San Francisco Department of Public Health (SFDPH). A draft technical memorandum (TM) on the proposed activation triggers and decision-making process is currently being reviewed internally. Once all internal comments are incorporated,

the Draft Phase 1 TM will be distributed to the wholesale customers for comments. It is anticipated that the project will move into the second phase in October 2011, after completion of the Final Phase 1 TM. The plan is to conduct at least one workshop during the second phase to allow the SFPUC to solicit input from all stakeholders on the implementation procedures. Meanwhile, WQD staff has begun discussion with CDPH's San Francisco District staff regarding various issues related to system recovery after activation of the emergency disinfection and water supply.

The project is planned to be completed by the end of FY 2011-2012.

Comment 4: *It is critically important to public health protection that the Tesla Treatment Facility be completed, permitted, and fully operational by April 1, 2012. SFPUC must ensure substantial completion to ensure a full year on on-site testing and commissioning under a full range of seasonal water quality conditions prior to April 1.*

Response 4: The Tesla Treatment Facility achieved substantial completion on June 24, 2011 and is currently being tested as part of the project's commissioning period. This will allow the new facility to be thoroughly tested under various water quality conditions through the full range of low and high flow conditions prior to April 1, 2012.

Comment 5: *Progress on assessing the condition and risk of failure and maintaining the caisson and pipe bridge for Bay Division Pipelines 1&2 should be reported in the AB 1823 required Annual progress report on Implementation of the WSIP to the Joint Legislative Audit Committee, the CDPH, and the CSSC.*

Response 5: Refer to Section 5.0 of the 2010-11 WSIP Annual Report dated September 1, 2011.

Comment 6: *Any management, or other, actions taken by SFPUC to assure timely completion of the Seismic Upgrade of Bay Division Pipelines 3 & 4 & Crossover/Isolation Valves (at Hayward Fault) should be reported in the AB 1823 required Annual progress report on Implementation of the WSIP to the Joint Legislative Audit Committee, the CDPH, and the CSSC.*

Response 6: Refer to Section 3.0 of the 2010-11 WSIP Annual Report dated September 1, 2011.

CSSC Review Comments and Recommendations

The CSSC also provided comments and recommendations to the Chairman of the Joint Legislative Audit Committee in a letter dated January 29, 2011. These comments and the SFPUC response are summarized below:

Comment 1: *The SFPUC should conduct an assessment of the impacts of the latest schedule changes on the seismic reliability Levels of Service goals.*

Response 1: While acknowledging the increased risks associated with schedule delay's, SFPUC believes it is more prudent, at this stage of the WSIP, to focus limited program resources on expediting the actual delivery of projects and resolving issues as they arise in the field. Project schedules are controlled to a great extent by environmental requirements, system shutdowns, site restrictions and access, and constructability issues. Although the

results of such an analysis may be interesting, they would have to be based on a number of somewhat subjective assumptions, and at this stage of the Program, the results would not change our overall implementation strategy or day-to-day project approach.

Comment 2: *Reconvene the SSTF and direct them to perform independent technical reviews of specific projects as recommended by the CSSC.*

Response 2: SFPUC has utilized the services of specific members of the SSTF as needed to address specific seismic issues. For example, for Project CUW36701: HTWTP Long-Term Improvements, we asked Dr. Abrahamson and Dr. Moehle to review work performed and information presented by our consultants regarding fault displacements and slope stability. We have also asked Dr. O'Rourke and Dr. Idriss to review various seismic aspects on several WSIP projects, including Project CUW35901: New Irvington Tunnel, and Project CUW37401: Calaveras Dam Replacement. Finally, we also asked Dr. O'Rourke to assist with the scoping of Project CUW36702: Peninsula Pipelines Seismic Upgrade, a new project added to the program as part of the June 2009 Revised WSIP.

Comment 3: *Expedite communication of the Levels of Service Goals to the public with respect to loss of service that can be expected after major earthquakes and the WSIP's Levels of Service Goals.*

Response 3: The WSIP Communications team is proactively communicating the LOS goals to the public as part of the ongoing outreach program for each of the projects. Every year, the SFPUC takes advantage of both the 1906 and 1989 earthquake anniversaries (spring and fall) to communicate with retail and wholesale customers about the importance of preparedness for any catastrophic disaster and particularly earthquakes. Additionally, we also coordinate annually with U.S. Geological Survey (USGS) and San Mateo County regarding the importance of earthquake preparedness. In all these forums, we inform audiences about our WSIP goals and emphasize that as the SFPUC is taking steps to upgrade its system, that it is equally important for households and businesses to focus on their preparedness and emergency response efforts.

In carrying out this communication, the WSIP team has invested resources in building and integrating traditional print materials with social media platforms such as Twitter, Facebook, YouTube, e-mail marketing and blogs. These platforms enable the WSIP team to quickly and effectively update the public about project activities as well as the need for emergency preparedness.

Comment 4: *Proactively alert the public about the expected lengthy loss of water availability if major earthquakes were to occur prior to completion of the Water System Improvement Program.*

Response 4: Individual project fact sheets, websites, blogs, construction videos and the WSIP's newly revised brochure all indicate the need for a timely completion of the projects in order to avoid a lengthy loss of water, if a major earthquake were to occur prior to the completion of the WSIP. Likewise, the SFPUC has printed emergency preparedness brochures and highlights this important information on its Website reminding retail and wholesale customers that they need to be prepared to care for themselves independently for up to 72 hours. Water storage information and other preparedness tips are a large part of the agency's outreach each spring and fall to make sure customers understand what is at

stake. The City of San Francisco and Bay Area counties have also invested in major public information campaigns to make sure the region's population is aware of the need for appropriate water storage in their homes and businesses in case of an earthquake or other catastrophic disaster. This message is also included in presentations to community groups, individual school and City Council meetings, as well as to other stakeholders.

Comment 5: *Consider installing and integrating strong motion instrumentation at key facilities.*

Response 5: SFPUC previously addressed this recommendation made by the CSSC. SFPUC agrees with the benefits, but believes it is more prudent, at this stage of the WSIP, to focus limited resources on completing designs and constructing critical seismic reliability facilities as quickly as possible.

BAWSCA Review Comments and Recommendations

The approval by the Commission on July 28, 2009 also included a commitment to respond to comments and recommendations made by BAWSCA. The individual commitments were to:

Comment 1: *Update the system performance analysis with the June 2009 Revised WSIP to confirm that the combination of projects remains consistent with the adopted WSIP objectives and the Level of Service (LOS) goals.*

Response 1: A report titled Confirmation that Water System Improvement Program (WSIP) Changes are Consistent with Levels of Service (LOS) Goals was sent to the Commission on February 17, 2010. A presentation on the report was also made at the February 23, 2010 public meeting of the Commission. The detailed evaluations conducted for each project with scope changes or refinements confirmed that the individual projects and the overall WSIP revisions approved by the Commission on July 28, 2009 still complied with the requirements of the seismic and delivery reliability LOS goals.

Comment 2: *Present to the Commission what additional management actions the staff is implementing to identify potential schedule delays during the construction phase and the actions that will be taken to avoid or correct schedule slippages; and confirm that the proposed project construction schedules are not compressed into the final years of the WSIP and, if they are, what steps SFPUC is taking to correct or mitigate potential consequences.*

Response 2: WSIP has proactive processes for monitoring construction schedules and communicating and addressing issues, including monthly reviews of construction schedule updates and internal reporting of issues. To ensure these processes are appropriate, in 2010, the SFPUC commissioned an Independent Review of the WSIP CM Program by a team of outside experts. The panel concluded, in part, that communication within the organization is strong, issues are being communicated and reported, and decisions are being made in a timely manner. In addition, the WSIP Program Management Consultant was tasked to perform an analysis of the revised program schedule approved by the Commission on July 28, 2009 to determine whether it was compressed into the final years of the WSIP when compared to the previously approved schedule. Observations and recommendations from that analysis are being follow-up on.

Comment 3: *Report to the Commission, on a regular basis, a comparison between construction cost estimates and awards, as well as a summary of construction change orders for each project.*

Response 3: The WSIP Management Team initiated reporting on contract awards in January 2010. The first FY2009-2010 / Q1-Q2 WSIP Construction Bids Summary report, which provides bidding information (including engineer's estimates and awarded bid values) on the WSIP local and regional projects, was submitted to the Commission on January 7, 2010. This report has since been submitted to the Commission in July (for the January through June reporting period) and January (for the July through December reporting period) of each year.

The WSIP Management Team initiated reporting on construction change orders in February 2011. The first WSIP Status of Construction Change Orders report, which provides the status of approved, pending and potential construction change orders for all WSIP regional projects, was submitted to the Commission on February 15, 2010. This report has since been submitted to the Commission on a quarterly basis and its distribution normally coincides with that of the WSIP Quarterly Report.

3. WSIP OBJECTIVES AND LEVEL OF SERVICE GOALS

3.1 WSIP Goals and Objectives

The goals and objectives for the June 2011 Revised WSIP are the same as for the June 2009 revised WSIP and the approved PEIR. Table 3-1 provides a summary of these goals and objectives.

Table 3-1: WSIP Goals and Objectives

Program Goal	System Performance Objective
<p><u>WATER QUALITY</u> <i>Maintain high water quality</i></p>	<ul style="list-style-type: none"> • Design improvements to meet current and foreseeable future federal and state water quality requirements. • Provide clean, unfiltered water originating from Hetch Hetchy Reservoir and filtered water from local watersheds. • Continue to implement watershed protection measures.
<p><u>SEISMIC RELIABILITY</u> <i>Reduce vulnerability to earthquakes</i></p>	<ul style="list-style-type: none"> • Design improvements to meet current seismic standards. • Deliver basic service to the three regions in the service area (East/ South Bay, Peninsula, and San Francisco) within twenty four (24) hours after a major earthquake. Basic service is defined as average winter-month usage, and the performance objective for design of the regional system is 229 mgd. The performance objective is to provide delivery to at least 70 percent of the turnouts in each region, with 104, 44, and 81 mgd delivered to the East/South Bay, Peninsula, and City of San Francisco, respectively. • Restore facilities to meet average-day demand of up to 300 mgd within thirty (30) days after a major earthquake.
<p><u>DELIVERY RELIABILITY</u> <i>Increase delivery reliability and improve ability to maintain the system</i></p>	<ul style="list-style-type: none"> • Provide operational flexibility to allow planned maintenance shutdown of individual facilities without interrupting customer service. • Provide operational flexibility to minimize the risk of service interruption due to unplanned facility upsets or outages. • Provide operational flexibility and system capacity to replenish local reservoirs as needed. • Meet the estimated average annual demand of up to 300 mgd under the conditions of one planned shutdown of a major facility for maintenance concurrent with one unplanned facility outage due to a natural disaster, emergency or facility failure/upset.

Program Goal	System Performance Objective
<p><u>WATER SUPPLY</u> <i>Meet customer water needs in non-drought and drought periods</i></p>	<ul style="list-style-type: none"> • Meet average annual water demand of 265 mgd from the SFPUC watersheds for retail and wholesale customers during non-drought years for system demands through 2018. • Meet dry-year delivery needs through 2018 while limiting rationing to a maximum 20 percent system-wide reduction in water service during extended droughts. • Diversify water supply options during non-drought and drought periods. • Improve use of new water sources and drought management, including groundwater, recycled water, conservation and transfers.
<p><u>SUSTAINABILITY</u> <i>Enhance sustainability in all system activities</i></p>	<ul style="list-style-type: none"> • Manage natural resources and physical systems to protect watershed ecosystems. • Meet, at a minimum, all current and anticipated legal requirements for protection of fish and wildlife habitat. • Manage natural resources and physical systems to protect public health and safety.
<p><u>COST-EFFECTIVENESS</u> <i>Achieve a cost-effective, fully operational system</i></p>	<ul style="list-style-type: none"> • Ensure cost-effective use of funds. • Maintain gravity-driven system. • Implement regular inspection and maintenance program for all facilities.

Note that the first four (4) goals, Water Quality, Seismic Reliability, Delivery Reliability, and Water Supply, are the goals that are used to determine project design criteria. The last two (2) goals, Sustainability and Cost-Effectiveness, are overarching program goals that are not applied to specific criteria at the project level. Thus, these last two (2) goals are infrequently referred to in project and program documents.

3.2 Progress Towards Meeting Level of Service Goals

The scope of WSIP is based on 4 categories of LOS goals - Seismic Reliability, Delivery Reliability, Water Quality and Water Supply. Each project that reaches construction substantial completion increases the overall reliability of the system and achieves progress towards meeting the LOS goals.

Table 2 lists the projects with their individual contribution to LOS goals, and the projects that have been substantially completed. This demonstrates the incremental progress that has been achieved on WSIP to meet these goals.

The SFPUC remains committed to achieving all the LOS goals established for the system. The 2005 WSIP included significant revisions, based on the system needs known at that time. Given the nature of these goals and the need to continuously maintain and update aging portions of the system, meeting LOS goals will be a continuous process that will

extend beyond the life of WSIP. Since 2005, a number of improvements have been added to the Program to make sure we meet these goals. Based on current needs, the WSIP will meet the goals for the system, but there are two areas that will require further investigation and potential follow up work. These two areas are related to the Project CUW36702: Peninsula Pipelines Seismic Upgrade (PPSU) and the water supply goal.

Project CUW36702: Peninsula Pipelines Seismic Upgrade

The currently scoped PPSU project assists the Regional Water System to meet seismic reliability LOS goals. However, preliminary findings based on updated assumptions about San Andreas Pipeline No. 2 (SAPL2) show that additional improvements to this pipeline from those scoped in the PPSU may be required to meet LOS goals. For several reasons, it has been decided to proceed expeditiously with the environmental review and design of the scope as known today, and to complete any additional future work that may be required to meet seismic reliability under the Water Enterprise's ongoing Capital Improvement Program (CIP). Some of these reasons include:



- Analysis of updated assumptions and project components to meet LOS is preliminary, and requires further planning to confirm;
- PPSU can complete major capital improvements currently scoped by the projected end of WSIP, but additional scope may extend the current projected completion date of WSIP (July 2016);
- The PPSU scope for pipeline improvements at fault crossings and liquefaction areas provide significant if not all benefits towards meeting LOS goals;
- Some project components are more logical for Water Enterprise to complete in smaller future CIP, such as additional isolation valves, and adding flexible connections to pipeline appurtenances; and
- There may be operational work-around options that allow the system to meet LOS that were not included in the reliability analysis assumptions and cannot be simulated using the current reliability model. These options will be assessed in the near future.

The determination of projects needed to meet seismic reliability LOS goals for the approved 2005 WSIP was based on planning-level assumptions about the geotechnical and physical condition of pipelines and facilities, developed between 1995 and 2003 under the SFPUC Facilities Reliability Program. Between 2004 and 2005, these baseline assumptions were used to estimate "probabilities of failure" for each facility, and these estimates were analyzed system-wide to determine what improvements could provide enough reliability to meet LOS goals. As WSIP project improvements were being designed, geotechnical and physical conditions for each facility were confirmed or updated. However, for facilities without WSIP project improvements, no additional in-depth confirmation of planning-level assumptions was performed.

