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Services of the San Francisco Public Utilities Commission

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June 20, 2014

The Honorable Michael Gardner, Chairman
California Seismic Safety Commission
1755 Creekside Oaks Drive, Suite 100
Sacramento, CA 95833-3637

Dr. Ron Chapman, MD, MPH, Director
California Department of Public Health
P.O. Box 997377, MS 0500
Sacramento, CA 95899-7377

Subject: Wholesale Regional Water System Security and Reliability Act
Notice of Changes to Water System Improvement Program

Dear Commissioner Gardner 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, describing changes adopted by the SFPUC Commission (Commission) on April 22, 2014 to the schedule of the Water System Improvement Program (WSIP). Although not required by the Wholesale Regional Water System Security and Reliability Act, the SFPUC is also providing a description of the budget revisions and a few project scope changes adopted by the Commission.

The SFPUC has made progress towards the implementation of the WSIP since the Commission last adopted program-wide revisions to the scope, schedule, and budget for the program in April 2013. Between March 2013 and March 2014, the overall completion of WSIP Regional projects increased from 70.9% to 79.3%. With only a few projects remaining in design, the implementation of the program almost exclusively focuses on construction activities. As of March, 2014, fifteen (15) Regional projects with a total value of $2,714 million are in construction and thirty (30) with a total value of $770 million are in closeout or have been completed. The remaining three (3) Regional projects are in pre-construction, one being a support project that does not contribute directly to the program's levels of service (LOS) goals.

As projects move from design to construction, new information becomes available and unexpected challenges are often encountered in the field. Program revisions are necessary to incorporate the project teams' latest knowledge, understanding and analysis.

In early 2014, WSIP Senior Management recognized the need to refine estimates at completion for all active projects based on the latest available information and formally approve program revisions in order to:

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PROGRAM

- 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;
- Transfer forecasted project savings to projects with forecasted overruns;
- Secure the additional funding needed to complete all WSIP projects;
- Provide more realistic project baselines for performance measurements; and
- Ensure compliance with the California Water Code (Assembly Bills [AB] 1823 and 2437).

On March 21, 2014, 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 April 22, 2014. We also asked 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 April 22, 2014, following a 30-day review period, the Commission, per Resolution No. 14-0065, adopted the March 2014 Revised WSIP.

In summary, the overall scope of the WSIP essentially remains unchanged and no projects were deleted from the program. The scope of five (5) projects was modified to facilitate their implementation but those changes will not impact the LOS goals to be achieved by the WSIP. These goals also remain unchanged.

A number of project schedules were revised to address construction challenges in the field. The program completion date adopted as part of the March 2014 Revised WSIP is May 24, 2019, which represents about a 1-month extension over the last schedule approved by the Commission as part of the March 2013 Revised WSIP.

All but five (5) projects (Calaveras Dam Replacement, Alameda Creek Recapture, Watershed Environmental Improvement Program, Long Term Mitigation Endowment and Regional Groundwater Storage and Recovery) will be completed by mid-2016. Of the forty-eight (48) WSIP regional projects, twenty-six (26) have been completed, nine (9) have no schedule variance, and thirteen (13) have been extended.

To facilitate distribution, the attached document is also available in the Reports section of the WSIP Web Page at www.sfwater.org/wsip. Please do not hesitate to contact me at (415) 554-1600 if you have questions or need additional information.

Sincerely,

Harlan L. Kelly, Jr.
General Manager

Attachment:

Notice of Changes to WSIP Report

cc: (w/ attachment)

Nicole Sandkulla - Chief Executive Officer and General Manager, BAWSCA

Richard (Dick) McCarthy - Executive Director, California Seismic Safety Commission

Fred Turner - Structural Engineer, California Seismic Safety Commission

Bruce Burton - Chief of Northern California Drinking Water Field Operations Branch, California Department of Public Health

Bob Brownwood - San Francisco District Engineer, Drinking Water Field Operations Branch, California Department of Public Health

cc: (w/o attachment)

Commissioner Vince Courtney, President

Commissioner Ann Moller Caen, Vice President

Commissioner Francesca Vietor

Commissioner Anson B. Moran

Commissioner Art Torres

The Honorable Assembly Member Adam C. Gray, Chair
California State Assembly - Joint Legislative Audit Committee

The Honorable Assembly Member Ricardo Lara, Vice-Chair
California State Senate - Joint Legislative Audit Committee

The Honorable Mark Pazin, Vice-Chairman, California Seismic Safety Commission

Stefan Cajina, Chief of North Coastal Region, Drinking Water Field Operations Branch, California Department of Public Health

Irene O'Connell - Chair, BAWSCA

Randy Breault - Vice-Chair, BAWSCA

BAWSCA Member Agencies (distributed by BAWSCA)

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Wholesale Regional Water System
Security and Reliability Act

Notice of Changes Report
March 2014 Revised
Water System Improvement Program

June 20, 2014

Hetch Hetchy
Regional
Water
System

Services of the San Francisco Public Utilities Commission

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Notice of Changes Report
March 2014 Revised
Water System Improvement Program (WSIP)

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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. Figure 1-1 shows the location along the SFPUC Regional Water System where some of the 83 WSIP projects will be built.

This report serves to document amendments to the WSIP that were previously adopted by the SFPUC Commission ("Commission") on April 23, 2013 and presented to the State in a report entitled *Notice of Changes Report - March 2013 Revised Water System Improvement Program,* dated June 28, 2013. Revisions to the WSIP, referred to as the March 2014 Revised WSIP (or March 2014 Revised Program), were adopted by the Commission at a public hearing on April 22, 2014. Changes and refinements at both the program and project levels that have occurred since March 2013 are also incorporated herein, and updated project descriptions, schedules and budgets are presented in the appendices.

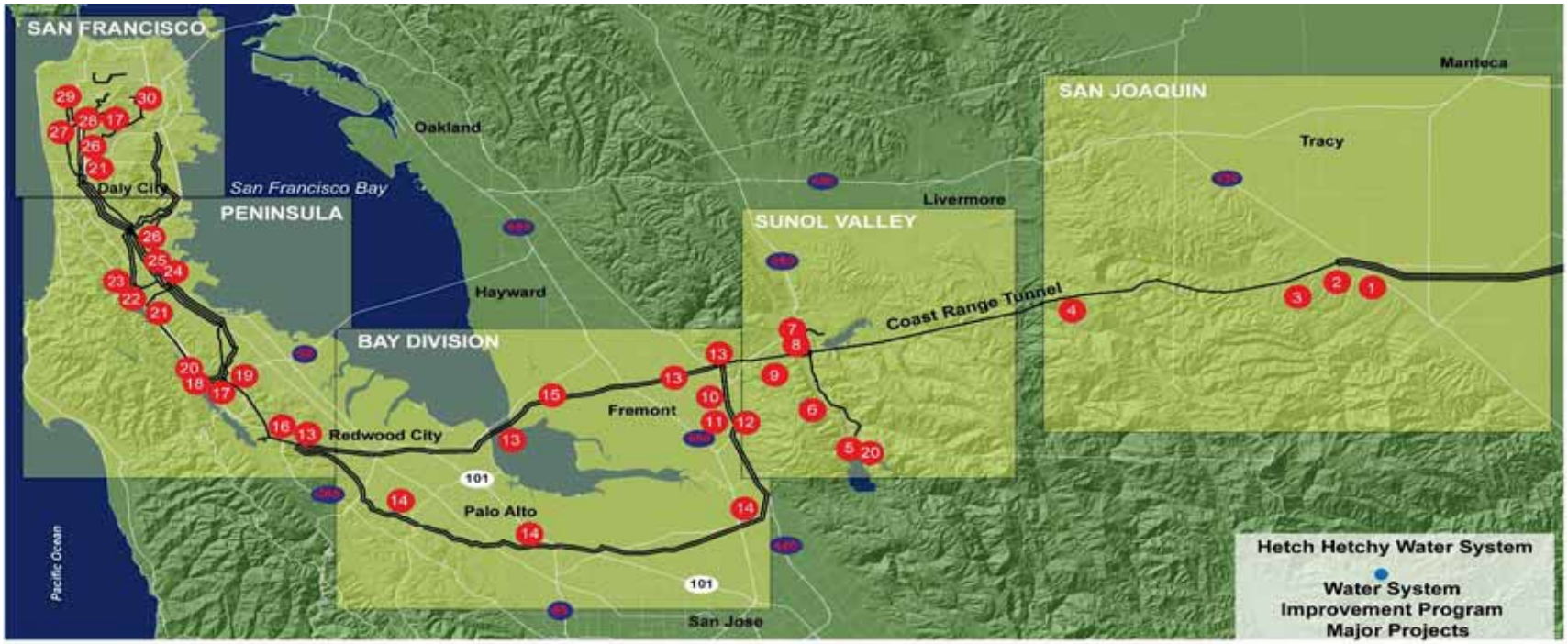
The SFPUC has made great progress towards the implementation of the WSIP since the Commission last adopted program-wide revisions to the scope, schedule, and budget of the program in April 2013. This progress is reflected in the percent complete figures in the table below.

Table 1-1: Percent Complete for WSIP Regional Program

Phase	As of 03/30/13	As of 03/29/14
Planning	99.9%	98.3%
Environmental	94.7%	96.8%
Design	95.7%	96.8%
Construction	68.6%	77.4%
Overall	**70.9%**	**79.3%**

The implementation of the program almost exclusively focuses on construction activities. As of March 29, 2014, fifteen (15) Regional projects with a total value of $2,714 million are in construction and thirty (30) with a total value of $770 million are in closeout or have been completed. The remaining three (3) regional projects are in pre-construction.

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
5. San Antonio Backup Pipeline
6. SVWTP 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 Crossover/Isolation Valves
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. Pulgas Balancing - Inlet/Outlet Work
16. Pulgas Balancing - Discharge Channel Modifications
16. Pulgas Balancing - Structural Rehabiliation & Roof Replacement
16. Pulgas 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 - Demo Filters
23. HTWTP Short-Term Improvements - Coagulation & Flocculation/Remaining Filters
24. Capuchino Valve Lot 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
- Habitat Reserve Program
- Watershed Environment Improvement Program

As projects move from planning, to design and eventually to construction, new information becomes available and unexpected challenges are often encountered in the field. Program revisions are necessary to incorporate the project teams' latest knowledge, understanding and analysis.

In early 2014, the WSIP Senior Management recognized the need to refine estimates at completion for all active projects based on the latest available information and formally approve program 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;
- Transfer forecasted project savings to projects with forecasted overruns;
- Secure the additional funding needed to complete all WSIP projects;
- Provide more realistic project baselines for performance measurements; and
- Ensure compliance with the California Water Code (Assembly Bills [AB] 1823 and 2437).

On March 21, 2014, 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 April 22, 2014. A copy of the Notice of Public Hearing is included in Appendix A. We also asked 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. BAWSCA provided comments on the WSIP revisions outlined in the Notice of Public Hearing in a letter dated April 16, 2014. A copy of that letter along with SFPUC's response letter is included in Appendix B. On April 22, 2014, following a 30-day review period, the Commission, per Resolution No. 14-0065, adopted the March 2014 Revised WSIP. A copy of the staff presentation to the Commission and the Commission Resolution are provided in Appendices C and D, respectively.

1.1 Previous Changes to WSIP

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, per Resolution No. 02-0101, approved a *Long-Term Strategic Plan (LTSP) for Capital Improvements,* a *Long-Range Financial Plan (LRFP)* and a *Capital Improvement Program (CIP) and Appendices*. These reports document the

original 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 AB 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 performances 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. In early 2005, the Commission adopted the four (4) following categories of Level of Service (LOS) goals: Seismic Reliability, Delivery Reliability, Water Quality 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*** ("2005 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 2005 Assessment also identified some specific recommendations for changes in the overall program and individual projects.

In addition to the independent review performed as part of the 2005 Assessment, a Seismic Safety Task Force (SSTF) was convened to provide guidance on the program's seismic design requirements. The SSTF, 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 Commission, per Resolution No. 05-0176, formally adopted the revised program 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 on 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, per Resolution No. 08-0024, adopted scope, schedule and budget revisions. The revised program approved at that time is referred to as the November 2007 Revised WSIP. Shortly thereafter, a change notice report documenting these latest revisions approved by the Commission, *Notice of Changes to Water System Improvement Program (SFPUC, March 31, 2008),* was submitted to the CSSC and CDPH. 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, per Resolution No. 08-0200, 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 million gallons per day (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 the Regional Groundwater Storage and Recovery project, 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.

Throughout 2008 and the first half of 2009, program execution efforts focused on project design and environmental review, and implementation of the WSIP CM Program to address the program's impending transition into construction. For a few projects, refinement of project environmental and design requirements resulted in identification of additional project constraints that presented significant challenges in meeting approved scopes, schedules and/or budgets. At the same time, the economic recession led to a very favorable bidding environment that allowed for the accumulation of project savings. On July 28, 2009, the Commission, per Resolution 09-0125, approved a third program-wide revision that captured these changing conditions on the program. A change notice report documenting these latest revisions approved by the Commission, *Notice of Changes Report - June 2009 Revised Water System Improvement Program (SFPUC, September 1, 2009)*, was subsequently submitted to the State of California.

In early 2011, WSIP Senior Management recognized the need to assess the cumulative effects of refinements made on the program in the previous few years. Based on that assessment, it was determined that a program-wide revision to the WSIP was required to incorporate the recent construction bids and the near-term effects of the economic recession into construction cost estimates, as well as to consolidate project cost savings accumulated to date in a Program Management Reserve. On July 12, 2011, the Commission, per Resolution 11-0109, formally adopted the forth revision to the program. A change notice report documenting the latest approved program-wide revisions, *Notice of Changes Report - June 2011 Revised Water System Improvement Program (SFPUC, September 1, 2011)* was subsequently submitted to the State of California.

From June 2011 to March 2014, the following project-level budget and schedule changes were approved by the SFPUC Commission:

- On June 12, 2012, per Resolution No. 12-0099, the Commission approved budget and schedule changes for three individual WSIP projects – New Irvington Tunnel,

Bay Division Pipeline (BDPL) Reliability Upgrade – Pipeline ("BDPL No. 5") and Pulgas Balancing – Modification of the Existing Dechloramination Facility. A change notice report documenting these project-specific revisions was submitted to the State on July 12, 2012; and

- On October 9, 2012, per Resolution No. 12-0181, the Commission approved budget changes for four individual WSIP projects – San Joaquin Pipeline (SJPL) System, Tesla Treatment Facility, Vegetation Restoration of WSIP Construction Sites (new project), and Program Management; and
- On January 22, 2013, per Resolution No. 13-0020, the Commission approved budget and schedule changes for one individual WSIP project – Calaveras Dam Replacement. A change notice report documenting these project-specific revisions was submitted to the State on February 20, 2013.
- In early 2013, WSIP Senior Management recognized the need to refine estimates at completion for all active projects based on the latest available information and formally approve program revisions. On April 23, 2013, per Resolution No. 13-0060, the Commission formally adopted the revisions to the program schedule and budget. A change notice report documenting the latest approved program-wide revisions, *Notice of Changes Report – March 2013 Revised Water System Improvement Program (SFPUC, June 28, 2013)* was subsequently submitted to the State of California.

1.2 Last Notice of Change Reports

As indicated above, the last program-wide notice of change report - *Notice of Changes Report – March 2013 Revised Water System Improvement Program* - was submitted to the State of California on June 28, 2013. That report described in detail the WSIP revisions adopted by the Commission on April 23, 2013. A copy of the comments dated August 26, 2013 provided by the CSSC in response to this report, and the SFPUC's response to those comments are included in Appendix E.

1.3 Public Hearing for Consideration of Latest Changes to WSIP

On March 21, 2014, the SFPUC notified BAWSCA that the Commission would be considering changes to the WSIP at a public hearing on April 22, 2014. Refer to Appendix A for a copy of the Notice of Public Hearing. We also asked 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.

In response to the notice, BAWSCA submitted a comment letter dated April 16, 2014. The letter outlines a number of scope, budget and schedule recommendations. Refer to Appendix B for a copy of the BAWSCA comment letter along with SFPUC's response to BAWSCA's recommendations. On April 22, 2014, following a 30-day review period, the

program revisions documented in this report was presented to the Commission. All revisions proposed by staff were adopted by the Commission the same day. The latest revised program is referred to as the March 2014 Revised WSIP. A copy of the staff presentation to the Commission and the Commission Resolution are included in Appendix C and Appendix D, respectively.

1.4 Summary of Latest Approved Changes

The overall scope of the WSIP remains unchanged. No projects were deleted since the approval of the March 2013 Revised WSIP. In fact, one (1) new project, the Long Term Mitigation Endowment (LTME) was added to the program, and is being counted as one of the forty-eight (48) WSIP Regional Projects. There were only a few changes made to the scope of the program. Most project scopes remain the same as those previously approved by the SFPUC. Only five (5) projects have scope modifications.

A number of project schedules were revised to address construction challenges in the field, and a few projects in pre-construction have schedule changes. As part of the newly adopted March 2014 Revised WSIP, the program completion date was modified from April 11, 2019 to May 24, 2019, which represents about a 1-month extension over the March 2013 schedule. The Calaveras Dam Replacement Project (CDRP) is now the project controlling the overall program schedule.

All but five (5) projects (Calaveras Dam Replacement, Alameda Creek Recapture, Watershed Environmental Improvement Program, Long Term Mitigation Endowment and Regional Groundwater Storage and Recovery) will be completed by 2016. Of the forty-eight (48) WSIP Regional projects, twenty-six (26) have been completed, nine (9) have no schedule variance, and thirteen (13) have been extended.

The program budget adopted as part of the March 2014 Revised WSIP is $125M greater than the budget associated with the March 2013 Revised WSIP. The budget of WSIP Regional projects increased $126.35M, which was partially offset by a decrease of $1.35M in the budget of WSIP Local projects. The project with the largest cost increase is the CDRP. The projected cost variance of the CDRP is $97.5M from the 2013 approved project budget.

2. PROJECT STATUS

There has been steady progress on the implementation of the WSIP since March 2013. As of March 2014, construction was completed on thirty (30) of the WSIP's forty-eight (48) Regional projects, construction was ongoing on fifteen (15) Regional projects and only three (3) Regional projects remained in pre-construction. Of the three (3) projects still in pre-construction, one (1) is a seismic reliability project, and two (2) are water supply projects. Construction activities on the program have started ramping down as indicated by the number of construction worker-hours recorded. At the peak of construction activities, 206,000 hours were recorded in August 2012, whereas 105,689 hours were recorded in March 2014, which represents a 49% decrease in 20 months. Table 2-1 summarizes the status of the WSIP's twenty-two (22) Regional Projects (including 4 support projects) that were still active as of March 29, 2014.

Table 2-1: March 2014 Revised WSIP – Project Status

Projects in Pre-Construction		
Project No.	Project Name	Proposed Notice-to-Proceed (NTP) Date
CUW36702	Peninsula Pipelines Seismic Upgrade	07/15/14
CUW30103	Regional Groundwater Storage and Recovery (1), (3)	01/30/15
CUW35201	Alameda Creek Recapture Project (1)	04/03/17
Projects in Construction		
Project No.	Project Name	Proposed Construction Phase Completion Date
CUW38401	Tesla Treatment Facility (1)	05/20/14
CUW37301	San Joaquin Pipeline System (1)	07/31/14
CUW36802	BDPL Reliability Upgrade - Pipeline (1)	12/31/14
CUW37101	Crystal Springs/San Andreas Transmission Upgrade	12/31/14
CUW37403	San Antonio Backup Pipeline	05/31/15
CUW35302	Seismic Upgrade of BDPL Nos. 3 & 4 (1)	06/16/15
CUW36701	HTWTP Long-Term Improvements	06/30/15
CUW36801	BDPL Reliability Upgrade - Tunnel	10/01/15
CUW38803	Vegetation Restoration of WSIP Construction Sites	11/30/15
CUW35901	New Irvington Tunnel	09/11/15
CUW36302	System Security Upgrades (1)	01/24/16
CUW38802	Bioregional Habitat Restoration (1), (2)	05/03/16
CUW37401	Calaveras Dam Replacement (1)	11/26/18
CUW38804	Long Term Mitigation Endowment (4)	N/A
CUW39401	Watershed Environmental Improvement Program (5)	N/A

Projects in Closeout		
Project No.	Project Name	Proposed Project Completion Date
CUW38101	SVWTP Expansion & Treated Water Reservoir	05/14/14
CUW37302	Rehabilitation of Existing San Joaquin Pipelines (1)	06/30/14
CUW38001	BDPL Nos. 3 & 4 Crossovers	06/30/14
CUW37801	Crystal Springs Pipeline No. 2 Replacement	07/31/14

Notes:

(1) Project currently active in multiple phases. Project classified according to the phase in which a majority of the work is taking place.

(2) The Bioregional Habitat Restoration Project includes 9 construction contracts.

(3) The Regional Groundwater Storage and Recovery Project consists of three construction contracts. Contract A was for drilling test wells in support of the pre-construction design effort (NTP: 01/30/12). Contracts B and C are for the main construction. The NTP date for the Contract B is reflected in the table, and NTP date for the Contract C is 05/02/16.

(4) The Long Term Mitigation Endowment (LTME) fund is to provide a secure source of funds for perpetual monitoring and maintenance of the Bioregional Habitat Restoration sites constructed in the SFPUC watershed. The LTME fund does not involve construction activities. The LTME is scheduled to be completed on 08/31/18.

(5) The Watershed Environmental Improvement Program is a program-wide effort that originally involved some construction work. The scope of the program was later modified to permanently protecting Alameda Creek Watershed lands through perpetual conservation easements and/or fee title purchase of property from willing landowners. The program is scheduled to be completed on 08/31/18.

For detailed information on the progress (planned vs. actual) of all active projects, as well as the trends, risks and major issues associated with those projects, the reader should refer to the comprehensive WSIP Quarterly Reports. Those documents are available in the Report Section of the WSIP Web Page at www.sfwater.org.

3. GENERAL PROJECT CHANGES

Overall, the March 2014 Revised WSIP is very similar to the March 2013 Revised WSIP. Changes for the March 2014 Revised WSIP include one (1) project added to the Support Region, and five (5) projects were modified with scope changes.

Project Name Changes

There were no project name changes.

Project Eliminated

No projects have been eliminated

Projects Added

One (1) project has been added to the Support Region as follows:

- Project CUW38804: Long-Term Mitigation Endowment

Projects Modified

There are five (5) projects with scope changes as follows:

- Project CUW35201: Alameda Creek Recapture
- Project CUW37401: Calaveras Dam Replacement
- Project CUW35901: New Irvington Tunnel
- Project CUW36801: BDPL Reliability Upgrade – Tunnel
- Project CUW38802: Bioregional Habitat Restoration

4. SCOPE CHANGES

The scope of all but five (5) projects remains the same as those last approved by the Commission as part of the March 2013 Revised WSIP. Scope changes were made to the following projects: Alameda Creek Recapture Project, Calaveras Dam Replacement Project, New Irvington Tunnel, BDPL Reliability Upgrade – Tunnel, and Bioregional Habitat Restoration. Those scope modifications are described below. Refer to Appendix F for the latest description of all WSIP Regional Projects.

CUW35201 **Alameda Creek Recapture Project**

The Alameda Creek Recapture Project (ACRP), formerly known as Upper Alameda Creek Filter Gallery (UACFG) project is provided in response to the Water Supply LOS goals. The purpose of this project is to recapture water diverted from Calaveras Reservoir or bypassed around Alameda Creek Diversion Dam for fisheries habitat enhancement in Alameda Creek and return it to the SFPUC water system through facilities in the Sunol Valley. The original project involved recapturing water released from the upstream dams via use of an in-stream infiltration gallery that would allow the water to flow by gravity to a new pump station, thereby returning the water to the SFPUC system. The project was re-scoped in March 2013 to recapture water that naturally infiltrates from Alameda Creek into an existing quarry pond known as Pond F2 of SMP-24 (SMP stands for Surface Mining Permit).

In December 2013, the recommended project alternatives, scope and budget were presented to the WSIP Steering Committee for approval. The adopted alternative is similar to the project that was approved for the March 2013 re-scoping, but refinements have been made to the pumping system (including refinements to type and number of pumps, motors, valves, conveyance facilities and controls) to accommodate updated operational criteria in order to increase operational flexibility to ensure that the LOS goals will be met.

Specifically, the proposed refinements are to address the following updated operational criteria:

- Allow for sources of water from both Pond F2 and Calaveras Reservoir to be blended and sent to Sunol Valley Water Treatment Plant (SVWTP) simultaneously;
- Allow for water from Pond F2 to be sent to San Antonio Reservoir (SAR), while simultaneously sending water from either the Hetch Hetchy Aqueduct or Calaveras Reservoir to SVWTP;
- Allow for sources of water from both Pond F2 and SAR to be blended and sent to SVWTP simultaneously; and
- Plan, design and construct the project in such a manner that the facility can be modified in the future (if desired by SFPUC Water Supply and Treatment Division after WSIP is complete) in order to provide additional operational flexibility to allow for sources of water from Pone F2 and Calaveras Reservoir to be blended and sent to SAR simultaneously.

In order to meet the updated operational criteria, the following refinements to project facilities (or similar refinements to meet the above objectives) are proposed:

- Provide a single-stage pumping system on floating barges located in Pond F2. Please note that this refinement to use a single-stage pumping system was made in May 2014, subsequent to the Notice of Change (NOC) published in March 2014.
- Provide variable-frequency drives (VFD) for the pump motors as well as additional valving and controls, as necessary, to meet the updated operational objectives to assist with blending of different water sources
- Connect the pump station to the existing 36-inch Sunol Pipeline with approximately 1,000 feet of 36-inch pipeline
- Install approximately 1,600 feet of power lines from the existing Hetch Hetchy Water & Power Calaveras Electrical Substation

Specific facility requirements will be confirmed through the Planning and Design Phases of the project.

CUW37401 **Calaveras Dam Replacement**

The Calaveras Dam Replacement Project (CDRP) 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.

The CDRP is currently in construction and as of February 28, 2014, construction was 58 percent complete. In mid-June 2012, the project team identified a previously unknown large ancient landslide (Landslide A) beneath the northern half of the left abutment slope located on the left side of the valley (when looking downstream from the existing dam). The cost and schedule impacts of this discovery were included in the previous change notice, the March 2013 Revised WSIP. In addition, a second smaller geologic feature located lower in the valley was identified as a potential additional landslide in the left abutment slope at that time; however, this second geologic feature could not be confirmed to be a landslide until excavation continued further down into the valley.

In September 2013, the excavation had reached the point such that a portion of the lower geologic feature was exposed. This allowed for additional geologic mapping and subsurface geotechnical investigations to be performed on the lower geologic feature. It has since been determined that the second feature is, in fact, a landslide (now known as Landslide B), and it has further been determined that Landslide B needs to be removed. As soon as the lower geologic feature was confirmed to be a landslide, the project team immediately proceeded to determine the extent and develop solutions to address the differing site condition. Namely, additional investigations in Fall/Winter 2013-2014 were performed to define the extent of Landslide B and to confirm strength properties of the basal landslide

plane leading to the conclusion that full removal of the entire slide was required for left abutment stability. These recent investigations were undertaken while the excavation for the spillway continued, and included 39 additional core borings with televiewer logging, test trenches, laboratory testing, and extensive additional geologic mapping.

The extent of Landslide B has resulted in design changes to the excavation required for the dam and spillway foundation, as well as design modifications to the dam embankment and spillway. In particular, it was determined that all of the Landslide B materials within the left abutment would need to be removed, which has led to an increase of excavation quantity of approximately 675,000 cubic yards. The removal of Landslide B will also create additional access constraints for the construction contractor which has led to the need to construct a temporary tie-back retaining wall constructed with reinforced shotcrete and tie-back rock/soil anchors in order to provide a level working pad adjacent to the upper approach channel area for the new spillway. Due to the over-excavation of the Landslide B materials, and with the new contours of the base of Landslide B, additional volumes of embankment materials are required in the various zones of the new dam. In addition, the back-scarp of Landslide B encroaches into the new spillway alignment such that a portion of the spillway foundation grade needs to be over-excavated and replaced with mass backfill concrete anchored into the rock slope in order to replace the rock foundation grade that is required for the new spillway. Over-excavation is also required along certain portions of the new 78-inch outlet pipe bench foundation along with backfill concrete in these areas. The new 78-inch outlet pipe alignment and location of the tie-in for the new pipeline with the existing pipeline will need to be realigned to ensure the pipeline foundation grade is placed on rock or anchored concrete block backfill.

The result of the above-cited changes requires re-sequencing of the project schedule. Cost and schedule impact evaluations have been made by the Construction Management Team and are included in the March 2014 Revised WSIP. Cost and schedule impact proposals from the Contractor were recently submitted to the City and are currently under evaluation. A negotiated change order is anticipated to be executed in the summer of 2014.

***CUW35901* New Irvington Tunnel**

The New Irvington Tunnel (NIT) Project is provided in response to both the Seismic Reliability and Delivery Reliability LOS goals. The existing Irvington Tunnel cannot be taken out of service for inspection or maintenance without severely reducing delivery of water to customers. Additionally the existing tunnel is located close to both the seismically active Hayward and Calaveras Fault Zones. The NIT provides a redundant tunnel and new seismically reinforced Alameda West and Irvington Portals.

The Contractor has approached the SFPUC with a proposed change order for the Alameda West Portal (AWP) improvements. The contractor's proposal is to reduce the size of the concrete security enclosure, to eliminate two out-of-service manifold pipe sections on the existing Irvington Tunnel at AWP, and provide an opportunity to inspect the existing tunnel. The Contractor's proposal is to relocate the security structure approximately 25 feet upstream of the current design location along the existing tunnel portal outlet pipe. This allows for a much smaller structure with significantly fewer micro-piles and foundation work by moving the structure outside the footprint of the existing Alameda Siphons. This change

will also allow improved constructability and improved future access for maintenance and repairs as the existing Siphons No. 1 and 3 manifolds can be removed without the new structure impeding their removal.

This change would not be implemented until after the NIT is placed into service. This allows the existing tunnel and siphons to be dewatered and taken out of service for the removal of the Siphons No. 1 and 3 manifold connections. Since the existing tunnel and siphons would be dewatered, it affords the SFPUC an opportunity to conduct a physical entry and inspection of the existing Irvington Tunnel—the first such inspection since 1966. The Contractor has proposed to use the cost savings from the AWP structure simplification to offset costs of the inspection shutdown of the existing tunnel—resulting in a no net or a low cost change order to the NIT contract.

CUW36801 BDPL Reliability Upgrade – Tunnel

The BDPL Reliability Upgrade – Tunnel (Bay Tunnel) Project is provided in response to the Seismic Reliability, Delivery Reliability and Water Supply LOS goals. The original project consists of a 5-mile long, 9-foot diameter tunnel that extends under San Francisco Bay between Newark and Ravenswood Valve Lots replacing those sections of Bay Division Pipelines (BDPL) Nos. 1 and 2.

Two facilities are proposed to be added to the original scope of work and are necessary to ensure the project will meet LOS goals:

1. SCADA Communications system at Newark Valve Lot

This added scope provides for the installation of a SCADA communications system and integrating such system into the existing water quality monitoring equipment located in the Newark Valve Lot Control Building. The work consists of installing communications equipment, telephone line, wires, conduits, and electrical cabinets.

2. 42–inch diameter Bay Division Pipeline No. 2 (BDPL2) Bypass

The supply from the Newark Valve Lot to the City of Hayward is currently being fed from both BDPL No. 1 and No. 2. Upon the completion of the Bay Tunnel Project, Hayward supply will be fed only by BDPL2. The BDPL2, built in the mid-1930s, is a mixture of reinforced concrete cylinder pipe and wrought steel pipe. Thus, with the current scope of the Bay Tunnel Project, the reliability of the Hayward service line could be reduced when the project is completed.

The scope of work for this change will provide for the installation 640 lineal feet of new 42-inch diameter welded steel pipe, replacing a portion of BDPL2, thereby increasing the reliability of the Hayward service.