Table 3-2: Progress Towards Meeting LOS Goals

Project No.	Project Name	Actual Substantial Completion Date	LOS Goals (P =Primary, S =Secondary)			
			Water Quality	Seismic Reliability	Delivery Reliability	Water Supply
San Joaquin Projects						
CUW36401	Lawrence Livermore Water Quality Improvement	31-Aug-10	P			
CUW37301	San Joaquin Pipeline System				P	
CUW37302	Rehabilitation of Existing San Joaquin Pipelines (Roselle Crossover)	13-May-11			P	
CUW38401	Tesla Treatment Facility (Design Build)	28-Jun-11	P	S	S	
Sunol Valley Projects						
CUW35501	Standby Power Facilities - Various Locations <i>(Completed)</i>	9/11/08 & 4/15/10		P	S	
CUW35201	Upper Alameda Creek Filter Gallery					P
CUW35901	New Irvington Tunnel			S	P	
CUW35902	Alameda Siphon #4			P	S	
CUW37001	Pipeline Repair & Readiness Improvements <i>(Completed)</i>	2/9/07 & 7/14/08		P	S	
CUW37401	Calaveras Dam Replacement			S	P	S
CUW37402	Calaveras Reservoir Upgrades <i>(Completed)</i>	6-Oct-05	P			
CUW37403	San Antonio Backup Pipeline				P	
CUW38101	SVWTP Expansion & Treated Water Reservoir		P		P	
CUW38601	San Antonio Pump Station Upgrade				P	
Bay Division Projects						
CUW35301	BDPL Nos. 3 & 4 Crossover/Isolation Valves <i>(Completed)</i>	15-Nov-07		P		
CUW35302	Seismic Upgrade of BDPL Nos. 3 & 4			P		
CUW36301	SCADA System - Phase II	29-Nov-10			P	
CUW36801	BDPL Reliability Upgrade - Tunnel			P	S	
CUW36802	BDPL Reliability Upgrade - Pipeline			P	S	
CUW36803	BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2 <i>(Completed)</i>				P	
CUW38001	BDPL Nos. 3 & 4 - Crossovers			P	S	
CUW38901	SFPUC/EBMUD Intertie	7-Sep-07			P	
CUW39301	BDPL No. 4 Condition Assessment PCCP Sections <i>(No Construction - Completed)</i>			P	S	
Peninsula Projects						
CUW35401	Lower Crystal Springs Dam Improvements				P	S
CUW35601	New Crystal Springs Bypass Tunnel			P	S	
CUW35701	Adit Leak Repair - Crystal Springs/Calaveras <i>(Completed)</i>	30-Nov-07			P	
CUW36101	Pulgas Balancing - Inlet/Outlet Work <i>(Completed)</i>	2-Feb-06	P		S	
CUW36102	Pulgas Balancing - Discharge Channel Modifications <i>(Completed)</i>	23-Oct-09			P	
CUW36103	Pulgas Balancing - Structural Rehabilitation & Roof Replacement		P		S	
CUW36105	Pulgas Balancing - Modifications of the Existing Dechlorination Facility		P		S	
CUW36501	Cross Connection Controls <i>(Completed)</i>	26-Nov-08	P			
CUW36601	HTWTP Short-Term Improvements - Demo Filters <i>(Completed)</i>	11-Jan-06		P	S	
CUW36603	HTWTP Short-Term Improvements - Coagulation & Flocculation/Remaining Filters <i>(Completed)</i>	21-Dec-09		P	S	
CUW36701	HTWTP Long -Term Improvements			P	S	
CUW36702	Peninsula Pipelines Seismic Upgrade			P		
CUW36901	Capuchino Valve Lot Improvements <i>(Completed)</i>	14-Feb-08			P	
CUW37101	Crystal Springs/San Andreas Transmission Upgrade			P	S	
CUW37801	Crystal Spring Pipeline No. 2 Replacement			P	S	
CUW37901	San Andreas Pipeline No. 3 Installation	29-Mar-11		P	S	
CUW39101	Baden & San Pedro Valve Lots Improvements	31-Mar-11		P	S	

Project No.	Project Name	Actual Substantial Completion Date	LOS Goals (P =Primary, S =Secondary)			
			Water Quality	Seismic Reliability	Delivery Reliability	Water Supply
San Francisco Regional Projects						
CUW30103	Regional Groundwater Storage and Recovery*					P
CUW35801	Sunset Reservoir - North Basin <i>(Completed)</i>	19-Sep-08		P	S	
CUW37201	University Mound Reservoir - North Basin	25-Jun-11		P	S	
Support Projects						
CUW36302	System Security Upgrades	13-Nov-07			P	
CUW38801	Programmatic EIR** <i>(Completed)</i>					
CUW39201	Program Management**					
CUW38802	Bioregional Habitat Restoration					
CUW39401	Watershed Environmental Improvement Program					

 First of multiple contracts completed
 Construction underway as part of BDPL Reliability Upgrade - Pipelines

The PPSU was created and scoped in 2009 due to new information about the Serra Fault that was obtained and verified under geotechnical investigations performed for Project CUW36701: HTWTP Long-Term Improvement. In 2010 during the PPSU Alternatives Analysis phase, pipeline conditions were reviewed for the three pipelines leaving the HTWTP between the plant and San Pedro Valve Lot, particularly in areas of potential displacement due to Serra Fault crossing, and for liquefaction and landslides. During review of as-built drawings for the SAPL2, it was determined that the joints were constructed with rivets rather than welds, as previously assumed in the Reliability Analysis. This changed assumption resulted in the SAPL2 having a lower seismic reliability since riveted joints do not perform as well as welded joints.

In early 2011, the Reliability Analysis was used to better understand the impact of this changed assumption in reliability for the SAPL2. Many scenarios with different improvements to the SAPL2 were modeled to determine the portion of SAPL2 that most significantly impacted the ability to meet LOS goals. Because of the new parallel SAPL3 that is being constructed, the critical portion of SAPL2 was found to be the length that does not have full redundancy, between Merced Manor Reservoir and Sunset Reservoir. Modeling the Replacement of this 1-1/2 mile section of SAPL2 showed improvement in the ability to meet LOS goals. In addition, because the SAPL2 is less reliable than previously assumed, addition of isolation valves along sections of the SAPL2 where it ties to SAPL3 was shown to provide benefits since pipe sections could be isolated following potential breaks as a result of a major earthquake.

When it was determined that the original PPSU project scope alone would not allow the system to meet LOS goals, many alternatives were modeled to find different combinations of facility improvements that would result in compliance with LOS goals. Previous baseline assumptions about how LOS goals are achieved, such as supplying winter month demand to 70 percent of customers in San Francisco, and thus requiring winter month supply to four out of five customer turn-outs in San Francisco, were maintained for consistency with the rest of the system. From this analysis, the “preferred alternative” listed in the PPSU Alternative Analysis Report (AAR) was preliminarily determined to be the most cost effective

and most beneficial alternative to meet LOS goals. This included improvements to SAPL2, SAPL3, and Sunset Branch Pipeline (SSBPL) across the Serra Fault; replacement of sections of SAPL2 in liquefaction areas of Colma Creek; repair/replacement of appurtenances attached to SAPL2, SAPL3 and Sunset Pipeline (SSPL) with flexible connections in the Colma Creek area; two new isolation valves on SAPL2 where it connects to the new section of SAPL3; and replacement of SAPL2 between Merced Manor and Sunset Reservoir.

However, Water Enterprise Operations has indicated that there may be operational work-arounds to provide additional redundancy to SAPL2 service to Sunset Reservoir. In addition to pumping water to Sunset Reservoir via the SSPL from Lake Merced Pump Station, there also may be opportunity to back-feed the Sunset Reservoir from the Sutro zone. In order to analyze these options for benefit to meeting LOS goals, greater evaluation needs to be performed both in terms of seismic reliability of these pathways, and operating capabilities. The SFPUC is currently evaluating the feasibility of these options, and how to include these in the Reliability Analysis for determining compliance with LOS goals.

Thus, it was decided that additional analysis should be performed before committing to the construction of additional improvements. The PPSU will construct the Serra Fault crossings, and SAPL2 replacement in liquefaction areas of the Colma Creek area, since these hazards are now better understood, and improvements will provide significant benefit towards meeting LOS goals. However, any additional capital improvements that may be necessary to meet LOS, and yet to be confirmed using the Reliability Analysis, will be constructed under the Water Enterprise CIP. This will prevent further delay of the WSIP, and assure key improvements known to be required to meet the system's seismic reliability LOS goals are implemented as expeditiously as possible.

Water Supply Goal

As part of the Commission approval of the June 2011 Revised WSIP, five (5) active water supply projects were transferred from the WSIP Local Program to the Water Enterprise CIP. A sixth water supply project (Project CUW30103: Regional Groundwater and Recovery) remains in the WSIP Regional Program. The transfer of the management and implementation of these projects from the WSIP to the Water Enterprise CIP does not change the SFPUC's commitment to achieving the water supply LOS goals adopted for WSIP. The projects transferred to the Water Enterprise CIP are:

- Project CUW30101: Lake Merced Water Level Restoration
- Project CUW30102: San Francisco Groundwater Supply
- Project CUW30201: San Francisco Westside Recycled Water
- Project CUW30204: Harding Park Recycled Water
- Project CUW30205: San Francisco Eastside Recycled Water

The rationale for making this management change is three-fold. First, the transfer of these projects to the Water Enterprise CIP will allow the WSIP to focus on completion of the core WSIP projects related to reliability LOS goals. Because of the numerous challenges associated with the siting and delivery of water supply projects, it is anticipated that they will

require a longer implementation timeline but will not affect achieving the system's reliability LOS goals. Second, the SFPUC's expertise on groundwater and recycled water resides within the Water Enterprise. And finally, this re-organization will allow for better coordination and integration of these projects with other SFPUC water supply initiatives.

The challenge of meeting water supply LOS goals does remain due to flow requirements imposed by environmental resource agencies for fish releases to allow construction of Project CUW35401: Lower Crystal Springs Dam Improvements and Project CUW37401: Calaveras Dam project. A plan to accommodate these flow requirements and meet LOS goals will be presented to the Commission in September 2011. That plan will be submitted to the State upon request.

4. PROJECT CHANGES

4.1 General Project Changes

The June 2011 Revised WSIP is very similar to the June 2009 WSIP. One (1) project name was modified to better reflect its scope and objectives, and one (1) project was re-aligned within the WSIP regions for more effective management and reporting.

Project Name Changes

Project names have been changed as follows:

- Project CUW38802: Habitat Reserve Program to Bioregional Habitat Restoration

Projects Closed

No projects have been closed

New Projects

No new projects have been added

Region Changes

Projects moved (re-aligned) from one region to another include:

- *Project CUW36302: System Security Upgrades* has been moved to the Support Projects

4.2 Schedule Revisions

The proposed project schedules in the June 2011 Revised Water System Improvement Program (WSIP) reflect the latest available information on each project based on ongoing implementation efforts. It is standard practice to refine project schedules as more knowledge is gained about project-specific needs and challenges. The extensive schedule forecasting and review efforts undertaken during in the spring of 2011 have led to more accurate and realistic project-specific schedules. While a number of the proposed schedule changes are related to construction (i.e., issues encountered in the field or new projected construction timeline), other reasons for changes include scope changes during pre-construction, permitting and environmental requirements, required extension of the construction bidding period, and standardization of the project closeout period to 6 months.

The overall WSIP completion date has been extended from December 4, 2015 to July 29, 2016. Table 4 compares the June 2009 Revised WSIP and the June 2011 Revised WSIP construction notice to proceed (NTP) and project completion dates for all WSIP regional projects. Refer to Appendix B for the latest project schedules approved as part of the June 2011 Revised WSIP.

TABLE 4-2: June 2009 Revised WSIP – Summary of Schedule Changes

Project No.	Project Name	June 2009		June 2011		Variance (in months)	
		Construction NTP Date	Project Completion Date	Construction NTP Date	Project Completion Date	Construction NTP Date	Project Completion Date
San Joaquin Region							
36401	Lawrence Livermore Water Quality Improvement	1-Jul-09	21-Dec-10	26-Aug-09	14-Sep-11	+ 2	+ 9
37301	San Joaquin Pipeline System	24-Feb-10	25-Mar-14	02-Jun-10	25-Mar-14	+ 3	0
37302	Rehabilitation of Existing San Joaquin Pipelines	2-Oct-06	30-Jun-14	2-Oct-06	12-Mar-14	0	- 4
38401	Tesla Treatment Facility	6-Apr-09	30-Mar-12	31-Mar-09	28-Sep-12	0	+ 6
Sunol Valley Region							
35201	Upper Alameda Creek Filter Gallery	4-Mar-13	22-Aug-14	17-Sep-14	15-Jul-16	+ 19	+ 23
35501	Standby Power Facilities - Various Locations <i>(Completed)</i>	10-Dec-07	6-Dec-10	10-Dec-07	22-Dec-10	0	+ 1
35901	New Irvington Tunnel	18-Nov-09	16-Dec-13	22-Jul-10	31-Oct-14	+ 8	+ 11
35902	Alameda Siphon #4	26-Aug-09	12-Jun-12	26-Aug-09	12-Jun-12	0	0
37001	Pipeline Repair & Readiness Improvements <i>(Completed)</i>	30-Jan-06	31-Dec-08	30-Jan-06	16-Apr-09	0	+ 4
37401	Calaveras Dam Replacement	4-Mar-11	4-Dec-15	1-Aug-11	29-Jul-16	+ 5	+ 8
37402	Calaveras Reservoir Upgrades <i>(Completed)</i>	27-Jun-05	28-Jul-06	27-Jun-05	28-Jul-06	0	0
37403	San Antonio Backup Pipeline	1-Nov-11	31-Dec-13	29-Oct-12	9-Mar-15	+ 12	+ 14
38101	SVWTP Expansion & Treated Water Reservoir	23-Sep-09	9-Jul-13	23-Jun-10	5-Dec-13	+ 9	+ 5
38601	San Antonio Pump Station Upgrade	30-Mar-09	7-Dec-11	2-Nov-09	7-Dec-11	+ 7	0
Bay Division Region							
35301	BDPL Nos. 3 & 4 Crossover/Isolation Valves <i>(Completed)</i>	21-Aug-06	30-Sep-08	21-Aug-06	31-Jul-09	0	+ 10
35302	Seismic Upgrade of BDPL Nos. 3 & 4	5-Mar-12	18-Dec-14	1-May-12	26-Apr-15	+ 2	+ 4
36301	SCADA System - Phase II	21-Dec-09	24-Feb-12	15-Dec-09	24-Feb-12	0	0
36801	BDPL Reliability Upgrade - Tunnel	11-Jan-10	14-Aug-15	1-Apr-10	13-Nov-15	+ 3	+ 3
36802	BDPL Reliability Upgrade - Pipeline	6-Jan-10	5-Mar-13	7-Jan-10	5-Mar-13	0	0
36803	BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2 <i>(Completed)</i>	24-Apr-07	12-Jul-11	24-Apr-07	28-May-10	0	- 14
38001	BDPL Nos. 3 & 4 - Crossovers	3-Aug-09	16-Sep-13	13-Jul-09	17-May-13	- 1	- 4
38901	SFPUC/EBMUD Intertie	25-Jan-05	30-Jun-08	25-Jan-05	30-Dec-11	0	+ 43
39301	BDPL No. 4 Condition Assessment PCCP Sections <i>(No Construction - Completed)</i>	N/A	6-Feb-09	N/A	6-Feb-09	N/A	0

Project No.	Project Name	June 2009		June 2011		Variance (in months)	
		Construction NTP Date	Project Completion Date	Construction NTP Date	Project Completion Date	Construction NTP Date	Project Completion Date
Peninsula Region							
35401	Lower Crystal Springs Dam Improvements	1-Feb-11	13-Jun-12	31-Jan-11	27-Sep-12	0	+ 4
35601	New Crystal Springs Bypass Tunnel	12-Dec-08	6-Mar-12	1-Dec-08	29-Mar-12	0	< 1
35701	Adit Leak Repair - Crystal Springs/Calaveras <i>(Completed)</i>	9-Apr-07	31-Jul-08	9-Apr-07	31-Jul-08	0	0
36101	Pulgas Balancing - Inlet/Outlet Work <i>(Completed)</i>	7-Sep-05	11-May-06	7-Sep-05	11-May-06	0	0
36102	Pulgas Balancing - Discharge Channel Modifications <i>(Completed)</i>	2-Apr-09	20-Aug-10	2-Apr-09	30-Jul-10	0	- 1
36103	Pulgas Balancing - Structural Rehabilitation & Roof Replacement	25-Nov-09	9-Feb-12	30-Nov-09	24-Feb-12	0	< 1
36105	Pulgas Balancing - Modifications of the Existing Dechlorination Facility	21-Jul-10	30-May-12	22-Sep-10	30-May-12	+ 2	0
36501	Cross Connection Controls <i>(Completed)</i>	1-Jun-05	27-Feb-09	31-Jul-08	30-Apr-09	+ 39	+ 2
36601	HTWTP Short-Term Improvements - Demo Filters <i>(Completed)</i>	9-Sep-05	14-Nov-06	14-Sep-05	14-Nov-06	0	0
36603	HTWTP Short-Term Improvements - Coagulation & Flocculation/Remaining Filters <i>(Completed)</i>	10-Jul-08	8-Sep-10	10-Jul-08	28-Jul-10	0	- 1
36701	HTWTP Long -Term Improvements	13-Apr-11	12-Jun-14	16-Mar-11	1-Dec-15	- 1	+ 18
36702	Peninsula Pipelines Seismic Upgrade	18-Jan-13	18-Dec-14	15-Jul-14	6-Jul-16	+ 18	+ 19
36901	Capuchino Valve Lot Improvements <i>(Completed)</i>	29-Jan-07	19-Aug-08	29-Jan-07	19-Aug-08	0	0
37101	Crystal Springs/San Andreas Transmission Upgrade	5-Oct-10	1-Apr-14	1-Dec-10	23-Apr-14	+ 2	< 1
37801	Crystal Spring Pipeline No. 2 Replacement	4-May-11	18-Jul-13	7-Mar-11	25-Sep-13	- 2	+ 2
37901	San Andreas Pipeline No. 3 Installation	28-Sep-09	25-May-12	27-Aug-09	21-Nov-11	- 1	- 6
39101	Baden & San Pedro Valve Lots Improvements	8-Apr-09	24-Aug-11	8-Apr-09	1-Aug-12	0	+ 11
San Francisco Regional Region							
30103	Regional Groundwater Storage and Recovery ⁽³⁾	1-Jul-03	8-Sep-14	19-Dec-13	17-Jun-16	+126*	+ 22
35801	Sunset Reservoir - North Basin <i>(Completed)</i>	11-Apr-05	-May-09	10-Oct-06	10-Sep-10	+ 18	+ 16
37201	University Mound Reservoir - North Basin	27-Jul-09	2-Dec-11	3-Aug-09	11-Jan-12	0	+ 1
Support Projects							
36302	System Security Upgrades	13-Nov-06	24-Feb-12	13-Nov-06	29-Apr-16	0	+ 51
38801	Programmatic EIR ^(1,2) <i>(Completed)</i>	N/A	30-Jun-09	N/A	30-Jun-09	N/A	0
38802	Bioregional Habitat Restoration	N/A	24-Aug-11	N/A	24-Jun-16	N/A	+ 59
39201	Program Management ^(1,2)	N/A	4-Dec-15	N/A	29-Jul-16	N/A	+ 8
39401	Watershed Environmental Improvement Program	N/A	28-Jun-13	N/A	27-Jun-14	N/A	+ 12

- Note: 1 Denotes project not included in the total Regional Program project count of 46.
2 Denotes project not considered a capital project.
3 Large variance is due to the fact that NTP date for this project in June 2009 Revised WSIP Schedule reflects first small contracts for monitoring well, whereas NTP date for June 2011 Revised WSIP Schedule reflects construction contract for actual supply wells.

All but three (3) projects completing their construction phase prior to December 31, 2015. Those projects, which include one (1) support project and one (1) water supply project, are:

- Project CUW35201: Upper Alameda Creek Filter Gallery (Water Supply Project)
- Project CUW36302: System Security Upgrade (Support Project)
- Project CUW37401: Calaveras Dam Replacement

As part of the June 2011 Revised WSIP, the approved project completion of twenty (20) of the WSIP forty-six (46) regional projects was extended. Thirteen (13) of these projects are currently in construction, while seven (7) are still in pre-construction. Table 3 provides a breakdown of project-specific schedule changes approved by the Commission in July 2011.

Table 4-1: Changes in Project Schedules

Schedule Change	No. of Project
Projects Completed	14
Projects Accelerated	3
Projects with No Change	9
Projects Extended by < 6 months	6
Projects Extended by 6-12 months	6
Projects Extended by > 12 months	8

Provided below is an explanation of the schedule changes shown in Table 4 for the three (3) projects with accelerated schedules and the twenty (20) projects with extended schedules. Note an explanation is not provided for the twenty-six (26) projects that have no schedule variances (i.e., the Approved Project Finish date is the same as the Proposed Project Finish date) or are completed.

Projects with Accelerated Completion Dates

Project CUW37302: Rehabilitation of Existing San Joaquin Pipelines (4-Month Change): The project has been modified to limit the scope of construction to minor pipeline replacement work at Oakdale Portal. The implementation of this work will be in conjunction with the installation of the new facilities at the Eastern Segment of Project CUW37301: SJPL System. This will result in completing the project ahead of the approved schedule. The June 2009 Approved Project Completion date was June 30, 2014 and the June 2011 Approved Project Completion date is March 12, 2014, resulting in a 4-month acceleration.

Project CUW38001: BDPL Nos. 3 & 4 Crossovers: (4-Month Change): Construction schedule contingency was reduced resulting in an earlier project completion date. The June 2009 Approved Project Completion date was September 16, 2013 and the June 2011 Approved Project Completion date is May 17, 2013, resulting in a 4-month acceleration.

Project CUW37901: San Andreas Pipeline No. 3 Installation (6-Month Change): Construction is proceeding ahead of schedule and the project is forecasted to complete 6 months early. The June 2009 Approved Project Completion date was May 25, 2012 and the June 2011 Approved Project Completion date is November 21, 2011, resulting in a 6-month acceleration.

Projects with Completion Dates Extended Less than 3 Months

Project CUW37801: Crystal Springs Pipeline No. 2 Replacement (2-Month Change): The schedule has been extended to provide 6 months for project closeout. The June 2009 Approved Project Completion date was July 18, 2013 and the June 2011 Approved Project Completion date is September 25, 2013, resulting in a 2-month extension. This project is in construction and substantial completion is forecasted for November 2012.

Project CUW37201: University Mound Reservoir - North Basin (1-Month Change): Adverse weather delayed the application of the roof coating system and construction completion. The June 2009 Approved Project Completion date was December 2, 2011 and the June 2011 Approved Project Completion date is January 11, 2012, resulting in a 1-month extension. This project is in construction and substantial completion was reached on May 25, 2011.

Projects with Completion Dates Extended by 3 to 6 Months

Project CUW38401: Tesla Treatment Facility (6-Month Change): The previously approved schedule assumed a 3-month early completion and an overlap of the 1-year facility commissioning period and closeout phase. The proposed project schedule extension provides for 3 additional months of construction to match the contract time allowance for final completion and 3 additional months following facility commissioning for an expedited project closeout. A shorter closeout period is appropriate in this case since some closeout activities can be initiated during the commissioning period. The June 2009 Approved Project Completion date was March 30, 2012 and the June 2011 Approved Project Completion date is September 28, 2012, resulting in a 6-month extension. This project is in construction and substantial completion was reached on June 24, 2011.

Project CUW35302: Seismic Upgrade BDPL 3 & 4 (4-month Change): Alameda County Water District (ACWD) water lines will need to be temporary relocated around the articulated box area across Mission Boulevard during construction and permanently installed over the box and over the BDPLs after construction. The Union Sanitary District utility relocation and Archeological investigation work will delay construction NTP by 2 months. The ACWD construction work will extend the construction phase by another 2 months. The June 2009 Approved Project Completion date was December 18, 2014 and the June 2011 Approved Project Completion date is April 26, 2015, resulting in a 4-month extension. This project is still in pre-construction and construction is forecasted to start in May 2012.

Project CUW36801: BDPL Reliability Upgrade – Tunnel (3-month Change): The bidding period for this project was extended to avoid concurrent bidding periods with other major tunnel projects and maximize bidding competition, and to address contracting issues associated with a bid protest and compliance with Human Rights Commission (HRC) requirements. This in turn delayed the issuance of a NTP for the start of construction activities. The June 2009 Approved Project Completion date was August 14, 2015 and the June 2011 Approved Project Completion date is November 13, 2015, resulting in a 3-month extension. This project is in construction and substantial completion is forecasted for March 2015.

Project CUW38101: Sunol Valley Water Treatment Plant Expansion and Treated Water Reservoir (5-Month Change): The bidding period for this project had to be extended to include additional scope items that are essential to the project. This in turn delayed the issuance of a NTP for the start of construction activities. The June 2009 Approved Project Completion date was July 9, 2013 and the June 2011 Approved Project Completion date is December 5, 2013,

resulting in a 5-month extension. This project is in construction and substantial completion is forecasted for March 2013.

Project CUW35401: Lower Crystal Springs Dam Improvements (4-Month Change): The schedule has been extended to provide 6 months for project closeout. The June 2009 Approved Project Completion date was June 13, 2012 and the June 2011 Approved Project Completion date is September 27, 2012, resulting in a 4-month extension. This project is in construction and substantial completion is forecasted for November 2011.

Projects with Completion Dates Extended by 6 to 12 Months

Project CUW36401: Lawrence Livermore Water Quality Improvements (9-Month Change): A new sample pump installed in the Coast Range Tunnel failed during the construction phase. Resolution of this problem required redesign and a new installation. Changes to the new facility control system also contributed to the delay of this project. The June 2009 Approved Project Completion date was December 21, 2010 and the June 2011 Approved Project Completion date is September 14, 2011, resulting in a 9-month extension. This project is in close-out phase and construction final completion was achieved on March 11, 2011.

Project CUW35901: New Irvington Tunnel (11-Month Change): Additional time was required to obtain all required environmental permits. The need to initiate eminent domain actions to obtain temporary construction easements also contributed to the delay of this project. The June 2009 Approved Project Completion date was December 16, 2013 and the June 2011 Approved Project Completion date is October 31, 2014, resulting in an 11-month extension. This project is in construction and substantial completion is forecasted for April 2014.

Project CUW37401: Calaveras Dam Replacement (8-Month Change): Schedule contingency was added to address the risks associated with handling in-situ material containing naturally occurring asbestos during construction. The additional time allowance in the construction schedule accounts for the possibility of work shutdowns or reduced productivity to control airborne contaminants during hot windy days. The June 2009 Approved Project Completion date was December 4, 2015 and the June 2011 Approved Project Completion date is July 29, 2016, resulting in an 8-month extension. This project is still in pre-construction and construction is forecasted to start in August 2011.

Project CUW39101: Baden and San Pedro Valve Lot Improvements (11-Month Change): Construction activities on this project have been completed and the upgraded facility operational since March 2011. Final completion of the construction contract was however delayed to allow for the repair of the on-site standby generator enclosure that was accidentally damaged by the contractor. The June 2009 Approved Project Completion date was August 24, 2011 and the June 2011 Approved Project Completion date is August 1, 2012, resulting in an 11-month extension. This project is in construction and as stated above, substantial completion was achieved on March 31, 2011.

Project CUW39401: Watershed Environmental Improvement Program (12-Month Change): The focus of this project has shifted from implementing specific improvements to protecting watershed lands through conservation easements and/or the purchase of property. This new approach and the challenge of identifying landowners willing to enter into an agreement as part of the watershed protection program have contributed to the 1-year delay. The June 2009 Approved Project Completion date was June 28, 2013 and the June 2011 Approved Project Completion date is June 27, 2014, resulting in a 12-month extension.

Projects with Completion Dates Extended by Greater than 12 Months

Project CUW35201: Upper Alameda Creek Filter Gallery (23-Month Change): This project was placed on hold in early 2009 in order to further assess operational requirements. Upon resumption, additional scope was included and additional time was needed to confirm the project description, operational criteria and permitting requirements. The construction schedule was also extended to procure long-lead items and to account for the seasonal restrictions associated with doing work in Alameda Creek. The June 2009 Approved Project Completion date was August 22, 2014 and the June 2011 Approved Project Completion date is July 15, 2016, resulting in a 23-month extension. This project is still in pre-construction and construction is forecasted to start in September 2014.

Project CUW37403: San Antonio Backup Pipeline (14-Month Change): The addition of a cutoff wall and quarry pit dewatering system to the project scope required further updates to the Environmental Project Description and an additional Draft EIR review cycle. In addition, the San Francisco Planning Department revised thresholds and procedures for air quality analysis. Requirements recently adopted by the Bay Area Air Quality Management District, which apply to this project, also delayed the overall project schedule. The June 2009 Approved Project Completion date was December 31, 2013 and the June 2011 Approved Project Completion date is March 9, 2015, resulting in a 14-month extension. This project is still in pre-construction and construction is forecasted to start in October 2012.

Project CUW38901: SFPUC/EBMUD Intertie (43-Month Change): Actual construction activities on this project have been completed and the facility has been operational since January 2008. The project closeout has been delayed due to construction litigation. The June 2009 Approved Project Completion date was June 30, 2008 and the June 2011 Approved Completion date is December 30, 2011, resulting in a 43 month extension.

Project CUW36701: HTWTP Long-Term Improvements (18-Month Change): The schedule variance reflects a phased construction approach with an extended duration to account for a number of constraints. The construction schedule had to be revised to meet design/operational requirements, the incorporation of limited shutdown windows, implementation of environmental mitigations, restricted site access, and the need to maintain plant operations during construction. The June 2009 Approved Project Completion date was June 12, 2014 and the June 2011 Approved Completion date is December 1, 2015, resulting in an 18-month extension. This project is in construction and substantial completion is forecasted for November 2014.

Project CUW36702: Peninsula Pipelines Seismic Upgrade (19-Month Change): Additional time was needed to locate the secondary seismic faults affecting design, complete the geotechnical evaluations, and confirm the seismic reliability model. The greatest portion of the delay however is due to the scope added to the project. The additional scope, which involves the replacement of pipeline segments subject to liquefaction, will extend the environmental, design and construction phases of the project. The June 2009 Approved Project Completion date was December 18, 2014 and the June 2011 Approved Project Completion date is July 6, 2016, resulting in a 19-month extension. This project is still in pre-construction and construction is forecasted to start in July 2014.

Project CUW30103: Regional Groundwater Storage and Recovery (22-Month Change): The schedule extension is due to the need to conduct additional technical studies, including more extensive modeling to better quantify the effects the project will have on the regional groundwater basin. Comments submitted on the project's Notice of Preparation as part of the environmental review process also triggered a different approach in regards to the test wells.