***CUW38802* Bioregional Habitat Restoration**

The Bioregional Habitat Restoration (BHR) project was created to provide a coordinated and consolidated approach to compensate for habitat impacts that may result from implementation of the WSIP projects in the San Joaquin, Sunol Valley, Bay Division, and Peninsula Regions of the SFPUC Regional Water System. The previously approved scope of the BHR Project included projects to preserve, enhance, restore, or create approximately

2,350 acres of tidal marsh, vernal pools, white alder riparian forest, sycamore alluvial woodland, arroyo willow riparian habitat, oak woodland and savannah, sage scrub habitat, serpentine grasslands, coastal live oak woodland, annual grasslands, and oak riparian forest.

The remaining wetland development at Upper San Mateo Creek, Boat Ramp and most of the oak woodland compensation for the Lower Crystal Springs Dam Improvement Project has been proposed to be deferred until the operating elevation of the reservoir has begun to be increased, estimated to be around 2020. This work will be completed in the future by Water Enterprise.

Previously, the long term endowment account required by the regulatory agencies was included in this project because it provided the agencies with financial assurances the SFPUC would perform long term monitoring and maintenance of the compensation sites. Therefore, it is proposed that the scope and corresponding budget will be transferred to project CUW38804 Long Term Mitigation Endowment to better identify the proposed funding source.

5. SCHEDULE CHANGES

The revised project schedules approved by the Commission as part of the March 2014 Revised WSIP reflect the latest available information on each active Regional project as of the end of February 2014. 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 the first few months of 2014 have led to more accurate and realistic project-specific schedules. With only three (3) WSIP projects remaining in pre-construction, most of the schedule changes are related to issues encountered in the field during construction.

The overall WSIP completion date has been extended from April 11, 2019 to May 24, 2019. Table 5-1 compares the March 2013 and the March 2014 Construction Notice-to-Proceed (NTP), Construction Phase Completion and Project Completion Dates for all WSIP Regional projects. The March 2013 Schedule is the schedule approved as part of the March 2013 Revised WSIP, plus any additional schedule revisions approved by the Commission as part of additional contingencies on construction contracts. Refer to Appendices F and G for the latest project schedules approved as part of the March 2014 Revised WSIP. Schedule changes for all WSIP Regional projects between 2003 and 2014 are summarized in Appendix I.

5.1 Explanation of Schedule Changes

Provided below is a brief explanation as to why the revised March 2014 completion dates for certain projects have been extended beyond the previously approved completion dates. Note that this document does not provide explanations for the twenty six (26) projects that have been completed and the nine (9) projects that have no schedule variances (i.e., the previously approved Project Completion date is the same as or less than 1 month of the March 2014 Revised Project Completion date).

Projects with Completion Dates Extended Less than 3 Months

Seismic Upgrade BDPL 3 & 4 (2.5-Month Change): The schedule revision is due to construction delays related to unforeseen pea-gravel and concrete obstructions encountered during the secant pile drilling operation and the discovery of new fault features at Hayward Fault Trace B, located within the articulated box area under Mission Blvd. The contractor was issued a stop notice resulting in a change to planned construction methods in order to perform geotechnical investigation on the new fault features. The schedule extension also covers potential delays related to design and fabrication refinements to shorten and reduce the weight of the one-of-a-kind slip joint, transporting it to the project site and adjusting the pipe sections within the articulated box to compensate for the reduced slip joint length. The previously approved Project Completion date is September 23, 2015 and the revised Project Completion date is December 9, 2015, resulting in a 2.5-month extension. As of March 2014, this project was in Construction and Substantial Completion was forecasted for February 2015.

TABLE 5-1: March 2014 Revised WSIP – Summary of Schedule Changes

Project No.	Project Name	March 2013 (1)			March 2014			Variance (in months)		
		Construction NTP (2)	Construction Phase Completion	Project Completion	Construction NTP (2)	Construction Phase Completion	Project Completion	Construction NTP (2)	Construction Phase Completion	Project Completion
San Joaquin Region										
36401	Lawrence Livermore Water Quality Improvement *(Completed)*	08/26/09	03/11/11	04/23/13	08/26/09	03/11/11	07/31/13	-	-	3 (Late)
37301	San Joaquin Pipeline System	06/02/10	09/20/13	03/31/15	06/02/10	07/31/14	03/31/15	-	10 (Late)	-
37302	Rehabilitation of Existing San Joaquin Pipelines	08/26/09	11/01/11	08/30/13	08/26/09	11/01/11	06/30/14	-	-	10 (Late)
38401	Tesla Treatment Facility	03/31/09	06/28/13	09/30/13	03/31/09	05/20/14	07/31/14	-	11 (Late)	10 (Late)
Sunol Valley Region										
35201	Alameda Creek Recapture Project	09/13/17	11/27/18	04/11/19	04/03/17	10/31/18	04/11/19	5 (Early)	<1 (Early)	-
35501	Standby Power Facilities - Various Locations *(Completed)*	12/10/07	05/28/10	12/22/10	12/10/07	05/28/10	12/22/10	-	-	-
35901	New Irvington Tunnel	07/22/10	09/11/15	03/11/16	07/22/10	09/11/15	03/11/16	-	-	-
35902	Alameda Siphon #4 *(Completed)*	08/26/09	08/24/12	06/28/13	08/26/09	08/24/12	06/28/13	-	-	-
37001	Pipeline Repair & Readiness Improvements *(Completed)*	01/30/06	10/15/08	04/16/09	01/30/06	10/15/08	04/16/09	-	-	-
37401	Calaveras Dam Replacement	08/15/11	03/01/18	08/31/18	08/15/11	11/26/18	05/24/19	-	9 (Late)	9 (Late)
37402	Calaveras Reservoir Upgrades *(Completed)*	06/27/05	02/14/06	07/28/06	06/27/05	02/14/06	07/28/06	-	-	-
37403	San Antonio Backup Pipeline	04/01/13	05/31/15	11/30/15	03/29/13	05/31/15	11/30/15	<1 (Early)	-	-
38101	SVWTP Expansion & Treated Water Reservoir	06/23/10	08/03/13	02/03/14	06/23/10	09/20/13	05/14/14	-	2 (Late)	3 (Late)
38601	San Antonio Pump Station Upgrade *(Completed)*	11/02/09	09/30/11	06/29/12	11/02/09	09/30/11	06/29/12	-	-	-

Project No.	Project Name	March 2013 (1)			March 2014			Variance (in months)		
		Construction NTP (2)	Construction Phase Completion	Project Completion	Construction NTP (2)	Construction Phase Completion	Project Completion	Construction NTP (2)	Construction Phase Completion	Project Completion
Bay Division Region										
35301	BDPL Nos. 3 & 4 Crossover/Isolation Valves *(Completed)*	08/21/06	03/19/08	07/31/09	08/21/06	03/19/08	07/31/09	-	-	-
35302	Seismic Upgrade of BDPL Nos. 3 & 4	09/04/12	03/23/15	09/23/15	09/04/12	06/16/15	12/09/15	-	3 (Late)	3 (Late)
36301	SCADA System - Phase II *(Completed)*	12/15/09	12/28/12	05/28/13	12/15/09	12/28/12	05/28/13	-	-	-
36801	BDPL Reliability Upgrade - Tunnel	04/01/10	05/01/15	11/13/15	04/01/10	10/01/15	03/31/16	-	5 (Late)	5 (Late)
36802	BDPL Reliability Upgrade - Pipeline	01/07/10	09/23/13	12/31/13	01/07/10	12/31/14	04/06/15	-	15 (Late)	15 (Late)
36803	BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2 *(Completed)*	01/07/10	05/28/10	05/28/10	01/07/10	05/28/10	05/28/10	-	-	-
38001	BDPL Nos. 3 & 4 Crossovers	07/13/09	04/19/13	07/31/13	07/13/09	09/11/13	06/30/14	-	5 (Late)	11 (Late)
38901	SFPUC/EBMUD Intertie *(Completed)*	01/25/05	01/31/08	09/30/13	01/25/05	01/31/08	03/20/14	-	-	6 (Late)
39301	BDPL No. 4 Condition Assessment PCCP Sections *(Completed)*	N/A	N/A	02/06/09	N/A	N/A	02/06/09	-	-	-
Peninsula Region										
35401	Lower Crystal Springs Dam Improvements *(Completed)*	01/31/11	05/01/12	12/28/12	01/31/11	05/01/12	12/28/12	-	-	-
35601	New Crystal Springs Bypass Tunnel *(Completed)*	12/01/08	08/17/12	08/17/12	12/01/08	08/17/12	08/17/12	-	-	-
35701	Adit Leak Repair - Crystal Springs/Calaveras *(Completed)*	04/09/07	03/05/08	07/31/08	04/09/07	03/05/08	07/31/08	-	-	-
36101	Pulgas Balancing - Inlet/Outlet Work *(Completed)*	09/06/05	02/02/06	05/11/06	09/06/05	02/02/06	05/11/06	-	-	-
36102	Pulgas Balancing - Discharge Channel Modifications *(Completed)*	04/02/09	12/07/09	07/30/10	04/02/09	12/07/09	07/30/10	-	-	-

Project No.	Project Name	March 2013 (1)			March 2014			Variance (in months)		
		Construction NTP (2)	Construction Phase Completion	Project Completion	Construction NTP (2)	Construction Phase Completion	Project Completion	Construction NTP (2)	Construction Phase Completion	Project Completion
36103	Pulgas Balancing - Structural Rehabilitation and Roof Replacement *(Completed)*	11/30/09	09/01/11	12/28/12	11/30/09	09/01/11	12/28/12	-	-	-
36105	Pulgas Balancing - Modifications of the Existing Dechloramination Facility *(Completed)*	09/22/10	10/25/12	03/20/13	09/22/10	10/25/12	03/20/13	-	-	-
36501	Cross Connection Controls *(Completed)*	07/31/08	11/26/08	04/30/09	07/31/08	11/26/08	04/30/09	-	-	-
36601	HTWTP Short-Term Improvements (Demo Filters) *[Completed]*	09/14/05	02/27/06	11/14/06	09/14/05	02/27/06	11/14/06	-	-	-
36603	HTWTP Short-Term Improvements - Coagulation & Flocculation/ Remaining Filters *(Completed)*	07/10/08	03/31/10	07/28/10	07/10/08	03/31/10	07/28/10	-	-	-
36701	HTWTP Long-Term Improvements	03/16/11	06/30/15	01/04/16	03/16/11	06/30/15	01/04/16	-	-	-
36702	Peninsula Pipelines Seismic Upgrade	07/15/14	12/31/15	07/06/16	07/15/14	12/31/15	07/06/16	-	-	-
36901	Capuchino Valve Lot Improvements *(Completed)*	01/29/07	03/05/08	08/19/08	01/29/07	03/05/08	08/19/08	-	-	-
37101	Crystal Springs/San Andreas Transmission Upgrade	12/01/10	07/01/14	01/02/15	12/01/10	12/31/14	06/30/15	-	6 (Late)	6 (Late)
37801	Crystal Springs Pipeline No. 2 Replacement	03/07/11	03/22/13	09/25/13	03/07/11	03/30/13	07/31/14	-	<1 (Late)	10 (Late)
37901	San Andreas Pipeline No. 3 Installation *(Completed)*	08/27/09	06/30/11	08/30/12	08/27/09	06/30/11	08/30/12	-	-	-
39101	Baden and San Pedro Valve Lots Improvements *(Completed)*	04/08/09	12/30/11	03/29/13	04/08/09	12/30/11	03/29/13	-	-	-
San Francisco Regional Region										
30103	Regional Groundwater Storage and Recovery	01/30/12	05/05/16	07/29/16	01/30/12	01/31/18	07/31/18	-	21 (Late)	24 (Late)
35801	Sunset Reservoir - North Basin *(Completed)*	10/10/06	11/09/09	09/10/10	10/10/06	11/09/09	09/10/10	-	-	-
37201	University Mound Reservoir - North Basin *(Completed)*	08/03/09	08/23/11	03/29/13	08/03/09	08/23/11	03/29/13	-	-	-

Project No.	Project Name	March 2013 (1)			March 2014			Variance (in months)		
		Construction NTP (2)	Construction Phase Completion	Project Completion	Construction NTP (2)	Construction Phase Completion	Project Completion	Construction NTP (2)	Construction Phase Completion	Project Completion
Support Projects										
36302	System Security Upgrades	11/13/06	01/24/16	04/29/16	11/13/06	01/24/16	04/29/16	-	-	-
38801	Programmatic EIR *(Completed)* (3)	N/A	N/A	06/30/09	N/A	N/A	06/30/09	-	-	-
38802	Bioregional Habitat Restoration	06/27/11	05/03/16	07/28/16	06/27/11	05/03/16	07/28/16	-	-	-
38803	Vegetation Restoration of WSIP Construction Sites	01/02/13	10/02/13	10/31/13	01/02/13	11/30/15	12/31/15	-	26 (Late)	26 (Late)
38804	Long Term Mitigation Endowment (4)	N/A	N/A	N/A	N/A	N/A	08/31/18	-	-	-
39201	Program Management Project (3)	N/A	N/A	07/29/16	N/A	N/A	12/30/16	-	-	5 (Late)
39401	Watershed Environmental Improvement Program (5)	N/A	N/A	05/01/15	N/A	N/A	08/31/18	-	-	40 (Late)

(1) Schedule approved as part of the March 2013 Revised WSIP, plus any additional schedule changes approved by the Commission as part of additional contingencies on construction contracts.

(2) For projects with multiple construction contracts, the NTP date reported is that of the earliest contract.

(3) Program activities managed and tracked separately but not included in 48 regional project count.

(4) The Long Term Mitigation Endowment (LTME) fund is to provide a secure source of funds for perpetual monitoring and maintenance of the Bioregional Habitat Restoration sites constructed in the SFPUC watershed. The LTME fund does not involve construction activities.

(5) The Watershed Environmental Improvement Program is a program-wide effort that focuses on permanently protecting Alameda Creek Watershed lands through perpetual conservation easements and/or fee title purchase of property from willing landowners. The program does not involve construction activities.

Completed Projects

Projects with Completion Dates Extended by 3 to 6 Months

SVWTP Expansion & Treated Water Reservoir (3-Month Change): The schedule revision is to allow for 3 months to be added to the project for resolution of project Closeout issues related to completion of record documents such as as-built drawings and equipment data sheets for the new project facilities. The previously approved Project Completion date is February 3, 2014 and the revised Project Completion date is May 14, 2014, resulting in a 3-month extension. Construction was completed in September 2013. As of March 2014, this project was in Closeout and the SFPUC Water Enterprise now has beneficial use of all the new facilities and improvements built as part of this project.

Bay Division Pipeline Reliability Upgrade - Tunnel (5-Month Change): The schedule revision allows for 5 months of float to be added to the Construction Phase for resolution of potential issues that may arise due to: 1) the addition of a new 640 linear feet of 42-inch BDPL2 bypass; and 2) potential delay associated with directing the contractor to discharge the water used to disinfect the Bay Tunnel to Crystal Springs reservoir in December 2015 instead of discharging the disinfection water to San Francisco Bay as specified in the Contract. Delaying the discharge of the disinfection water until December 2015 is in pursuit of being in alignment with the Mayor's recent initiative on water conservation. The previously approved Project Completion date is November 2015 and the revised Project Completion date is March 2016, resulting in a 5-month extension. As of March 2014, this project was in Construction and Substantial Completion was forecasted for June 2015.

Crystal Springs/San Andreas Transmission Upgrades (6-Month Change): The schedule revision is due to Contractor delays due to differing site conditions and slower than anticipated underwater work associated with last two Outlet Structures in the Crystal Springs and the San Andreas Reservoirs. The previously approved Project Completion Date is January 2, 2015 and the revised Completion Date is June 30, 2015 which represents a 6-month extension. As of March 2014, the Project was in Construction and Substantial Completion was forecasted for September 2014.

Projects with Completion Dates Extended by 6 to 12 Months

Calaveras Dam Replacement (9 Month Change): The schedule revision is due to the differing site condition for the removal of Landslide B in the left abutment, re-sequencing of subsequent construction activities and delay in project delivery as a result of the forecast extension to the construction schedule. The 9-month delay also includes other construction delays for handling of the Zone 5 embankment materials to meet the California Division Safety of Dams (DSOD) new testing requirements, adding enhanced dust control measures to address Natural Occurring Asbestos, and other less significant issues. The previously approved Completion Date is August 31, 2018 and the revised Project Completion Date is May 24, 2019, which represents a 9-month extension. As of March 2014, this project was in Construction and Substantial Completion was forecasted for June 2018.

Tesla Treatment Facility (10-Month Change): Construction of the Tesla Treatment Facility Contract was completed in December 2012 after an extended commissioning period. The

schedule delay is attributed to the time required to settle outstanding and disputed change orders on the Tesla Portal Protection Contract. The protracted settlement delayed the Substantial Completion of the Portal Contract. The previously approved Project Completion Date is September 30, 2013 and the revised Project Completion Date is July 31, 2014, resulting in a 10-month extension. Final Completion of the Construction Phase is forecasted for May 2014.

Rehabilitation of Existing San Joaquin Pipelines (10-Month Change): The schedule revision is due to the extended time to procure the final condition assessment report for the existing pipelines. The previously approved Project Completion Date is August 30, 2013 and the revised Project Completion Date is June 30, 2014, which represents a 10-month extension. However, the SFPUC Water Enterprise now has beneficial use of all the rehabilitated facilities.

Crystal Springs Pipeline No. 2 Replacement (10-Month Change): The schedule revision is due to the delay in the completion of an outstanding repair to two manhole covers before full Project Closeout can be achieved. The primary construction contract was completed on March 30, 2013. This outstanding repair was issued to a Job Order Contractor (JOC) who encountered internal financial and resource difficulties. The repair work is currently progressing with an anticipated completion in June 2014. The previously approved Project Completion Date is September 25, 2013 and the revised Completion Date is July 31, 2014 which represents a 10-month extension. As of March 2014, the Project was in Closeout and the SFPUC Water Enterprise has beneficial use of the entire pipeline.

BDPL 3&4 Crossovers (11-Month Change): The schedule revision is due to the time extension granted to the Contractor to resolve various disputes and process paperwork for contract closeout and to prepare and secure final long-term access and land use Agreements with City of Santa Clara, U.S. Department of Veterans Affairs and Calwater. The previously approved Project Completion Date is July 31, 2013 and the revised Project Completion Date is June 30, 2014, which represents an 11-month extension. As of March 2014, this project was in Closeout.

Projects with Completion Dates Extended by Greater than 12 Months

Bay Division Reliability Upgrade Project- Bay Division Pipeline No. 5 (15-Month Change): The schedule revision is due to current litigation with the construction contractor. The previously approved Project Completion date is December 31, 2013 and the revised Project Completion date is April 6, 2015, resulting in a 15-month extension. Although the Construction Phase of this project has been extended due to the ongoing litigation, the SFPUC Water Enterprise has had beneficial use of all the new facilities and improvements built as part of this project since June 2013.

Regional Groundwater Storage and Recovery (24-Month Change): The schedule revision is due to a 9-month delay in completing the Environmental Phase and a 15-month forecast extension of the Construction Phase. The delay in the Environmental Phase is attributable to the effort in responding to comments on the Draft Environmental Impact Report (EIR) which is taking longer than planned because of the large volume of comments received,

some more technically complicated than expected. The forecast extension to the Construction Phase is based on a more detailed constructability and schedule analysis forecast given more detailed, specific information now available regarding design, site access, and availability. As of March 2014, this project was in the Design and Environmental Phases. Construction is scheduled to begin in January 2015. The previously approved Project Completion date is July 29, 2016 and the revised Completion date is July 31, 2018, resulting in a 24-month extension.

Vegetation Restoration of WSIP Construction Sites (26-Month Change): The schedule revision is based on an estimate of the time required to perform maintenance, monitoring, and reporting at the various WSIP construction sites after project construction work is completed. Drought conditions in 2013 have made re-vegetation difficult such that success criteria established by the California Environmental Quality Act (CEQA) and project permits are not yet being achieved at several sites. Aggressive management and implementation of remedial actions, such as extending the irrigation periods, adding irrigation where it was not previously planned, performing supplemental hand watering, and replacement planting will be necessary at several sites in order to meet the required performance criteria. Additionally, several large projects were delayed with implementing re-vegetation that will require maintenance, monitoring, and reporting. The previously approved Project Completion Date is October 31, 2013 and the revised Project Completion Date is December 31, 2015, which represents a 26-month extension.

Watershed Environmental Improvement Program (40-Month Change): The schedule revision is based on an estimate of the time it will take to place a conservation easement on the properties targeted under this program. The previously approved Project Completion Date is May 1, 2015 and the revised Project Completion Date is August 31, 2018, which represents a 40-month extension. This project does not involve construction activities.

5.2 Monitoring and Control of Project Schedules

The March 2014 WSIP has extended project schedules for eight (8) of the fourteen (14) active construction projects. It should be noted that four (4) of the eight (8) schedule extensions are due to delays in concluding administrative or legal actions and not delays in construction. The largest individual construction schedule slippage is the CDRP, which has slipped 9 months from August 31, 2018 to May 24, 2019. The overall program schedule is extended by one month, which completion now forecast for May 2019 instead of the previously approved April 2019 date.

The WSIP Management Team is pro-actively monitoring and controlling program and project schedules. The following business processes, procedures and best practices are in place to allow for the identification of schedule issues early and the development of a recovery plan to mitigate them whenever required.

Monthly Statusing and Monthly Progress Meetings

According to WSIP Procedures PM5.05 – Monthly Statusing and PM5.07 – Monthly Progress Meetings, WSIP project teams must prepare monthly schedule updates/forecasts for all project phases, and review and analyze them carefully to identify schedule issues such as missed milestones or any projected delays. These updates allow for the measurement of performance against baseline using the following control principles: earned value management (EVM), variance analysis, milestone tracking and trending of key parameters. In standing review meetings, all current and projected delays are discussed and evaluated, and project teams are expected to submit a recovery plan to mitigate existing and projected delays and minimize their potential impacts to the overall project schedule.

Change Management

WSIP Procedure PM5.02 - Change Management is used by the WSIP Management Team to control any “scope creep” that may cause schedule delays. According to this procedure, no project-level scope, budget and/or schedule changes can be implemented without review and approval of the Change Controls Board and the WSIP Director.

Management of Construction Schedules

Construction schedules are developed in accordance with the requirements of the Contract General Conditions Section 00700, Article 7 – Time; the Supplementary Conditions Section 00802, Contract Time and Liquidated Damages; and Technical Specifications Section 01310, Progress Schedules. The Contract Schedule and Completion Dates stipulated in the Bid Documents are based on the scope of work described in those documents. Liquidated Damages for inexcusable failure to meet the Contract Completion Dates are also specified in the Contract. In some cases, incentives are included in the contract for early completion of critical milestones.

The Contractor is required to develop and submit for SFPUC approval, within 14 days from NTP, a Baseline Critical Path Method (CPM) Schedule to perform the contracted scope of work. The format and content of the schedule is controlled by the Technical Specifications.

Upon approval, the Baseline CPM Schedule is used to manage and record the progress of the work, to approve progress payments and to assess any claimed or actual delays to the progress of the work. The Contractor is required to update the Progress Schedule monthly for the duration of the Contract. Progress of the work is monitored by the WSIP team at the program, regional and project levels and monthly schedule updates are reviewed and used as a basis for monthly progress payments. Any changes to, or deviations from, the Approved CPM Schedule are required to be identified and explained in the monthly updates. In addition, the Contractor is required to submit a Revised CPM Schedule whenever a change order affects the Completion Date; progress of any critical activity falls 2 weeks behind schedule; non-critical delay affects the critical path; and/or sequence of activities affecting the critical path or project completion date changes. Under the terms of the Contract, any float in the approved Progress Schedule is shared by the Owner and the Contractor, on a first come first served basis.

When a delay is the fault of the Contractor, then the Contractor is required by Contract to submit for approval a Revised CPM Schedule showing how the Contract Completion Date will be met and the Contractor is responsible to pay the costs of recovering the delay and maintaining schedule. If the Contractor fails to meet the Contract Completion Date and there is no excusable delay, then the SFPUC is obliged to assess Liquidated Damages from the Contract Completion Date, as provided by the Contract, until such time as the work is completed. When a delay is the fault of the SFPUC (most commonly due to changes in the scope of work as added by change orders, or for directed changes to sequencing and/or duration of work to meet shutdown constraints) then a new Contract Completion Date is agreed, based on an acceptable Time Impact Analysis submitted by the Contractor with respect to the approved Progress Schedule. If the new date is later than the current Contract Completion Date, then SFPUC has the following options:

- Accept the later date and pay for the cost of delay to the extent that the delay is compensable, or
- Direct the Contractor to accelerate to recover the delay and pay the Contractor reasonable costs to do so.

When a later date is agreed, then the agreed date becomes the new Contract Completion Date and the Contractor submits a revised Baseline CPM Schedule incorporating the Revised Completion Date. The Approved Revised Schedule supersedes the previously agreed Progress Schedule. The Revised Schedule is subject to the same detailed management and controls as the original Contract Schedule.

The above Contract requirements, together with the supporting CM Business Processes, CM Plan and CM Procedures, work together to support diligent and pro-active management of the construction Progress Schedules by SFPUC. The monthly Contractor Progress Schedule updates are processed by the Program CM to provide Project, Regional and Program progress early start, late start, actual and projected curves for all WSIP regional projects in construction. These curves are used to graphically identify and analyze any deviations from planned progress and estimate any projected delays.

The WSIP team mitigates and manages project delays and time impacts in a number of interlocking ways as follows:

- Quality checks on design in the Pre-construction Phase to minimize design errors and the potential for change orders and consequent delays during construction.
- Avoidance of unnecessary changes during construction by eliminating discretionary changes not required for project functionality and requiring Change Control Board approval of all owner-requested changes over $50,000.
- Earliest possible identification and definition of possible impacts through a layered early identification process from Risks (potential events); Trends (likely impacts not yet formalized as change orders); Potential Changes (actual, non-negotiated changes) all recorded and updated in the WSIP's Construction Management Information System (CMIS). This system provides early warning of potential or impending time impacts with the possibility to mitigate, as well as forecast, likely completion schedules and assessing and pro-actively managing potential inter-project and shutdown impacts.
- Periodic independent verification and validation of all active Risks, Trends and Potential Change Orders by the Program CM to assure that forecasting is current and realistic.
- Withholding of Contractor progress payments when required to achieve compliant schedules.
- Expedited decision making within the SFPUC through a formal escalation ladder to support rapid settlement of issues and unavoidable changes with delays.
- An urgent and aggressive approach to change order negotiation resulting in equitable agreements executed rapidly to avoid compounding and/or protracting delay issues.
- Strict formal review of all Time Impact Analyses to justify any additional Contract performance time.
- A strong preference for early bilateral settlement of changes to keep the performance risk on Contractors.
- Issuance of unilateral changes when necessary to avoid delays and interruptions to the work in progress.

6. BUDGET CHANGES

The revised project budgets approved by the Commission as part of the March 2014 Revised WSIP reflect the latest available information on each active project based on the status of ongoing implementation efforts as of the end of February 2014. It is standard practice to refine project budgets as more knowledge is gained about project-specific needs and challenges. The extensive budget forecasting and review efforts undertaken during the first few months of 2014 have led to more accurate and realistic project-specific budgets. With only three (3) WSIP projects remaining in pre-construction, most of the budget changes are related to issues encountered in the field during construction.

The overall WSIP budget has been increased by $125M. The budget of WSIP regional projects increased $126.4M, which was partially offset by a decrease of $1.3M in the budget of WSIP local projects. The program budget increase is primarily due to unexpected geologic conditions discovered at the site of the Calaveras Dam Replacement project. The $97.5M increase attributed to this project is included in the March 2014 Revised WSIP budget.

Table 6-1 compares the March 2013 and the March 2014 approved budgets for all WSIP Regional projects. Refer to Appendix J for the latest project budgets approved as part of the March 2014 Revised WSIP. Budget changes for all WSIP regional projects between 2003 and 2014 are summarized in Appendix K.

6.1 Explanation of Budget Changes

Provided below is an explanation as to why the March 2014 project budgets for certain projects are different than the Previously Approved project budget. Note that this document does not provide explanations for the twenty-six (26) projects that have been completed and the five (5) projects that have no budget variances (i.e., the previously approved Project Budget is the same as the revised March 2014 Project Budget or less than $100,000 change).

Projects with Budget Decreases

BDPL Nos. 3 & 4 Crossovers (-$0.2M Change): The budget revision is due to savings in the project's construction costs. The previously approved Project Budget is $30.5M and the revised March 2014 Project Budget is $30.3M, which represents a $0.2M (or 0.7%) decrease. As of March 2014, this project was in Closeout.

System Security Upgrades (-$0.2M Change): The budget revision is due to lower than expected project delivery costs. The previously approved Project Budget is $18.8M and the revised March 2014 Project Budget is $18.6M, which represents a $0.2M (or 1.1%) decrease. As of March 2014, the project was in Construction and was 55% complete.