Whereas previously the assumption was made that the test wells would be built in parallel to the environmental review process, that activity in the revised project schedule is now to be completed after EIR certification in 2013. The June 2009 Approved Project Completion date was September 8, 2014 and the June 2011 Approved Project Completion date is June 17, 2016, resulting in a 22-month extension. This project is still in pre-construction and construction is forecasted to start in December 2013.

Project CUW36302: System Security Upgrades (51-Month Change): As part of a new programmatic security approach, this project will now include all remaining WSIP project security work. Under this new approach, installation of security systems will begin shortly after the construction of a project is substantially completed. The schedule of this project therefore had to be adjusted in accordance to the construction substantial completion of the last WSIP project – the Calaveras Dam Replacement. The June 2009 Approved Project Completion date was February 24, 2012 and the June 2011 Approved Project Completion date is April 29, 2016, resulting in a 51-month delay.

Project CUW38802: Bioregional Habitat Restoration (59-Month Change): The multiple agency reviews of the various sites involved with this project caused some schedule delays during pre-construction. As project EIR's are approved, more restoration requirement and restoration sites are also being identified, which is increasing the project scope and extending the project schedule. However, a major portion of the schedule change (36 months) is the results of the addition of the plant establishment period for each site to the WSIP. It was previously assumed that the activities associated with the required plant establishment process would be handled outside the WSIP, which is no longer the case. The June 2009 Approved Project Completion date was August 24, 2011 and the June 2011 Approved Project Completion date is June 24, 2016, resulting in a 59-month extension.

4.3 Definition of Scope Changes

Specific criteria to distinguish what constitutes a major scope change as opposed to a scope refinement have been established as part of the WSIP Change Management procedures. These limits for changes that occur during design development and construction ensure that appropriate levels of review and approval are applied to manage and control changes to project descriptions, schedules, and costs. In addition, major scope changes are reviewed to ensure LOS goals are not compromised before a major scope change is approved.

Major scope changes are changes that are required on a project for the system to meet one of the LOS goals. This change may have been needed due to emerging information about the project requirements, geotechnical information, or other change in project assumptions. These changes are reviewed by the WSIP Change Control Board and must be approved by the WSIP Director before they are implemented. The Commission adopts major scope changes as part of the formal approval of WSIP revisions.

Scope refinements are changes to the project scope that were made to refine the project details, and/or to allow the project to be constructed or permitted, but that were not essential for the project or program to achieve the LOS Goals. These refinements in the project design are made for different reasons including optimizing operational flexibility and reliability, adjusting to actual field conditions, minimizing impacts to the environment or adjacent communities, increasing efficiencies, and reducing capital and/or operational and maintenance (O&M) costs. Design refinements do not have to be reviewed and approved

by the WSIP Change Control Board and WSIP Director. Instead they are incorporated and implemented by the project team under the direction of the Project Manager (PM) and Regional Project Manager (RPM).

4.4 Scope Modifications and Refinements

Because most regional WSIP projects are currently in construction, there are very few projects that have had modifications to scopes significant enough to potentially affect the WSIP's ability to comply with the LOS goals established for the system. Most project scopes remain the same as those last approved by the SFPUC as part of the June 2009 Revised WSIP. The scope elements of some projects have been refined slightly as indicated in the latest WSIP project descriptions included in this report as part of Appendix C (referred to as "2011 Revised WSIP Project Descriptions").

Four (4) projects had modifications to scopes. It should be noted that the scope modifications were carefully reviewed by the WSIP Team and SFPUC Management to assure that projects still comply with all LOS goals for the program, and that modifications were necessary and beneficial to achieve the project objectives. The modifications to projects are detailed below.

CUW35302: Seismic Upgrade of BDPL Nos. 3 & 4

This project provides a seismically reliable 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). The maximum credible seismic event will cause a strike-slip displacement that will result in probable failure of both pipelines. The previous project scope included replacement of about 2,300 feet of BDPL No. 3, and improvements to BDPL No. 4 at Hayward Fault Traces B and C to facilitate the failure of BDPL No. 4 in a controlled manner that does not cause subsequent failure of BDPL No. 3.

As part of final design efforts, modeling was performed to assure the design components would perform as anticipated in a design seismic event. During this analysis, it was determined that BDPL No. 4 may be susceptible to failure at Hayward Fault Trace A, located under freeway I-680. This type of failure was deemed to be unacceptable, and thus, the project design has incorporated features to protect BDPL No. 4 against failure at Trace A. In addition to this scope change, the project refined the details for relocation of several existing utilities in the area, including two ACWD water pipelines, one Union Sanitary District sewer pipeline, one conduit of AT&T phone lines, and one six-inch diameter PG&E gas pipeline. Care is being taken to assure that the design of relocated facilities is compatible with the seismic reliability goals of the system.

CUW36702: Peninsula Pipelines Seismic Upgrade Project

This project was created in response to the system's 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 drinking water transmission pipelines that deliver water from the Harry Tracy Water Treatment Plant (HTWTP) to customers within the service area of the Regional Water System and City 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.

The scope of this project previously included 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 was performed to review system/facility requirements to meet system goals. The objectives of the investigations were: (1) to determine the potential fault offset at the Serra Fault crossings and the potential response from the three pipelines to these offsets, and (2) to determine potential for pipeline rupture due to displacement from liquefaction, landslides, and other seismically-triggered hazards along the pipeline alignments.

The extensive geotechnical and modeling analyses performed to date have been carefully reviewed to identify specific project recommendations. The refined project scope currently includes the following components:

- Replacement of about 1,200 feet of SAPL2 at the Serra Fault Crossing;
- Replacement of about 1,050 feet of SAPL3 at the Serra Fault Crossing;
- Replacement of about 900 feet of SSBPL at the Serra Fault Crossing; and
- Replacement of about 1,150 feet of SAPL2 at two locations in the Colma Creek area in sites where there is potential for liquefaction hazard.

CUW38802: Bioregional Habitat Restoration Project (previously Habitat Reserve Program)

The former Habitat Reserve Program 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 Regional Water System. The previously approved scope of the Habitat Reserve Program would include projects to preserve, enhance, restore, or create approximately 1,435 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.

Current determinations of project compensations by regulating agencies have resulted in changes and refinements to the project scope. The project's name has been changed to Bioregional Habitat Restoration Project to better reflect the objectives of the project. The updated project description includes development of compensation sites to preserve, enhance, restore, or create approximately 2,375 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, and establishment of a long-term maintenance endowment account.

The wide variety of the types of impacts from WSIP projects resulted in the need for development of 20 compensation sites on SFPUC property and contracting with 7 property owners to secure compensation on property outside the Alameda and Peninsula watersheds. There are 9 compensation sites on SFPUC property in the Alameda watershed with an average size of 225 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. The

increase in the quantity of habitat compensation lands planned in 2011 versus 2007 includes over 900 acres. The significant increases are in Tidal Marsh (+301 acres), Oak Woodlands (+205 acres), Riparian Woodlands (+26 acres) and Grasslands (+427 acres).

CUW39401: Watershed & Environmental Improvement Program

The Watershed Environmental Improvement Program (WEIP) includes the comprehensive identification of critical watershed lands and ecosystem restoration needs within the hydrologic boundaries of the Alameda Creek, Peninsula (San Mateo and Pilarcitos Creeks) and Tuolumne River watersheds, and prioritizes the protection and/or restoration of these lands. This program will manage watershed activities and resources to protect source water quality, native species and their habitat; and identify critical watershed lands, key ecosystem restoration needs and restoration priorities.

In 2007, two potential projects were identified: Repair or Replacement of Niles Gage on Alameda Creek and Watershed Road Management Plan and Improvements. After extensive project research and planning, the project's focus has shifted away from these two potential projects, and instead towards permanently protecting Alameda Creek watershed lands through conservation easements and/or fee title purchase of property from willing landowners. Under the new approach, there will be no construction work to be funded under this project.

APPENDIX A

**SFPUC
Resolution
11-0109**

PUBLIC UTILITIES COMMISSION

City and County of San Francisco

RESOLUTION NO. 11-0109

WHEREAS, This Commission approved a Long-Term Strategic Plan for Capital Improvements, a Long-Range Financial Plan and a Capital Improvement Program (CIP) on May 28, 2002 by Resolution No. 02-0101; and

WHEREAS, San Francisco residents voted on November 5, 2002 to approve Proposition A (Water System Improvement Revenue Bonds and Imposition of Surcharge on Retail Water Customers), a revenue bond measure to fund the CIP approved by the Commission on May 28, 2002; and

WHEREAS, Pursuant to the requirements of California Assembly Bill (AB) 1823, the San Francisco Public Utilities Commission (SFPUC), on February 26, 2003, submitted to the California Department of Health Services (now the Department of Public Health) a report outlining the projects, schedule and implementation plan for the CIP; and

WHEREAS, This Commission approved project-level changes to the CIP on November 29, 2005 and by doing so endorsed revised scope of projects, and approved a schedule and budget and renamed the program the Water System Improvement Program ("December 2005 WSIP"); and

WHEREAS, This Commission endorsed project-level changes to WSIP on February 26, 2008 and by doing so endorsed revised scope of projects, and approved a schedule and budget for the WSIP ("December 2007 Revised WSIP"); and

WHEREAS, A Final Program EIR was prepared for the WSIP ("PEIR") and certified by the Planning Commission on October 30, 2008 by Motion No. 17734, and thereafter, this Commission approved the WSIP and adopted findings and a Mitigation Monitoring and Reporting Program (MMRP), as required by the California Environmental Quality Act (CEQA) on October 30, 2008 by Resolution No. 08-200; and

WHEREAS, the Project files, including the PEIR and SFPUC Resolution No. 08-200 have been made available for review by the SFPUC and the public, and those files are part of the record before this Commission; and

WHEREAS, the Commission has reviewed and considered the information contained in the PEIR and the findings contained in SFPUC Resolution No. 08-200 and all written and oral information provided by the Planning Department, the public, relevant public agencies, SFPUC and other experts and the administrative files for the Project; and

WHEREAS, This Commission endorsed project-level changes to the WSIP on July 28, 2009 and by doing so endorsed revised scope of projects, and approved a schedule and budget for the WSIP ("June 2009 Revised WSIP"); and

WHEREAS, The SFPUC has completed environmental review of a majority of the individual WSIP projects, and is proceeding to complete the environmental review process for the remainder of the projects, as authorized by and in accordance with CEQA; and

WHEREAS, Periodic adjustments in a large capital program such as the WSIP are required to incorporate the latest available information, including unforeseen field conditions and challenges, project scope changes, risk mitigation measures and value engineering proposals; and

WHEREAS, In early 2011 the WSIP Management Team thoroughly evaluated the project variances and trends for all WSIP projects that led to the formulation of scope, schedule, and budget adjustments needed to best deliver the WSIP, while continuing to work towards meeting all the Levels of Service (LOS) Goals established for the system; and

WHEREAS, The proposed changes to the WSIP (referred to as the June 2011 Revised WSIP) involve no change to the overall program budget and consolidation of all program savings due to low bids into a Program Reserve totaling \$161.4 million; and

WHEREAS, The schedule for the proposed June 2011 Revised WSIP was extended from December 4, 2015 to July 29, 2016, when compared to the program schedule last approved by the Commission for the June 2009 Revised WSIP; and

WHEREAS, The proposed changes to the WSIP include a transfer of the management and implementation of the five (5) local water supply projects from the WSIP to the Water Enterprise CIP as of July 1, 2011; and

WHEREAS, Water Code Section 73502(d)(2) requires that the City provide written notice, not less than 30 days prior to the date of a meeting of the City Agency responsible for management of the Bay Area Regional Water System, that a change in the program is to be considered, and that all Bay Area wholesale customers shall be permitted to testify or otherwise submit comments at such meeting; and

WHEREAS, On June 10, 2011, the SFPUC notified the Bay Area wholesale customers through the Bay Area Water Supply & Conservation Agency (BAWSCA) in writing that this Commission would be considering changes to the WSIP at a public hearing on July 12, 2011; and

WHEREAS, During the 30-day public review period, the WSIP Director met with representatives of the BAWSCA to discuss the proposed changes to the WSIP; now, therefore, be it

RESOLVED, The Commission finds that since the PEIR was finalized, there have been no substantial project changes and no substantial changes in project circumstances that would require major revisions to the PEIR due to the involvement of new significant environmental effects or an increase in the severity of previously identified significant impacts, and there is no new information of substantial importance that would change the conclusions set forth in the PEIR; and be it

FURTHER RESOLVED, That this Commission hereby adopts the CEQA findings contained in SFPUC Resolution No. 08-200, including the Statement of Overriding Considerations and the MMRP, by this reference thereto as though fully set forth in this Resolution; and be it

FURTHER RESOLVED, That this Commission hereby endorses the project-level scope, and approves the schedule and budget of the June 2011 Revised WSIP, and directs staff to send a Notice of Change Report to the California Department of Public Health and the California Seismic Safety Commission, in compliance with Water Code Section 73502(d)(3); and be it

FURTHER RESOLVED, that this Commission hereby authorizes the General Manager, or his designee, to seek Board of Supervisors' approval, for the transfer of appropriate funds from one WSIP appropriation category to another as needed to fund the Program Reserve; and be it

FURTHER RESOLVED, That this Commission directs staff to include in its Notice of Change report to the State of California a discussion on the progress being made towards meeting the Regional system's levels of service (LOS) goals, as well as definitions of the terms "major scope changes" and "scope refinements"; and be it

FURTHER RESOLVED, That this Commission directs staff to report to this Commission by August 31, 2011 specifically what actions are proposed to replace the amount of water supply dedicated to in-stream flows pursuant to environmental regulatory permits issued for WSIP projects; and be it

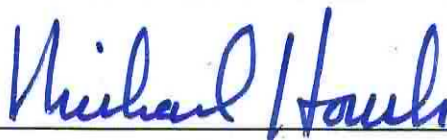
FURTHER RESOLVED, That this Commission directs staff to determine whether the Regional Groundwater Storage and Recovery Project remains feasible and, if not, report by October 31, 2011 and identify feasible alternatives to the Project and an estimated schedule and cost for their completion; and be it

FURTHER RESOLVED, That this Commission directs the WSIP Director to periodically update the Commission on the WSIP trends in project delivery costs and include in future WSIP Quarterly Reports an update on any proposed changes to the Program Management Reserve; and be it

FURTHER RESOLVED, It is the intent of the Commission that any savings at the conclusion of the WSIP will result in lower than otherwise projected proposed rates consistent with the 2009 Water Supply Agreement; and be it

FURTHER RESOLVED, That this Commission fully intends to abide by the schedule adopted today, but understands that the completion date for WSIP is later than the date called for in the Water Supply Agreement and directs staff to work with our Wholesale Customers and the Bay Area Water Supply and Conservation Agency to resolve the different WSIP completion dates.

I hereby certify that the foregoing resolution was adopted by the Public Utilities Commission at its meeting of July 12, 2011



Secretary, Public Utilities Commission

APPENDIX B

2011 Revised WSIP Project Schedules

ATTACHMENT 5: June 2011 Revised WSIP - Project-Level Schedules

Project Name	Start	Finish	FY2007		FY2008				FY2009				FY2010				FY2011				FY2012				FY2013				FY2014				FY2015				FY2016				FY2017	
			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					
Regional Improvement Projects			31-Mar-00 A	29-Jul-16																																						
San Joaquin Region			01-Jul-02 A	25-Mar-14																																						
CUW36401	Lawrence Livermore Water Quality Impro	02-Feb-04 A	14-Sep-11																																							
CUW37301	San Joaquin Pipeline System	19-Aug-02 A	25-Mar-14																																							
CUW37302	Rehabilitation of Existing San Joaquin Pip	03-Jul-06 A	12-Mar-14																																							
CUW38401	Tesla Treatment Facility	01-Jul-02 A	28-Sep-12																																							
Sunol Valley Region			19-Dec-01 A	29-Jul-16																																						
CUW35201	Upper Alameda Creek Filter Gallery	30-Sep-03 A	15-Jul-16																																							
CUW35501	Standby Power Facilities - Various Locatio	11-Jul-02 A	22-Dec-10 A	COMPLETED																																						
CUW35901	New Irvington Tunnel	19-Dec-01 A	31-Oct-14																																							
CUW35902	Alameda Siphon #4	19-Dec-01	12-Jun-12																																							
CUW37001	Pipeline Repair & Readiness Improvement	21-Apr-03 A	16-Apr-09 A	COMPLETED																																						
CUW37401	Calaveras Dam Replacement	03-Sep-02 A	29-Jul-16																																							
CUW37402	Calaveras Reservoir Upgrades (Completed)	19-Nov-03 A	28-Jul-06 A	COMPLETED																																						
CUW37403	San Antonio Backup Pipeline	17-Dec-03 A	09-Mar-15																																							
CUW38101	SVWTP Expansion & Treated Water Rese	22-Apr-05 A	05-Dec-13																																							
CUW38601	San Antonio Pump Station Upgrade	01-Jul-04 A	07-Dec-11																																							
Bay Division Region			19-Dec-01 A	13-Nov-15																																						
CUW35301	BDPL Nos. 3 & 4 Crossover/Isolation Val	06-Jan-03 A	31-Jul-09 A	COMPLETED																																						
CUW35302	Seismic Upgrade of BDPL Nos. 3 & 4	22-Oct-04 A	26-Apr-15																																							
CUW36301	SCADA System - Phase II	22-Apr-05 A	24-Feb-12																																							
CUW36801	BDPL Reliability Upgrade - Tunnel	19-Dec-01 A	13-Nov-15																																							
CUW36802	BDPL Reliability Upgrade - Pipeline	19-Dec-01 A	05-Mar-13																																							
CUW36803	BDPL Reliability Upgrade - Relocation of	24-Apr-06 A	28-May-10 A	COMPLETED																																						
CUW38001	BDPL Nos. 3 & 4 Crossovers	17-Feb-04 A	17-May-13																																							
CUW38901	SFPUC/EBMUD Intertie	24-Jun-02 A	30-Dec-11																																							
CUW39301	BDPL No. 4 Condition Assessment PCCP	04-Aug-06 A	06-Feb-09 A	COMPLETED																																						
Peninsula Region			01-Nov-00 A	06-Jul-16																																						
CUW35401	Lower Crystal Springs Dam Improvements	01-Nov-00 A	27-Sep-12																																							
CUW35601	New Crystal Springs Bypass Tunnel	07-Jan-02 A	29-Mar-12																																							
CUW35701	Adit Leak Repair - Crystal Springs/Calave	01-Apr-05 A	31-Jul-08 A	COMPLETED																																						
CUW36101	Pulgas Balancing - Inlet/Outlet Work (Com	15-May-02 A	11-May-06 A	COMPLETED																																						
CUW36102	Pulgas Balancing - Discharge Channel Mo	01-Apr-05 A	30-Jul-10 A	COMPLETED																																						
CUW36103	Pulgas Balancing - Structural Rehabilitatio	03-Apr-06 A	24-Feb-12																																							
CUW36105	Pulgas Balancing - Modifications of the Ex	02-Apr-07 A	30-May-12																																							
CUW36501	Cross Connection Controls (Completed)	01-Jul-03 A	30-Apr-09 A	COMPLETED																																						
CUW36601	HTWTP Short-Term Improvements (Dem	04-Sep-02 A	14-Nov-06 A	COMPLETED																																						
CUW36603	HTWTP Short-Term Improvements - Coag	03-Jul-06 A	28-Jul-10 A	COMPLETED																																						
CUW36701	HTWTP Long-Term Improvements	01-Jul-03 A	01-Dec-15																																							
CUW36702	Peninsula Pipelines Seismic Upgrade	01-Jul-09 A	06-Jul-16																																							
CUW36901	Capuchino Valve Lot Improvements (Com	22-Apr-05 A	19-Aug-08 A	COMPLETED																																						
CUW37101	Crystal Springs/San Andreas Transmission	18-Aug-03 A	23-Apr-14																																							
CUW37801	Crystal Springs Pipeline No. 2 Replacemen	15-Jan-04 A	25-Sep-13																																							
CUW37901	San Andreas Pipeline No. 3 Installation	15-Jan-04 A	21-Nov-11																																							
CUW39101	Baden and San Pedro Valve Lots Improvem	03-Oct-05 A	01-Aug-12																																							



Revision Date: 06/10/11

ATTACHMENT 5: June 2011 Revised WSIP - Project-Level Schedules

Project Name	Start	Finish	FY2007				FY2008				FY2009				FY2010				FY2011				FY2012				FY2013				FY2014				FY2015				FY2016				FY2017	
			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	FQ1	FQ2			
San Francisco Regional Region	31-Mar-00 A	17-Jun-16																																										
CUW30103 Regional Groundwater Storage and Recov	01-Jun-03 A	17-Jun-16	[Gantt bar with various colored segments]																																									
CUW35801 Sunset Reservoir - North Basin (Complete	31-Mar-00 A	10-Sep-10 A	[Gantt bar with various colored segments]																																									
CUW37201 University Mound Reservoir - North Basin	24-Oct-05 A	11-Jan-12	[Gantt bar with various colored segments]																																									
Support Projects	13-Apr-04 A	29-Jul-16																																										
CUW36302 System Security Upgrades	07-Jan-06 A	29-Apr-16	[Gantt bar with various colored segments]																																									
CUW38801 Programmatic EIR (Completed)	13-Apr-04 A	30-Jun-09 A	[Gantt bar with various colored segments]																																									
CUW38802 Bioregional Habitat Restoration	06-Sep-06 A	24-Jun-16 A	[Gantt bar with various colored segments]																																									
CUW39201 Program Management Project	01-Aug-05 A	29-Jul-16	[Gantt bar with various colored segments]																																									
CUW39401 Watershed Environmental Improvement P	02-Jan-07 A	27-Jun-14	[Gantt bar with various colored segments]																																									



Revision Date: 06/10/11

ATTACHMENT 6: June 2011 Revised WSIP - Phase-Level Schedules

Project Name	Start	Finish	FY2007		FY2008				FY2009				FY2010				FY2011				FY2012				FY2013				FY2014				FY2015				FY2016				FY2017	
			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	FQ1	FQ2	
Regional Improvement Projects			31-Mar-00 A 29-Jul-16																																							
San Joaquin Region			01-Jul-02 A 25-Mar-14																																							
CUW36401 Lawrence Livermore Water Quality Impro			02-Feb-04 A 14-Sep-11																																							
Project Management	02-Feb-04 A	14-Sep-11	[Grey bar]																																							
Planning	02-Feb-04 A	28-Sep-07 A	[Cyan bar]																																							
Environmental	31-Aug-06 A	25-Feb-09 A	[Blue bar]																																							
Design	01-Oct-07 A	31-Mar-09 A	[Yellow bar]																																							
Bid & Award	01-Dec-08 A	25-Aug-09 A	[Orange bar]																																							
Construction Management	27-Feb-09 A	11-Mar-11 A	[Dark Red bar]																																							
Construction	26-Aug-09 A	11-Mar-11 A	[Green bar]																																							
Closeout	14-Mar-11 A	14-Sep-11	[Grey bar]																																							
CUW37301 San Joaquin Pipeline System			19-Aug-02 A 25-Mar-14																																							
Project Management	19-Aug-02 A	25-Mar-14	[Grey bar]																																							
Planning	19-Aug-02 A	28-Dec-06 A	[Cyan bar]																																							
Environmental Review	17-Feb-04 A	22-Jun-11 A	[Blue bar]																																							
Right of Way	02-Jan-07 A	30-Dec-11	[Red bar]																																							
Design	02-Jan-07 A	23-Mar-11 A	[Yellow bar]																																							
Bid & Award	27-Apr-09 A	09-Aug-11	[Orange bar]																																							
Construction Management	03-Feb-09 A	20-Sep-13	[Dark Red bar]																																							
Construction	13-Oct-09 A	20-Sep-13	[Green bar]																																							
Closeout	06-Feb-12	25-Mar-14	[Grey bar]																																							
CUW37302 Rehabilitation of Existing San Joaquin Pip			03-Jul-06 A 12-Mar-14																																							
Project Management	03-Jul-06 A	12-Mar-14	[Grey bar]																																							
Planning	03-Jul-06 A	28-Sep-11	[Cyan bar]																																							
Environmental Review	26-Sep-06 A	30-Nov-12	[Blue bar]																																							
Design	31-Jul-06 A	31-Mar-11 A	[Yellow bar]																																							
Bid & Award	02-May-08 A	31-Mar-11 A	[Orange bar]																																							
Construction Management	03-Jul-06 A	31-Jul-11	[Dark Red bar]																																							
Construction	02-Oct-06 A	07-Sep-13	[Green bar]																																							
Closeout	01-Aug-11	12-Mar-14	[Grey bar]																																							
CUW38401 Tesla Treatment Facility			01-Jul-02 A 28-Sep-12																																							
Project Management	01-Jul-02 A	28-Sep-12	[Grey bar]																																							
Planning	01-Jul-02 A	29-Jun-07 A	[Cyan bar]																																							
Environmental	30-Jun-06 A	25-Feb-09 A	[Blue bar]																																							
Right of Way	17-Mar-08 A	16-Oct-08 A	[Red bar]																																							
Design	15-Feb-07 A	20-Nov-09 A	[Yellow bar]																																							
Bid & Award	30-Jan-08 A	10-Nov-08 A	[Orange bar]																																							
Construction Management	02-Feb-09 A	28-Jun-12	[Dark Red bar]																																							
Construction	08-Sep-08 A	28-Jun-12	[Green bar]																																							
Closeout	29-Jun-12	28-Sep-12	[Grey bar]																																							
Sunol Valley Region			19-Dec-01 A 29-Jul-16																																							
CUW35201 Upper Alameda Creek Filter Gallery			30-Sep-03 A 15-Jul-16																																							
Project Management	30-Sep-03 A	15-Jul-16	[Grey bar]																																							
Planning	30-Sep-03 A	30-Jun-10 A	[Cyan bar]																																							
Environmental Phase	23-Apr-10 A	14-Mar-14	[Blue bar]																																							



Revision Date: 06/10/11

ATTACHMENT 6: June 2011 Revised WSIP - Phase-Level Schedules

Project Name	Start	Finish	FY2007				FY2008				FY2009				FY2010				FY2011				FY2012				FY2013				FY2014				FY2015				FY2016				FY2017	
			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	FQ1	FQ2			
Design Phase	01-Jul-10 A	29-Oct-13	[Gantt bar: Yellow]																																									
Bid & Award Phase	17-Mar-14	17-Sep-14	[Gantt bar: Orange]																																									
Construction Management Phase	17-Sep-14	17-May-16	[Gantt bar: Dark Red]																																									
Construction	17-Sep-14	17-May-16	[Gantt bar: Green]																																									
Closeout Phase	18-May-16	15-Jul-16	[Gantt bar: Grey]																																									
CUW35501 Standby Power Facilities - Various Locatio	11-Jul-02 A	22-Dec-10 A	COMPLETED																																									
Project Management	11-Jul-02 A	22-Dec-10 A	[Gantt bar: Grey]																																									
Planning	11-Jul-02 A	30-Jun-05 A	[Gantt bar: Cyan]																																									
Environmental (CatEx)	26-May-05 A	23-Sep-05 A	[Gantt bar: Blue]																																									
Design	01-Jul-05 A	04-May-07 A	[Gantt bar: Yellow]																																									
Bid & Award	16-Apr-07 A	31-Dec-07 A	[Gantt bar: Orange]																																									
Construction Management	10-Dec-07 A	22-Jun-10 A	[Gantt bar: Dark Red]																																									
Construction	10-Dec-07 A	28-May-10 A	[Gantt bar: Green]																																									
Closeout	10-Sep-08 A	07-Oct-10 A	[Gantt bar: Grey]																																									
CUW35901 New Irvington Tunnel	19-Dec-01 A	31-Oct-14	[Gantt bar: Grey]																																									
Project Management	19-Dec-01 A	31-Oct-14	[Gantt bar: Grey]																																									
Planning	19-Dec-01 A	07-Oct-05 A	[Gantt bar: Cyan]																																									
Environmental	25-Aug-04 A	07-Mar-11 A	[Gantt bar: Blue]																																									
Right of Way	03-Jul-06 A	03-Apr-14	[Gantt bar: Red]																																									
Design	11-Oct-05 A	12-Jan-10 A	[Gantt bar: Yellow]																																									
Bid & Award	05-Jan-09 A	21-Jul-10 A	[Gantt bar: Orange]																																									
Construction Management	01-Dec-08 A	13-Jun-14	[Gantt bar: Dark Red]																																									
Construction	31-Mar-09 A	14-Jul-14	[Gantt bar: Green]																																									
Close Out	16-Jun-14	31-Oct-14	[Gantt bar: Grey]																																									
CUW35902 Alameda Siphon #4	19-Dec-01 A	12-Jun-12	[Gantt bar: Grey]																																									
Project Management	19-Dec-01 A	12-Jun-12	[Gantt bar: Grey]																																									
Planning	19-Dec-01 A	07-Oct-05 A	[Gantt bar: Cyan]																																									
Environmental	25-Aug-04 A	30-Mar-10 A	[Gantt bar: Blue]																																									
Right of Way	04-Jun-07 A	09-Feb-09 A	[Gantt bar: Red]																																									
Design	11-Oct-05 A	13-Mar-09 A	[Gantt bar: Yellow]																																									
Bid & Award	03-Nov-08 A	25-Aug-09 A	[Gantt bar: Orange]																																									
Construction Management	26-Aug-09 A	30-Dec-11	[Gantt bar: Dark Red]																																									
Construction	20-Apr-09 A	30-Dec-11	[Gantt bar: Green]																																									
Closeout	30-Dec-11	12-Jun-12	[Gantt bar: Grey]																																									
CUW37001 Pipeline Repair & Readiness Improvement	21-Apr-03 A	16-Apr-09 A	COMPLETED																																									
Project Management	21-Apr-03 A	16-Apr-09 A	[Gantt bar: Grey]																																									
Planning	21-Apr-03 A	30-Mar-07 A	[Gantt bar: Cyan]																																									
Environmental (CatEx)	14-Jan-05 A	29-Dec-06 A	[Gantt bar: Blue]																																									
Design	07-Jun-04 A	05-Feb-07 A	[Gantt bar: Yellow]																																									
Bid & Award	31-Oct-05 A	23-Jul-07 A	[Gantt bar: Orange]																																									
Construction Management	30-Jan-06 A	15-Oct-08 A	[Gantt bar: Dark Red]																																									
Construction	30-Jan-06 A	15-Oct-08 A	[Gantt bar: Green]																																									
Close Out	18-Sep-06 A	16-Apr-09 A	[Gantt bar: Grey]																																									
CUW37401 Calaveras Dam Replacement	03-Sep-02 A	29-Jul-16	[Gantt bar: Grey]																																									
Project Mangement	03-Sep-02 A	29-Jul-16	[Gantt bar: Grey]																																									
Planning	03-Sep-02 A	04-Nov-05 A	[Gantt bar: Cyan]																																									