TABLE 6-1: March 2014 Revised WSIP – Summary of Budget Changes

PROJECT NO.	Project Name	CONSTRUCTION COSTS (1)			DELIVERY COSTS (2)			OTHER COSTS (3)			TOTAL PROJECT COSTS		
		March 2013	March 2014	Variance	March 2013	March 2014	Variance	March 2013	March 2014	Variance	March 2013	March 2014	Variance
San Joaquin Region		$225,011,439	$222,432,339	$2,579,100	$114,782,363	$116,023,567	($1,241,204)	$8,897,259	$8,455,766	$441,493	$348,691,061	$346,911,672	$1,779,389
CUW36401	Lawrence Livermore Water Quality Improvement *(Completed)*	$1,481,801	$1,481,801	-	$2,723,366	$2,716,679	$6,687	-	-	-	$4,205,167	$4,198,480	$6,687
CUW37301	San Joaquin Pipeline System	$130,424,886	$128,187,871	$2,237,015	$72,840,873	$74,066,619	($1,225,746)	$4,150,263	$3,706,956	$443,307	$207,416,022	$205,961,446	$1,454,576
CUW37302	Rehabilitation of Existing San Joaquin Pipelines	$11,516,264	$11,437,358	$78,906	$9,777,994	$9,822,927	($44,933)	$24,000	$24,000	-	$21,318,258	$21,284,284	$33,974
CUW38401	Tesla Treatment Facility	$81,588,488	$81,325,310	$263,178	$27,358,852	$27,336,065	$22,787	$4,722,996	$4,724,810	($1,814)	$113,670,336	$113,386,184	$284,152
CUW38701	Tesla Portal Disinfection Station *(Combined with CUW38401)*	-	-	-	$2,081,278	$2,081,278	-	-	-	-	$2,081,278	$2,081,278	-
Sunol Valley Region		$941,234,305	$1,032,072,632	($90,838,327)	$313,612,003	$322,936,558	($9,324,555)	$7,675,475	$19,213,696	($11,538,221)	$1,262,521,783	$1,374,222,885	($111,701,102)
CUW35201	Alameda Creek Recapture Project	$11,330,000	$13,600,000	($2,270,000)	$13,073,000	$14,953,000	($1,880,000)	-	$858,000	($858,000)	$24,403,000	$29,411,000	($5,008,000)
CUW35501	Standby Power Facilities - Various Locations ***(Completed)***	$9,602,901	$9,602,901	-	$3,344,879	$3,344,879	-	-	-	-	$12,947,780	$12,947,780	-
CUW35901	New Irvington Tunnel	$259,142,628	$271,122,509	($11,979,881)	$62,038,131	$63,627,021	($1,588,890)	$2,553,240	$4,361,465	($1,808,225)	$323,734,000	$339,110,995	($15,376,995)
CUW35902	Alameda Siphon #4 ***(Completed)***	$41,479,253	$41,479,253	-	$23,340,769	$23,352,351	($11,582)	$261,978	$261,978	-	$65,082,000	$65,093,582	($11,582)
CUW37001	Pipeline Repair & Readiness Improvements ***(Completed)***	$2,763,325	$2,763,325	-	$2,442,168	$2,442,168	-	-	-	-	$5,205,493	$5,205,493	-
CUW37401	Calaveras Dam Replacement	$475,407,524	$556,453,500	($81,045,976)	$141,536,476	$149,166,168	($7,629,692)	$3,869,000	$12,692,096	($8,823,096)	$620,813,000	$718,311,764	($97,498,764)
CUW37402	Calaveras Reservoir Upgrades ***(Completed)***	$1,274,600	$1,274,600	-	$415,953	$415,953	-	-	-	-	$1,690,552	$1,690,552	-
CUW37403	San Antonio Backup Pipeline	$35,247,822	$34,142,649	$1,105,173	$20,182,378	$19,990,352	$192,026	$59,800	$559,800	($500,000)	$55,490,000	$54,692,801	$797,199
CUW38101	SVWTP Expansion & Treated Water Reservoir	$97,469,387	$94,117,029	$3,352,358	$36,769,157	$35,176,786	$1,592,371	$931,456	$469,856	$461,600	$135,170,000	$129,763,671	$5,406,329
CUW38102	SVWTP Calaveras Road ***(Eliminated)***	-	-	-	$34,654	$34,654	-	-	-	-	$34,654	$34,654	-
CUW38201	SVWTP Treated Water Reservoir ***(Combined with CUW38101)***	-	-	-	$5,056,596	$5,056,596	-	-	-	-	$5,056,596	$5,056,596	-

PROJECT NO.	Project Name	CONSTRUCTION COSTS (1)			DELIVERY COSTS (2)			OTHER COSTS (3)			TOTAL PROJECT COSTS		
		March 2013	March 2014	Variance	March 2013	March 2014	Variance	March 2013	March 2014	Variance	March 2013	March 2014	Variance
CUW38601	San Antonio Pump Station Upgrade ***(Completed)***	$7,516,865	$7,516,865	-	$5,377,842	$5,376,631	$1,211	-	$10,500	($10,500)	$12,894,707	$12,903,996	($9,289)
Bay Division Region		$481,726,784	$477,610,645	$4,116,139	$172,586,038	$173,367,886	($781,848)	$10,766,680	$15,035,980	($4,269,300)	$665,079,501	$666,014,510	($935,009)
CUW35301	BDPL Nos. 3 & 4 Crossover/Isolation Valves ***(Completed)***	$20,649,649	$20,649,649	-	$6,362,185	$6,362,185	-	-	-	-	$27,011,834	$27,011,834	-
CUW35302	Seismic Upgrade of BDPL Nos. 3 & 4	$47,090,000	$43,567,581	$3,522,419	$30,145,400	$29,585,793	$559,607	$975,885	$1,975,885	($1,000,000)	$78,211,285	$75,129,259	$3,082,026
CUW36301	SCADA System - Phase II ***(Completed)***	$5,363,230	$5,400,070	($36,840)	$4,116,672	$4,061,569	$55,103	$18,450	$18,450	-	$9,498,352	$9,480,089	$18,263
CUW36801	BDPL Reliability Upgrade - Tunnel	$231,171,119	$231,783,640	($612,521)	$51,810,408	$51,807,843	$2,565	$3,391,100	$4,007,655	($616,555)	$286,372,628	$287,599,138	($1,226,510)
CUW36802	BDPL Reliability Upgrade - Pipeline	$150,057,090	$149,252,731	$804,359	$62,013,403	$63,195,591	($1,182,188)	$5,814,475	$8,436,645	($2,622,170)	$217,884,968	$220,884,968	($3,000,000)
CUW36803	BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2 ***(Completed)***	$2,363,367	$2,363,367	-	$683,615	$683,615	-	-	-	-	$3,046,981	$3,046,981	-
CUW38001	BDPL Nos. 3 & 4 Crossovers	$15,305,770	$14,867,048	$438,722	$14,601,005	$14,849,157	($248,152)	$566,769	$597,345	($30,576)	$30,473,544	$30,313,550	$159,994
CUW38901	SFPUC/EBMUD Intertie ***(Completed)***	$9,726,559	$9,726,559	-	$886,459	$855,240	$31,219	-	-	-	$10,613,018	$10,581,799	$31,219
CUW39301	BDPL No. 4 Condition Assessment PCCP Sections ***(Completed)***	-	-	-	$1,966,891	$1,966,891	-	-	-	-	$1,966,891	$1,966,891	-
Peninsula Region		$552,967,111	$542,136,772	$10,830,339	$251,701,815	$251,611,984	$89,831	$3,927,849	$15,759,174	($11,831,325)	$808,596,774	$809,507,930	($911,156)
CUW35401	Lower Crystal Springs Dam Improvements ***(Completed)***	$20,357,966	$20,357,966	-	$14,512,752	$14,523,458	($10,706)	$50,000	$50,000	-	$34,920,718	$34,931,424	($10,706)
CUW35601	New Crystal Springs Bypass Tunnel ***(Completed)***	$57,409,887	$57,409,887	-	$23,960,339	$23,957,546	$2,793	$92,603	$92,603	-	$81,462,828	$81,460,035	$2,793
CUW35701	Adit Leak Repair - Crystal Springs/Calaveras ***(Completed)***	$1,706,478	$1,706,478	-	$1,080,845	$1,080,845	-	-	-	-	$2,787,322	$2,787,322	-
CUW36101	Pulgas Balancing - Inlet/Outlet Work ***(Completed)***	$638,020	$638,020	-	$1,127,918	$1,127,918	-	-	-	-	$1,765,938	$1,765,938	-
CUW36102	Pulgas Balancing - Discharge Channel Modifications ***(Completed)***	$903,240	$903,240	-	$1,943,846	$1,943,846	-	$64,531	$64,531	-	$2,911,617	$2,911,617	-
CUW36103	Pulgas Balancing - Structural Rehabilitation and Roof Replacement ***(Completed)***	$13,275,523	$13,276,548	($1,025)	$6,799,336	$6,804,183	($4,847)	$151,483	$151,483	-	$20,226,342	$20,232,215	($5,873)

PROJECT NO.	Project Name	CONSTRUCTION COSTS (1)			DELIVERY COSTS (2)			OTHER COSTS (3)			TOTAL PROJECT COSTS		
		March 2013	March 2014	Variance	March 2013	March 2014	Variance	March 2013	March 2014	Variance	March 2013	March 2014	Variance
CUW36104	Pulgas Balancing - Laguna Creek Sedimentation ***(Eliminated)***	-	-	-	$503,928	$503,928	-	-	-	-	$503,928	$503,928	-
CUW36105	Pulgas Balancing - Modifications of the Existing Dechloramination Facility ***(Completed)***	$2,054,696	$2,054,696	-	$3,358,899	$3,285,334	$73,565	$50,000	$50,000	-	$5,463,595	$5,390,031	$73,564
CUW36501	Cross Connection Controls ***(Completed)***	$1,835,224	$1,835,224	-	$2,090,210	$2,090,210	-	$23,509	$23,509	-	$3,948,944	$3,948,944	-
CUW36601	HTWTP Short-Term Improvements (Demo Filters) ***(Completed)***	$1,683,042	$1,683,042	-	$1,384,862	$1,384,862	-	-	-	-	$3,067,903	$3,067,903	-
CUW36602	HTWTP Short-Term Improvements - Remaining Filters ***(Combined with CUW36603)***	-	-	-	$1,424,510	$1,424,510	-	-	-	-	$1,424,510	$1,424,510	-
CUW36603	HTWTP Short-Term Improvements - Coagulation & Flocculation/ Remaining Filters ***(Completed)***	$15,214,291	$15,214,291	-	$3,391,412	$3,391,412	-	-	-	-	$18,605,702	$18,605,702	-
CUW36701	HTWTP Long-Term Improvements	$205,021,299	$195,021,299	$10,000,000	$77,250,038	$75,336,314	$1,913,724	$967,000	$7,880,724	($6,913,724)	$283,238,337	$278,238,337	$5,000,000
CUW36702	Peninsula Pipelines Seismic Upgrade	$24,275,232	$23,483,217	$792,015	$16,756,719	$16,092,444	$664,275	$1,061,678	$2,517,967	($1,456,289)	$42,093,628	$42,093,628	-
CUW36901	Capuchino Valve Lot Improvements ***(Completed)***	$1,576,733	$1,576,733	-	$1,226,420	$1,226,420	-	-	-	-	$2,803,153	$2,803,153	-
CUW37101	Crystal Springs/San Andreas Transmission Upgrade	$138,668,786	$140,153,985	($1,485,199)	$54,299,070	$56,490,214	($2,191,144)	$655,590	$4,135,401	($3,479,811)	$193,623,446	$200,779,600	($7,156,154)
CUW37801	Crystal Springs Pipeline No. 2 Replacement	$35,621,499	$34,087,702	$1,533,797	$21,168,883	$21,580,576	($411,693)	$405,096	$386,598	$18,498	$57,195,477	$56,054,876	$1,140,601
CUW37901	San Andreas Pipeline No. 3 Installation ***(Completed)***	$17,087,803	$17,087,803	-	$10,006,227	$10,001,396	$4,831	$406,359	$406,359	-	$27,500,388	$27,495,558	$4,830
CUW39101	Baden and San Pedro Valve Lots Improvements ***(Completed)***	$15,637,390	$15,646,639	($9,249)	$9,415,604	$9,366,568	$49,036	-	-	-	$25,052,994	$25,013,207	$39,787
San Francisco Regional Region		$150,845,105	$156,138,848	($5,293,743)	$53,189,976	$59,443,341	($6,253,365)	$4,147,918	$5,689,381	($1,541,463)	$208,183,000	$221,271,570	($13,088,570)
CUW30103	Regional Groundwater Storage and Recovery	$66,913,061	$72,206,804	($5,293,743)	$29,430,451	$35,683,815	($6,253,364)	$4,147,918	$5,689,381	($1,541,463)	$100,491,430	$113,580,000	($13,088,570)
CUW35801	Sunset Reservoir - North Basin ***(Completed)***	$52,777,386	$52,777,386	-	$11,494,184	$11,494,184	-	-	-	-	$64,271,570	$64,271,570	-
CUW37201	University Mound Reservoir - North Basin ***(Completed)***	$31,154,659	$31,154,659	-	$12,265,341	$12,265,341	-	-	-	-	$43,420,000	$43,420,000	-

PROJECT NO.	Project Name	CONSTRUCTION COSTS (1)			DELIVERY COSTS (2)			OTHER COSTS (3)			TOTAL PROJECT COSTS		
		March 2013	March 2014	Variance	March 2013	March 2014	Variance	March 2013	March 2014	Variance	March 2013	March 2014	Variance
Support Projects		$7,288,687	$7,290,118	($1,431)	$176,940,600	$163,029,366	$13,911,234	$70,949,634	$86,349,868	($15,400,234)	$255,178,920	$256,669,351	($1,490,431)
CUW36302	System Security Upgrade	$7,288,687	$7,290,118	($1,431)	$11,566,722	$11,334,755	$231,967	-	-	-	$18,855,409	$18,624,873	$230,536
CUW38801	Programmatic EIR ***(Completed)***	-	-	-	$10,730,307	$10,730,307	-	-	-	-	$10,730,307	$10,730,307	-
CUW38802	Bioregional Habitat Restoration	-	-	-	$41,581,158	$31,575,787	$10,005,371	$54,367,617	$54,093,955	$273,662	$95,948,775	$85,669,741	$10,279,034
CUW38803	Vegetation Restoration of WSIP Construction Sites	-	-	-	$1,177,288	$1,428,770	($251,482)	$1,022,712	$771,230	$251,482	$2,200,000	$2,200,000	-
CUW38804	Long Term Mitigation Endowment	-	-	-	-	-	-	-	$12,000,000	($12,000,000)	-	$12,000,000	($12,000,000)
CUW39201	Program Management Project	-	-	-	$107,444,429	$105,741,527	$1,702,902	-	$1,702,902	($1,702,902)	$107,444,429	$107,444,429	-
CUW39401	Watershed Environmental Improvement Program	-	-	-	$4,440,696	$2,218,220	$2,222,476	$15,559,304	$17,781,781	($2,222,477)	$20,000,000	$20,000,000	-
Regional Program Sub-Total		$2,359,073,430	$2,437,681,354	($78,607,924)	$1,082,812,795	$1,086,412,701	($3,599,906)	$106,364,814	$150,503,864	($44,139,050)	$3,548,251,039	$3,674,597,919	($126,346,880)
San Francisco Local Program													
All Original Local Projects		$243,239,338	$241,692,557	$1,546,781	$94,973,273	$95,172,873	($199,600)	$1,007,489	$1,007,789	($300)	$339,220,100	$337,873,220	$1,346,880
Water Supply Projects		$186,792,234	$186,792,234	-	$91,502,404	$91,502,404	-	$3,017,895	$3,017,895	-	$281,312,533	$281,312,533	-
Local Program Sub-Total		$430,031,572	$428,484,791	$1,546,781	$186,475,677	$186,675,278	($199,601)	$4,025,384	$4,025,684	($300)	$620,532,633	$619,185,753	$1,346,880
Regional + Local Programs Sub-Total		$2,789,105,002	$2,866,166,145	($77,061,143)	$1,269,288,472	$1,273,087,978	($3,799,506)	$110,390,198	$154,529,549	($44,139,351)	$4,168,783,672	$4,293,783,672	($125,000,000)
Program Management Reserve											-	-	-
Financing Cost											$471,700,000	$471,700,000	-
PROGRAM TOTAL											$4,640,483,672	$4,765,483,672	($125,000,000)

* Cost approved as part of the March 2013 Revised WSIP, plus any additional cost changes approved by the Commission as part of additional contingencies on construction contracts.

** Program activities managed and tracked separately but not included in 48 regional project count.

(1) **Construction Costs** include the Construction Base Bid, Construction Contingency and owner provided equipment / material.

(2) **Delivery Costs** include program and project management, planning, environmental (CEQA, permitting, construction compliance), design, construction management and engineering support during construction.

(3) **Other Costs** include environmental mitigation, art enrichment, security improvements, and real estate transactions.

Tesla Treatment Facility (-$0.3M Change): The budget revision is due to the completion of the Tesla Treatment Facility Contract under budget and the early de-staffing of construction management functions. The Tesla Portal Protection Contract recently reached settlement on disputed construction change orders and is currently 98.5% complete. The previously approved Project Budget is $113.7M and the revised March 2014 Project Budget is $113.4M, which represents a $0.3M (or 0.2%) decrease. As of March 2014, the project was in Construction pending final processing of change orders and was 98% complete.

San Antonio Backup Pipeline (-$0.8M Change): The budget revision is due to lower than anticipated construction costs and the associated lower construction management and Operations support soft costs. As of March 2014, the project was in Construction and it was over 60% complete without any significant incurred or forecasted change orders; therefore the construction contingency was reduced. The previously approved Project Budget is $55.4M and the revised March 2014 Project Budget is $54.7M, which represents a $0.8M (or 1.4%) decrease.

Crystal Springs Pipeline No. 2 Replacement (-$1.1M Change): The budget revision is due to lower than anticipated construction costs and the associated lower construction management and Operations support soft costs. The previously approved Project Budget is $57.2M and the revised March 2014 Project Budget is $56.1M, which represents a $1.1M (or 1.9%) decrease. As of March 2014, the project was in Closeout and was 96% complete

San Joaquin Pipeline System (-$1.5M Change): The decrease in budget is due to unused construction contingency for the Western Segment Contract, which is now 100% complete, as well as the early de-staffing of construction management functions. The Crossovers and Eastern Segment Contracts are both 99% complete and are undergoing the settlement of contractor change order claims. The previously approved Project Budget is $207.4M and the revised March 2014 Project Budget is $205.9M, which represents a $1.5M (or 0.7%) decrease. As of March 2014, the project was in Construction pending final settlement of the contractor claims and was 97% complete.

Seismic Upgrade BDPL No. 3 & 4 (-$3.1M Change): The decrease in budget is due to reductions in project delivery costs, construction contingency and the removal of equipment to cover the risk related to a testing failure of the slip joint. The previously approved Project Budget is $78.2M and the revised March 2014 Project Budget is $75.1M, which represents a $3.1M (or 4.0%) decrease. As of March 2014, the project was in Construction and was 60% complete.

HTWTP Long-Term Improvements (-$5.0M Change): The budget revision represents a reduction in construction contingency due to lower than anticipated costs to address differing site conditions and operational impacts. The previously approved Project Budget is $283.2M and the revised March 2014 Project Budget is $278.2M, which represents a $5.0M (or 1.8%) decrease. As of March 2014, the project was in Construction and was 66% complete.

SVWTP Expansion & Treated Water Reservoir (-$5.4M Change): The budget revision is due to lower than expected construction and project delivery costs. The previously approved Project Budget is $135.2M and the revised March 2014 Project Budget is $129.8M, which represents a $5.4M (or 4.0%) decrease. As of March 2014, this project was in Closeout and was essentially 100% complete.

Bioregional Habitat Restoration Project (-$10.3M Change): The budget revision is due to additional costs from naturally occurring boron found at one of the project's Alameda sites which led the project team to seek alternate well locations. Also, due to severe drought conditions, additional irrigation of the plants at various Bioregional Habitat Restoration Alameda and Peninsula mitigation sites is required. These additional costs are offset by the transfer of the long term endowment from this project into the newly created project CUW38804 Long Term Mitigation Endowment. The previously approved Project Budget is $95.9M and the revised March 2014 Project Budget is $85.7M, which represents a $10.3M (or 10.7%) decrease. This project is a multi-phase project with the Environmental, Right-of-Way, Design, Bid & Award, Construction Management and Construction Phases currently ongoing. As of March 2014, the project was 74% complete.

Projects with Budget Increases Less than $2 Million

Bay Division Pipeline Reliability Upgrade - Tunnel ($1.2M Change): The budget revision is due to potential soft and hard costs increases associated with the scope additions to add a SCADA Communications system at Newark Valve Lot and a 42-inch diameter bypass of the Bay Division Pipeline No. 2, and an extension of the Construction Phase by five months. The previously approved Project Budget is $286.4M and the revised March 2014 Project Budget is $287.6M which represents a $1.2M (or 0.4%) increase. As of March 2014, the project was in Construction and was 87% complete.

Projects with Budget Increases of $2-5 Million

Bay Division Reliability Upgrade Project –Bay Division Pipeline No. 5 (+$3.0M Change): The budget revision is due to anticipated mediation costs and construction management costs during litigation, as well as budget reserve. The previously approved Project Budget is $217.9M and the revised March 2014 Project Budget is $220.9M, which represents a $3M (or 1.4%) increase. As of March 2014, this project was in Closeout and the San Francisco Public Utilities Commission (SFPUC) Water Enterprise has had beneficial use of all the new facilities and improvements built as part of this project since June 2013.

Alameda Creek Recapture Project (formerly Upper Alameda Creek Filter Gallery), (+$5.0M Change): The budget revision is due to the adoption of the recommended project alternative which expanded the scope of the project. The adopted scope involves refinements to the pumping system to accommodate updated operational criteria to ensure Level of Service (LOS) Goals will be met. The proposed project concept involves recapturing water that naturally infiltrates from Alameda Creek into an existing quarry pond. The previously approved Project Budget is $24.4M and the revised March 2014 Project

Budget is $29.4M, which represents a $5.0M (or 20.5%) increase. As of March 2014, the project was in Planning and was less than 10% complete.

Projects with Budget Increases of $5-10 Million

Crystal Springs/San Andreas Transmission Upgrade (+$7.2M Change): The budget revision is due to additional construction costs for work completed and anticipated additional hard and soft costs for construction and increased construction management support due to the forecasted 6-month schedule extension. The project has encountered many challenges associated with the underwater construction of the four outlet structures at both the Crystal Springs and the San Andreas Reservoirs. These challenges resulted in reduced efficiency of the contractor's work and required some modifications to the construction methods. The previously approved Project Budget is $193.6M and the revised March 2014 Project Budget is $200.8M, which represents a $7.2M (or 3.7%) increase. As of March 2014, the project was in Construction and was 73% complete.

Projects with Budget Increases Greater than $10 Million

Regional Groundwater Storage and Recovery (+$13.1 Change)**:** The budget revision is primarily due to the delays associated with completion of the Environmental Phase (9 months) and extension of the Construction Phase (15 months). The delay and extension of the Construction Phase resulted in an increase in the forecast construction escalation cost. The extension of the Construction Phase also increased forecast soft costs for project delivery. In addition, cost increases are associated with splitting the construction contact into two contacts due to delays in gaining right-of-way access for two proposed wells at the Golden Gate National Cemetery. The previously approved Project Budget is $100.5M and the revised March 2014 Project Budget is $113.6M, which represents a $13.1M (or 11.9%) increase. As of March 2014, the project was in the Design and Environmental Phases and was 24% complete.

New Irvington Tunnel (+$15.4M Change): The budget revision is due to change orders related to differing site conditions such as the re-classification of the tunnel from Potentially Gassy to Fully Gassy by the California Occupational Safety and Health Administration and the need to institute full time gas monitoring and hot work permit delays; and delays associated with required probe hole drilling and grouting for groundwater seepage control in the tunnel excavation headings. Accordingly, most of the proposed budget increase is due to the addition of construction contingency to accommodate future potential changes based on current trends and remaining risks. The previously approved Project Budget is $323.7M and the revised March 2014 Project Budget is $339.1M, which represents a $15.4M (or 4.8%) increase. As of March 2014, the project was in Construction and was 90% complete.

Calaveras Dam Replacement (+$97.5M Change): The budget revision is due to the increase in construction cost for the removal of Landslide B in the left abutment, and re-sequencing of subsequent construction activities, soft costs for project delivery as a result of the forecast 9-month extension to the construction schedule; as well as other construction

cost trends for handling of the Zone 5 embankment materials to meet California Division Safety of Dams new testing requirements, adding enhanced dust control measures to address Natural Occurring Asbestos, and other less significant issues; and additional construction contingency set aside to address future potential change orders due to remaining construction risks. The previously approved Project Budget is $620.8M and the revised March 2014 Project Budget is $718.3M, which represents a $97.5M (or 15.7%) increase. As of March 2014, the project was in Construction and was 58% complete.

6.2 Monitoring and Control of Project Budgets

The WSIP Management Team is pro-actively monitoring and controlling program and project budgets. The following business processes, procedures and best practices are in place to allow for the identification of budget issues early and to ensure measures are taken to control potential cost increases whenever required.

Monthly Statusing and Monthly Progress Meetings

According to the WSIP Procedures PM5.05 – Monthly Statusing and PM5.07 – Monthly Progress Meetings, WSIP project teams must prepare monthly budget updates/forecasts for all project phases, and review and analyze them carefully to identify cost issues and projected cost overruns at project completion. These updates allow for the measurement of performance against baseline using the following control principles: EVM, variance analysis, milestone tracking and trending of key parameters. In standing review meetings, all current and projected cost overruns are discussed and evaluated, and project teams are expected to address the issues and come up with a plan to achieve project completion within budget.

Change Management

WSIP Procedure PM5.02, Change Management is used by the WSIP Management Team to control any scope creep that may cause cost overruns. According to this procedure, no project-level scope, budget and/or schedule changes can be implemented without review and approval of the Change Control Board and the WSIP Director.

Management of Construction Costs

Construction cost changes are governed by the Contract General Conditions Section 00700, Article 6 – Clarifications and Changes in the Work, together with the Supplementary Conditions, Section 00800, as applicable. The Contract requirements, together with the supporting CM Business Processes, CM Plan and CM Procedures, are enforced to ensure diligent and pro-active management of WSIP construction costs. Unlike the progress schedules, which are updated monthly, WSIP cost information is tracked and updated on a near-real-time basis in the Construction Management Information System (CMIS). Construction progress invoices are processed monthly and all actual costs are summed at the program, regional and project levels.

The WSIP team controls and manages WSIP construction costs in a number of interlocking ways as follows:

- Quality checks on design in the Pre-construction Phase to minimize design errors and the potential for change orders and consequent cost increases during construction.
- Avoidance of unnecessary changes during construction by eliminating discretionary changes not required for project functionality and requiring Change Control Board approval of all owner-requested changes over $50,000
- Earliest possible identification and definition of possible impacts through a layered early identification process from Risks (potential events); Trends (likely impacts not yet formalized as change orders); Potential Changes (actual, non-negotiated changes) all recorded and updated in the CMIS. This system provides early warning of potential or impending cost impacts with the possibility to mitigate, as well as forecast, likely construction completion costs.
- Periodic independent verification and validation of all active Risks, Trends and Potential Change Orders by the Program CM to assure that forecasting is current and realistic.
- Mandatory preparation of Independent Cost Estimates by the project CM teams for all change orders over $75,000 assures that change order costs are rapidly assessed and accurately forecasted.
- Expedited decision making within the SFPUC to support rapid settlement of issues and unavoidable changes with cost increases.
- An urgent and aggressive approach to change order negotiation, backed by Independent Cost Estimates for larger changes, resulting in equitable agreements executed rapidly to avoid compounding and/or protracting cost issues.
- A strong preference for early bilateral settlement of changes to keep the performance risk on Contractors.
- Issuance of unilateral changes when necessary to avoid interruptions to work in progress. Unilateral changes are controlled with detailed CM oversight and record keeping of Force Account work through daily reports, to control associated costs until agreement on scope and quantum is reached.
- Use of Decision Ladders, Partnering and Dispute Resolution Boards (DRBs) to avoid, mitigate and settle construction issues and disputes before intractable and costly disputes arise.

Control of Remaining Delivery Costs

The WSIP Management Team, with the support of SFPUC Upper Management, is undertaking the following steps to reduce and better control the remaining delivery costs of the WSIP:

- Implementing significant reductions in both City and Consultant resources at the program and project levels in accordance with the WSIP Staff Transition Plan dated June 2014.

- Transitioning work from Consultants to City staff to the extent feasible.
- Transitioning WSIP staff to other City and SFPUC Capital Programs as more WSIP projects get completed.
- Requesting final invoices/statements from consultants and other City departments immediately following completion of work to avoid further charges.
- Terminating index codes for completed activities to avoid further project charges.
- Accelerating project close out process to minimize cost after construction completion.
- Establishment of a Director's Reserve within each project that cannot be spent by project teams without explicit written approval of the WSIP Director upon formal request by the project team.

7. LEVEL OF SERVICE GOALS

7.1 WSIP Goals and Objectives

The goals and objectives for the March 2014 Revised WSIP are the same as for the March 2013 Revised WSIP and the approved PEIR. Table 3-1 provides a summary of these goals and objectives.

Table 7-1: WSIP Goals and Objectives

Program Goal	System Performance Objective
WATER QUALITY *Maintain high water quality*	• 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.
SEISMIC RELIABILITY *Reduce vulnerability to earthquakes*	• 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.
DELIVERY RELIABILITY *Increase delivery reliability and improve ability to maintain the system*	• 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
WATER SUPPLY *Meet customer water needs in non-drought and drought periods*	• 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.
SUSTAINABILITY *Enhance sustainability in all system activities*	• 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.
COST-EFFECTIVENESS *Achieve a cost-effective, fully operational system*	• 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.

7.2 Progress Towards Meeting LOS Goals

The scope of the WSIP is based on the first four (4) LOS goals described above – Seismic Reliability, Delivery Reliability, Water Quality and Water Supply. Each project that reaches construction substantial completion, contributes to increasing the overall reliability of the system and achieving progress towards meeting the LOS goals.

Table 7-2 lists the projects with their individual contribution to LOS goals, and indicates which projects have been substantially completed. This tabulation demonstrates the incremental progress that has been achieved on the WSIP to meet these goals since the last programmatic revision of the WSIP in 2013.

Table 7-2: Progress Towards Meeting LOS Goals

Project No.	Project Name	Actual / Forecast Substantial Completion Date	LOS Goals (P =Primary, S =Secondary)				Progress Toward LOS Goals
			Water Quality	Seismic Reliability	Delivery Reliability	Water Supply	
San Joaquin Projects							
CUW36401	Lawrence Livermore Water Quality Improvement *(Completed)*	08/31/10	P				100%
CUW37301	San Joaquin Pipeline System	01/06/12, 05/27/13 & 06/21/13			P		100%
CUW37302	Rehabilitation of Existing San Joaquin Pipelines (Roselle Crossover)	05/13/11			P		100%
CUW38401	Tesla Treatment Facility	06/24/11 & 8/5/13	P	S	S		100%
Sunol Valley Projects							
CUW35201	Alameda Creek Recapture	07/31/18				P	20.4%
CUW35501	Standby Power Facilities - Various Locations *(Completed)*	09/11/08 & 04/15/10		P	S		100%
CUW35901	New Irvington Tunnel	07/14/15		S	P		88.6%
CUW35902	Alameda Siphon #4 *(Completed)*	12/16/11		P	S		100%
CUW37001	Pipeline Repair & Readiness Improvements *(Completed)*	02/09/07 & 07/14/08		P	S		100%
CUW37401	Calaveras Dam Replacement	10/12/18		S	P	S	54.5%
CUW37402	Calaveras Reservoir Upgrades *(Completed)*	10/06/05	P				100%
CUW37403	San Antonio Backup Pipeline	12/31/14			P		72.9%
CUW38101	SVWTP Expansion & Treated Water Reservoir	05/17/13	P		P		100%
CUW38601	San Antonio Pump Station Upgrade *(Completed)*	06/30/11			P		100%
Bay Division Projects							
CUW35301	BDPL Nos. 3 & 4 Crossover/Isolation Valves *(Completed)*	11/15/07		P			100%
CUW35302	Seismic Upgrade of BDPL Nos. 3 & 4	02/02/15		P			64.7%
CUW36301	SCADA System - Phase II *(Completed)*	11/29/10			P		100%
CUW36801	BDPL Reliability Upgrade - Tunnel	06/01/15		P	S		87.1%
CUW36802	BDPL Reliability Upgrade - Pipeline	12/09/11, 06/13/12 & 03/05/13		P	S		100%
CUW36803	BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2 *(Completed)*	05/28/10			P		100%
CUW38001	BDPL Nos. 3 & 4 - Crossovers	08/15/12		P	S		100%
CUW38901	SFPUC/EBMUD Intertie *(Completed)*	09/07/07			P		100%
CUW39301	BDPL No. 4 Condition Assessment PCCP Sections *(Completed)* [1]	N/A		P	S		100%
Peninsula Projects							
CUW35401	Lower Crystal Springs Dam Improvements *(Completed)*	11/20/11			P	S	100%
CUW35601	New Crystal Springs Bypass Tunnel *(Completed)*	07/14/11		P	S		100%
CUW35701	Adit Leak Repair - Crystal Springs/Calaveras *(Completed)*	11/30/07			P		100%

Project No.	Project Name	Actual / Forecast Substantial Completion Date	LOS Goals (P =Primary, S =Secondary)				Progress Toward LOS Goals
			Water Quality	Seismic Reliability	Delivery Reliability	Water Supply	
Peninsula Projects							
CUW36101	Pulgas Balancing - Inlet/Outlet Work *(Completed)*	02/02/06	P		S		100%
CUW36102	Pulgas Balancing - Discharge Channel Modifications *(Completed)*	10/23/09			P		100%
CUW36103	Pulgas Balancing - Structural Rehabilitation & Roof Replacement *(Completed)*	07/26/11	P		S		100%
CUW36105	Pulgas Balancing - Modifications of the Existing Dechloramination Facility *(Completed)*	08/27/12	P		S		100%
CUW36501	Cross Connection Controls *(Completed)*	11/26/08	P				100%
CUW36601	HTWTP Short-Term Improvements - Demo Filters *(Completed)*	01/11/06		P	S		100%
CUW36603	HTWTP Short-Term Improvements - Coagulation & Flocculation/Remaining Filters *(Completed)*	12/21/09		P	S		100%
CUW36701	HTWTP Long -Term Improvements	11/29/14		P	S		70.6%
CUW36702	Peninsula Pipelines Seismic Upgrade	10/28/15		P			22.1%
CUW36901	Capuchino Valve Lot Improvements *(Completed)*	02/14/08			P		100%
CUW37101	Crystal Springs/San Andreas Transmission Upgrade	09/30/14		P	S		80.2%
CUW37801	Crystal Springs Pipeline No. 2 Replacement	01/31/13		P	S		100%
CUW37901	San Andreas Pipeline No. 3 Installation *(Completed)*	03/29/11		P	S		100%
CUW39101	Baden & San Pedro Valve Lots Improvements *(Completed)*	03/31/11		P	S		100%
San Francisco Regional Projects							
CUW30103	Regional Groundwater Storage and Recovery	07/23/12, 07/31/17 & 08/31/17				P	22.2%
CUW35801	Sunset Reservoir - North Basin *(Completed)*	09/19/08		P	S		100%
CUW37201	University Mound Reservoir - North Basin *(Completed)*	05/25/11		P	S		100%
Support Projects							
CUW36302	System Security Upgrades [2]	07/13/07 – 01/24/16			P		52.7%
CUW38801	Programmatic EIR *(Completed)* [1]	N/A					N/A
CUW38802	Bioregional Habitat Restoration[3]	09/30/11 – 03/04/16					N/A
CUW38803	Vegetation Restoration of WSIP Construction Sites[1]	N/A					N/A
CUW38804	Long Term Mitigation Endowment [1]	N/A					N/A
CUW39201	Program Management [1]	N/A					N/A
CUW39401	Watershed Environmental Improvement Program [1]	N/A					N/A

Notes:

1 These projects do not have any construction contracts.
2 Date range for the first and last project among the 28 WSIP projects that require security improvements.
3 Dates listed represent a range for Substantial completion achieved on the first contract WD-2643(I) BHR-Goat Rock Well (micro-LBE) and Substantial completion forecasted for the last contract WD-2654 BHR- Peninsula Vegetation Removal respectively. There are nine construction contracts under Project CUW38802 - Bioregional Habitat Restoration.