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

Revision Date: 06/10/11

ATTACHMENT 6: June 2011 Revised WSIP - Phase-Level Schedules

Project Name	Start	Finish	FY2007				FY2008				FY2009				FY2010				FY2011				FY2012				FY2013				FY2014				FY2015				FY2016				FY2017	
			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							
Environmental	16-May-05 A	29-Jul-11	[Gantt bar: Environmental phase]																																									
Design	14-Nov-05 A	28-Jul-11	[Gantt bar: Design phase]																																									
Bid & Award	27-Dec-10 A	29-Jul-11	[Gantt bar: Bid & Award phase]																																									
Construction Management	01-Aug-11	30-Jul-15	[Gantt bar: Construction Mgmt phase]																																									
Construction	04-Apr-11	29-Jan-16	[Gantt bar: Construction phase]																																									
Closeout	01-Feb-16	29-Jul-16	[Gantt bar: Closeout phase]																																									
CUW37402 Calaveras Reservoir Upgrades (Completed)	19-Nov-03 A	28-Jul-06 A	COMPLETED																																									
Project Management	19-Nov-03 A	28-Jul-06 A	[Gantt bar: Project Management phase]																																									
Planning	19-Nov-03 A	18-Nov-05 A	[Gantt bar: Planning phase]																																									
Environmental	21-May-04 A	18-Nov-05 A	[Gantt bar: Environmental phase]																																									
Design	16-Dec-04 A	18-Nov-05 A	[Gantt bar: Design phase]																																									
Bid & Award	28-Jan-05 A	18-Nov-05 A	[Gantt bar: Bid & Award phase]																																									
Construction Management	27-Jun-05 A	14-Feb-06 A	[Gantt bar: Construction Mgmt phase]																																									
Construction	27-Jun-05 A	14-Feb-06 A	[Gantt bar: Construction phase]																																									
Close Out	07-Oct-05 A	28-Jul-06 A	[Gantt bar: Close Out phase]																																									
CUW37403 San Antonio Backup Pipeline	17-Dec-03 A	09-Mar-15	[Gantt bar: Project Management phase]																																									
Project Management	17-Dec-03 A	09-Mar-15	[Gantt bar: Project Management phase]																																									
Planning	17-Dec-03 A	11-May-07 A	[Gantt bar: Planning phase]																																									
Environmental	02-Oct-06 A	06-Jul-12	[Gantt bar: Environmental phase]																																									
Design	01-Mar-07 A	14-Jun-12	[Gantt bar: Design phase]																																									
Bid & Award	18-May-11	26-Oct-12	[Gantt bar: Bid & Award phase]																																									
Construction Management	29-Oct-12	05-Sep-14	[Gantt bar: Construction Mgmt phase]																																									
Construction	29-Oct-12	05-Sep-14	[Gantt bar: Construction phase]																																									
Close Out	08-Sep-14	09-Mar-15	[Gantt bar: Close Out phase]																																									
CUW38101 SVWTP Expansion & Treated Water Rese	22-Apr-05 A	05-Dec-13	[Gantt bar: Project Management phase]																																									
Project Management	22-Apr-05 A	05-Dec-13	[Gantt bar: Project Management phase]																																									
Planning	22-Apr-05 A	29-Jun-07 A	[Gantt bar: Planning phase]																																									
Environmental Review	21-Jul-06 A	30-Jun-10 A	[Gantt bar: Environmental Review phase]																																									
Right of Way	03-Jul-06 A	16-Jun-09 A	[Gantt bar: Right of Way phase]																																									
Design	16-Jan-07 A	10-Dec-09 A	[Gantt bar: Design phase]																																									
Bid & Award	23-Nov-09 A	22-Jun-10 A	[Gantt bar: Bid & Award phase]																																									
Construction Management	30-Apr-10 A	31-May-13	[Gantt bar: Construction Mgmt phase]																																									
Construction	23-Jun-10 A	02-Jun-13	[Gantt bar: Construction phase]																																									
Closeout	03-Jun-13	05-Dec-13	[Gantt bar: Closeout phase]																																									
CUW38601 San Antonio Pump Station Upgrade	01-Jul-04 A	07-Dec-11	[Gantt bar: Project Management phase]																																									
Project Management	01-Jul-04 A	07-Dec-11	[Gantt bar: Project Management phase]																																									
Planning	01-Jul-04 A	12-Jan-07 A	[Gantt bar: Planning phase]																																									
Environmental (CatEx)	02-Jan-07 A	21-Jun-07 A	[Gantt bar: Environmental (CatEx) phase]																																									
Design	06-Jul-07 A	15-May-09 A	[Gantt bar: Design phase]																																									
Bid & Award	14-Apr-09 A	30-Oct-09 A	[Gantt bar: Bid & Award phase]																																									
Construction Management	02-Nov-09 A	01-Sep-11	[Gantt bar: Construction Mgmt phase]																																									
Construction	02-Nov-09 A	01-Sep-11	[Gantt bar: Construction phase]																																									
Close-Out	04-Aug-11	07-Dec-11	[Gantt bar: Close-Out phase]																																									
Bay Division Region	19-Dec-01 A	13-Nov-15	COMPLETED																																									
CUW35301 BDPL Nos. 3 & 4 Crossover/Isolation Val	06-Jan-03 A	31-Jul-09 A	COMPLETED																																									
Project Management	06-Jan-03 A	31-Jul-09 A	[Gantt bar: Project Management phase]																																									

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

Revision Date: 06/10/11

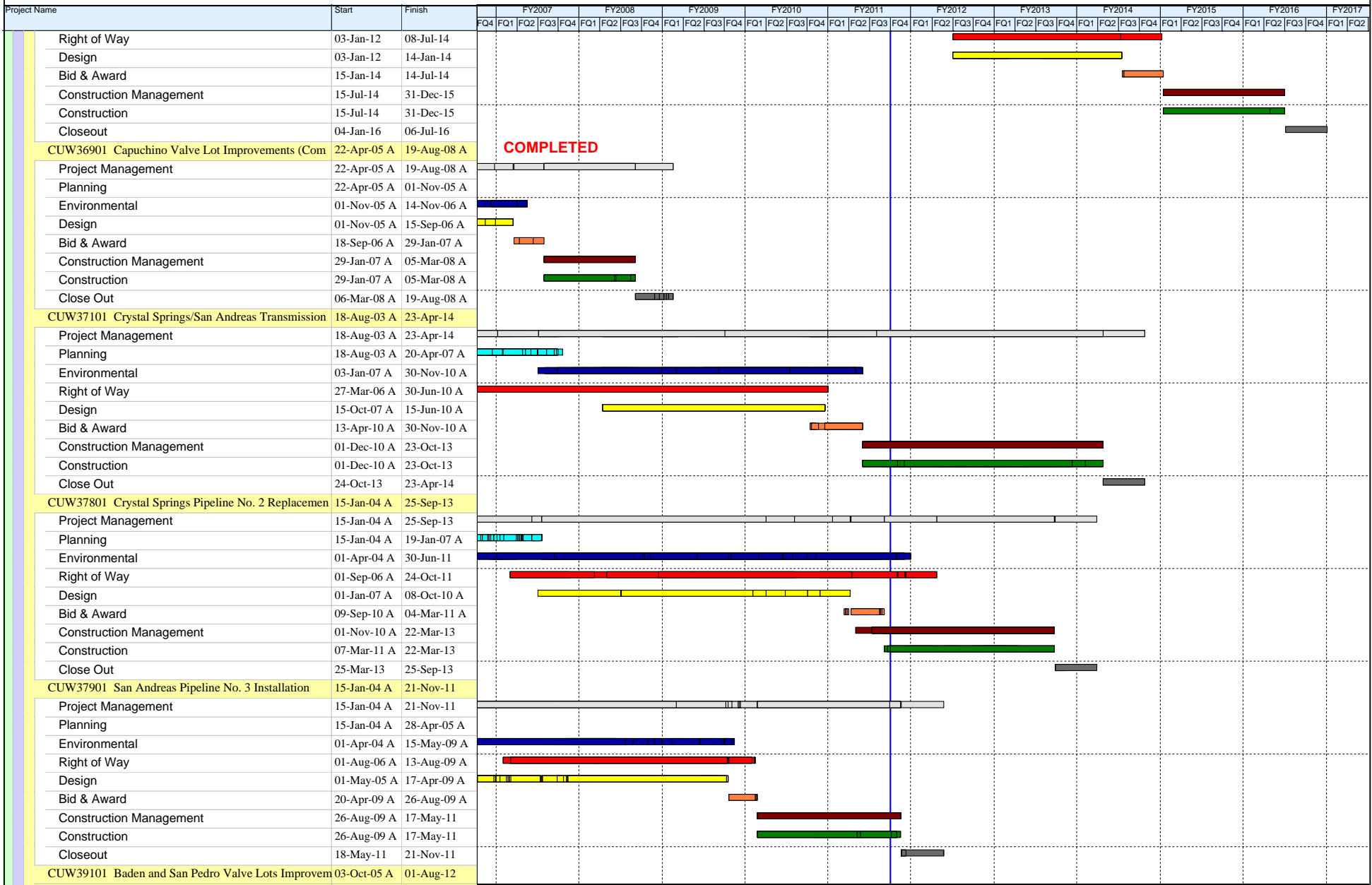
ATTACHMENT 6: June 2011 Revised WSIP - Phase-Level Schedules

Project Name	Start	Finish	FY2007				FY2008				FY2009				FY2010				FY2011				FY2012				FY2013				FY2014				FY2015				FY2016				FY2017	
			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	FQ1	FQ2			
Environmental	18-Sep-03 A	09-Oct-08 A	[Gantt bar: Environmental phase]																																									
Right of Way	03-Jul-06 A	16-Sep-08 A	[Gantt bar: Right of Way phase]																																									
Design	01-Jun-04 A	05-Jun-08 A	[Gantt bar: Design phase]																																									
Bid & Award	05-Jun-08 A	01-Dec-08 A	[Gantt bar: Bid & Award phase]																																									
Construction Management	01-Dec-08 A	28-Sep-11	[Gantt bar: Construction Mgmt phase]																																									
Construction	01-Dec-08 A	28-Sep-11	[Gantt bar: Construction phase]																																									
Close Out	29-Sep-11	29-Mar-12	[Gantt bar: Close Out phase]																																									
CUW35701 Adit Leak Repair - Crystal Springs/Calave	01-Apr-05 A	31-Jul-08 A	COMPLETED																																									
Project Management	01-Apr-05 A	31-Jul-08 A	[Gantt bar: Project Management]																																									
Planning	01-Apr-05 A	27-Mar-06 A	[Gantt bar: Planning]																																									
Environmental	01-Jul-05 A	30-Jun-06 A	[Gantt bar: Environmental]																																									
Design	01-Sep-05 A	15-Sep-06 A	[Gantt bar: Design]																																									
Bid & Award	28-Aug-06 A	30-Mar-07 A	[Gantt bar: Bid & Award]																																									
Construction Management	02-Apr-07 A	05-Mar-08 A	[Gantt bar: Construction Mgmt]																																									
Construction	09-Apr-07 A	05-Mar-08 A	[Gantt bar: Construction]																																									
Close Out	12-Mar-08 A	08-Jul-08 A	[Gantt bar: Close Out]																																									
CUW36101 Pulgas Balancing - Inlet/Outlet Work (Com	15-May-02 A	11-May-06 A	COMPLETED																																									
Project Management	01-Jul-03 A	11-May-06 A	[Gantt bar: Project Management]																																									
Planning	15-May-02 A	01-Aug-05 A	[Gantt bar: Planning]																																									
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Construction	06-Sep-05 A	02-Feb-06 A	[Gantt bar: Construction]																																									
Close Out	03-Feb-06 A	11-May-06 A	[Gantt bar: Close Out]																																									
CUW36102 Pulgas Balancing - Discharge Channel Mo	01-Apr-05 A	30-Jul-10 A	COMPLETED																																									
Project Management	01-Apr-05 A	30-Jul-10 A	[Gantt bar: Project Management]																																									
Planning	01-Apr-05 A	15-Sep-06 A	[Gantt bar: Planning]																																									
Environmental	17-Aug-06 A	03-Apr-09 A	[Gantt bar: Environmental]																																									
Design	16-Apr-07 A	03-Nov-08 A	[Gantt bar: Design]																																									
Bid & Award	04-Nov-08 A	03-Apr-09 A	[Gantt bar: Bid & Award]																																									
Construction Management	06-Apr-09 A	07-Dec-09 A	[Gantt bar: Construction Mgmt]																																									
Construction	02-Apr-09 A	07-Dec-09 A	[Gantt bar: Construction]																																									
Close Out	08-Dec-09 A	30-Jul-10 A	[Gantt bar: Close Out]																																									
CUW36103 Pulgas Balancing - Structural Rehabilitatio	03-Apr-06 A	24-Feb-12	COMPLETED																																									
Project Management	03-Apr-06 A	24-Feb-12	[Gantt bar: Project Management]																																									
Planning	03-Apr-06 A	11-Dec-07 A	[Gantt bar: Planning]																																									
Environmental	03-Jul-07 A	16-Jul-09 A	[Gantt bar: Environmental]																																									
Design	11-Jan-08 A	01-Jul-09 A	[Gantt bar: Design]																																									
Bid & Award	06-Apr-09 A	30-Nov-09 A	[Gantt bar: Bid & Award]																																									
Construction Management	30-Nov-09 A	25-Aug-11	[Gantt bar: Construction Mgmt]																																									
Construction	30-Nov-09 A	25-Aug-11	[Gantt bar: Construction]																																									
Close Out	26-Aug-11	24-Feb-12	[Gantt bar: Close Out]																																									
CUW36105 Pulgas Balancing - Modifications of the Ex	02-Apr-07 A	30-May-12	COMPLETED																																									
Project Management	02-Apr-07 A	30-May-12	[Gantt bar: Project Management]																																									
Planning	02-Apr-07 A	17-Mar-09 A	[Gantt bar: Planning]																																									
Environmental	19-Nov-07 A	04-Mar-10 A	[Gantt bar: Environmental]																																									