As before, the SFPUC remains committed to achieving all the LOS goals established for the system. Since 2005 a number of improvements have been added to the Program to make sure we meet these goals. In particular, there were two (2) areas that required further investigation and potential follow up work in order to meet all LOS goals established for the system: These areas are related to the seismic reliability goal and the water supply goal.

Seismic Reliability Goal

The scope of work for the Peninsula Pipelines Seismic Upgrade (PPSU) project described in the *Notice of Changes Report – March 2013 Revised Water System Improvement Program (SFPUC, June 28, 2013)* is being executed in three (3) phases. The first two (2) phases are being constructed under the WSIP, and the third phase will be constructed under the Water Enterprise's Capital Improvement Program (Water CIP). The scopes of work for each phase, progress to date, and planned schedules are documented below:

PPSU Phase 1 (CUW36702; retained in WSIP):

The refined project scope (Phase 1) includes the following components at five (5) locations on the San Francisco Peninsula to address Serra Fault Crossing locations and liquefaction hazard potential in the Colma Creek area:

- Colma Site – Replacement of an approximately 700-ft segment of San Andreas Pipeline No. 2 (SAPL No. 2)
- South San Francisco Site – Replacement of an approximately 720-ft segment of SAPL No. 2
- San Bruno North Site – Stabilization of SAPL No. 2 where it extends through a tunnel
- San Bruno South Site – Replacement of an approximately 1,170-ft segment of SAPL No. 2 and an approximately 1,050-ft segment of SAPL No. 3; and
- Millbrae Site – Replacement of an approximately 900-ft segment of Sunset Supply Branch Pipeline (SSBPL)

PPSU Phase 2 (CUW27305, retained in WSIP):

Phase 2 of the project includes installation of two (2) new isolation valves near the Baden Valve Lot on SAPL No. 2 and SAPL No. 3 in the City of South San Francisco.

Work scope identified in PPSU Phase 1 and PPSU Phase 2 is combined into one (1) construction contract, and construction is in progress, with the contractor's baseline schedule, schedule of values, as well as other submittals being reviewed.

PPSU Phase 3 (CUW27305, Water CIP):

Phase 3 includes a pipeline condition assessment of SAPL No. 2 within San Francisco city limits, installation of new isolation valves, and the potential addition of flexible connections along the alignment within the City of San Francisco. A corrosion study of various pipeline segments and a tensile pull test to determine the mechanical properties of the pipeline joints

have already been completed. Physical external, and possible internal, inspections have yet to be completed. New isolation valves would be located on SAPL No. 2 at Belle Avenue and Junipero Serra Boulevard in San Francisco, and near 22nd Avenue and Sloat Boulevard in San Francisco.

Phase 3 has the following preliminary schedule: (a more definitive schedule will be developed after completion of the condition assessment and an alternative analysis):

- Planning: December 2012-October 2014
- Environmental: October 2014-January 2016
- Design: October 2014-October 2015
- Bid and Award November 2015-May 2016
- Construction May 2016-November 2017

Until these facilities are constructed, the Water Enterprise is committed to determining operational work-arounds that can provide a higher level of emergency response to improve reliability after a seismic event.

Water Supply Goal

The delay in the Calaveras Dam Replacement Project (CDRP) and the Alameda Creek Recapture Project (ACRP) result in delaying the timing for meeting the WSIP Water Supply LOS goals established for the Hetch Hetchy Regional Water System.

The specific criteria for water supply LOS goals consist of the following:

- 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.[1]
- Improve use of new water sources and drought management, including groundwater, recycled water, conservation, and transfers.

At the time the Water Supply LOS goals were being established for the Hetch Hetchy Regional Water System, the SFPUC service area demand was approximately 265 mgd. Under those demand assumptions, the SFPUC's rationing exposure during a repeat of an 82-year historic hydrology (1921-2002) was about 6 in 82 years for 10% rationing and 8 in 82 years for 20% rationing. In addition, during the SFPUC's long-term planning drought of 8.5 years ("design drought"), the SFPUC would have to impose 1 year of 10% rationing, 5 years of 20% rationing and 1.5 years of 25% rationing. This dry-year water supply reliability is presented in Table 7-3 under scenario 1. To meet the WSIP LOS objectives, the SFPUC

[1] As part of the WSIP Phased Variant, this included 10 mgd of demand reduction by both the Wholesale and Retail Customers through conservation, recycled water, and groundwater.

designed a Water Supply Program that would improve the ability of the SFPUC to meet demands during dry years. The Water Supply Program includes the following components:

- Restoration of Calaveras Reservoir capacity: 7 mgd[2]
- Restoration of Crystal Springs Reservoir capacity: 0.5 mgd[3]
- Groundwater Storage and Recovery Project: 7.2 mgd[4]
- Water Transfer from Modesto Irrigation District and/or Turlock Irrigation District (MID/TID): 2 mgd

Implementation of these projects results in reducing the SFPUC's rationing exposure over the 82-year historic hydrology (1921-2002) to about 6 in 82 years for 10% rationing and 2 in 82 years for 20% rationing under a demand of 265 mgd. During the SFPUC's design drought of 8.5 years, the SFPUC would reduce rationing to 3 years of 10% rationing, 3.5 years of 20% rationing and no years of 25% rationing. Scenario 2 in Table 7-3 presents this dry-year water supply reliability.

The March 2013 Revised WSIP, Notice of Change, document addressed the impacts of extending the schedule of the CDRP completion date and the schedule for the ACRP and the subsequent effect on meeting Water Supply LOS. The following provides some minimal updates to this analysis. By extending the construction period of the CDRP, the SFPUC will continue to operate without the 7 mgd of dry-year supply for an additional period of about two (2) years beyond the original completion date of the WSIP. The extended schedule of CDRP also increases the probability of rationing occurring because the amount of time before construction completion has increased by an additional nine (9) months from March 2018 to November 2018. While the SFPUC will not be able to meet its WSIP water supply LOS objectives until construction of the new dam is complete, current SFPUC demands are significantly lower than 265 mgd. At current demand levels of approximately 224.1 mgd[5], the SFPUC exposure to rationing over the historic hydrology is 3 in 82 years for 10% rationing and no years of 20% rationing.

[2] 7 mgd (or 7,840 acre-feet per year) is derived by dividing the increment of restored water storage (58,800 acre-feet) in Calaveras Reservoir by 7.5 years. Seven and a half years relates to the number of years within the SFPUC's long-term planning drought ("design drought") that assume the need for supplemental dry-year supplies.

[3] 0.5 mgd is derived by dividing the restored capacity of Crystal Springs Reservoir by 7.5 years consistent with the description in Footnote 2.

[4] 7.2 mgd is derived by dividing the storage capacity of the Groundwater Storage and Recovery Project volume by 7.5 years consistent with the description in Footnote 2.

[5] This is the demand in FY09-10. The demand was 218.1 mgd,219.9 mgd and 222.4 mgd in FY 10-11, FYI 1-12 and 12-13, respectively. The SFPUC used the FY09-10 demand to reflect the highest most recent demand for modeling purposes. Water Year 2014 has been exceptionally dry and as a result demands have been higher in the second half of FY 13-14. As of April 2014 sales data, FY13-14 wholesale customer sales are 3.4% higher than last year sales and retail sales are 0.6% lower. In total demand is anticipated to be higher than last fiscal year but not high enough to warrant a re-run the Water Supply LOS analysis.

Rationing exposure over the design drought is 3.5 years of 10% rationing, no years of 20% rationing and no years of 25% rationing.[6] The dry-year water supply reliability for current demand is presented in Table 7-3 under Scenario 3.

Once substantial completion of the Calaveras Dam spillway and restored height of the dam is achieved (scheduled for October 2018), refilling of Calaveras Reservoir will take four (4) years assuming average hydrologic conditions. The actual amount of time it will take to fill the reservoir after substantial completion will depend on (1) approval from the California DSOD to begin refilling the reservoir; (2) the actual hydrology during the refill period; and (3) the operation of Calaveras Reservoir in terms of the amount of water drafted from the reservoir during the refill period. Current demand projections indicate SFPUC demand to be 251.8 mgd[7] in 2018. Assuming this demand level at the start of the refill period, SFPUC exposure to rationing over the historic hydrology is 10 out of 82 years for 10% rationing and 4 out of 82 years for 20% rationing.

Rationing exposure over the design drought is 3 years of 10% rationing, 4.5 years of 20% rationing and no years of 25% rationing.[8] This is presented in Table 7-3 under Scenario 4. For a worst-case analysis, the SFPUC did not assume any of the other dry-year water supply projects as identified above would be in place. Assuming refill takes approximately 4 years; the full restored volume of Calaveras Reservoir would not be available until 2022, in which case, the rationing exposure may be slightly greater than what can be anticipated under 2018 demand conditions. However, it should be noted that other dry-year water supply projects should be in place in 2018 including the Regional Groundwater Storage and Recovery Project, the restored capacity at Crystal Springs Reservoir, and possibly a water transfer. These projects would reduce the amount of rationing exposure in 2018 and beyond. Similarly, rationing levels will depend on total Calaveras Reservoir storage at the time of the dry year.

[6] The hydrologic modeling performed to analyze exposure to rationing over the historic hydrologic record presents a conservative worst-case scenario. The modeling includes assumptions that restrict operations at Calaveras Reservoir during construction. These assumptions include restricting reservoir elevations to 690' November-March each year and 705' the remainder of the year to avoid inundating construction areas. It is also assumed that Calaveras Reservoir outlet works are shut down between April and December of each year. The SFPUC does not anticipate these outlet work limitations to be in effect every year of the construction period, however, they are assumed every year for a worst-case analysis. In the event of a multi-year drought, it would be possible to access more water from Calaveras Reservoir than the modeling indicates is available. For the purposes of this scenario, the SFPUC does not assume the other dry-year water supplies are in place nor does it assume instream flow releases are not being made from Calaveras Reservoir nor bypass flows at Alameda Creek Diversion Dam.

[7] 2018 demand projections are based on the 2010 SFPUC Urban Water Management Plan for retail demand and the Bay Area Water Supply and Conservation Agency's Long-Term Reliable Water Supply Strategy (July 2012) for wholesale customer demand on the SFPUC system in 2018.

[8] The hydrologic modeling performed to analyze exposure to rationing over the historic hydrologic record presents a conservative worst-case scenario. The modeling includes assumptions that Calaveras Reservoir elevation is at maximum 705' and the outlet works are functioning so that draft from the reservoir can occur. For the purposes of this scenario, the SFPUC does not assume instream flow releases are being made from Calaveras Reservoir nor bypass flows at Alameda Creek Diversion Dam.

Table 7-3: Drought-Year Shortage for Various Scenarios.

Scenario No.	Scenario Description	Total System Demand (MGD)	Drought-year shortage during 82-year period of hydrologic record			Drought-year shortage during design drought (8.5 years)		
			Years of shortage 10%	Years of shortage 20%	Years of shortage 25%	Years of shortage 10%	Years of shortage 20%	Years of shortage 25%
1	Pre-WSIP Conditions (2004)	265	6	8	0	1	5	1.5
2	Post-WSIP Water Supply Level of Service (2018)	265	6	2	0	3	3.5	0
3	Current Conditions (2010)	224.1	3	0	0	3.5	0	0
4	Delay of Calaveras Dam (2018): • Calaveras Dam completion in 2018; • No instream flow releases; • No Alameda Creek Recapture Project; • No Groundwater Storage and Recovery Project; and • No 2 mgd water transfer.	251.8	10	4	0	3	4.5	0
5	Delay of Alameda Creek Recapture Project (2019): • Calaveras Dam construction is complete in 2018 but refill has not occurred; • Alameda Creek Instream flow releases; • No Groundwater Storage and Recovery Project; and • No 2 mgd water transfer.	251.8	7	7	0	2	5.5	0
6	Delay of Calaveras Dam, Alameda Creek Recapture, and Groundwater Storage and Recovery Project (2019 with 2035 demand): • Calaveras Dam construction is complete in 2018 but refill has not occurred; • Alameda Creek Instream flow releases; and • No 2 mgd water transfer.	265	6	5	3	1	3	3.5

The residual storage at the end of Design Drought in scenario #4 is 9,884 AF, in #5 is 24,035 AF and in #6 is 8,622 AF. The residual storage is the amount of water in the Regional Water System above dead pool at the end of the Design Drought. Dead pool is estimated at 96,775 AF. In actual operation, the SFPUC would deliver as much of the residual storage as possible; thus reducing actual shortage amounts

The ACRP and the CDRP have been tied together since the inception of the WSIP in the early 2000s. The reason for their linkage is (1) the intent of the ACRP is to recapture flows released from Calaveras Dam and bypassed at ACDD, conditions of the Biological Opinion issued by the National Marine Fisheries Service (NMFS) for the CDRP, and (2) the CDRP will provide the infrastructure necessary to provide the releases from Calaveras Dam and the bypasses at ACDD. While the ACRP could be constructed prior to completion of the CDRP, it would not be operational until the instream flows are provided. The NMFS Biological Opinion for CDRP specifically relates the required instream flows to when Steelhead can access the watershed. Currently, there are barriers in lower Alameda Creek that prohibit the migration of Steelhead into the upper Alameda Creek reaches. Until these barriers are removed, Steelhead will not be present in reaches below Calaveras Dam and therefore, the instream flows are not required. Alameda County Water District is currently in the environmental review phase for the projects that will allow fish passage. According to their Website, construction is anticipated to begin for the six (6) projects related to fish passage between 2014 and 2015. Completion could be in 2015 or 2016.

Once the CDRP is completed, the SFPUC will have the ability to meet its instream flow requirements. As discussed previously, the ACRP schedule has the potential to extend beyond the completion date of the CDRP. If the ACRP is not constructed by the time the SFPUC begins making releases from Calaveras Dam and bypasses at ACDD, there may be water supply impacts. The SFPUC conducted an analysis to determine the change in water delivery reliability during dry periods assuming the CDRP is completed, instream flows are being provided and ACRP is not completed.[9] The SFPUC assumed a demand of 251.8 mgd, which corresponds to projected demands in the service area in 2018.[10] Scenario 5 in Table 7-3 presents the rationing exposure to the SFPUC if the ACRP is not completed and instream flows are being provided.

Scenario 6 in Table 7-3 presents the combined effects of the delay in the CDRP, ACRP and no GSR Project or water transfer on the drought reliability of the water system at a water system demand of 265 mgd. This analysis is identical to Scenario 5. However, water system demand is increased to 265 mgd rather than the anticipated demand of 251.8 mgd.[11] As the table indicates, the SFPUC water supply dry-year reliability would be worse than under pre-WSIP conditions at a demand of 265 mgd. Under pre-WSIP conditions the SFPUC could expect 6 years of 10% rationing over the 82-year period of hydrologic record and 8 years of 20% rationing in that same period. Over the design drought, the SFPUC would have to impose 1 year of 10% rationing, 5 years of 20% rationing and 1.5 years of 25% rationing. With a delayed CDRP, delayed ACRP and no RGSRP or water transfer, the SFPUC could

[9] The hydrologic modeling performed to analyze exposure to rationing over the historic hydrologic record presents a conservative worst-case scenario. The modeling includes assumptions that Calaveras Reservoir elevation is at maximum 705' and the outlet works are functioning so that draft from the reservoir can occur. Calaveras Reservoir may have a greater amount of water in storage if refill is allowed to begin prior to project completion. For the purposes of this scenario, the SFPUC does not assume the other dry-year water supplies are in place.

[10] 2018 demand projections are based on the 2010 SFPUC Urban Water Management Plan for retail demand and the Bay Area Water Supply and Conservation Agency's Long-Term Reliable Water Supply Strategy (July 2012) for wholesale customer demand on the SFPUC system in 2018.

[11] The demand of 265 mgd pertains to the WSIP water supply Level of Service objectives. The WSIP water supply elements are included in the Program to meet the LOS objectives of meeting a demand of 265 mgd with no greater than 20% rationing in a drought year. Current demand estimates as reported by the Bay Area Water Supply and Conservation Agency's Long-Term Reliable Water Supply Strategy (July 2012) for wholesale customer demand on the SFPUC system in 2018 and the 2010 SFPUC Urban Water Management Plan for retail demand are 251.8 mgd.

expect 6 years of 10% rationing over the 82-year period of hydrologic record, 5 years of 20% rationing and 3 years of 25% rationing in that same period. Over the design drought, the SFPUC would have to impose 1 year of 10% rationing, 3 years of 20% rationing and 3.5 years of 25% rationing.

As discussed and referenced above, to present worst-case analysis for scenarios 4, 5 and 6 in Table 7-3, the SFPUC assumes that the Regional Groundwater Storage and Recovery Project, water transfer and restored Crystal Springs Reservoir are not in place. Similarly, for Scenarios 5 and 6, the SFPUC assumes the ACRP is not in place and Alameda Creek instream flows are being released. At this time, the SFPUC anticipates that these projects will be completed at their current yield potential. However, the SFPUC has included in its planning documents a list of potential water supply actions that could provide additional yield to the system. These options are:

- Development of additional conservation and recycling.
- Development of additional groundwater supplies.
- Securing of additional water transfer volumes.
- Increasing Tuolumne River supply.
- Development of a desalination project.

7.3 Impacts of Project Delays on LOS Goals

Delivery Reliability

To meet the system performance objectives of the delivery reliability goal, modeling and analysis was conducted in 2006, to address three (3) key areas:

Delivery during maintenance conditions: System capacity and operational flexibility to allow scheduling of planned maintenance of facilities, and delivery of average day demand. The assumption for a maintenance condition consist of a planned shutdown of any facility combined with an unplanned outage of one reach of either a BDPL or SJPL.

Delivery during a Hetch Hetchy water quality event: Delivery of average day demand to customers while the water from Hetch Hetchy is either filtered or removed from the system.

Delivery impacts due to unplanned outages: This objective is to achieve a system-wide delivery capacity of average day demand with one water source unavailable.

From the Revised 2014 WSIP schedule, the one project that is delayed and has delivery reliability as a primary LOS goal is the Calaveras Dam Replacement Project.

This impacts delivery reliability during maintenance conditions, in that they increase source redundancy for the Hetch Hetchy supply. It should be noted that LOS goals are based on

2030 demand levels. Actual impacts under current demand conditions, with some contribution from the two inter-agency interties[12] will be less.

Under delivery during maintenance conditions, pipeline maintenance will not be deferred because of this delay. If the Calaveras Reservoir supply is unavailable, the planned outage duration of two (2) to three (3) months for any major facilities would be reduced to only one (1) month, or 30 days. However, strictly speaking, this lower reliability remains at or above the LOS criterion.

Repairs to Mountain and Foothill Tunnels may need to be delayed until completion of the CDRP. However, some alternatives for Mountain Tunnel repairs allow Hetch Hetchy water deliveries to remain on-line.

The system's ability to meet demands during a Hetch Hetchy water quality event would not be impacted by delays to the CDRP.

Seismic Reliability

From the Revised 2014 WSIP schedule, the projects that impact seismic reliability and are delayed include:

- Seismic Upgrade of BDPL Nos. 3 & 4
- Regional Groundwater Storage and Recovery

In 2005-2006, system reliability modeling was used to establish that all the seismic projects function holistically to reduce vulnerability of the entire system in the event of a major earthquake. Results of the modeling also showed that the completion of a core group of projects substantially reduces vulnerability, although the completion of these core projects did not, in itself, achieve the required LOS goals outlined for the system.

The same reliability model was used to assess the impacts of project delays on the system's overall seismic reliability. Model runs were conducted based on the 2005 WSIP Schedule (considered the baseline schedule), the March 2013 Revised WSIP Schedule (schedule approved as part of last WSIP revision), and the March 2014 Revised WSIP Schedule (current approved schedule). Refer to Appendix L (Impacts on Seismic Reliability Goal) for graphs comparing the reliable delivery under each schedule scenario.

The core group of projects that substantially decreases the Hetch Hetchy Regional System's seismic vulnerability includes the three (3) "arterial projects" of the Alameda Siphon No. 4, NIT, and BDPL Reliability Upgrade (Pipeline and Tunnel). Of these three arterial projects, the NIT project has the latest substantial construction completion date of July 2015.

Seismic reliability analysis of the system also showed that increasing the reliability of the HTWTP supply and its associated conveyance facilities, substantially improves seismic reliability of water deliveries to the Peninsula and San Francisco customers. Thus, the

[12] Each intertie can nominally provide approximately 35 mgd each (total of 70 mgd), but actual flow rates depend on conditions within EBMUD and SCVWD.

HTWTP Long-Term Improvements Project, the PPSU Project, and components of the Crystal Springs-San Andreas (CS-SA) Transmission Upgrade Project are key aspects to the reduction of system vulnerability. In particular, the components of the CS-SA Transmission Upgrade project that improve the San Andreas Reservoir Outlet Structures Nos. 2 and 3 enhance reliability of conveying raw water from the San Andreas Reservoir to the HTWTP Raw Water Pump Station, and have a direct impact on seismic reliability. Although CS-SA Transmission Upgrade and HTWTP Long-Term Improvements Projects are scheduled for substantial completion in September and November 2014 respectively, benefits of these improvements are not fully realized until substantial construction completion of PPSU Phases 1 and 2 in October 2015, and PPSU Phase 3 in November 2017. Specifically, substantial construction completion of the HTWTP Long-Term Improvements Project is necessary for the seismic reliability of the treatment facility, while the PPSU Project(s) are necessary for the seismic reliability of its conveyance.

Although substantial construction completion of the Seismic Upgrade of BDPL Nos. 3 & 4 Project is delayed by four (4) months to February 2015, the delay has minimal impact to system performance with respect to seismic reliability. This project improves seismic reliability by enhancing the reliability of conveying water across the Hayward Fault along the BDPL Nos. 3 & 4 alignment. The benefits of this project are not fully realized until substantial construction completion of the NIT Project in July 2015. Together, these two (2) projects contribute to reliable delivery from the East Bay and Hetch Hetchy sources. In combination with the NIT Project, the BDPL Reliability Upgrade - Tunnel (or Bay Tunnel) Project, with a substantial construction completion date of June 2015, will greatly reduce the system's vulnerability during a seismic event.

Substantial completion of the Regional Groundwater Storage and Recovery Project has been delayed to August 2017. Although this project is primarily a water supply project, there are impacts to system performance with respect to seismic reliability. This project improves seismic reliability by providing a reliable local supply of up to 7.2 mgd from groundwater sources. As a result of the delay, this additional 7.2 mgd source is not available until 2017.

APPENDIX A

NOTICE OF PUBLIC HEARING

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San Francisco Water Power Sewer
Operator of the Hetch Hetchy Regional Water System

525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
T 415.554.3155
F 415.554.3161
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NOTICE OF PUBLIC HEARING
(Issued on Friday March 21, 2014)

NOTICE OF POSTING FOR CONSIDERATION OF REVISIONS TO THE SAN FRANCISCO PUBLIC UTILTIES COMMISSION (SFPUC) WATER SYSTEM IMPROVEMENT PROGRAM (WSIP)

Tuesday, April 22, 2014
1:30 P.M.
City Hall, Room 400
1 Dr. Carlton B. Goodlett Place
San Francisco, California

SUBJECT OF PUBLIC MEETING

The San Francisco Public Utilities Commission (SFPUC) is posting this "Revision to the Water System Improvement Program (WSIP)" referred to as the "March 2014 Revised WSIP." The SFPUC will hold a public hearing as part of its regularly scheduled meeting on Tuesday, April 22, 2014 for the purpose of considering those proposed WSIP revisions.

COMMENTS ON PROPOSED REVISIONS

All interested parties are invited to attend the public hearing and present their views. Individuals who are unable to attend the public hearing may submit to the SFPUC, by the time the proceedings begin on April 22, 2014, written comments regarding the subject of the hearing. These comments will be brought to the attention of the Commission and will become part of the official public record. Written comments should be sent to:

Donna Hood, Commission Secretary
San Francisco Public Utilities Commission
525 Golden Gate Avenue (13th Floor)
San Francisco, CA 94102

BACKGROUND

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

The SFPUC last adopted program-wide revisions to the WSIP, including revised program scope, schedule and budget, on April 23, 2013. Subsequently during the first few months of 2014, the SFPUC undertook a comprehensive assessment of all remaining WSIP delivery efforts to completion of the program. The objectives of this wide-ranging internal review of all active projects are to (1) validate all project schedule and cost forecasts at completion; (2) make an accurate determination of the overall cost and schedule status of the program; and (3) put in place specific measures to further control costs and schedules as the program ramps down. The final outcome of this detailed review is the proposed project revisions documented in the various attachments to this notice.

CHANGE SUMMARY

The most significant changes reported are the extension of the overall program completion date from April 11, 2019 to May 24, 2019, and the increase of the overall program cost from $4,640.5M to $4,765.5M, an increase of $125.0M (or 2.7%).

It should be noted that most projects are forecasted to be completed by 2016, with five (5) exceptions:

- Calaveras Dam Replacement Project – Proposed Project Completion May 24, 2019
- Alameda Creek Recapture Project – Proposed Project Completion April 11, 2019
- Watershed Environmental Improvement Program – Proposed Project Completion August 31, 2018
- Long Term Mitigation Endowment – Proposed Project Completion August 31, 2018
- Regional Groundwater Storage and Recovery – Proposed Project Completion July 31, 2018

Of the forty-eight (48) regional projects in the WSIP, twenty-six (26) have been completed, nine (9) have no schedule variance, and thirteen (13) have been extended.

The budget revisions proposed for adoption involve a mix of cost increases and cost savings at the project level. The project with the largest cost increase is the Calaveras Dam Replacement Project (CDRP). The projected cost variance of the CDRP is $97.5M from the 2013 approved project budget.

The SFPUC is undertaking a number of steps to reduce and control the remaining costs of the WSIP. For example, we have significantly reduced the regional management structure of the program and we have reduced significantly the City and Consultant resources at the program level. Furthermore, we have started transitioning more work from Consultants to City staff and will continue to accelerate that process as City resources become available.

No regional projects were deleted from the WSIP since program-wide revisions were last approved in 2013. 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 by the SFPUC. Only five (5) projects have scope modifications that are considered significant enough to be documented separately. There are no project name modifications. One (1) new project was added to the program, and is being counted as one of the 48 WSIP Regional projects. This new project, the Long-Term Mitigation Endowment (LTME), was previously included and reported as part of the Bioregional Habitat Restoration (BHR) project, and is now being separated from the BHR to recognize that the Office of the City Controller has established a separate project, specific for this endowment fund.

SUPPORTING DOCUMENTS

This notice and the attached documents focus on the WSIP regional projects (all local projects are excluded). The Eleven (11) following attachments are included with this notice to explain the proposed changes to the schedule, scope and budget of various WSIP projects to be considered for adoption on April 22, 2014.

Attachment 1: March 2014 Revised WSIP - General Project Changes

Attachment 2: March 2014 Revised WSIP - Project Status

Attachment 3: March 2014 Revised WSIP - Summary of Proposed Scope Changes

Attachment 4: March 2014 Revised WSIP - Summary of Proposed Schedule Changes

Attachment 5: March 2014 Revised WSIP - Summary of Proposed Budget Changes

Attachment 6: March 2014 Revised WSIP - Explanation of Proposed Schedule Changes

Attachment 7: March 2014 Revised WSIP - Explanation of Proposed Budget Changes

Attachment 8: March 2014 Revised WSIP - Project Descriptions

Attachment 9: March 2014 Revised WSIP - Proposed Project-Level Schedules

Attachment 10: March 2014 Revised WSIP - Proposed Phase-Level Schedules

Attachment 11: March 2014 Revised WSIP - Proposed Project-Level Cost Summary

APPENDIX B

BAWSCA's C0MMENT LETTER AND SFPUC'S RESPONSE

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April 16, 2014

The Honorable Vince Courtney, President
San Francisco Public Utilities Commission
525 Golden Gate Avenue, 13th floor
San Francisco, CA 94102

SUJBECT: Comments on the Proposed March 2014 Revised Water System Improvement Program (WSIP)

Dear President Courtney:

On March 21, 2014, in accordance with State Water Code Section 73514, the San Francisco Public Utilities Commission (SFPUC) notified the Bay Area Water Supply and Conservation Agency (BAWSCA) that it would be considering proposed changes to the Water System Improvement Program (WSIP). With only one year passing since the last major WSIP re-baselining, the SFPUC is again considering modifications to the scope, budget and schedule of the WSIP. This is of significant concern to BAWSCA given the resulting fiscal and water reliability impacts on the regional customers.

The efforts of Mr. Wade and his staff for meeting with BAWSCA representatives to discuss the proposed changes and providing supporting documentation for the recommendations under consideration are much appreciated. Based on a thorough review of these documents and the conversations with SFPUC staff, BAWSCA has developed the following findings and recommendations for consideration by the SFPUC.

Budget: What is the impact of the proposed revisions on the individual project budgets and overall WSIP budget as compared to the currently adopted budget?

Budget Finding 1: The SFPUC is proposing a $126.3M increase in the Regional WSIP budget. To fund this proposed cost increase, the SFPUC will defer an equivalent dollar value of previously planned projects in its 10-Year Capital Improvement Program (CIP) to avoid any additional increase in proposed water rates. While the SFPUC's desire to control water rates is understood, BAWSCA remains concerned about the impacts to public health and safety resulting from changes to the SFPUC's adopted capital programs – be it the WSIP or the 10-Year CIP.

Budget Finding 2: The SFPUC has indicated that it has a 65% confidence level that the proposed budget provides funding sufficient to cover the identified projects risks. This compares to the program adopted in April 2013 which had a budget with an 88% confidence level. The SFPUC is proposing a budget with a reduced level of confidence that the contingency is sufficient to meet the identified risks. In both cases, this analysis excludes those projects still in the planning stages including the Regional Groundwater Storage and Recovery Project, and the Alameda Creek Recapture Project.

The SFPUC staff must take all actions necessary to control costs moving forward to increase the likelihood that the proposed budget will be sufficient to complete the program. Critical to staying within the revised budget amount proposed is maintaining the proper levels of staffing and consulting resources during the remainder of the WSIP. This will require the orderly transition of staff and consultants as projects are completed and facilities transferred to SFPUC Operations staff. In his March 31, 2014 letter to BAWSCA, Mr. Wade commits to developing a written staff transition plan by May 2014 that will be presented to the Commission by the end of June 2014. Mr. Wade states that "we will review our actual performance compared to the plan monthly with the responsible Regional and Bureau Management and will follow up any observed deviations with detailed analysis and corrective action." Inclusion of this information as part of the ongoing WSIP Quarterly Reports would be an effective monitoring tool for the Commission and other WSIP stakeholders.