Revision Date: 06/10/11

ATTACHMENT 6: June 2011 Revised WSIP - Phase-Level Schedules



Revision Date: 06/10/11

ATTACHMENT 6: June 2011 Revised WSIP - Phase-Level Schedules

Project Name	Start	Finish	FY2007		FY2008				FY2009				FY2010				FY2011				FY2012				FY2013				FY2014				FY2015				FY2016				FY2017	
			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					
San Francisco Regional Region																																										
CUW30103 Regional Groundwater Storage and Recov																																										
Project Management	01-Jun-03 A	17-Jun-16	[Gantt bar]																																							
Planning	01-Jun-03 A	31-Jan-08 A	[Gantt bar]																																							
Environmental	15-Oct-07 A	18-Dec-13	[Gantt bar]																																							
Right of Way	07-Apr-08 A	19-Sep-13	[Gantt bar]																																							
Design	02-Jan-08 A	22-Apr-13	[Gantt bar]																																							
Bid & Award	11-Mar-09 A	18-Dec-13	[Gantt bar]																																							
Construction Management	04-Mar-08 A	18-Dec-15	[Gantt bar]																																							
Construction	01-Jul-03 A	18-Dec-15	[Gantt bar]																																							
Closeout	21-Dec-15	17-Jun-16	[Gantt bar]																																							
CUW35801 Sunset Reservoir - North Basin (Complete)																																										
COMPLETED																																										
Project Management	31-Mar-00 A	10-Sep-10 A	[Gantt bar]																																							
Planning	31-Mar-00 A	28-Sep-01 A	[Gantt bar]																																							
Environmental	21-May-04 A	21-Dec-04 A	[Gantt bar]																																							
Design	01-Oct-01 A	12-Apr-06 A	[Gantt bar]																																							
Bid & Award	22-Oct-04 A	10-Oct-06 A	[Gantt bar]																																							
Construction Management	11-Apr-05 A	26-Mar-09 A	[Gantt bar]																																							
Construction	11-Apr-05 A	09-Nov-09 A	[Gantt bar]																																							
Close Out	13-Nov-06 A	10-Sep-10 A	[Gantt bar]																																							
CUW37201 University Mound Reservoir - North Basin																																										
Project Management	24-Oct-05 A	11-Jan-12	[Gantt bar]																																							
Planning	24-Oct-05 A	06-Apr-07 A	[Gantt bar]																																							
Environmental	26-Dec-06 A	18-Jul-07 A	[Gantt bar]																																							
Design	07-Apr-07 A	24-Mar-09 A	[Gantt bar]																																							
Bid & Award	02-Feb-09 A	31-Jul-09 A	[Gantt bar]																																							
Construction Management	03-Aug-09 A	01-Aug-11	[Gantt bar]																																							
Construction	27-Jul-09 A	01-Aug-11	[Gantt bar]																																							
Close Out	02-Aug-11	11-Jan-12	[Gantt bar]																																							
Support Projects																																										
CUW36302 System Security Upgrades																																										
Project Management	19-Jun-06 A	29-Apr-16	[Gantt bar]																																							
Planning	19-Jun-06 A	08-Jul-09 A	[Gantt bar]																																							
Environmental	19-Jun-06 A	28-Mar-12	[Gantt bar]																																							
Right of Way	26-Nov-08 A	26-Nov-08 A	[Gantt bar]																																							
Design	19-Jun-06 A	09-Aug-12	[Gantt bar]																																							



Revision Date: 06/10/11

ATTACHMENT 6: June 2011 Revised WSIP - Phase-Level Schedules

Project Name	Start	Finish	FY2007		FY2008				FY2009				FY2010				FY2011				FY2012				FY2013				FY2014				FY2015				FY2016				FY2017	
			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	FQ1	FQ2	
Bid & Award	07-Jan-06 A	16-Oct-12	[Gantt bar: Bid & Award phase]																																							
Construction Management	13-Nov-06 A	22-Jan-16	[Gantt bar: Construction Management phase]																																							
Construction	13-Nov-06 A	24-Jan-16	[Gantt bar: Construction phase]																																							
Close Out	24-Sep-07 A	29-Apr-16	[Gantt bar: Close Out phase]																																							
CUW38801 Programmatic EIR (Completed)	13-Apr-04 A	30-Jun-09 A	COMPLETED																																							
Project Management	13-Apr-04 A	30-Jun-09 A	[Gantt bar: Project Management phase]																																							
Planning	13-Apr-04 A	28-Feb-07 A	[Gantt bar: Planning phase]																																							
Environmental Review	15-Jun-04 A	30-Jun-09 A	[Gantt bar: Environmental Review phase]																																							
CUW38802 Bioregional Habitat Restoration	06-Sep-06 A	24-Jun-16	[Gantt bar: Bioregional Habitat Restoration phase]																																							
Project Management	01-Nov-06 A	24-Jun-16	[Gantt bar: Project Management phase]																																							
Planning	06-Sep-06 A	31-Dec-07 A	[Gantt bar: Planning phase]																																							
Environmental Review	03-Jan-07 A	31-Aug-11	[Gantt bar: Environmental Review phase]																																							
Right of Way	02-Jul-08 A	08-Nov-13	[Gantt bar: Right of Way phase]																																							
Design	16-Jul-07 A	01-Dec-11	[Gantt bar: Design phase]																																							
Bid & Award	04-Dec-09 A	09-Jan-12	[Gantt bar: Bid & Award phase]																																							
Construction Management	22-Jun-10 A	29-Mar-16	[Gantt bar: Construction Management phase]																																							
Construction	06-Mar-09 A	29-Mar-16	[Gantt bar: Construction phase]																																							
Closeout	09-Jun-14	24-Jun-16	[Gantt bar: Closeout phase]																																							
CUW39201 Program Management Project	01-Aug-05 A	29-Jul-16	[Gantt bar: Program Management Project phase]																																							
CUW39401 Watershed Environmental Improvement P	02-Jan-07 A	27-Jun-14	[Gantt bar: Watershed Environmental Improvement P phase]																																							
Project Management	02-Jul-07 A	27-Jun-14	[Gantt bar: Project Management phase]																																							
Planning	02-Jan-07 A	29-Jul-11	[Gantt bar: Planning phase]																																							
Environmental	01-Aug-11	29-Jun-12	[Gantt bar: Environmental phase]																																							
Right of Way	14-Mar-11 A	28-Mar-14	[Gantt bar: Right of Way phase]																																							
Design	31-May-11	31-May-11	[Gantt bar: Design phase]																																							
Bid & Award	31-May-11	31-May-11	[Gantt bar: Bid & Award phase]																																							
Construction Management	31-May-11	31-May-11	[Gantt bar: Construction Management phase]																																							
Construction	31-May-11	31-May-11	[Gantt bar: Construction phase]																																							
Closeout	31-Mar-14	27-Jun-14	[Gantt bar: Closeout phase]																																							

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

Revision Date: 06/10/11

APPENDIX C

June 2011 Revised WSIP Project Description



HETCH HETCHY
WATER SYSTEM **IMPROVEMENT** PROGRAM

June 2011 Revised WSIP
PROJECT DESCRIPTION



Services of the San Francisco Public Utilities Commission

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

Sunol Valley Region 6

 35201, Upper Alameda Creek Filter Gallery (formerly Alameda Creek Fishery Enhancement) . 6

 35501, Standby Power Facilities – Various Locations..... 7

 35901, New Irvington Tunnel 8

 35902, Alameda Siphon # 4 9

 37001, Pipeline Repair and Readiness Improvements 10

 37401, Calaveras Dam Replacement 11

 37402, Calaveras Reservoir Upgrades 12

 37403, San Antonio Backup Pipeline 12

 38101, SVWTP Expansion & Treated Water Reservoir 13

 38601, San Antonio Pump Station Upgrade..... 15

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 20

 38901, SFPUC/EBMUD Intertie 21

 39301, BDPL No. 4 Condition Assessment PCCP Sections 21

Peninsula Region..... 23

 35401, Lower Crystal Springs Dam Improvements 23

 35601, New Crystal Springs Bypass Tunnel 23

 35701, Adit Leak Repair - Crystal Springs/Calaveras 24

 36101, Pulgas Balancing - Inlet/Outlet Work..... 25

 36102, Pulgas Balancing - Discharge Channel Modifications 25

 36103, Pulgas Balancing - Structural Rehabilitation & Roof Replacement..... 26

 36105, Pulgas Balancing - Modification of the Existing Dechloramination Facility 26

 36501, Cross Connection Controls 27

 36601/02/03, Harry Tracy Water Treatment Plant Short-Term Improvements 27

 36701, Harry Tracy Water Treatment Plant Long-Term Improvements..... 28

 36702, Peninsula Pipelines Seismic Upgrade..... 29

 36901, Capuchino Valve Lot Improvements..... 30

 37101, Crystal Springs/San Andreas Transmission System Upgrade 31

 37801, Crystal Springs Pipeline No. 2 Replacement..... 32

 37901, San Andreas Pipeline No. 3 Installation 33

39101, Baden and San Pedro Valve Lots Improvements.....	33
San Francisco Regional Region	35
30103, Regional Groundwater Storage and Recovery	35
35801, Sunset Reservoir Upgrades - North Basin	35
37201, University Mound Reservoir Upgrades - North Basin	36
Support Projects (formally System-Wide Region)	37
36302, System Security Upgrades.....	37
38801, Programmatic Environmental Impact Report.....	37
38802, Bioregional Habitat Restoration Project.....	38
39401, Watershed Environmental Improvement Program.....	38

Introduction

This document includes updated descriptions for all of the Water System Improvement System (WSIP) regional projects as part of the June 2011 Revised WSIP to be considered for approval by the San Francisco Public Utilities Commission (SFPUC) on July 12, 2011.

The project descriptions include the three 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 June 2009 Notice of Change to WSIP report.

Note that most projects have few or no scope refinements, but that in some cases additional detail is provided that reflect the progress made on the design of projects since these descriptions were last published in June 2009. Four (4) projects have more significant scope modifications as indicated in Attachment 7. These projects are:

- Project CUW35302: Seismic Upgrade of BDPL Nos. 3 & 4
- Project CUW39501 Peninsula Pipelines Seismic Upgrade
- Project CUW38802 Bioregional Habitat Restoration, formerly "Habitat Reserve Program"
- Project CUW39401 Watershed & Environmental Improvement Program

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 150-gallon-per-minute, parallel UV units and ancillary facilities. The units will be installed in the existing Thomas Shaft building.
- Two pumps that will pump water from the 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 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 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

The following changes have been implemented to refine the scope described above and have served as the basis for the proposed revisions to the 2011 Revised WSIP Schedule and Cost:

- Deletion of security-related site improvements at Roselle, including related support cost. (Security system components at Roselle Crossover will be installed and integrated as part of the Hetch Hetchy Regional Water System security network by CUW36302 - Security System Upgrade Project.)
- Conclusion of WSIP effort to establish a program of pipelines condition assessment by recapitulation of conditions assessment and findings to date, completion of programmatic permitting for the full scope of pipelines rehabilitation, and procurement of permits for initial condition assessment and repair activities in the SJPL Mapes-Gates reach. (Mapes-Gates permit is to serve as a model for successive rehabilitation projects.)
- Conclusion of WSIP effort to upgrade the existing pipelines cathodic protection system by installation of an electrical isolation joint on SFPL No. 1 at Oakdale Portal in coordination with work there under project CUW373-01, SJPL System, Contract HH935C, Eastern Segment.
- SCADA upgrades at existing SJPL facilities have been limited to that already provided at Roselle Crossover and being provided as part of new facilities work under WSIP project CUW373-01, SJPL System, due to Hetch Hetchy Water & Power (HHWP) determination that an extensive communications system upgrade project is to be performed as part of another program of work prior to any additional SCADA upgrades at SJPL facilities.
- Replacement of a short length of SJPL No. 1 is proposed for replacement at Oakdale Portal in coordination with possible repair work there on SJPL Nos. 2 & 3 and installation of SJPL No. 4 and security upgrades under project CUW373-01, SJPL System, Contract HH935C, Eastern Segment.

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.

Sunol Valley Region

35201, Upper Alameda Creek Filter Gallery (formerly Alameda Creek Fishery Enhancement)

Background

The 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. Additionally, up to 1,200 acre-feet of other pre-1914 water rights historically collected through the Sunol infiltration galleries will also be recaptured under this project.

Description

A Conceptual Engineering Report (CER) has been completed for this project to perform preliminary design of the preferred alternative that was previously selected and approved. This preferred alternative, construction of an in-stream infiltration gallery under Alameda Creek and pumping of recaptured water to San Antonio Reservoir, currently includes the following six project components:

- A filter gallery, including two well screens buried approximately 15 to 20 feet beneath the streambed of Alameda Creek;
- A wet well or storage basin;
- A pump station, named Alameda Creek Pump Station (ACPS);
- A potential water treatment facility, the need for which will be based on the findings from ongoing water quality monitoring and analysis;
- A 1,250-foot-long transfer pipeline between the ACPS and an existing pipeline; and
- Post-construction restoration of Alameda Creek at the project site.

An Alternatives Analysis Report (AAR) has been completed for this project and work is about to be initiated on the Conceptual Engineering Report (CER) Phase. As part of the AAR, several diversion and infiltration alternatives were reviewed. The proposed alternative consists of the construction of an in-stream infiltration gallery under Alameda Creek. A definitive scope will be developed as part of the conceptual engineering work.

Scope Refinements

The following features have been added to the project during the CER phase:

Environmental Restoration within project limits: Since this project is located within Alameda Creek, two major components were added to the project: restoration of the Alameda Creek within the project footprint and mitigation of Alameda Creek outside of the actual project footprint. The onsite restoration and offsite mitigation will ensure that the SFPUC meets it's

environmental stewardship commitments; in addition, it is anticipated that these components will be required in order to obtain permits from the jurisdictional regulatory agencies.

Change infiltration pipe backfill from native material to engineered filter pack: Native material backfill was recommended by the previous consultant. However, the consultant who prepared the CER recommended an engineered filter pack backfill.

Additional Building & Site Improvements: Additional building and site improvements include equipment crane, erosion control/armoring along creek, erosion control at Pond F3 West, security fencing and access control, and relocation of existing quarry drainage facilities in conflict with new road.

Deeper burial of infiltration pipe: The AAR included the infiltration pipes buried shallow below the creek bed at a depth of 5 feet. However, the CER recommends a deeper burial of 25 feet at the interface between the younger alluvium and the Livermore Gravels in order to maximize the performance of the filter gallery.

Larger diameter infiltration pipe: The diameter of the infiltration pipe was increased from 24 to 36 inches diameter in order to increase contact with the water bearing soils.

Addition of fourth pump/motor unit: A fourth pump was added for the ability to have redundancy in pumping capacity and flexibility in future flow rates.

Variable frequency drives (VFDs) and soft start motors: VFDs allow for the ability to ramp up and ramp down pumping rates during periods of uncertain flows in Alameda Creek; soft start motors allows for minimal wear on motors when starting and stopping.

Increased size of Transfer Pipeline from 24" to 36": This is required to accommodate flows from the South Bay Aqueduct should SFPUC decide to add this feature in the future.

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 critical facilities to allow these facilities to remain in operation during power outages and other emergencies.

Description

Standby power requirements are provided at six 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 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 locations.

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- Harry Tracy Water Treatment Plant (HTWTP): standby power improvements include removing the four existing, smaller emergency generators and providing two 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 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 18,300 feet long and have a horseshoe shape with excavated dimensions of approximately 12 feet by 14 feet. The final tunnel lining will be mortar-lined, welded steel pipe in lieu of a slip-lined concrete liner as previously reported, resulting in a finished diameter of approximately 8.5 to 10.5 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 20% complete. Major project elements include:

- Conventional mining methods are being used in a westward direction from the Alameda West Portal and in both an eastward and westward direction from an intermediate shaft to be located near Vargas Road, just off Interstate 680. Tunneling is to be completed by multiple road header tunneling machines, and limited, controlled detonation in areas of hard rock. Spoils disposal is being taken to fill sites just north of the San Antonio Pump Station (SAPS) near the intersection of Calaveras Road and Interstate 680. When completed the spoils fills will create a visual barrier to new quarry operation located near Calaveras Road.

Potentially contaminated spoils will be screened, separated, and if found to contain contaminants, hauled to a permitted landfill.