Budget Recommendations: **BAWSCA recommends that the Commission direct staff to:**

1. **Include in the required AB 1823 report to the State a discussion of the impact of the proposed changes on public health and safety including the proposed changes to the SFPUC's 10-Year CIP.**
2. **Present the staff transition plan to the Commission at the 2nd meeting in June and to include a summary analysis of performance compared to the plan, including proposed corrective action, in all future WSIP Quarterly Reports.**

Schedule: Have the completion dates for individual WSIP projects been extended and if so, why? Is there an increased risk to public health and safety for any schedule extension?

Schedule Finding 1: The SFPUC is proposing schedule extensions for twelve individual WSIP projects currently in construction, not including the support projects, and an overall 1.5-month schedule extension for program completion in May 2019. Several project extensions are associated with projects already "in-service". Two project extensions are for projects critical to meeting the WSIP water supply Level of Service (LOS) goal: Calaveras Dam Replacement Project (9 month extension) and Regional Groundwater Storage and Recovery Project (24 month extension). Delays in these projects extend the time over which the water customers are exposed to increased level of dry-year water supply shortages. For example, these projects would significantly benefit overall water supply available this year if they were already in place and would reduce the need for significant water use reductions and the resulting economic and public health impacts in the event of a subsequent dry year.

Schedule Recommendation: **BAWSCA recommends that the Commission direct staff to:**

1. **Develop interim water supplies (e.g., temporary water transfers) as necessary until proposed water supply projects are on line to ensure that the San Francisco Regional Water System (RWS) can meet the water supply LOS goal, and to provide a status report to the Commission on actions taken by September 2014.**

Scope: What is the impact of the proposed revisions on the individual project scopes as compared to the currently adopted scopes? Do the projects, as proposed, continue to meet the WSIP LOS goals?

Scope Finding 1: The proposed changes include scope revisions to the Alameda Creek Recapture Project (ACRP) to increase operational flexibility. BAWSCA remains concerned that the ACRP may not provide necessary yield to meet the water supply LOS goal. In his March 31, 2014 letter to BAWSCA, Mr. Wade concurs with BAWSCA's stated concerns with ACRP and states "the SFPUC agrees with BAWSCA that there is some uncertainty with regard to the potential yield of the ACRP due to currently unknown conditions that may be placed on the project through the CEQA review and environmental permitting processes. These potential constraints on yield will continue to be evaluated as the project moves forward through the planning, design and environmental review process." This uncertainty increases the exposure of the water customers to impacts resulting from water supply reductions in response to drought. .

Scope Recommendation: **BAWSCA recommends that the Commission direct staff to:**

1. **Include, as part of the regular report to the Commission on achieving the Water Supply LOS goal, an update on the progress of the ACRP and any environmental conditions imposed on the project, including potential impacts to scope, schedule, and budget, and present an analysis on the impact, if any, to the SFPUC's ability to meet the water supply LOS goal.**
2. **Include in the required AB 1823 report to the State a quantification of the status of achieving the LOS goals shown as "In Progress" in Attachment 4 of the Notice of Change and use this quantification as a basis for reporting on progress in future WSIP Quarterly Reports.**

BAWSCA appreciates the helpful discussions with SFPUC staff, particularly Mr. Wade, that have occurred during the course of our review of the proposed changes. As always, BAWSCA's goal continues to be the successful implementation of the WSIP that will meet the adopted LOS goals and be completed on time and within budget.

Sincerely,

Nicole Sandkulla
Chief Executive Officer/General Manager

cc: Harlan L. Kelly, Jr., SFPUC General Manager
Emilio Cruz, SFPUC Assistant General Manager - Infrastructure
Dan Wade, SFPUC Program Director, WSIP
BAWSCA Board of Directors
BAWSCA Water Management Representatives
Allison Schutte, Hanson Bridgett

San Francisco
Water Power Sewer
Operator of the Hetch Hetchy Regional Water System

525 Golden Gate Avenue, 6th Floor
San Francisco, CA 94102
T 415.554.1853
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DATE: June 4, 2014

TO: The Honorable Vince Courtney, President
The Honorable Ann Moller Caen, Vice President
The Honorable Francesca Vietor
The Honorable Anson B. Moran
The Honorable Art Torres

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

FROM: Daniel L. Wade, WSIP Director D. Wade

RE: SFPUC's Response to BAWSCA's Recommendations on the Proposed March 2014 Revised WSIP

This memorandum provides the San Francisco Public Utilities Commission's (SFPUC's) responses to recommendations provided by the Bay Area Water Supply & Conservation Agency (BAWSCA) in their letter to the Commission dated April 16, 2014 regarding the proposed March 2014 Revised Water System Improvement Program (WSIP).

SFPUC's Response to Recommendations in BAWSCA's Letter dated April 16, 2014

Budget Recommendation 1: Include in the required AB 1823 report to the State a discussion of the impact of the proposed changes on public health and safety including the proposed changes to the SFPUC's 10-Year CIP.

SFPUC Response: The SFPUC will include in the required AB 1823 report to the State a discussion of the impact of the proposed changes of the WSIP projects on public health and safety. Any proposed changes to the SFPUC's 10-Year CIP will not be included in the required AB 1823 report to the State. However, the SFPUC would be pleased to provide a separate letter to BAWSCA discussing any potential impact on public health and safety due to changes to the SFPUC's 10-Year CIP, as applicable. This letter will be provided by the SFPUC Water Enterprise by the end of June 2014.

Budget Recommendation 2: Present the staff transition plan to the Commission at the 2nd meeting in June and to include a summary analysis of performance compared to the plan, including proposed corrective action, in all future WSIP Quarterly Reports.

SFPUC Response: The SFPUC will present the WSIP staff transition plan to the Commission at the 2nd meeting in June 2014, as recommended. We will also provide a summary analysis of performance compared to the plan, including corrective action, in future WSIP Quarterly Reports.

Schedule Recommendation 1: Develop interim water supplies (e.g., temporary water transfers) as necessary until proposed water supply projects are on line to ensure that the San Francisco Regional Water System (RWS) can meet the water supply LOS goal, and to provide a status report to the Commission on actions taken by September 2014.

SFPUC Response: Completion of the WSIP projects that contribute to meeting the water supply LOS goal (Groundwater Storage and Recovery Project, the Alameda Creek Recapture Project and the Calaveras Dam Replacement Project) is of utmost priority. They are the surest and fastest path to meeting that goal. At the same time, the SFPUC continuously evaluates its water supply portfolio and will take necessary actions, as required, to secure water supplies to meet the water supply LOS goal. Joint projects with Oakdale Irrigation District, Alameda County Water District, and Zone 7 Water Agency are currently under evaluation, and others will be considered based on need.

Scope Recommendation 1: Include, as part of the regular report to the Commission on achieving the Water Supply LOS goal, an update on the progress of the ACRP and any environmental conditions imposed on the project including potential impacts to scope, schedule, and budget, and present an analysis on the impact, if any, to the SFPUC's ability to meet the water supply LOS goal.

SFPUC Response: The SFPUC will continue to update the Commission on the ACRP as part of its regular WSIP Quarterly Report briefings and will pay special attention to bring any issues to the Commission that could impact the project's scope, schedule or budget. Any environmental conditions imposed on the project will be analyzed by the SFPUC Water Enterprise, and any impacts will be incorporated into water supply analyses and presented to the Commission, as necessary, to keep the Commission informed on the SFPUC's progress toward meeting the water supply LOS goal.

Scope Recommendation 2: Include in the required AB 1823 report to the State a quantification of the status of achieving the LOS goals shown as "In Progress" in Attachment 4 of the Notice of Change (NOC) and use this quantification as a basis for reporting on progress in future WSIP Quarterly Reports.

SFPUC Response: The SFPUC will include in the required AB 1823 report to the State modifications to Attachment 4 of the NOC to show the percent complete of each project that is "In Progress". This same table will continue to be updated in the Quarterly Reports.

cc: Emilio Cruz, AGM Infrastructure
Steven Ritchie, AGM Water

APPENDIX C

COMMISSION PRESENTATION

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Services of the San Francisco Public Utilities Commission

March 2014
Revised WSIP

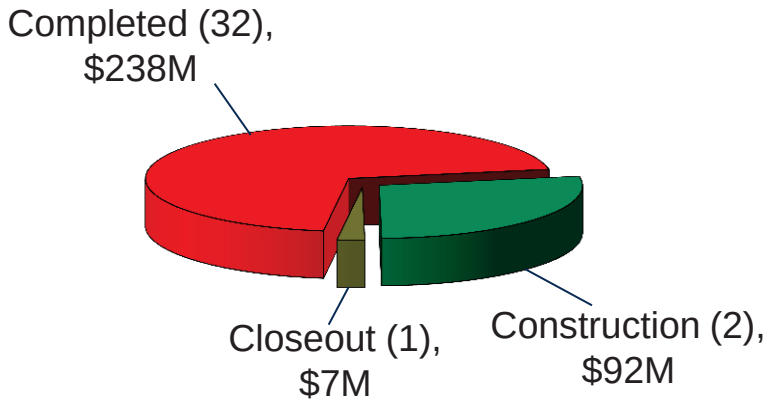
April 22, 2014
Jeet Bajwa, Deputy AGM
Infrastructure

Why Revise the Program?

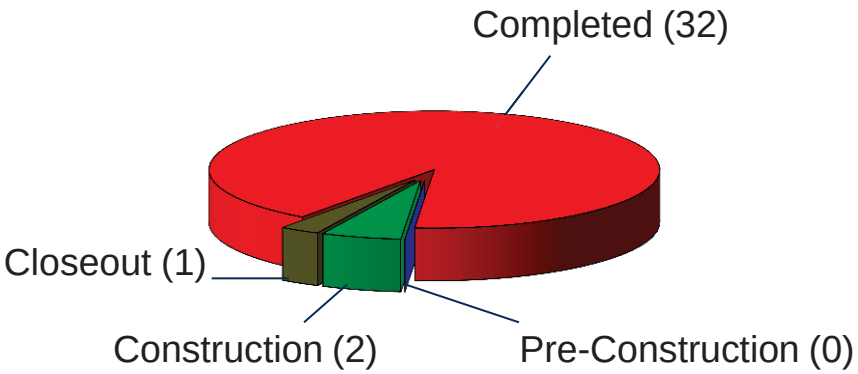
- Incorporate latest available information in WSIP schedule and budget
- Transfer forecasted project savings to projects with forecasted overruns
- Secure funding required to complete all projects
- Comply with California Water Code
- Establish Director's Reserve for future unforeseen contingencies

Program Status

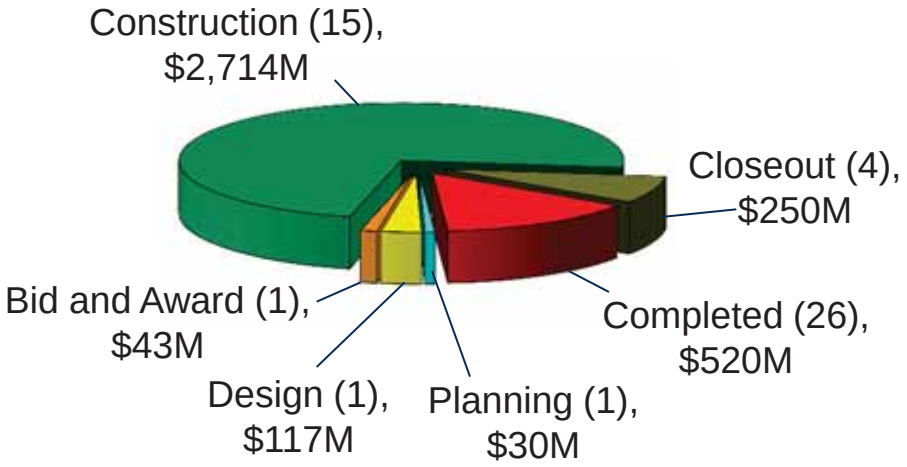
Local Projects Completion by Cost



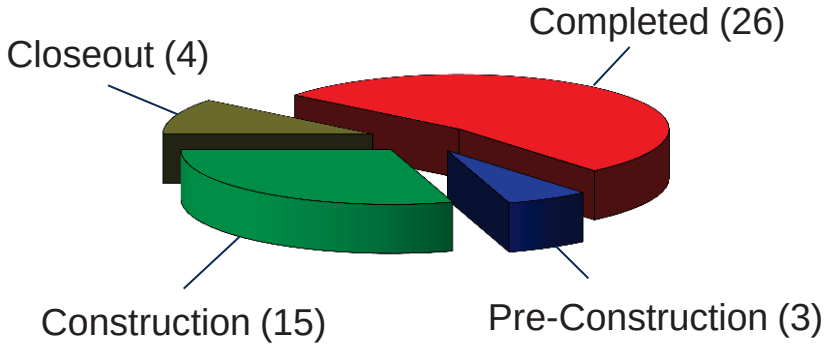
Local Projects Completion by Number



Regional Projects Completion by Cost



Regional Projects Completion by Number



Revision Summary

- Scope changes to 5 projects:
  - Alameda Creek Recapture
  - Calaveras Dam Replacement
  - New Irvington Tunnel
  - Bay Division Reliability Upgrade – Tunnel
  - Bioregional Habitat Restoration Project
- Added 1 project:
  - Long Term Mitigation Endowment
- Revised Program Completion: May 24, 2019
  - + One month Extension
- Revised Program Budget: $4,765M
  - + $125.0M (or 2.7%)

Proposed Budget Revisions

WSIP Budget	Current Approved	Proposed March 2014	Change
Regional Projects	$3,548,251,038	$3,674,597,919	($126,346,880)
Local Projects	$620,532,633	$619,185,753	$1,346,880
Financing	$471,700,000	$471,700,000	$0
Program Total	$4,640,483,672	$4,765,483,672	($125,000,000)

Project-Level Budget Revision

- Projects with largest **cost savings**
  - SVWTP Expansion & Treated Water Reservoir: $5.4M
  - HTWTP Long-Term Improvements: $5.0M
  - Seismic Upgrade BDPL No. 3 & 4: $3.1M
  - San Joaquin Pipeline System: $1.5M
  - Crystal Springs Pipeline No. 2: $1.1M
- Projects with largest **cost increases**
  - Calaveras Dam Replacement: ($97.5M)
  - New Irvington Tunnel: ($15.4M)
  - Regional Groundwater Storage and Recovery: ($13.1M)
  - CS/SA Transmission Upgrade: ($7.2M)
  - Alameda Creek Recapture ($5.0M)

Commission Actions

- Endorse the project-level scope, and approve the schedule and budget of the March 2014 Revised WSIP
- Direct staff to send a Notice of Change Report to the State in compliance with the California Water Code
- Authorize the General Manager to seek Board of Supervisors' approval for the re-appropriation of existing funds as needed

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APPENDIX D

COMMISSION RESOLUTION

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PUBLIC UTILITIES COMMISSION

City and County of San Francisco

RESOLUTION NO. **14-0065**

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

WHEREAS, On November 5, 2002, San Francisco residents voted 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, On February 26, 2003, pursuant to the requirements of California Assembly Bill (AB) 1823, the San Francisco Public Utilities Commission (SFPUC) submitted to the California Department of Health Services (now the California Department of Public Health) a report outlining the projects, schedule and implementation plan for the CIP; and

WHEREAS, On November 29, 2005, per Resolution No. 05-0176, this Commission approved project-level changes to the CIP and by doing so endorsed the revised scope, schedule and budget of individual projects and renamed the program the Water System Improvement Program ("December 2005 WSIP"); and

WHEREAS, On February 26, 2008, per Resolution No. 08-0024, this Commission approved project-level changes to the WSIP and by doing so endorsed the revised scope, schedule and budget of individual projects ("December 2007 Revised WSIP"); and

WHEREAS, On July 28, 2009, per Resolution No. 09-0125, this Commission approved project-level changes to the WSIP and by doing so endorsed the revised scope, schedule and budget of individual projects ("June 2009 Revised WSIP"); and

WHEREAS, On July 12, 2011, per Resolution No. 11-0109, this Commission approved project-level changes to the WSIP and by doing so endorsed the revised scope, schedule and budget of individual projects ("June 2011 Revised WSIP"); and

WHEREAS, On June 12, 2012, per Resolution No. 12-0099, this Commission approved budget and schedule changes for three individual WSIP projects – New Irvington Tunnel, Bay Division Pipeline (BDPL) Reliability Upgrade – Pipeline ("BDPL No. 5") and Pulgas Balancing – Modification of the Existing Dechloramination Facility; and

WHEREAS, On October 9, 2012, per Resolution No. 12-0181, this Commission approved budget changes for four individual WSIP projects – San Joaquin Pipeline (SJPL) System, Tesla Treatment Facility, Vegetation Restoration of WSIP Construction Sites (new project), and Program Management; and

WHEREAS, On January 22, 2013, per Resolution No. 13-0020, this Commission approved budget and schedule changes for one individual WSIP project – Calaveras Dam Replacement (CDRP), after reviewing and considering the CEQA Findings and statement of overriding considerations that it previously adopted for the WSIP and CDRP approvals, along with the CEQA Findings contained in Addendum No.1 to the CDRP EIR issued by the Planning Department on December 13, 2012, and this Commission adopted those additional CEQA Findings for the CDRP modifications, which findings are incorporated in this Resolution by this reference; and

WHEREAS, On April 23, 2013, per Resolution No. 13-0060, this Commission approved project-level changes to the WSIP and by doing so endorsed the revised scope, schedule and budget of individual projects ("March 2013 Revised WSIP"); and

WHEREAS, A Final Programmatic Environmental Impact Report 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 per Resolution No. 08-0200, which findings are incorporated in this Resolution by this reference; and

WHEREAS, The PEIR and SFPUC Resolution No. 08-0200 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, This Commission has reviewed and considered the information contained in the PEIR, the findings contained in SFPUC Resolution No. 08-0200, and all written and oral information provided by the Planning Department, the public, relevant public agencies, SFPUC and other experts; and

WHEREAS, The SFPUC has completed environmental review of all but two of the individual WSIP projects, and is proceeding to complete the environmental review process for the remaining projects, as authorized by and in accordance with CEQA; 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 March 21, 2014, 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 April 22, 2014; and

WHEREAS, The SFPUC completed a comprehensive assessment of all remaining WSIP delivery efforts to (1) validate all schedule and cost forecasts at completion; (2) make an accurate determination of the overall cost and schedule status of the program; and (3) and put in place specific measures to further control costs and schedules as the program ramps down. The final outcome of this assessment is the proposed program revisions documented in the Notice of Public Hearing dated March 21, 2014; and

WHEREAS, The proposed revisions to the WSIP (referred to as the proposed March 2014 Revised WSIP) involve scope changes of five projects (Alameda Creek Recapture, Calaveras Dam Replacement, New Irvington Tunnel, BDPL Reliability Upgrade – Tunnel, and Bioregional Habitat Restoration); and

WHEREAS, The schedule for the proposed March 2014 Revised WSIP was extended from April 11, 2019 to May 24, 2019, when compared to the program schedule last approved by the Commission on April 23, 2013; and

WHEREAS, All projects involving construction are scheduled to be completed by the end of 2016, with three exceptions – Regional Groundwater Storage and Recovery (July 31, 2018), Alameda Creek Recapture (April 11, 2019), Calaveras Dam Replacement (May 24, 2019); and

WHEREAS, Two support projects that do not involve construction are scheduled to extend past the end of 2016 – the Long Term Mitigation Endowment (August 31, 2018) and the Watershed Environmental Improvement Program (August 31, 2018); and

WHEREAS, The budget for the proposed March 2014 Revised WSIP was increased from $4,640,483,672 to $4,765,483,672 (a $125,000,000 or 2.7% increase), when compared to the program budget last approved by the Commission on April 23, 2013; 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; and

WHEREAS, on February 11, 2014, per Resolution No. 14-0032, this Commission approved and adopted the FY 2014-15 and FY 2015-16 Capital Improvement Program Budget for each SFPUC Enterprise, which included $125,400,000 for WSIP Augmentation under the Water Enterprise Capital Improvement Program Budget, and authorized the General Manager to request the Mayor to recommend to the Board of Supervisors a supplemental appropriation to fund FY 2014-15 and FY 2015-16, and further authorized the General Manager to submit proposed Ordinances authorizing issuance of Water Revenue Bonds; now, therefore, be it

RESOLVED, That this 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 endorses the project-level scope, and approves the schedule and budget of the proposed March 2014 Revised WSIP which are documented in the Notice of Public Hearing dated March 21, 2014; and be it

FURTHER RESOLVED, That this Commission hereby 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 re-appropriation of existing funds between the pre-designated funding categories as needed to match the project-level budget allocations specified in the proposed March 2014 Revised WSIP.

I hereby certify that the foregoing resolution was adopted by the Public Utilities Commission at its meeting of April 22, 2014.

Donna Hood

Secretary, Public Utilities Commission

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APPENDIX E

CALIFORNIA SEISMIC SAFETY COMMISSION'S COMMENTS AND SFPUC'S RESPONSE

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Re June 28, 2013 Delays to the SFPUC Water System Improvement Program
Items for Discussion & Clarification Generated by the CA Seismic Safety Commission (CSSC)
August 26, 2013

CSSC's ad hoc Subcommittee of Commissioners Emir Macari and Michael Gardner are reviewing and drafting comments about changes to the SFPUC's Water System Improvement Program and met on August 26, 2013. They agreed to the following items to ask SFPUC staff for supplemental information or clarification to its June 28, 2013 Notice of Changes Report:

1. The SFPUC appears to have not promptly reported to the state its known prior delays pursuant to requirements in Water Code Section 73502 in the June 2012 and February 2013 Notices of Changes for three projects: the New Crystal Springs Bypass Tunnel, the San Andreas Pipeline No. 3 installation, and the Baden and San Pedro Valve Lots Improvements. While an explanation for the delay for the Baden and San Pedro Valve Lots project was provided in the March 2013 Notice on page 26 in which the SFPUC reported that it had beneficial use of the project's improvements since March 2011, no explanations of the significance of those delays with regard to seismic safety or public health have been provided for delays of the New Crystal Springs Bypass Tunnel or San Andreas Pipelines No. 3 Installation in Table 5-1 on pages 22 and 23 in the latest report. Delays on the completed projects ranged from 5 to 9 months.

   SSC's Ad Hoc Committee asks the SFPUC to consider issuing an addendum to its Notice of Changes report to explain the seismic safety significance of its previously unreported delays for the San Andreas Pipelines No. 3 and the New Crystal Springs Bypass Tunnel.

   RESPONSE: The project completion dates that were approved as part of the June 2011 Revised WSIP (last program-wide revision prior to March 2013 Revised WSIP) for the 3 aforementioned projects were:
   - New Crystal Springs Bypass Tunnel: 03/29/12
   - San Andreas Pipeline No. 3 Installation: 11/21/11
   - Baden and San Pedro Valve Lots Improvement: 08/01/12

   Construction activities on all 3 projects were completed in 2011 as follows:
   - New Crystal Springs Bypass Tunnel: 08/12/11
   - San Andreas Pipeline No. 3 Installation: 06/30/11
   - Baden and San Pedro Valve Lots Improvement: 12/30/11

   For different reasons (as described below), the closeout period following construction for all 3 projects was much longer than the usual 6 months. The actual completion date for the 3 projects is as follows:
   - New Crystal Springs Bypass Tunnel: 08/17/12
     (12-month closeout due to challenges associated with re-vegetation of project site)
   - San Andreas Pipeline No. 3 Installation: 08/30/12
     (14-month closeout due to the need to replace some manholes and address some labor and warranty issues)
   - Baden and San Pedro Valve Lots Improvement: 03/29/13
     (17-month closeout due to the need for the contractor to replace a damaged generator)

   The project completion delays were not reported in the project-specific June 2012 and February 2013 Notices of Changes to WSIP because construction on these 3 projects was already completed and in all 3 cases, it was substantially completed by the dates specified in the WSIP schedule approved as part of the June 2011 Revised WSIP.

2. The Peninsula Pipelines Seismic Upgrade project has been split into three phases. Phases 2 and 3 are removed from the WSIP on pages 47 and 48. Phase 3 construction will be delayed an additional 16 months until November 2017 for a total of 35 months cumulative since 2002. This delay does not appear to be reflected in the SFPUC's revised schedule in Table 5-1 on page 23. However, this project will cause a delay in significant gains in reliable water delivery in the event of major earthquakes until 2017 as summarized in Appendix K.

   SSC's Ad Hoc Committee would like to ask the SFPUC to issue an addendum to its Notice of Changes to include progress on the Peninsula Pipelines Seismic Upgrade Project Phases 2 and 3 in the schedule changes. The SFPUC is encouraged not to delete reporting on future progress for Phases 2 and 3 from the program since they appear to be critical for the system's overall seismic reliability.

   RESPONSE: The SFPUC will continue to upgrade its system on an ongoing basis as part of its regular capital improvement program to maintain compliance with the criteria set under the various LOS goals established for the system. The Notice of Change Report only reports schedule and scope changes to the work to be completed as part of the WSIP. As specified in the Notice of Change Report, construction activities on Phase 2 are scheduled to be completed at the same time as construction activities on Phase 1; and the scope of the construction work that will be required under Phase 3 has yet to be defined.

3. The SFPUC's seismic reliability analysis in Appendix K appears to only address portions of the WSIP's Level of Service (LOS) goals on page 43. Other criteria are not addressed:

   1) When will the 24 hour, 229 MGD and 70 percent of turnout criteria in the LOS criteria bullet 2 be met for the system?

   RESPONSE: The criteria of 24 hour, 229 MGD and 70 percent of the turnouts will be met for the three earthquake scenarios (San Andreas, Hayward, and Calaveras) when construction of the Peninsula Pipelines Seismic Upgrade and the Calaveras Dam Replacement projects is completed in 2018.

   2) When will the up to 300 MGD within 30 day criteria in LOS bullet 3 be met?

   RESPONSE: The 300 MGD within 30 day criteria will be met when the New Irvington Tunnel, Bay Tunnel and HTWTP Long Term Improvements projects are completed in 2015.

   3) How much additional seismic reliability in MGD will be achieved by completion of the Calaveras Dam?

   RESPONSE: Completion of the Calaveras Dam Replacement project at the end of the program contributes less than 1 MGD of seismic reliability in MGD.

   4) How much additional seismic reliability in MGD will be achieved when Calaveras Reservoir is refilled?

   RESPONSE: Completion of the Calaveras Dam Replacement project at the end of the program contributes less than 1 MGD of seismic reliability in MGD. However, it should be noted that completion of the Calaveras Dam Replacement project was not used to quantify additional seismic reliability in MGD

5) When will the Calaveras Dam Replacement Project and the Calaveras Reservoir's restored water storage level achieve its secondary seismic reliability goal consistent with LOS goals?

RESPONSE: The Calaveras Dam Replacement project will achieve its secondary seismic reliability goal consistent with the LOS goals at the project's construction completion in March 2018. It was considered providing a secondary benefit in that the new dam would not fail in a seismic event.

4. Overall progress on completion of the WSIP is reported as 70.9% on page 1 and 75% on page 9.

   Can the SFPUC please verify if it is reporting consistent progress or, if warranted, make corrections in a supplement to its Notice of Changes report?

   RESPONSE: As indicated on page 1, the 70.9% value refers to a 03/30/13 data date. The text on page 9 states "With the WSIP **now** 75% complete …". The 75% value reflects current (end of August 2013) data date.

5. Three projects were slated for completion in June, July and September 2013 respectively: The Alameda Siphon #4 Upgrade, the Bay Division Pipelines 3 and 4 Crossovers, and the Crystal Springs Pipeline No. 2 Replacement.

   The SSC's Ad Hoc Committee would like to ask the SFPUC if these projects listed above are on schedule so that the SSC can report current progress to the Joint Legislative Audit Committee.

   RESPONSE: See status of each project below. Keep in mind that Construction Substantial Completion is when we have beneficial use of an asset.

   - **Alameda Siphon #4:** Construction Substantial Completion was achieved on 12/16/11 and facilities have been handed over to the SFPUC Water Enterprise. The overall project was completed/closed out on 06/28/13 as indicated in the Notice of Change Report.

   - **BDPL Nos. 3 & 4 Crossovers:** Construction Substantial Completion was achieved on 08/15/12 and facilities have been handed over to the SFPUC Water Enterprise. Project completion/closeout is forecasted for 09/27/13 as indicated in the Notice of Change Report.

   - **CSPL No. 2 Replacement:** Construction Substantial Completion was achieved on 01/31/13 and facilities have been handed over to the SFPUC Water Enterprise. Project completion/closeout is forecasted for 09/25/13 as indicated in the Notice of Change Report.

6. Are there any additional project delays or deletions that the SFPUC staff are aware of but that are not yet reflected in the June 28, 2013 Notice of Changes Report?

   RESPONSE: There are 3 projects that currently have additional forecasted delays.

   - **Tesla Treatment Facility (3-month delay):** Construction of the Tesla Treatment Facility was completed in 2011. The 3-month delay is associated with the small $3M Tesla Portal Protection contract. Work on that contract has been completed but there were minor quality issues that had to be addressed before the construction contract could be formally closed. Those quality issues have now been address and the project team is proceeding with the project closeout.

   - **NIT (2-month delay):** The contractor has run into challenging running and squeezing ground conditions that were unexpected in recent months. Those conditions have significantly reduced

the advancement of excavation activities. Hole through on the second and final segment of the tunnel is now forecasted for the end of October 2013.

- **BDPL Reliability Upgrade (3.5-month delay):** This project is currently in the Closeout Phase. All construction work on the project was completed in March 2013 and all new facilities were turn over to the SFPUC Water Enterprise at that time. The additional delay is related to ongoing litigation associated with construction claims on the Peninsula Segment contract.

7. The CSSC is interested in arranging for a field visit for between two and five representatives to observe construction at the Calaveras Dam and the Seismic Upgrade of Bay Division Pipelines 3 and 4's at Mission Blvd and I680 sometime in late summer or early fall. Does the SFPUC staff have any scheduled site visits that might be able to accommodate

   RESPONSE: There are no currently scheduled site visits on these 2 projects but the SFPUC could arrange a tour of both sites for representatives of the CSSC. An ideal time period for the tour would be mid-October. Please let us know if this is an acceptable timeline.

APPENDIX F

REVISED PROJECT DESCRIPTIONS

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HETCH HETCHY
WATER SYSTEM IMPROVEMENT PROGRAM

March 2014 Revised WSIP – Project Descriptions

Hetch Hetchy
Regional
Water
System
Services of the San Francisco Public Utilities Commission

San Francisco Public Utilities Commission

Contents

Introduction

This document includes updated descriptions for all of the Water System Improvement System (WSIP) regional projects as part of the March 2014 Revised WSIP to be considered for approval by the San Francisco Public Utilities Commission (SFPUC) on April 22, 2014.

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 March 2013 Notice of Change to WSIP report.

Note that most projects have few or no scope refinements since these descriptions were last published in March 2013. Five projects have scope changes/refinements that are included as part of the proposed March 2014 Revised WSIP and are described herein. These projects are:

- Project CUW35201: Alameda Creek Recapture Project (formerly known as Upper Alameda Creek Filter Gallery)
- Project CUW35901: New Irvington Tunnel
- Project CUW36801: BDPL Reliability Upgrade – Tunnel
- Project CUW37401: Calaveras Dam Replacement
- Project CUW38802: Bioregional Habitat Restoration

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
- There are no scope refinements to this project.

38401, Tesla Treatment Facility

Background

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

Description

The project consists of:

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

Scope Refinements

There are no scope refinements to this project.

Sunol Valley Region

35201, Alameda Creek Recapture Project (Formerly Upper Alameda Creek Filter Gallery)

Background

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

Description

The planned facilities for the re-scoped project are based on Alternative 4-1 from the Alternatives Analysis Report (AAR) dated January 30, 2009, with some refinements described below. The planned facilities include a new two-stage pumping system, including first-stage pumps on floating barges located in Pond F2 and second-stage pumps in a booster pump station adjacent to Pond F3 East and West, variable-frequency drives (VFD) for the pump motors as well as additional valving and controls, as necessary, to meet the updated operational objectives to assist with blending of different water sources, 1,600 feet of power lines from the existing Hetch Hetchy Water & Power Calaveras Electrical Substation, approximately 1000-feet of 36-inch pipeline to discharge the water to the existing 36-inch Sunol Pipeline, and general site improvements at the quarry to accommodate the new booster pump station. In addition, the scope includes conveyance of the water to various existing storage sites within the Sunol Valley or the Sunol Valley Water Treatment Plant, as necessary.