- The Contractor has elected to not mine a short, starter tunnel near the Irvington Portal as shown in the contract plans. Instead, this section of the new tunnel will be mined as part of the westward tunnel heading from Vargas Shaft. This will reduce the number of truck trip impacts for residents at Irvington Portal to haul tunnel spoils from this site.
- At the Irvington Portal, the tunnel will be connected to Bay Division Pipeline (BDPL) Nos. 1, 2, and 5 and to BDPL Nos. 3 and 4. Control valves will be directly buried with instrumentation and electrical gear in a small control building. At the Alameda West Portal, the tunnel will be connected to the discharge of the new mixing manifold to be constructed as part of the Alameda Siphons No. 4 Project and to the existing overflow shaft. The project includes a new isolation valve between the mixing manifold and the portal.
- The NIT Project will include construction of a new access bridge across Alameda Creek to accommodate temporary construction traffic and on-going SFPUC Alameda West Portal operations.
- A Groundwater Management Program has been developed that includes two years of pre-construction monitoring of wells, springs, creeks, ponds, and wetlands; environmental habitat construction mitigation measures; and two years of monitoring after construction to minimize the impact to the local groundwater.
- At both the existing Irvington and Alameda West Portal facilities, other security-related site improvements will be constructed, including undergrounding of portal structures and new card access controlled gates and security fences.

Scope Refinements

Construction tunneling methods have been refined. The final tunnel lining will be mortar-lined, welded steel pipe in lieu of a slip-lined concrete liner as previously reported. In lieu of a short starter tunnel at Irvington Portal, this section of tunnel will be mined as part of the westward tunnel heading from Vargas Shaft. The existing bridge across Alameda Creek will be replaced under the project rather than just being improved.

35902, Alameda Siphon # 4

Background

This project is provided in response to the Seismic Reliability and Delivery Reliability LOS goals. The three 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 No. 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.

This project is currently in construction and is approximately 85% complete. The project primarily consists of:

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- 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.
 - Road improvements at the intersection with Calaveras Road for construction access.

Scope Refinements

The scope for modifications to the Alameda Creek Bridge has been moved to the New Irvington Tunnel Project. The overflow to the existing quarry will include a grouted rock riprap channel down the side of the quarry for erosion protection.

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

The project has been separated into the three 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 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 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 Game (CDFG) 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.
- The existing spillway will be removed, and a new spillway and stilling basin will be constructed. The overflow weir of the new spillway will be 307 feet long. The spillway will vary from 60 to 80 feet wide and will be 1,100 feet long. The stilling basin below the spillway will be 80 feet wide and 155 feet long.
- A new intake tower and shaft will be constructed. The drain line and three adits from the existing facility will be connected to the new shaft. The existing outlet conduit from the tower will be extended 1,100 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.

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- The new bypass tunnel and valve to be installed 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.
 - An approximately 1,000-foot long fish ladder will be added on the right abutment (looking downstream) of the ACDD, and fish screens will be added at the entrance of the ACDT.
 - The existing dam will largely remain in place. The downstream face will, however, be partially removed and regraded and a channel will be excavated through the dam to form the approach to the new spillway.

Scope Refinements

The revised project includes installation of a fish ladder at the ACDD, fish screens at the entrance of the existing ACDT, and fish screens at the entrance of the existing adits to the intake tower at Calaveras Dam.

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 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 6,410 feet of 66-inch-diameter steel pipe and extends from the Alameda Siphons at the SAPS to Sunol quarry, SMP-24, near the intersection of Calaveras Road and San Antonio Creek. There are three tie-in facilities with air gap provisions from the SABPL: one connecting to Alameda Siphon No. 3, a second to the SAPL near SAPS, and a third to the SAPL on the west side of Calaveras Road before the SAPL alignment turns and heads west to quarry SMP-24. The alignment of the SABPL parallels that of the existing SAPL, terminating with a control valve and concrete energy dissipation structure to quarry SMP-24. The project includes new chemical storage, feed and water quality monitoring facilities for dechlorination 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. Construction of a slurry wall is included around the quarry pond to minimize groundwater intrusion and to ensure slope stability.

Scope Refinements

In order to safely discharge water into the SMP-24 quarry pond, an energy dissipation concrete structure needs to be installed on the slope of the pond to receive the discharge. In order to meet water discharge permitting criteria, water discharged into the SMP-24 quarry pond will be required to be recovered (versus discharged into Alameda Creek) to allow free board for the next discharge event. Two submersible pumps will be installed along side the energy dissipation structure, and recovered water will be conveyed through a short section of 24-inch-diameter steel pipe which will connect with existing plumbing to convey the recovered 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.

Because of expected rapid changes in water elevation in the pond (particularly upon discharge) and because of the need to minimize groundwater intrusion and to ensure slope stability, a slurry wall will be constructed around the quarry pond.

38101, SVWTP 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 will increase the sustainable capacity to 160 mgd, include the addition of a new flocculation/sedimentation basin and the retrofit of six of the twelve existing filters. Design of improvements to the remaining six filters will be performed under the project, and will be included as an optional bid item in the construction contract.
- A single 17.5-million-gallon (mg) circular TWR will be constructed together 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 will be hauled to a disposal site immediately east of the plant for disposal.
- New chemical storage and feed facilities for disinfection will be constructed including sodium hypochlorite and ammonia. New fluoride facilities will also be provided.
- Construction of approximately 2,700 feet of 78-inch-diameter pipe will connect the new TWR to the existing plant discharge pipeline. This will include a tunneled crossing of Alameda Creek.
- Miscellaneous plant improvements will include a new emergency generator and improvements to the plant electrical system and substation, an upgrade of the instrumentation and controls, a new filter washwater recovery basin, improvements to the flow distribution structure and associated facilities, and improvements to the influent chemical mixing system.

Scope Refinements

Scope Refinements include the following:

- Upgrade all 12 existing filters instead of 6 existing filters as originally planned during the design. This upgrade will provide an additional factor of safety for reliable and sustainable production of 160 mgd required to meet the LOS goals established for the system.
- Replace 9 existing chemical tanks and associated electrical and instrumentation components. The 9 existing chemical tanks and the associated electrical and instrumentation have reached the end of their useful life and are in jeopardy of failure. It was found to be prudent and more cost effective to perform that work under this project instead of performing the improvements under the Water Enterprise Capital Improvement Program (CIP).
- Replace approximately 13,000 feet of existing chemical feed lines and leak detection system from the chemical feed pumps to plant influent structure. These lines have reached the end of their useful life and have required multiple leak repairs over the last few years. This work is needed to ensure continued operation of the chemical feed system.
- Replace the electrical panels and motor control centers (MCCs). This upgrade is needed because the existing units are obsolete and not compatible with the new software upgrades being implemented throughout the regional transmission system.
- Replace the plant's existing boiler. The existing boiler is more than 50 years old, is leaking oil, and is very inefficient.

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- Replace the existing plant access road which is on a steep grade and is more than 50 years old. The road has deteriorated more than expected due to all the construction activities over the past year. A newly paved road is needed to ensure chemical delivery truck can access the plant during rainy conditions.

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

This project is in construction and is approximately 98% complete. The project consists of:

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

Scope Refinements

The project will include complete replacement of the three electric pumps because replacement of pump casings would not carry a manufacturer's warranty, and the cost for full pump replacement was not significantly higher. There are no other scope refinements to this 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 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 primarily consists of:

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

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 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 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 300 feet of the new BDPL No. 3 will cross under I-680 in an existing culvert; about 400 feet that crosses the fault will be in a newly constructed concrete vault ("box culvert"); about 150 feet of new pipeline will cross under Agua Fria Creek in a newly constructed culvert; and the remaining new pipeline will be buried. Further ongoing investigation may determine that the underground creek crossing is not required. 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 one fault trace is located. A new 400-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 or 78-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, about 400 feet of 78-inch-diameter welded steel pipe will be installed in an existing, unused culvert.
- For the crossing under Agua Fria Creek, about 150 feet of 78-inch diameter welded steel pipe will be installed in a newly constructed culvert using trenchless methods.
- About 1,450 feet of additional new 78-inch diameter welded steel pipe will connect the existing and new segments between the two vaults, and will be buried.

BDPL No. 4:

- About 400 feet of new 90-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.
- Improvements to BDPL No. 4 at Trace A of the Hayward Fault under I-680.
- Relocation of the following utilities: two Alameda County Water District water pipelines, one Union Sanitary District sewer pipeline, one conduit of AT&T phone lines, and one six-inch diameter PG&E gas pipeline.

Scope Refinements

As part of final design efforts, modeling was performed to assure the design components would perform as anticipated in a design seismic event. During this analysis, it was determined that BDPL No. 4 may be susceptible to failure at Hayward Fault Trace A, located under freeway I-680. This type of failure was deemed to be unacceptable, and thus, the project design has incorporated features to protect BDPL No. 4 against failure at Trace A. In addition to this scope change, the project refined the details for relocation of several existing utilities in the area, including two Alameda County Water District water pipelines, one Union Sanitary District sewer pipeline, one conduit of AT&T phone lines, and one six-inch diameter PG&E gas pipeline. Care is being taken to assure that the design of relocated facilities is compatible with the seismic reliability goals of the system.

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 major Bay Area Water Supply and Conservation Agency (BAWSCA) customer sites.
- Install pressure transmitters, perform piping modifications, and provide communication to SCADA master station at seven existing regulating valves in the City 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 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 now

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 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.

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 proposed 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.
- 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.

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

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

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

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 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 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 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.
- 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 No. 2 (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 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 CUW36101 – 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; and/or
- 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 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 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 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 of the ten existing filters (two 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 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.

Scope Refinements

The project scope has been refined to include the following:

- Addition of a third 2-megawatt generator set to satisfy emergency power needs of new facilities added as part of the project;
- 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.

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 drinking water transmission pipelines that deliver water from the

Harry Tracy Water Treatment Plant (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 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:

- Replacement of about 1,200 feet of SAPL2 at the Serra Fault Crossing;
- Replacement of about 1,050 feet of SAPL3 at the Serra Fault Crossing;
- Replacement of about 900 feet of SSBPL at the Serra Fault Crossing; and
- Replacement of about 1,150 feet of SAPL2 at two locations in the Colma Creek area in sites where there is potential for liquefaction hazard.

Scope Refinements

The scope of this project previously included geotechnical investigations to characterize the Serra Fault in the vicinity of the pipelines, followed by design and construction of improvements at up to two fault crossings. The current project scope has been refined based on findings from these evaluations, and includes pipeline replacement at the locations listed above.

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 pressure-reducing valves located in a vault.

Description

The project primarily consists of replacing two existing isolation valves; providing new electric actuators for valve operation; performing concrete crack repair to prevent water leakage into the

vault; providing new instrumentation and control systems for valve operation and pressure monitoring; and relocating the existing electrical and instrumentation systems outside the vault.

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 Crystal Springs/San Andreas (CSSA) Pipeline, and the San Andreas outlet structures.

The project primarily consists of:

- The Upper Crystal Springs Dam includes two 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 No. 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 CSPS will be improved.
- A new CSPS, 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 CSPS 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 No. 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.

Scope Refinements

The isolation valves at Upper Crystal Springs Dam were removed from the contract per direction from California Division of Safety of Dams (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 Replacement 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.

37801, Crystal Springs Pipeline No. 2 Replacement

Background

The project is provided in response to the Seismic Reliability and Delivery Reliability LOS goals. CSPL No. 2 extends from a point near the CSPS 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 creek crossings, providing a new connection at the CSPS, and providing a connecting segment with a blind flange for later connection to the New Crystal Springs Bypass Tunnel (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 CSPS 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

The major project elements include:

- Installation of 4.4 miles of 36-inch-diameter pipe with three bore-and-jack street crossings along 19th Avenue and John Daly Boulevard.
- Installation of five service connections.
- Installation of one altitude valve at Merced Manor Reservoir, six isolation valves, and a flow meter.
- Installation of a new cathodic protection system.
- Installation of three 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 new isolation valves, replacement of three existing valves, seismic retrofit of eight existing vaults, replacement of onsite piping segments, replacement of the existing

electrical switchgear and transformer, replacement of three pumps, installation of variable frequency drives, and other miscellaneous improvements.

- The San Pedro Valve Lot improvements include seismic retrofit of two 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 isolation valve.
- The Pulgas Tunnel Air Shaft improvements include site work to stabilize slopes.

Scope Refinements

There are no scope refinements to this project.

San Francisco Regional Region

30103, Regional Groundwater Storage and Recovery (formally Groundwater Project - South Westside Basin Conjunctive Use)

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 project includes construction of 16 groundwater wells with a total capacity of 7.2 mgd. Each of the wells will be connected to one of the following water systems: Daly City, California Water Service Company, San Bruno, or SFPUC. Treatment may be required at some of the wells for the removal of manganese. Additionally, the project includes about 10,000 feet of water distribution piping to make the necessary connections.

Scope Refinements

Scope refinements includes the addition of 5 treatment facilities for potential manganese removal (serving 7 wells stations); addition of pH adjustment facilities for 3 wells and fluoridation for 8 wells; addition of secondary containment for chemical delivery vehicles; and changes to well station connections at 9 sites.

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 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

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 provided in response to the Seismic Reliability and Delivery Reliability LOS goals. The University Mound Reservoir is one of three 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 (formally System-Wide Region)

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 Homeland 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. This project will however fund the installation/construction of security upgrades at two valve lots, one reservoir, and the control server locations.

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 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 27 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 former Habitat Reserve Program 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 Habitat Reserve Program would include projects to preserve, enhance, restore, or create approximately 1,435 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.

Current determinations of project compensations by regulating agencies have resulted in changes and refinements to the project scope. The project's name has been changed to Bioregional Habitat Restoration Project to better reflect the objectives of the project. The updated project description includes development of compensation sites to preserve, enhance, restore, or create approximately 2,375 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, and establishment of a long-term maintenance endowment account.

The wide variety of the types of impacts from WSIP projects resulted in the need for development of 20 compensation sites on SFPUC property and contracting with 7 property owners to secure compensation on property outside the Alameda and Peninsula watersheds. There are 9 compensation sites on SFPUC property in the Alameda watershed with an average size of 225 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. The increase in the quantity of habitat compensation lands planned in 2011 versus 2007 includes over 900 acres. The significant increases are in Tidal Marsh (+301 acres), Oak Woodlands (+205 acres), Riparian Woodlands (+26 acres) and Grasslands (+427 acres).

39401, Watershed Environmental Improvement Program

The Watershed Environmental Improvement Program (WEIP) includes the comprehensive identification of critical watershed lands and ecosystem restoration needs within the hydrologic boundaries of the Alameda Creek, Peninsula (San Mateo and Pilarcitos Creeks) and Tuolumne

River watersheds, and prioritizes the protection and/or restoration of these lands. This program will manage watershed activities and resources to protect source water quality, native species and their habitat; and identify critical watershed lands, key ecosystem restoration needs and restoration priorities.

In 2007, two potential projects were identified: Repair or Replacement of Niles Gage on Alameda Creek and Watershed Road Management Plan and Improvements. After extensive project research and planning, the project's focus has shifted away from these two potential projects, and instead towards permanently protecting Alameda Creek watershed lands through conservation easements and/or fee title purchase of property from willing landowners. Under the new approach, there will be no construction work to be funded under this project.

Scope Refinements

The previous project scope identified two potential projects. However, the program's focus has shifted to Change from two projects to permanently protecting Alameda Creek Watershed lands through conservation easements and/or fee title purchase of property from willing landowners.