Scope Refinements

In December 2013, the refined project alternative, scope and budget were presented to the WSIP Steering Committee for approval. The adopted alternative is similar to the project that was approved for the March 2013 re-scoping, but refinements have been made to the pumping system (including refinements to type and number of pumps, motors, valves, conveyance facilities and controls) to accommodate updated operational criteria in order to increase operational flexibility to ensure that the LOS goals will be met.

Specifically, the proposed refinements are to address the following updated operational criteria:

- Allow for sources of water from both Pond F2 and Calaveras Reservoir to be blended and sent to Sunol Valley Water Treatment Plant (SVWTP) simultaneously
- Allow for water from Pond F2 to be sent to San Antonio Reservoir (SAR), while simultaneously sending water from either the Hetch Hetchy Aqueduct or Calaveras Reservoir to SVWTP

- Allow for sources of water from both Pond F2 and SAR to be blended and sent to SVWTP simultaneously
- Plan, design and construct the project in such a manner that the facility can be modified in the future (if desired by SFPUC Water Supply and Treatment Division after WSIP is complete) in order to provide additional operational flexibility to allow for sources of water from Pone F2 and Calaveras Reservoir to be blended and sent to SAR simultaneously

In order to meet the updated operational criteria, the following refinements to project facilities (or similar refinements to meet the above objectives) are proposed:

- Provide a two-stage pumping system, including first-stage pumps on floating barges located in Pond F2 and second-stage pumps in a booster pump station adjacent to Pond F3 East and West
- Provide variable-frequency drives (VFD) for the pump motors as well as additional valving and controls, as necessary, to meet the updated operational objectives to assist with blending of different water sources
- Connect the booster pump station to the existing 36-inch Sunol Pipeline with approximately 1,000 feet of 36-inch pipeline
- Install approximately 1,600 feet of power lines from the existing Hetch Hetchy Water & Power Calaveras Electrical Substation

Specific facility requirements will be confirmed through the Planning and Design Phases of the project.

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

This project is 100 percent complete and has been closed out. 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.
- 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 18,660 feet long and have a horseshoe shape with excavated dimensions of approximately 13 feet by 14 feet. The final tunnel lining will be mortar-lined, welded steel pipe, resulting in a finished diameter of 8.5 feet. Extra thick steel liner segments will also be used at low cover areas near the portals and beneath Interstate 680, and where it intersects inactive fault zones or in locations of poor ground conditions.

The NIT project is currently in construction and approximately 90% complete. Major project elements include:

- Conventional mining methods are being used in a westward direction from the Alameda West Portal, in both an eastward and westward direction from an intermediate shaft located near Vargas Road, just off Interstate 680, and in an eastward direction from Irvington Portal. Tunneling is being completed by multiple road header tunneling machines, and limited, controlled detonation in areas of hard rock. Spoils disposal is being taken to fill sites just north of the San Antonio Pump Station (SAPS) near the intersection of Calaveras Road and Interstate 680. When completed the spoils fills will create a visual barrier to new quarry operation located near Calaveras Road. Potentially contaminated spoils will be screened, separated, and if found to contain contaminants, hauled to a permitted landfill.
- At the Irvington Portal, the tunnel has been connected to Bay Division Pipeline (BDPL) Nos. 1, 2, and 5 and to BDPL Nos. 3 and 4. Control valves have been directly buried with instrumentation and electrical gear in a small control building. At the Alameda West Portal,

the tunnel will be connected to the discharge of the new mixing manifold to be constructed as part of the Alameda Siphons # 4 Project and to the existing overflow shaft. The project includes a new isolation valve between the mixing manifold and the portal.

- The NIT Project included 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

The only significant scope refinement since the June 2011 Notice of Change is the simplification of the design of the new security structure for the existing Alameda West portal. The design changes include a more secured structure with a smaller footprint and removal of pipe manifolds that will no longer be in service. The specific changes involve reduction of the size of the concrete security enclosure, elimination of two out-of-service manifold pipe sections on the existing Irvington Tunnel at AWP, and provision to inspect the existing tunnel. The security structure will be located approximately 25 feet upstream of the current design location along the existing tunnel portal outlet pipe. This allows for a much smaller structure with significantly fewer micro piles and foundation work by moving the structure outside the footprint of the existing Alameda Siphons. This change will also allow improved constructability and improved future access for maintenance and repairs as the existing Siphons No. 1 and 3 manifolds can be removed without the new structure impeding their removal.

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 #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 nearing the completion of the Closeout phase and is approximately 100% complete. The project primarily consists of:

- A 66-inch-diameter welded steel pipeline with 310 feet of special trench design and thicker-walled pipe in the fault rupture zone, and a tunneled crossing of Alameda Creek.

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

Scope Refinements
There are no scope refinements to this project.

37001, Pipeline Repair and Readiness Improvements

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

Description
This project is 100 percent complete and has been closed out. The project was 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 the Calaveras Reservoir, will be modified with a new fish ladder and new flow bypass tunnel and valve to allow for downstream flows below the ACDD. Fish screens will be added at the inlet to the existing Alameda Creek Diversion Tunnel (ACDT), immediately upstream of the ACDD, to prevent entrainment of fish into the tunnel. The bypass flows at ACDD, together with flow releases from new low-flow capacity valves installed at the base of the replacement Calaveras Dam, will provide water downstream of these facilities to support native aquatic resources and future populations of steelhead trout that are being restored to the Alameda Creek Watershed. Fish screens that are compliant with current criteria of the California Department of Fish and Wildlife (CDFW) will also be added on to the existing intake adits of the intake tower at Calaveras Dam.

Description

Project elements primarily include:

- Constructing a new 210-foot-high earth and rock fill dam designed to accommodate a maximum credible earthquake on the Calaveras Fault. The dam will be constructed immediately downstream of the existing dam and will have a crest length of 1,210 feet, a base thickness of 1,180 feet, and a crest thickness of 80 feet. The total volume of the dam will be approximately 2.8 million cubic yards.
- The materials for construction will primarily originate from onsite sources, while surplus excavated material will be placed at disposal sites around the rim of the Calaveras Reservoir, including two in-water disposal sites and several upland disposal sites.
- The existing spillway will be removed, and a new spillway and stilling basin will be constructed. The overflow weir of the new spillway will be 307 feet long. The spillway will vary from 60 to 80 feet wide and will be 1,100 feet long. The stilling basin below the spillway will be 80 feet wide and 155 feet long.
- A new intake tower and shaft will be constructed. The drain line and three adits from the existing facility will be connected to the new shaft. The existing outlet conduit from the tower will be extended 1,250 feet downstream (beneath the replacement dam) and will be equipped with a high capacity fixed-cone discharge valve (relocated from the existing facility) to accommodate water releases from the reservoir. Fish screens will be added to the existing adits of the intake tower.

- The existing dam will largely remain in place. The downstream face will, however, be partially removed and re-graded and a channel will be excavated through the dam to form the approach to the new spillway.
- A new 525-foot long fish ladder and flow bifurcation systems at ACDD will be used in conjunction with new low-flow capacity valves to be added at the base of the replacement Calaveras Dam to provide flows downstream of these facilities to support native aquatic resources and future populations of steelhead trout that are being restored to the Alameda Creek Watershed.
- The fish ladder and a total of four new fish protection screens will be added on the right abutment (looking downstream) of the ACDD. In addition, conveyance pipes will be installed to allow water from Alameda Creek to be delivered to the Calaveras Reservoir via the ACDT.

Scope Refinements

The CDRP is currently in construction and as of February 28, 2014, construction was 58 percent complete. The construction Notice to Proceed (NTP) was issued on August 15, 2011.

In mid-June 2012, the project team identified a previously unknown large ancient landslide (Landslide A) beneath the northern half of the left abutment slope located on the left side of the valley (when looking downstream from the existing dam). The cost and schedule impacts of this discovery were included in the previous change notice included in the March 2013 Revised WSIP. In addition, a second smaller geologic feature located lower in the valley was identified as a potential additional landslide in the left abutment slope at that time; however, this second geologic feature could not be confirmed to be a landslide until excavation continued further down into the valley.

In September 2013, the excavation had reached the point such that a portion of the lower geologic feature was exposed. This allowed for additional geologic mapping and subsurface geotechnical investigations to be performed on the lower geologic feature. It has since been determined that the second feature is, in fact, a landslide (now known as Landslide B), and it has further been determined that Landslide B needs to be removed. As soon as the lower geologic feature was confirmed to be a landslide, the project team immediately proceeded to determine the extent and develop solutions to address the differing site condition. Namely, recent additional investigations in Fall/Winter 2013-2014 were performed to define the extent of Landslide B and to confirm strength properties of the basal landslide plane leading to the conclusion that full removal of the entire slide was required for left abutment stability. These recent investigations were undertaken while the excavation for the spillway continued, and included 39 additional core borings with televiewer logging, test trenches, laboratory testing, and extensive additional geologic mapping.

The extent of Landslide B has resulted in design changes to the excavation required for the dam and spillway foundation, as well as design modifications to the dam embankment and spillway. In particular, it was determined that all of the Landslide B materials within the left abutment would need to be removed, which has led to an increase of excavation quantity of approximately 675,000 cubic yards. The removal of Landslide B will also create additional access constraints for the construction contractor which has led to the need to construct a temporary tie-back retaining wall constructed with reinforced shotcrete and tie-back rock/soil anchors in order to provide a level working pad adjacent to the upper approach channel area for the new spillway. Due to the over-excavation of the Landslide B materials, and with the new contours of the base of Landslide B, additional volume of embankment materials are required in the various zones of

the new dam. In addition, the back-scarp of Landslide B encroaches into the new spillway alignment such that a portion of the spillway foundation grade needs to be over-excavated and replaced with backfill concrete anchored into the rock slope in order to replace the rock foundation grade that is required for the new spillway. Over-excavation is also required along certain portions of the new 78-inch outlet pipe bench foundation, and backfill concrete in these areas will also be required. The new 78-inch outlet pipe alignment and location of the tie-in for the new pipeline with the existing pipeline will also need to be re-aligned to ensure the pipeline foundation grade is placed on rock or anchored concrete block backfill. This will lengthen the new portion of outlet pipe from approximately 1,000 feet as part of the original project to 1,250 feet in the re-alignment of the pipe.

Design refinements to the fish ladder to be constructed at Alameda Creek Diversion Dam (ACDD) have been made to shorten the ladder to 525 feet and install a flow bifurcation system such that the first 30 cfs of water that is bypassed will go through the ladder, and remaining flows will pour over the existing crest of the existing ACDD. This eliminates the need for the bypass tunnel and valve included as part of the original project at ACDD. Due to access issues and geotechnical concerns on the left bank of the creek, the fish screens will be moved to the right bank of the creek upstream of ACDD, and conveyance pipelines will be installed in the bed of the creek to convey flows across the creek to the existing upstream portal of the ACDT.

While waiting from the Contractor to provide cost and schedule proposal for this change, the Project Team, including City staff and consultants of the Construction Management Team led by Black & Veatch, Design Team led by URS (the CDRP Engineer of Record), and the Calaveras Technical Advisory Panel, has worked expeditiously and collaboratively to develop solutions to address these unexpected differing site conditions with the objective of minimizing future risks while balancing current schedule and cost impacts.

The changes described above will result in schedule and cost impacts. To ensure meeting the 2015 shutdown schedule and avoid delay of the embankment work, additional costs will be incurred to accelerate the work activities between now and through end of March 2015.

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

This project is 100 percent complete and has been closed out. 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
This project is currently in Construction and is approximately 58% complete.

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

Scope Refinements
There are no scope refinements to this project.

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 is in the Closeout Phase and is approximately 100 percent complete. The project primarily consists of:

- The expansion improvements, which increase the sustainable capacity to 160 mgd, include the addition of a new flocculation/sedimentation basin and the retrofit of six of the twelve existing filters. Design of improvements to the remaining six filters was performed under the project, and was included as an optional bid item in the construction contract. As a result, upgrades to all 12 filters were able to be performed under the construction contract, providing an additional factor of safety for reliable and sustainable production of 160 mgd required to meet the LOS goals established for the system.
- A single 17.5-million-gallon (mg) circular TWR which was constructed along with a new 3.5-MG rectangular chlorine contact tank on the northern portion of the existing plant site. Roughly 400,000 cubic yards of excavated material was hauled to a disposal site immediately east of the plant for disposal.
- New chemical storage and feed facilities for disinfection are constructed including sodium hypochlorite and ammonia. New fluoride facilities were also added.
- Construction of approximately 2,700 feet of 78-inch-diameter pipe that connects the new TWR to the existing plant discharge pipeline. This included a tunneled crossing of Alameda Creek.
- Nine existing chemical tanks and associated electrical and instrumentation components were replaced under the construction contract. The existing chemical tanks and the associated electrical and instrumentation had reached the end of their useful life and were in jeopardy of failure.
- Miscellaneous plant improvements include a new emergency generator and improvements to the plant electrical system, substation, electrical panels, and motor control centers; an upgrade of the instrumentation and controls; a new filter washwater recovery basin; improvements to the flow distribution structure and associated facilities; replacement of the plant's existing boiler; improvements to the influent chemical mixing system; and repaving of the existing plant access road.

Scope Refinements

There are no scope refinements to this project.

38601, San Antonio Pump Station Upgrade

Background

This project is provided in response to the Delivery Reliability LOS goals. The SAPS pumps water from the San Antonio Reservoir to the SVWTP when it cannot flow by gravity; and it

pumps Hetch Hetchy transmission system water to either the San Antonio Reservoir or the SVWTP when it does not meet water quality standards for delivery or is required for reservoir replenishment. The SAPS is required to have a 160 mgd sustainable capacity including during periods of power outages.

Description

This project is 100 percent complete and has been closed out. 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

There are no 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

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

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

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 400 feet of the new BDPL No. 3 will cross Trace A under I-680 in an existing oversized corrugated metal pipe; about 300 feet that crosses Trace B under Mission Blvd. will be in a newly constructed concrete vault ("box culvert"); and the remaining new pipeline will be buried. All new construction will be in the SFPUC's existing right-of-way (ROW).

The project primarily consists of:

BDPL No. 3:

- A new 300-foot-long concrete vault will be constructed under Mission Boulevard near the I-680 Interchange where Fault Trace B is located. A new 300-foot segment of 72-inch welded steel BDPL No. 3 will be installed inside the vault. Within the vault and on either end of the fault trace zone, 72-inch-diameter ball joints and slip joints will be installed that will accommodate pipeline displacement during a seismic event.
- For the crossing under I-680 at Trace A, about 400 feet of 78-inch-diameter welded steel pipe will be installed in an existing, unused corrugated metal pipe.
- About 1,450 feet of additional new 78-inch diameter welded steel pipe will connect the existing and new segments between the two vaults, and will be buried.

BDPL No. 4:

- About 400 feet of new 80-inch steel liner will be installed inside BDPL No. 4 at Hayward Fault Trace C.
- BDPL No. 4 will be encased with concrete outside the existing slip joint vault at Hayward Fault Trace B.
- Modifications to the existing slip joint vault will be made including enlarging BDPL No. 4 pipe penetrations in the vault, new drainage systems, new roof panels and adjustments to the existing slip joint.
- Modifications to the existing BDPL No. 3 (to be abandoned in place) to collect and divert water from the area and prevent the undermining of the new BDPL No. 3.
- About 400 feet of new 90-inch diameter welded steel pipe will be installed at Trace A of the Hayward Fault.
- Relocation of the following utilities: two Alameda County Water District water pipelines, one Union Sanitary District sewer pipeline, one conduit of AT&T phone lines, and one six-inch diameter PG&E gas pipeline.

Scope Refinements

There are no scope refinements to this project.

36301, SCADA System – Phase II

Background

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

Description

The project primarily consists of:

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

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 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

Two facilities are proposed to be added to the original scope of work and are necessary to ensure the project will meet LOS goals:

1. SCADA Communications system at Newark Valve Lot

This added scope provides for the installation of a SCADA communications system and integrating such system into the existing water quality monitoring equipment located in the Newark Valve Lot Control Building. The work consists of installing communications equipment, telephone line, wires, conduits, and electrical cabinets.

2. 42–inch diameter Bay Division Pipeline No. 2 (BDPL2) Bypass

The supply from the Newark Valve Lot to the City of Hayward is currently being fed from both Bay Division Pipelines (BDPL) No. 1 and No. 2. Upon the completion of the Bay Tunnel Project, Hayward supply will be fed only by BDPL2. BDPL2, built in the mid-1930s, is a mixture of reinforced concrete cylinder pipe and wrought steel pipe. Thus, with the current scope of the Bay Tunnel project, the reliability of the Hayward service line could be reduced when the project is completed.

The scope of work for this change will provide for the installation 640 lineal feet of new 42-inch diameter welded steel pipe, replacing a portion of BDPL2, thereby increasing the reliability of the Hayward service.

36802, BDPL Reliability Upgrade – Pipeline

Background

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

Description

The project primarily consists of:

- In the East Bay, 7 miles of 72-inch-diameter pipe will be constructed between the Irvington Portal and the Newark Portal of the new Bay Tunnel. On the Peninsula, 9 miles of 60-inch-diameter pipe will be constructed between the Ravenswood Portal of the new Bay Tunnel and the portal of the Pulgas Tunnel.
- A seismically resistant crossing of the Hayward Fault will be constructed. The crossing will include a new crossover valve vault on each side of the fault. The valves will be

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

- Isolation valves and an interconnecting pipe manifold will be constructed at each portal of the new Bay Tunnel. The facilities will include new or rehabilitated control buildings with new emergency generators.
- New crossover valves between BDPL Nos. 2 and 5 will be installed at a location in Redwood City. The crossover facility will include a new or rehabilitated control building and connections for a portable emergency generator.
- A new throttling valve will also be added on BDPL No. 5 at the Pulgas Valve Lot. The throttling valve will include a new or rehabilitated control building.
- The project originally included underground concrete vaults for crossover facilities at Newark, Ravenswood, and Redwood City Valve Lots. The current project eliminates the concrete vaults and directly buries the valves with full access to valve actuators at these facilities.

Scope Refinements
There are no scope refinements to this project.

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

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

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

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

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

Scope Refinements

There are no scope refinements to this project.

Peninsula Region

35401, Lower Crystal Springs Dam Improvements

Background

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

Description

The project consists of:

- Spillway modifications that include widening the spillway, constructing two bridge piers within the spillway to accommodate rebuilding of a San Mateo County Bridge, removing the existing timber stop-log system, constructing a new weir system within the spillway, installing access cat-walks for operation and maintenance, and eliminating water ponding on top of the dam.
- Parapet wall modifications that include raising the wall that is located on top of the upstream face of the dam and raising the approach walls to the spillway.
- Stilling basin modifications at the base of the spillway that include removing the existing basin, constructing a new larger basin, and adding downstream riprap protection at the toe of the basin.

Scope Refinements

There are no scope refinements to this project.

35601, New Crystal Springs Bypass Tunnel

Background

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

Description

The project consists of:

- A 4,200-foot-long tunnel with an 8-foot-diameter welded steel liner.
- Vertical shafts on each end of the tunnel to accommodate the TBM and future maintenance.
- The southern shaft will include a connection to the existing CSBPL near the north end of the existing Crystal Springs Bypass Tunnel; the existing pipeline has been determined to be seismically reliable in this area.
- The northern shaft of the new tunnel will tie into the southern ends of both the Crystal Springs Pipeline (CSPL) No. 2 and the Sunset Supply Pipeline (SSPL). The connecting segment and tie-in to the SSPL will be provided by this project. However, the connecting segment and a blind flange for CSPL No. 2 will be provided by the Crystal Springs Pipeline No. 2 Replacement Project, and this project will tie into the blind flange. This contractual arrangement is used to prevent two 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

This project is 100 percent complete and has been closed out. 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
This project is 100 percent complete and has been closed out. 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
This project is 100 percent complete and has been closed out. The discharge channel modifications to be built under this project will accommodate the anticipated maximum flow of 250 mgd. Project components include raising the channel walls, repairing concrete cracks and exposed reinforcing steel, strengthening and interconnecting the channel floor sections, and strengthening the tall tapered wall near the Pulgas Tunnel.

Scope Refinements
There are no scope refinements to this project.

36103, Pulgas Balancing - Structural Rehabilitation & Roof Replacement

Background

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

Description

This project is 100 percent complete and has been closed out. 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
This project is 100 percent complete and has been closed out. 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

This project is 100 percent complete and has been closed out. 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.
- 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.

Scope Refinements

There are no scope refinements to this project.

36702, Peninsula Pipelines Seismic Upgrade

Background

This project was created in response to Seismic Reliability LOS goals. The San Andreas Pipeline No. 2 (SAPL2), San Andreas Pipeline No. 3 (SAPL3), and Sunset Supply Branch Pipelines (SSBPL) are three drinking water transmission pipelines that deliver water from the HTWTP to customers within the Regional Water System and City and County of San Francisco. Portions of these pipelines traverse the Serra Fault, a "secondary" fault along the peninsula in

San Mateo County that may experience fault rupture during a large seismic event on the San Andreas Fault. During geotechnical investigations performed for the HTWTP Long-Term Improvement Project, it was determined that fault offset on the Serra Fault during a design San Andreas event may be capable of causing pipeline failure at the fault crossings. Failure of these pipelines may prevent delivery of water required to meet post-seismic LOS goals.

Description

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

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

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

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

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

Phase 2 of the project will include installation of two new isolation valves near the Baden Valve Lot on SAPL No. 2 and No. 3 in the City of South San Francisco.

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

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

Scope Refinements

Clarification of Phases 1, 2 and 3 of this project are provided in the refined scope of work 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
This project is 100 percent complete and has been closed out. 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 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.
- The isolation valves at Upper Crystal Springs Dam were removed from the contract per direction from DSOD. The concern was that the installation of these valves would bring the Upper Crystal Springs Dam (Hwy 92) under DSOD's jurisdiction.
- Part of one segment of pipeline from the Crystal Springs Pipeline No. 2 project was added to this contract. This segment runs along the access road to the pump station and was added to avoid conflict between different Contractors.

Scope Refinements
There are no scope refinements to this project.

37801, Crystal Springs Pipeline No. 2 Replacement

Background
The project is provided in response to the Seismic Reliability and Delivery Reliability LOS goals. Crystal Springs Pipeline (CSPL) No. 2 extends from a point near the 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 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
This project is 100 percent complete and has been closed out. 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

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
There are no scope refinements to this project.

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

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

Scope Refinements
There are no scope refinements to this project.

37201, University Mound Reservoir Upgrades - North Basin

Background

The project is 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

36302, System Security Upgrades

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

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

Scope Refinements
There are no scope refinements to this project.

38801, Programmatic Environmental Impact Report

This project includes the preparation of a Programmatic Environmental Impact Report (PEIR) in compliance with the California Environmental Quality Act (CEQA). The WSIP establishes LOS goals and system performance objectives and includes a number of projects that will improve the Regional Water System in respect to water quality, seismic reliability, delivery reliability, and water supply to meet delivery needs through the year 2030. The PEIR will (1) identify and analyze, at a programmatic level, the potential environmental impacts of proposed system improvements, (2) describe and evaluate feasible alternatives to the proposed program, and (3) propose mitigation measures.

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

Phased WSIP Variant
At the request of the SFPUC, the San Francisco Planning Department studied the Phased WSIP Variant as part of the environmental analysis. The Phased WSIP Variant establishes a mid-term planning milestone in 2018 when the SFPUC will reevaluate water demands through 2030 in the context of then-current information, analysis and available water resources. The SFPUC currently delivers approximately 265 mgd from local watersheds (Peninsula and

Alameda Creek) and the Tuolumne River Watershed. By 2030, demand on the SFPUC system is expected to increase to 300 mgd. The Phased WSIP Variant will meet the 2018 purchase requests of 285 mgd by capping purchases at 265 mgd. The remaining 20 mgd will be met through water conservation, recycling and groundwater use - 10 mgd by wholesale customers and 10 mgd in San Francisco. Before 2018, the SFPUC and its 26 wholesale customers will engage in a new planning process to reevaluate water system demands and supply options, including conducting additional studies and environmental reviews necessary to address water supply needs after 2018.

Scope Refinements

There are no scope refinements to this project.

38802, Bioregional Habitat Restoration Project

The Bioregional Habitat Restoration project was created to provide a coordinated and consolidated approach to compensate for habitat impacts that may result from implementation of the WSIP projects in the San Joaquin, Sunol Valley, Bay Division, and Peninsula Regions of the SFPUC Regional Water System. The previously approved scope of the Bioregional Habitat Restoration project included projects to preserve, enhance, restore, or create approximately 2,350 acres of tidal marsh, vernal pools, white alder riparian forest, sycamore alluvial woodland, arroyo willow riparian habitat, oak woodland and savannah, sage scrub habitat, serpentine grasslands, coastal live oak woodland, annual grasslands, and oak riparian forest.

The project description includes development of compensation sites to preserve, enhance, restore, or create approximately 2,350 acres of tidal marsh, vernal pools, sycamore and oak riparian woodland, oak woodland and savannah, and serpentine and annual grasslands. The project includes design, environmental permitting, construction, construction management, maintenance and performance monitoring during a 3-year plant establishment period.

The wide variety of the types of impacts from WSIP projects resulted in the need for development of 18 compensation sites on SFPUC property and contracting with 7 property owners to secure compensation on property outside the Alameda and Peninsula watersheds. There are 7 compensation sites on SFPUC property in the Alameda watershed with an average size of 250 acres, demonstrating a significant commitment to the continued protection of species habitat. Although the average size of the 11 Peninsula compensation sites is 15 acres, the projects have been strategically placed to best benefit the San Francisco garter snake and the fountain thistle. The increase in habitat compensation addresses the addition of mitigation for the fountain thistle and changes in the Calaveras Dam Replacement Project.

Scope Refinements

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

Previously, the long term endowment account required by the regulatory agencies was included in the Bioregional Habitat Restoration project because it provided the agencies with financial assurances the SFPUC would perform long term monitoring and maintenance of the

compensation sites. The scope was transferred to project CUW38804 Long Term Mitigation Endowment to better identify the proposed funding source.

38803, Vegetation Restoration of WSIP Construction Sites

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

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

Scope Refinements
There are no scope refinements to this project.

38804, Long Term Mitigation Endowment

Background
The scope of work and budget for this Long Term Mitigation Endowment was previously included and reported within the WSIP Regional project CUW38802 Bioregional Habitat Restoration; however, the office of the City Controller has established a separate project, specific for this endowment fund in project CUW38804 Long Term Mitigation Endowment.

Description
This perpetual endowment fund was requested by the United States Army Corps of Engineers and California Department of Fish and Wildlife to provide a secure source of funds for the perpetual monitoring and maintenance of the Bioregional Habitat Restoration sites constructed in the SFPUC watershed.

Scope Refinements
There are no scope refinements to this project.

39401, Watershed Environmental Improvement Program

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

Initially, specific projects were identified, including the Repair or Replacement of Niles Gage and Watershed Road Management Plan and Improvements – both in the Alameda Creek watershed. After further research and planning, the program's focus has shifted towards permanently protecting Alameda Creek watershed lands through conservation easements and/or fee title purchase of property from willing landowners. Opportunities that are consistent with the WEIP description and purpose in the Peninsula and Tuolumne watersheds will be considered as well.

Scope Refinements

The program's focus has shifted to permanently protecting Alameda Creek Watershed lands through perpetual conservation easements and/or fee title purchase of property from willing landowners.

APPENDIX G

REVISED PROJECT-LEVEL SCHEDULES

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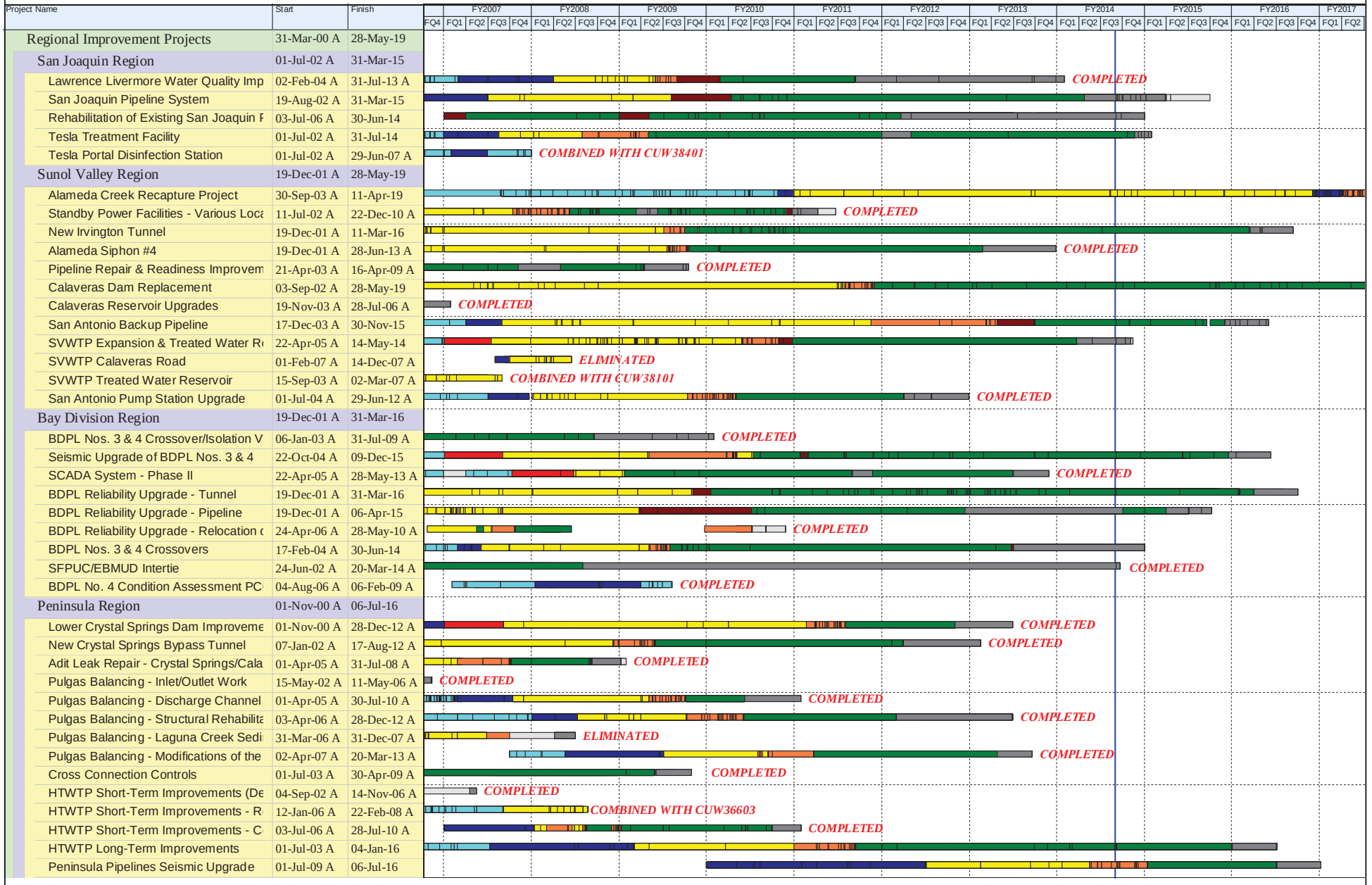
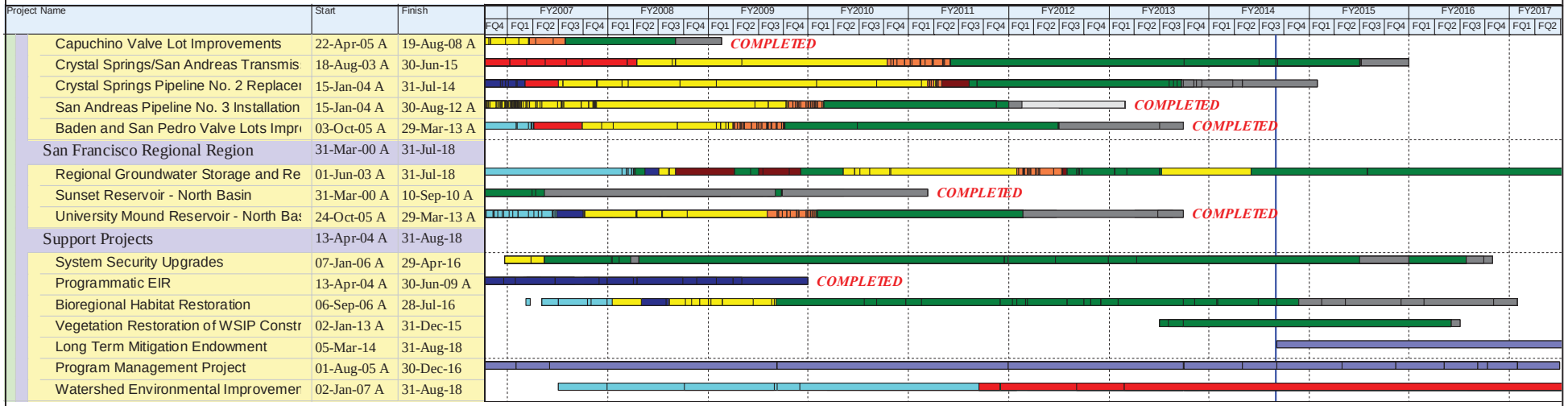
APPENDIX G: March 2014 Revised WSIP - Revised Project-Level Schedules



APPENDIX G: March 2014 Revised WSIP - Revised **Project-Level Schedules**



APPENDIX H

REVISED PHASE-LEVEL SCHEDULES

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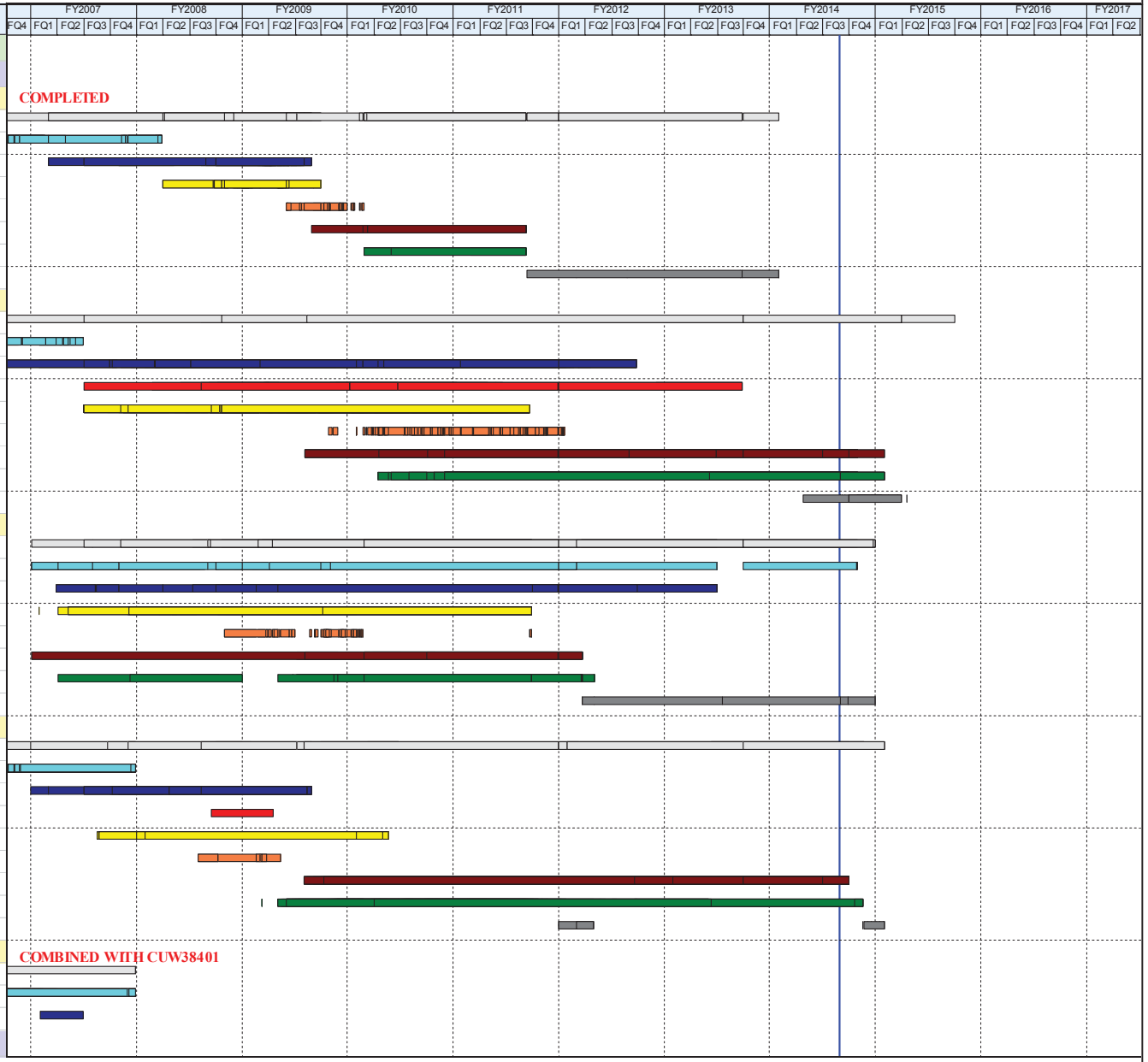
APPENDIX H: March 2014 Revised WSIP - Revised Phase-Level Schedules

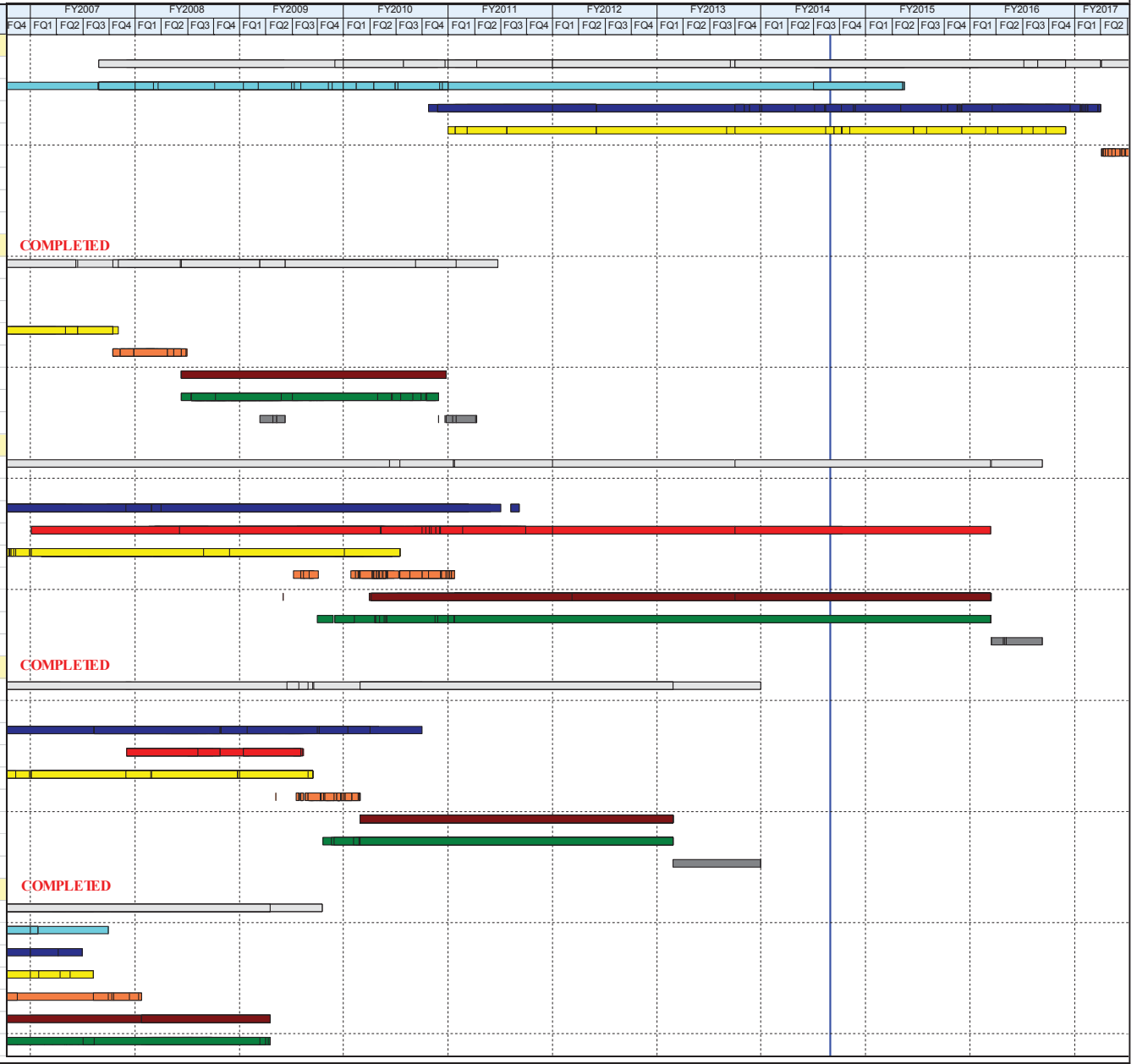
Project Name	Start	Finish
Regional Improvement Projects	31-Mar-00 A	24-May-19
San Joaquin Region	01-Jul-02 A	31-Mar-15
Lawrence Livermore Water Quality Imp	02-Feb-04 A	31-Jul-13 A
Project Management	02-Feb-04 A	31-Jul-13 A
Planning	02-Feb-04 A	28-Sep-07 A
Environmental	31-Aug-06 A	25-Feb-09 A
Design	01-Oct-07 A	31-Mar-09 A
Bid & Award	01-Dec-08 A	25-Aug-09 A
Construction Management	27-Feb-09 A	11-Mar-11 A
Construction	26-Aug-09 A	11-Mar-11 A
Closeout	14-Mar-11 A	31-Jul-13 A
San Joaquin Pipeline System	19-Aug-02 A	31-Mar-15
Project Management	19-Aug-02 A	31-Mar-15
Planning	19-Aug-02 A	28-Dec-06 A
Environmental Review	17-Feb-04 A	27-Mar-12 A
Right of Way	02-Jan-07 A	29-Mar-13 A
Design	02-Jan-07 A	23-Mar-11 A
Bid & Award	27-Apr-09 A	21-Jul-11 A
Construction Management	03-Feb-09 A	31-Jul-14
Construction	13-Oct-09 A	31-Jul-14
Closeout	25-Oct-13 A	17-Oct-14
Rehabilitation of Existing San Joaquin F	03-Jul-06 A	30-Jun-14
Project Management	03-Jul-06 A	30-Jun-14
Planning	03-Jul-06 A	30-Apr-14
Environmental Review	26-Sep-06 A	31-Dec-12 A
Design	31-Jul-06 A	31-Mar-11 A
Bid & Award	02-May-08 A	31-Mar-11 A
Construction Management	03-Jul-06 A	19-Sep-11 A
Construction	02-Oct-06 A	01-Nov-11 A
Closeout	20-Sep-11 A	30-Jun-14
Tesla Treatment Facility	01-Jul-02 A	31-Jul-14
Project Management	01-Jul-02 A	31-Jul-14
Planning	01-Jul-02 A	29-Jun-07 A
Environmental	30-Jun-06 A	25-Feb-09 A
Right of Way	17-Mar-08 A	16-Oct-08 A
Design	15-Feb-07 A	20-Nov-09 A
Bid & Award	30-Jan-08 A	10-Nov-08 A
Construction Management	02-Feb-09 A	31-Mar-14
Construction	08-Sep-08 A	20-May-14
Closeout	01-Jul-11 A	31-Jul-14
Tesla Portal Disinfection Station	01-Jul-02 A	29-Jun-07 A
Project Management	01-Jul-02 A	29-Jun-07 A
Planning	01-Jul-02 A	29-Jun-07 A
Environmental	19-Aug-04 A	29-Dec-06 A
Sunol Valley Region	19-Dec-01 A	24-May-19



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

APPENDIX H: March 2014 Revised WSIP - Revised Phase-Level Schedules

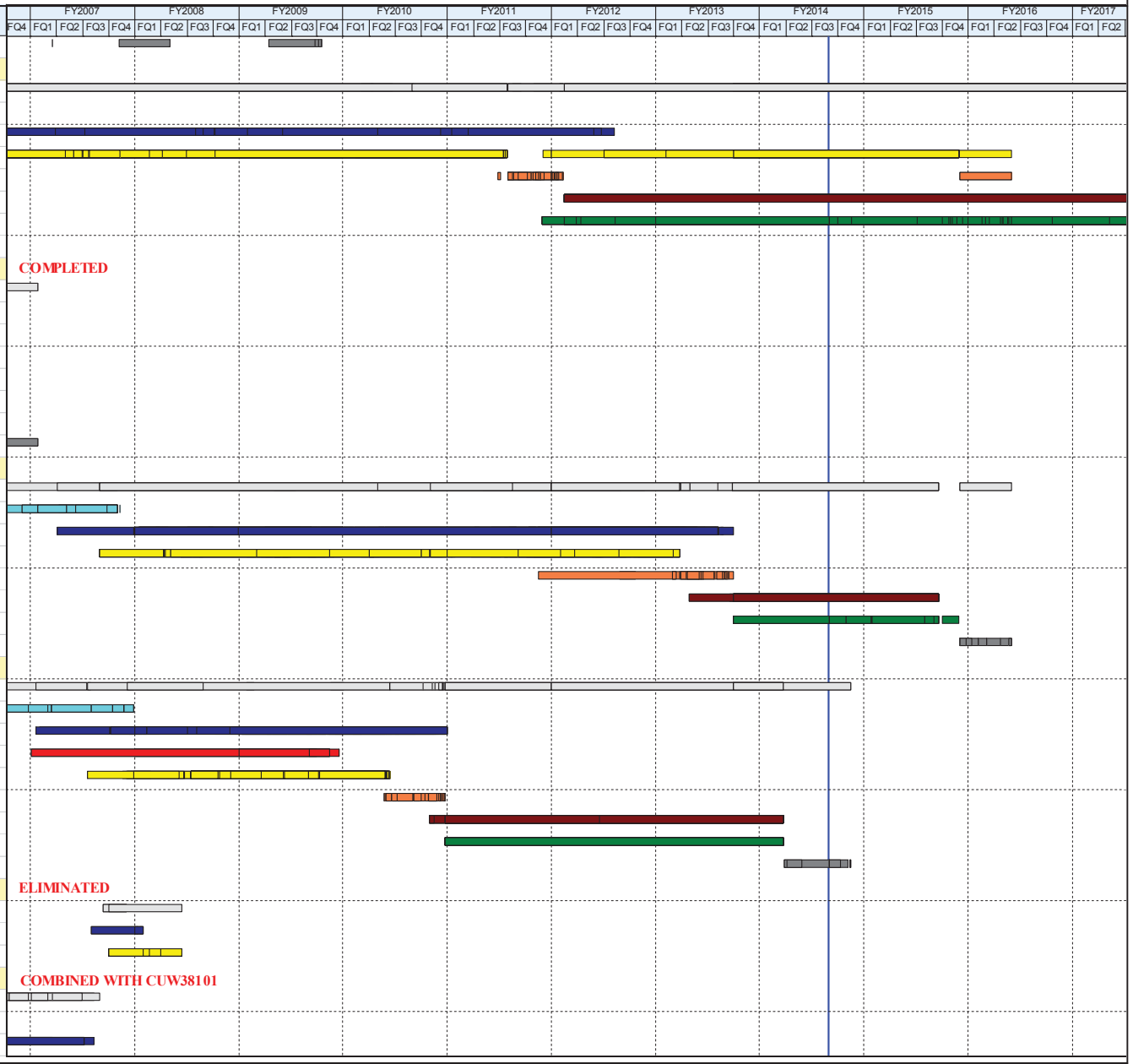
Project Name	Start	Finish
Alameda Creek Recapture Project	30-Sep-03 A	11-Apr-19
Project Management	30-Sep-03 A	11-Apr-19
Planning	30-Sep-03 A	14-Nov-14
Environmental Phase	23-Apr-10 A	30-Sep-16
Design Phase	01-Jul-10 A	31-May-16
Bid & Award Phase	03-Oct-16	31-Mar-17
Construction Management Phase	03-Apr-17	31-Oct-18
Construction	03-Apr-17	31-Oct-18
Closeout Phase	01-Nov-18	11-Apr-19
Standby Power Facilities - Various Loca	11-Jul-02 A	22-Dec-10 A
Project Management	11-Jul-02 A	22-Dec-10 A
Planning	11-Jul-02 A	30-Jun-05 A
Environmental (CatEx)	26-May-05 A	23-Sep-05 A
Design	01-Jul-05 A	04-May-07 A
Bid & Award	16-Apr-07 A	31-Dec-07 A
Construction Management	10-Dec-07 A	22-Jun-10 A
Construction	10-Dec-07 A	28-May-10 A
Closeout	10-Sep-08 A	07-Oct-10 A
New Irvington Tunnel	19-Dec-01 A	11-Mar-16
Project Management	19-Dec-01 A	11-Mar-16
Planning	19-Dec-01 A	07-Oct-05 A
Environmental	25-Aug-04 A	07-Mar-11 A
Right of Way	03-Jul-06 A	11-Sep-15
Design	11-Oct-05 A	12-Jan-10 A
Bid & Award	05-Jan-09 A	21-Jul-10 A
Construction Management	01-Dec-08 A	14-Sep-15
Construction	31-Mar-09 A	11-Sep-15
Close Out	14-Sep-15	11-Mar-16
Alameda Siphon #4	19-Dec-01 A	28-Jun-13 A
Project Management	19-Dec-01 A	28-Jun-13 A
Planning	19-Dec-01 A	07-Oct-05 A
Environmental	25-Aug-04 A	30-Mar-10 A
Right of Way	04-Jun-07 A	09-Feb-09 A
Design	11-Oct-05 A	13-Mar-09 A
Bid & Award	03-Nov-08 A	25-Aug-09 A
Construction Management	26-Aug-09 A	24-Aug-12 A
Construction	20-Apr-09 A	24-Aug-12 A
Closeout	27-Aug-12 A	28-Jun-13 A
Pipeline Repair & Readiness Improvem	21-Apr-03 A	16-Apr-09 A
Project Management	21-Apr-03 A	16-Apr-09 A
Planning	21-Apr-03 A	30-Mar-07 A
Environmental (CatEx)	14-Jan-05 A	29-Dec-06 A
Design	07-Jun-04 A	05-Feb-07 A
Bid & Award	31-Oct-05 A	23-Jul-07 A
Construction Management	30-Jan-06 A	15-Oct-08 A
Construction	30-Jan-06 A	15-Oct-08 A



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

APPENDIX H: March 2014 Revised WSIP - Revised **Phase-Level Schedules**

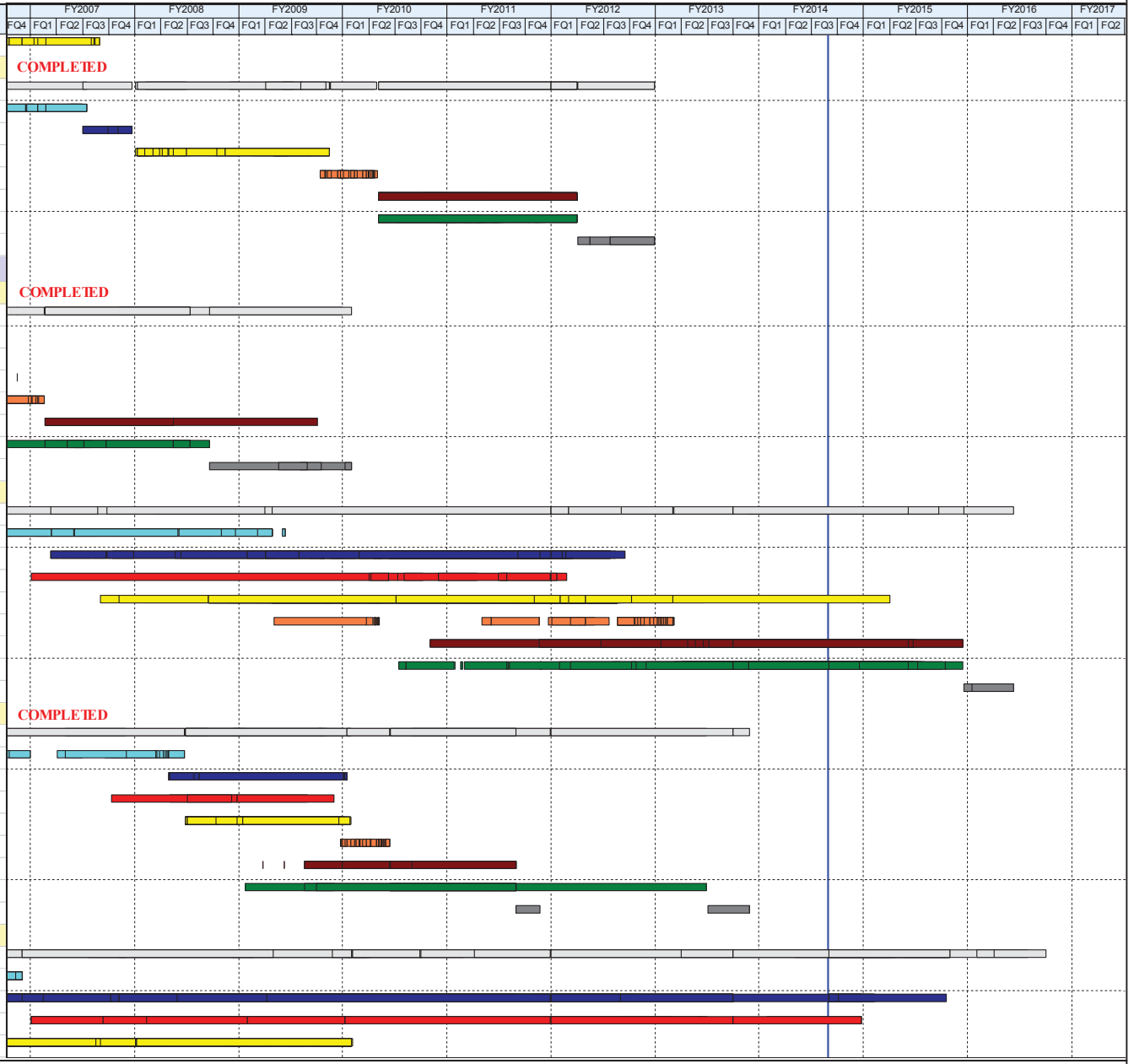
Project Name	Start	Finish
Close Out	18-Sep-06 A	16-Apr-09 A
Calaveras Dam Replacement	03-Sep-02 A	24-May-19
Project Mangement	03-Sep-02 A	24-May-19
Planning	03-Sep-02 A	04-Nov-05 A
Environmental	16-May-05 A	06-Feb-12 A
Design	14-Nov-05 A	30-Nov-15
Bid & Award	27-Dec-10 A	30-Nov-15
Construction Management	15-Aug-11 A	10-Sep-18
Construction	31-May-11 A	26-Nov-18
Closeout	27-Nov-18	24-May-19
Calaveras Reservoir Upgrades	19-Nov-03 A	28-Jul-06 A
Project Management	19-Nov-03 A	28-Jul-06 A
Planning	19-Nov-03 A	18-Nov-05 A
Environmental	21-May-04 A	18-Nov-05 A
Design	16-Dec-04 A	18-Nov-05 A
Bid & Award	28-Jan-05 A	18-Nov-05 A
Construction Management	27-Jun-05 A	14-Feb-06 A
Construction	27-Jun-05 A	14-Feb-06 A
Close Out	07-Oct-05 A	28-Jul-06 A
San Antonio Backup Pipeline	17-Dec-03 A	30-Nov-15
Project Management	17-Dec-03 A	30-Nov-15
Planning	17-Dec-03 A	11-May-07 A
Environmental	02-Oct-06 A	29-Mar-13 A
Design	01-Mar-07 A	24-Sep-12 A
Bid & Award	18-May-11 A	29-Mar-13 A
Construction Management	26-Oct-12 A	18-Mar-15
Construction	29-Mar-13 A	31-May-15
Close Out	01-Jun-15	30-Nov-15
SVWTP Expansion & Treated Water R	22-Apr-05 A	14-May-14
Project Management	22-Apr-05 A	14-May-14
Planning	22-Apr-05 A	29-Jun-07 A
Environmental Review	21-Jul-06 A	30-Jun-10 A
Right of Way	03-Jul-06 A	16-Jun-09 A
Design	16-Jan-07 A	10-Dec-09 A
Bid & Award	23-Nov-09 A	22-Jun-10 A
Construction Management	30-Apr-10 A	20-Sep-13 A
Construction	23-Jun-10 A	20-Sep-13 A
Closeout	23-Sep-13 A	14-May-14
SVWTP Calaveras Road	01-Feb-07 A	14-Dec-07 A
Project Management Cal. Road Impr	12-Mar-07 A	14-Dec-07 A
Environmental (CatEx) - Cal. Road In	01-Feb-07 A	30-Jul-07 A
Design - Cal. Road Improvements	02-Apr-07 A	14-Dec-07 A
SVWTP Treated Water Reservoir	15-Sep-03 A	02-Mar-07 A
Project Management	15-Sep-03 A	02-Mar-07 A
Planning	15-Sep-03 A	29-Sep-04 A
Environmental	26-Mar-04 A	09-Feb-07 A



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

APPENDIX H: March 2014 Revised WSIP - Revised **Phase-Level Schedules**

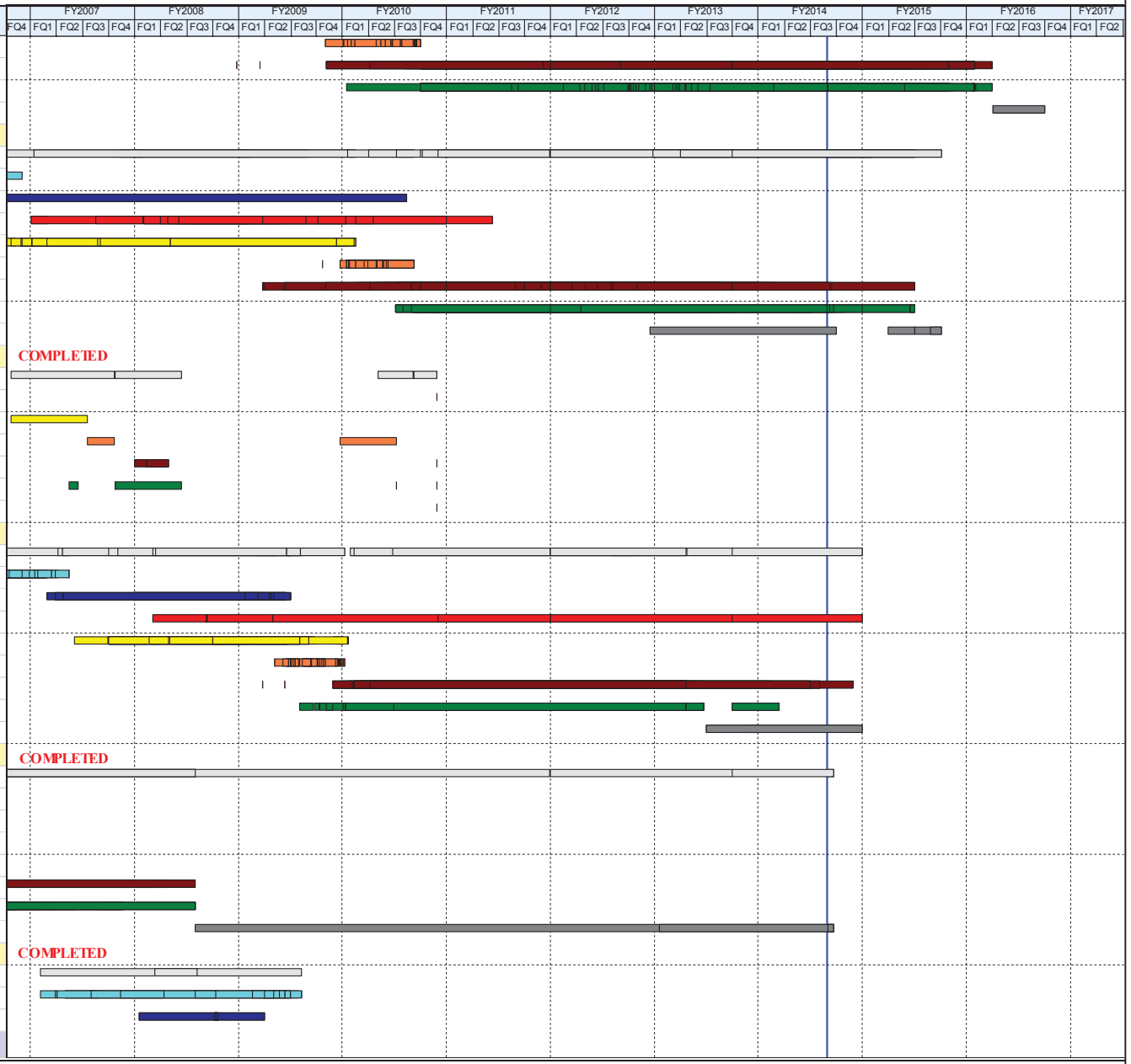
Project Name	Start	Finish
Design	03-Nov-04 A	02-Mar-07 A
San Antonio Pump Station Upgrade	01-Jul-04 A	29-Jun-12 A
Project Management	01-Jul-04 A	29-Jun-12 A
Planning	01-Jul-04 A	12-Jan-07 A
Environmental (CatEx)	02-Jan-07 A	21-Jun-07 A
Design	06-Jul-07 A	15-May-09 A
Bid & Award	14-Apr-09 A	30-Oct-09 A
Construction Management	02-Nov-09 A	30-Sep-11 A
Construction	02-Nov-09 A	30-Sep-11 A
Close-Out	03-Oct-11 A	29-Jun-12 A
Bay Division Region	19-Dec-01 A	31-Mar-16
BDPL Nos. 3 & 4 Crossover/Isolation V	06-Jan-03 A	31-Jul-09 A
Project Management	06-Jan-03 A	31-Jul-09 A
Planning - Phase A	06-Jan-03 A	20-Jul-04 A
Environmental - Phase A	16-Jul-03 A	28-Feb-06 A
Design - Phase A	03-May-04 A	16-May-06 A
Bid & Award - Phase A	16-May-05 A	18-Aug-06 A
Construction Management - Phase A	23-Jan-06 A	03-Apr-09 A
Construction - Phase A	11-Oct-05 A	19-Mar-08 A
Close Out - Phase A	20-Mar-08 A	31-Jul-09 A
Seismic Upgrade of BDPL Nos. 3 & 4	22-Oct-04 A	09-Dec-15
Project Management	22-Oct-04 A	09-Dec-15
Planning - Phase B	22-Oct-04 A	12-Dec-08 A
Environmental (EIR) - Phase B	11-Sep-06 A	17-Mar-12 A
Right of Way Phase B	03-Jul-06 A	26-Aug-11 A
Design - Phase B	05-Mar-07 A	01-Oct-14
Bid and Award - Phase B	03-Nov-08 A	04-Sep-12 A
Construction Management - Phase B	03-May-10 A	16-Jun-15
Construction - Phase B	12-Jan-10 A	16-Jun-15
Close Out - Phase B	17-Jun-15	09-Dec-15
SCADA System - Phase II	22-Apr-05 A	28-May-13 A
Project Management	22-Apr-05 A	28-May-13 A
Planning	26-Apr-05 A	24-Dec-07 A
Environmental	30-Oct-07 A	15-Jul-09 A
Right of Way	10-Apr-07 A	01-Jun-09 A
Design	26-Dec-07 A	27-Jul-09 A
Bid & Award	22-Jun-09 A	11-Dec-09 A
Construction Management	23-Sep-08 A	28-Feb-11 A
Construction	25-Jul-08 A	28-Dec-12 A
Close Out	01-Mar-11 A	28-May-13 A
BDPL Reliability Upgrade - Tunnel	19-Dec-01 A	31-Mar-16
Project Management	19-Dec-01 A	31-Mar-16
Planning	19-Dec-01 A	31-May-06 A
Environmental	18-Nov-04 A	17-Apr-15
Right of Way	03-Jul-06 A	24-Jun-14
Design - BAY TUNNEL	01-Aug-05 A	03-Aug-09 A



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

APPENDIX H: March 2014 Revised WSIP - Revised **Phase-Level Schedules**

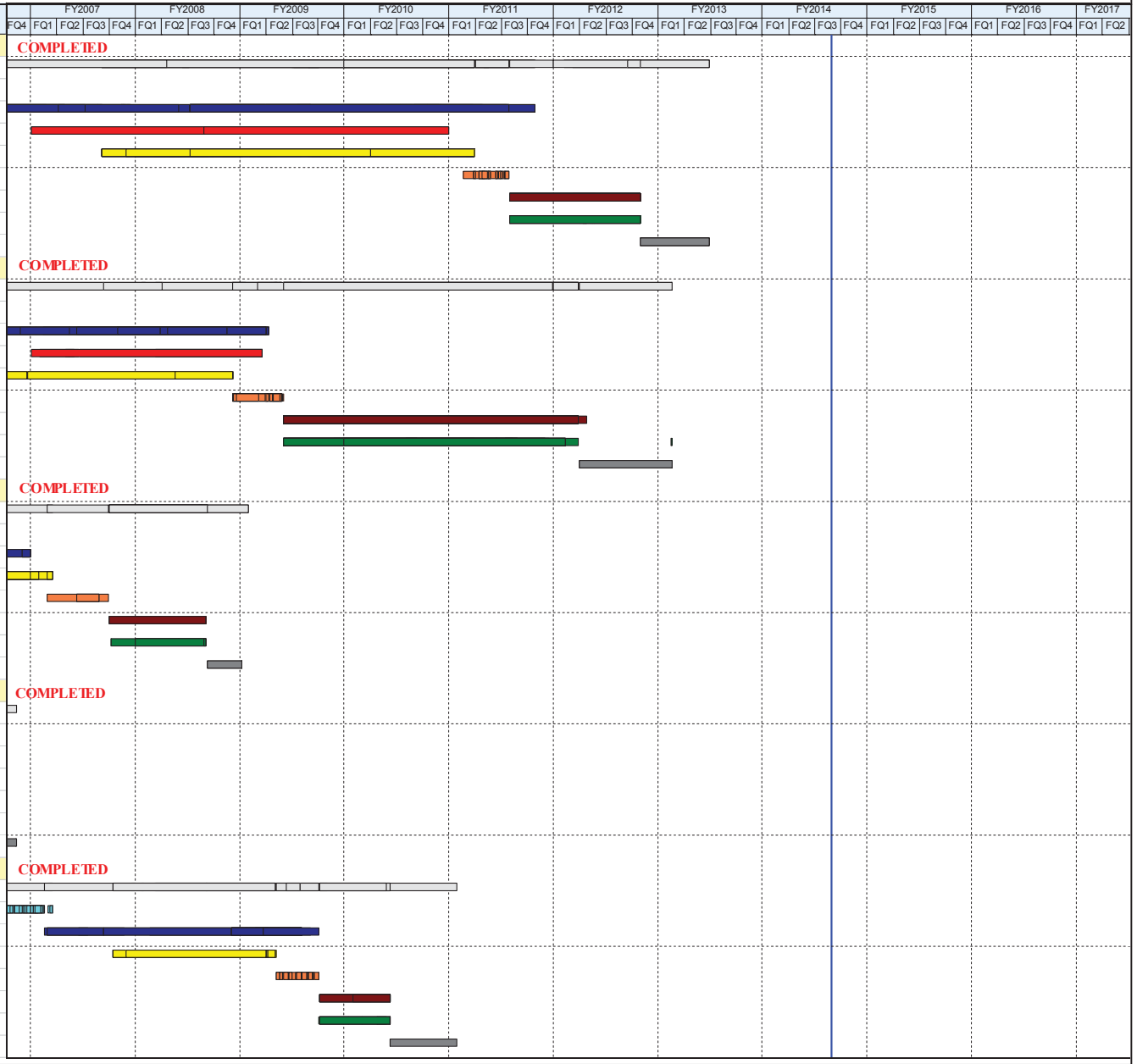
Project Name	Start	Finish
Bid & Award - BAY TUNNEL	01-May-09 A	31-Mar-10 A
Construction Management - BAY TUI	24-Jun-08 A	01-Oct-15
Construction - BAY TUNNEL	17-Jul-09 A	01-Oct-15
Close Out - BAY TUNNEL	02-Oct-15	31-Mar-16
BDPL Reliability Upgrade - Pipeline	19-Dec-01 A	06-Apr-15
Project Management	03-Jan-06 A	06-Apr-15
Planning	19-Dec-01 A	31-May-06 A
Environmental	18-Nov-04 A	12-Feb-10 A
Right of Way	03-Jul-06 A	08-Dec-10 A
Design - PIPELINE	03-Jan-06 A	17-Aug-09 A
Bid and Award	22-Apr-09 A	09-Mar-10 A
Construction Management	23-Sep-08 A	31-Dec-14
Construction	04-Jan-10 A	31-Dec-14
Closeout	14-Jun-12 A	06-Apr-15
BDPL Reliability Upgrade - Relocation (	24-Apr-06 A	28-May-10 A
Project Management	24-Apr-06 A	28-May-10 A
Right of Way	28-May-10 A	28-May-10 A
Design	24-Apr-06 A	16-Jan-07 A
Bid and Award	17-Jan-07 A	06-Jan-10 A
Construction Management	02-Jul-07 A	28-May-10 A
Construction	15-Nov-06 A	28-May-10 A
Closeout	28-May-10 A	28-May-10 A
BDPL Nos. 3 & 4 Crossovers	17-Feb-04 A	30-Jun-14
Project Management	17-Feb-04 A	30-Jun-14
Planning	17-Feb-04 A	14-Nov-06 A
Environmental	28-Aug-06 A	31-Dec-08 A
Right of Way	04-Sep-07 A	30-Jun-14
Design	04-Dec-06 A	20-Jul-09 A
Bid & Award	05-Nov-08 A	10-Jul-09 A
Construction Management	23-Sep-08 A	30-May-14
Construction	30-Jan-09 A	11-Sep-13 A
Close Out	31-Dec-12 A	30-Jun-14
SFPUC/EBMUD Intertie	24-Jun-02 A	20-Mar-14 A
Project Management	24-Jun-02 A	20-Mar-14 A
Planning	24-Jun-02 A	11-Oct-02 A
Environmental	14-Oct-02 A	31-Mar-03 A
Design	01-Apr-03 A	30-Jul-04 A
Bid & Award	02-Aug-04 A	21-Dec-04 A
Construction Management	18-Jan-05 A	31-Jan-08 A
Construction	18-Jan-05 A	31-Jan-08 A
Close Out	01-Feb-08 A	20-Mar-14 A
BDPL No. 4 Condition Assessment PC	04-Aug-06 A	06-Feb-09 A
Project Management	04-Aug-06 A	06-Feb-09 A
Planning	04-Aug-06 A	06-Feb-09 A
Environmental	16-Jul-07 A	30-Sep-08 A
Peninsula Region	01-Nov-00 A	06-Jul-16



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

APPENDIX H: March 2014 Revised WSIP - Revised **Phase-Level Schedules**

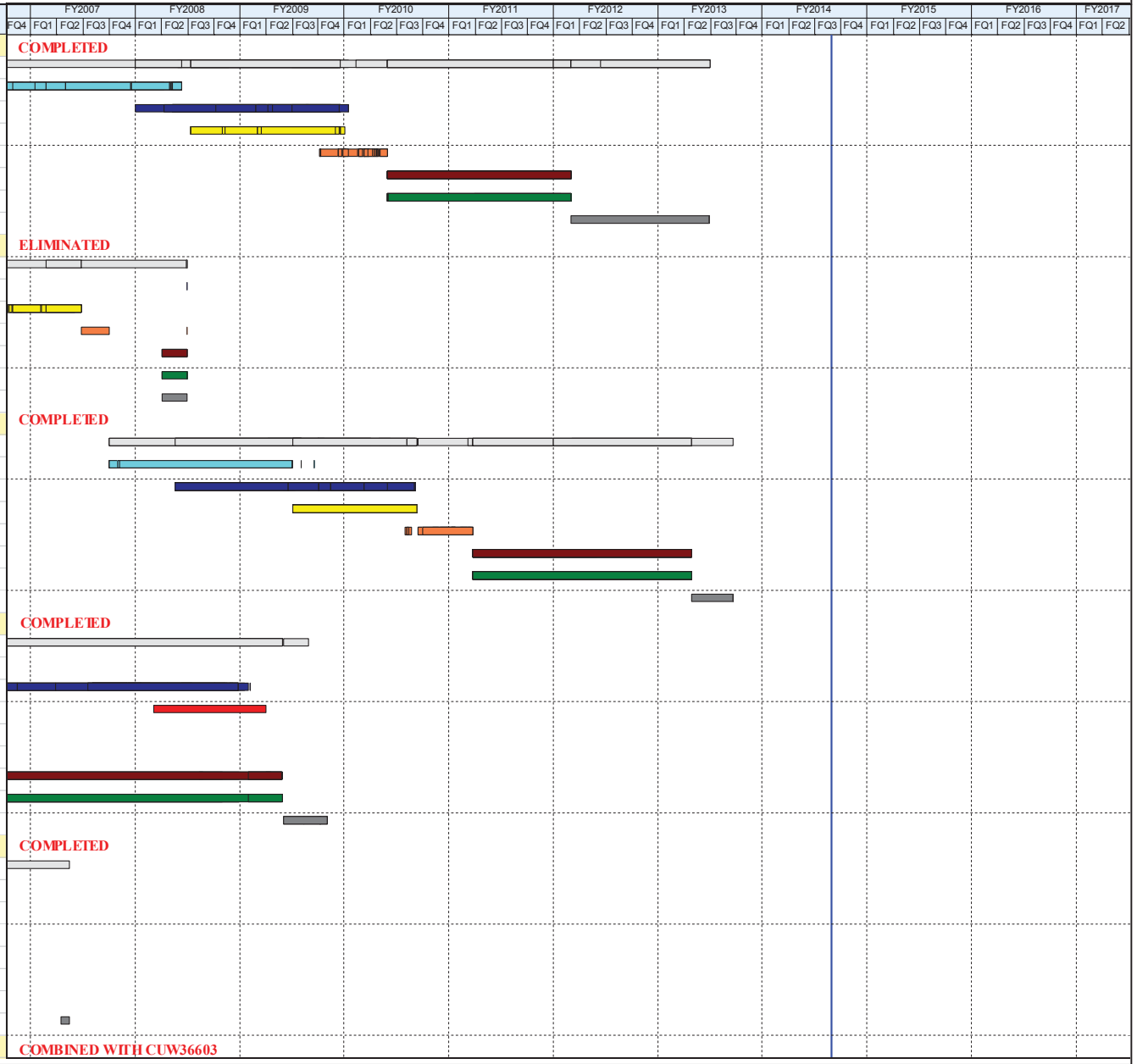
Project Name	Start	Finish
Lower Crystal Springs Dam Improveme	01-Nov-00 A	28-Dec-12 A
Project Management	01-Nov-00 A	28-Dec-12 A
Planning	01-Nov-00 A	30-Dec-04 A
Environmental Review	03-Jan-05 A	28-Apr-11 A
Right of Way	03-Jul-06 A	30-Jun-10 A
Design	08-Mar-07 A	30-Sep-10 A
Bid & Award	20-Aug-10 A	28-Jan-11 A
Construction Management	31-Jan-11 A	01-May-12 A
Construction	31-Jan-11 A	01-May-12 A
Close Out	02-May-12 A	28-Dec-12 A
New Crystal Springs Bypass Tunnel	07-Jan-02 A	17-Aug-12 A
Project Management	07-Jan-02 A	17-Aug-12 A
Planning	07-Jan-02 A	05-Aug-04 A
Environmental	18-Sep-03 A	09-Oct-08 A
Right of Way	03-Jul-06 A	16-Sep-08 A
Design	01-Jun-04 A	05-Jun-08 A
Bid & Award	05-Jun-08 A	01-Dec-08 A
Construction Management	01-Dec-08 A	26-Oct-11 A
Construction	01-Dec-08 A	17-Aug-12 A
Close Out	29-Sep-11 A	17-Aug-12 A
Adit Leak Repair - Crystal Springs/Cala	01-Apr-05 A	31-Jul-08 A
Project Management	01-Apr-05 A	31-Jul-08 A
Planning	01-Apr-05 A	27-Mar-06 A
Environmental	01-Jul-05 A	30-Jun-06 A
Design	01-Sep-05 A	15-Sep-06 A
Bid & Award	28-Aug-06 A	30-Mar-07 A
Construction Management	02-Apr-07 A	05-Mar-08 A
Construction	09-Apr-07 A	05-Mar-08 A
Close Out	12-Mar-08 A	08-Jul-08 A
Pulgas Balancing - Inlet/Outlet Work	15-May-02 A	11-May-06 A
Project Management	01-Jul-03 A	11-May-06 A
Planning	15-May-02 A	01-Aug-05 A
Environmental	02-May-04 A	02-May-04 A
Bid & Award	05-Mar-04 A	06-Sep-05 A
Construction Management	07-Sep-05 A	02-Feb-06 A
Construction	06-Sep-05 A	02-Feb-06 A
Close Out	03-Feb-06 A	11-May-06 A
Pulgas Balancing - Discharge Channel	01-Apr-05 A	30-Jul-10 A
Project Management	01-Apr-05 A	30-Jul-10 A
Planning	01-Apr-05 A	15-Sep-06 A
Environmental	17-Aug-06 A	03-Apr-09 A
Design	16-Apr-07 A	03-Nov-08 A
Bid & Award	04-Nov-08 A	03-Apr-09 A
Construction Management	06-Apr-09 A	07-Dec-09 A
Construction	02-Apr-09 A	07-Dec-09 A
Close Out	08-Dec-09 A	30-Jul-10 A



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

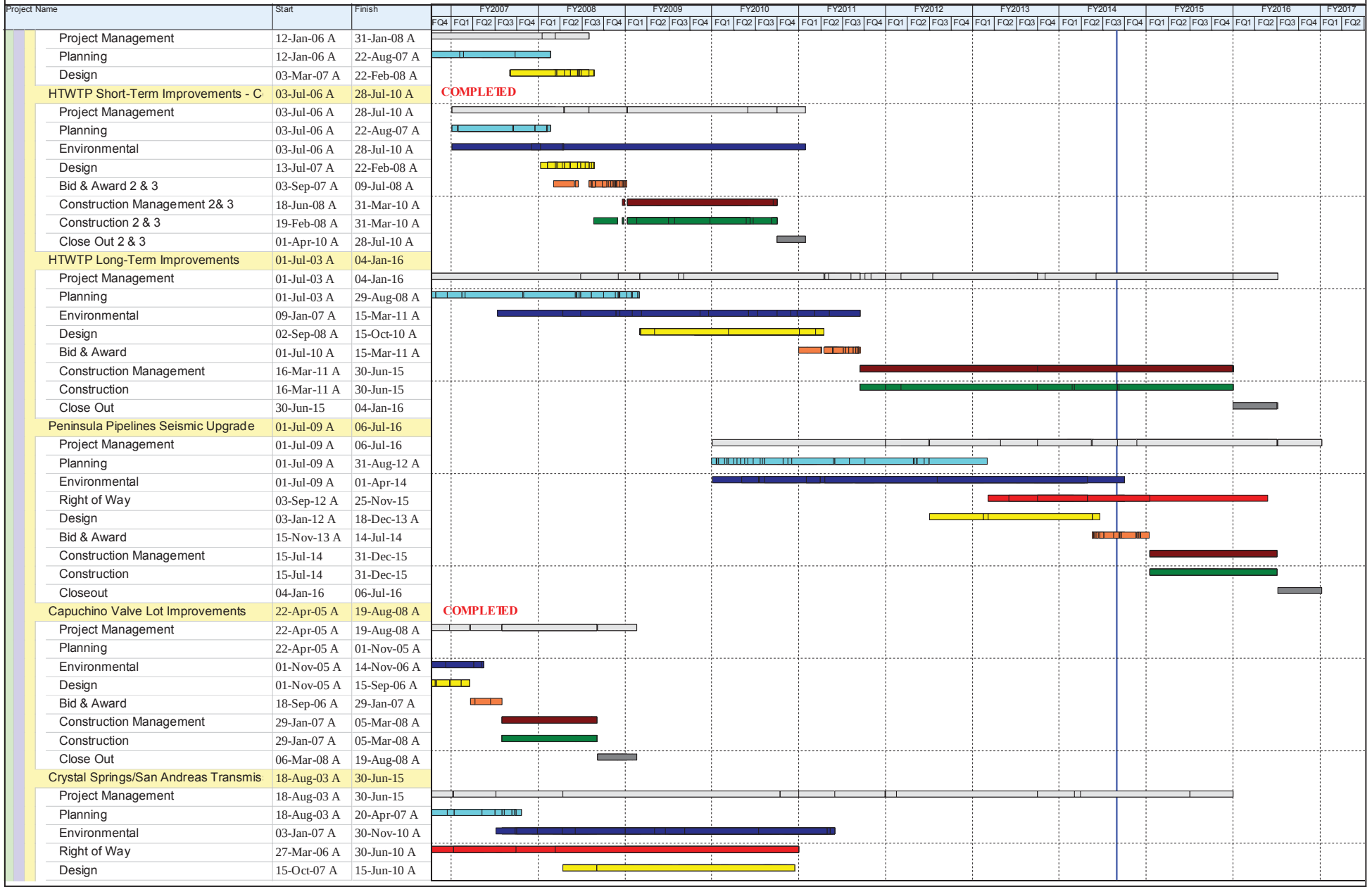
APPENDIX H: March 2014 Revised WSIP - Revised **Phase-Level Schedules**

Project Name	Start	Finish	
Pulgas Balancing - Structural Rehabilita	03-Apr-06 A	28-Dec-12 A	COMPLETED
Project Management	03-Apr-06 A	28-Dec-12 A	
Planning	03-Apr-06 A	11-Dec-07 A	
Environmental	03-Jul-07 A	16-Jul-09 A	
Design	11-Jan-08 A	01-Jul-09 A	
Bid & Award	06-Apr-09 A	30-Nov-09 A	
Construction Management	30-Nov-09 A	01-Sep-11 A	
Construction	30-Nov-09 A	01-Sep-11 A	
Close Out	02-Sep-11 A	28-Dec-12 A	
Pulgas Balancing - Laguna Creek Sedi	31-Mar-06 A	31-Dec-07 A	ELIMINATED
Project Management	31-Mar-06 A	31-Dec-07 A	
Environmental	31-Dec-07 A	31-Dec-07 A	
Design	31-Mar-06 A	26-Dec-06 A	
Bid & Award	27-Dec-06 A	31-Dec-07 A	
Construction Management	04-Oct-07 A	31-Dec-07 A	
Construction	04-Oct-07 A	31-Dec-07 A	
Close Out	04-Oct-07 A	31-Dec-07 A	
Pulgas Balancing - Modifications of the	02-Apr-07 A	20-Mar-13 A	COMPLETED
Project Management	02-Apr-07 A	20-Mar-13 A	
Planning	02-Apr-07 A	17-Mar-09 A	
Environmental	19-Nov-07 A	04-Mar-10 A	
Design	02-Jan-09 A	12-Mar-10 A	
Bid & Award	29-Jan-10 A	22-Sep-10 A	
Construction Management	22-Sep-10 A	25-Oct-12 A	
Construction	22-Sep-10 A	25-Oct-12 A	
Close Out	26-Oct-12 A	20-Mar-13 A	
Cross Connection Controls	01-Jul-03 A	30-Apr-09 A	COMPLETED
Project Management	01-Jul-03 A	27-Feb-09 A	
Planning	01-Jul-03 A	03-Aug-04 A	
Environmental	01-Jul-03 A	05-Aug-08 A	
Right of Way	03-Sep-07 A	30-Sep-08 A	
Design	03-Aug-04 A	30-Dec-05 A	
Bid & Award	01-Apr-05 A	31-May-05 A	
Construction Management	01-Jun-05 A	26-Nov-08 A	
Construction	01-Jun-05 A	26-Nov-08 A	
Close Out	01-Dec-08 A	30-Apr-09 A	
HTWTP Short-Term Improvements (De	04-Sep-02 A	14-Nov-06 A	COMPLETED
Project Management	04-Sep-02 A	14-Nov-06 A	
Planning	04-Sep-02 A	30-Apr-03 A	
Environmental	01-Aug-03 A	08-Aug-05 A	
Design	01-Aug-03 A	11-Feb-05 A	
Bid & Award	14-Feb-05 A	08-Sep-05 A	
Construction Management	09-Sep-05 A	27-Feb-06 A	
Construction	09-Sep-05 A	27-Feb-06 A	
Close Out	12-Jan-06 A	13-Nov-06 A	
HTWTP Short-Term Improvements - R	12-Jan-06 A	22-Feb-08 A	COMBINED WITH CUW36603



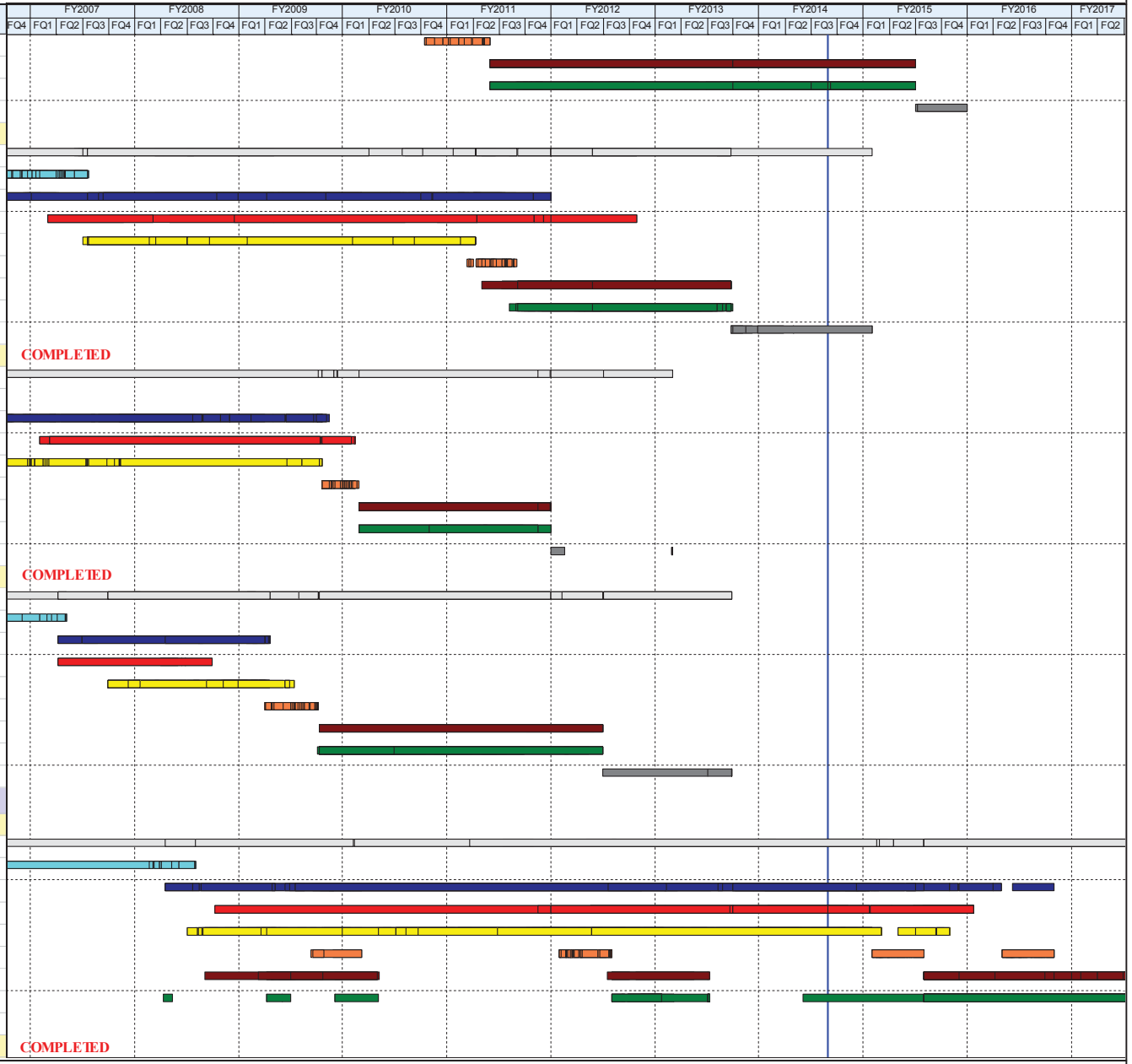
Project Management
Environmental
Right-of-Way
Construction Management
Closeout
Planning
Design
Bid & Award
Construction
Program Management

APPENDIX H: March 2014 Revised WSIP - Revised **Phase-Level Schedules**



APPENDIX H: March 2014 Revised WSIP - Revised **Phase-Level Schedules**

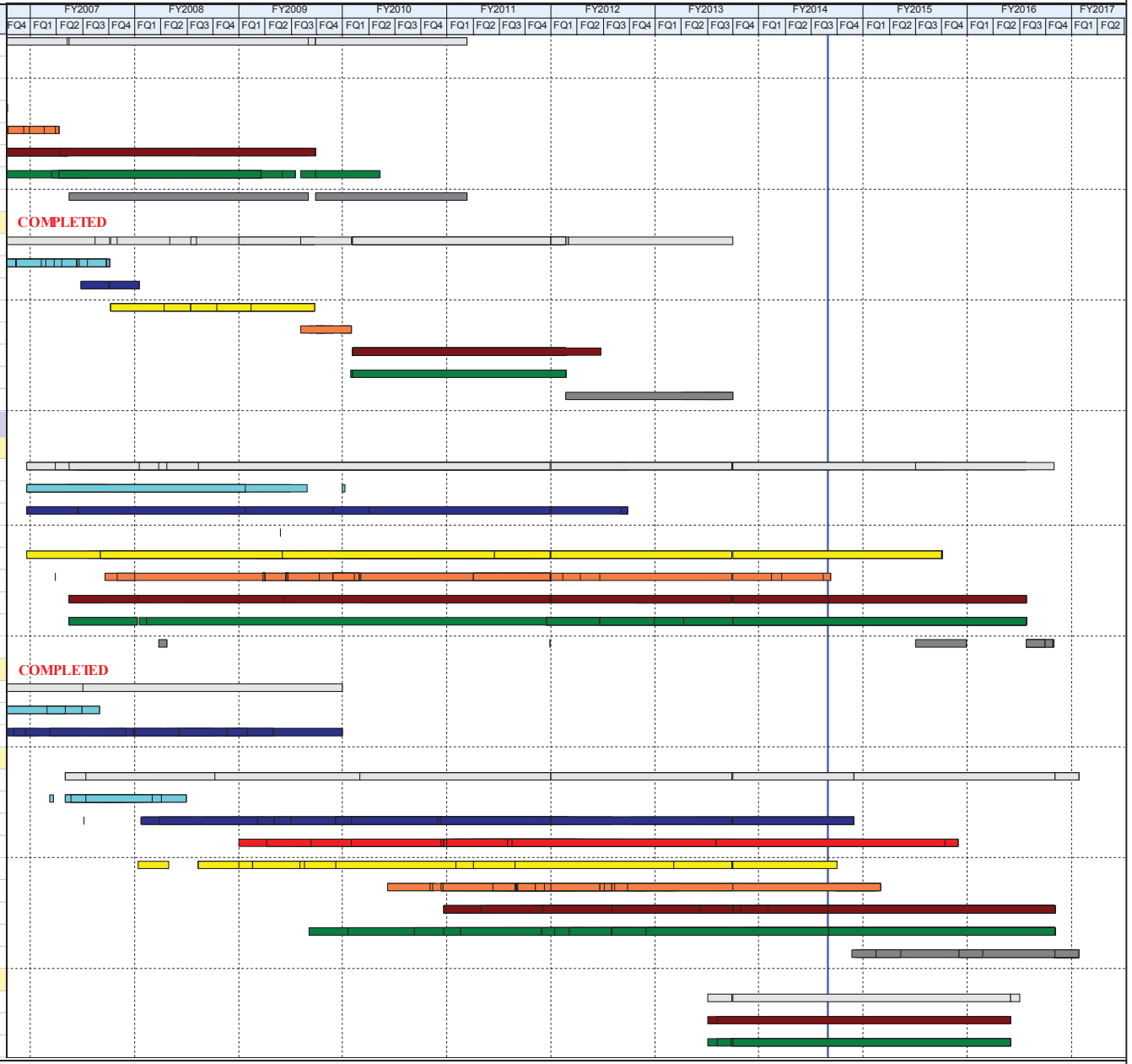
Project Name	Start	Finish
Bid & Award	13-Apr-10 A	30-Nov-10 A
Construction Management	01-Dec-10 A	31-Dec-14
Construction	01-Dec-10 A	31-Dec-14
Close Out	02-Jan-15	30-Jun-15
Crystal Springs Pipeline No. 2 Replacer	15-Jan-04 A	31-Jul-14
Project Management	15-Jan-04 A	31-Jul-14
Planning	15-Jan-04 A	19-Jan-07 A
Environmental	01-Apr-04 A	30-Jun-11 A
Right of Way	01-Sep-06 A	27-Apr-12 A
Design	01-Jan-07 A	08-Oct-10 A
Bid & Award	09-Sep-10 A	04-Mar-11 A
Construction Management	01-Nov-10 A	22-Mar-13 A
Construction	07-Feb-11 A	30-Mar-13 A
Close Out	24-Mar-13 A	31-Jul-14
San Andreas Pipeline No. 3 Installation	15-Jan-04 A	30-Aug-12 A
Project Management	15-Jan-04 A	30-Aug-12 A
Planning	15-Jan-04 A	28-Apr-05 A
Environmental	01-Apr-04 A	15-May-09 A
Right of Way	01-Aug-06 A	13-Aug-09 A
Design	01-May-05 A	17-Apr-09 A
Bid & Award	20-Apr-09 A	26-Aug-09 A
Construction Management	26-Aug-09 A	30-Jun-11 A
Construction	26-Aug-09 A	30-Jun-11 A
Closeout	01-Jul-11 A	30-Aug-12 A
Baden and San Pedro Valve Lots Impr	03-Oct-05 A	29-Mar-13 A
Project Management	03-Oct-05 A	29-Mar-13 A
Planning	03-Oct-05 A	03-Nov-06 A
Environmental	05-Oct-06 A	21-Oct-08 A
Right of Way	05-Oct-06 A	31-Mar-08 A
Design	29-Mar-07 A	12-Jan-09 A
Bid & Award	29-Sep-08 A	07-Apr-09 A
Construction Management	08-Apr-09 A	30-Dec-11 A
Construction	03-Apr-09 A	30-Dec-11 A
Close Out	31-Dec-11 A	29-Mar-13 A
San Francisco Regional Region	31-Mar-00 A	31-Jul-18
Regional Groundwater Storage and Re	01-Jun-03 A	31-Jul-18
Project Management	01-Jul-05 A	31-Jul-18
Planning	01-Jun-03 A	31-Jan-08 A
Environmental	15-Oct-07 A	29-Apr-16
Right of Way	07-Apr-08 A	24-Jul-15
Design	02-Jan-08 A	30-Apr-15
Bid & Award	11-Mar-09 A	29-Apr-16
Construction Management	04-Mar-08 A	31-Jan-18
Construction	01-Jul-03 A	31-Jan-18
Closeout	01-Feb-18	31-Jul-18
Sunset Reservoir - North Basin	31-Mar-00 A	10-Sep-10 A



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

APPENDIX H: March 2014 Revised WSIP - Revised **Phase-Level Schedules**

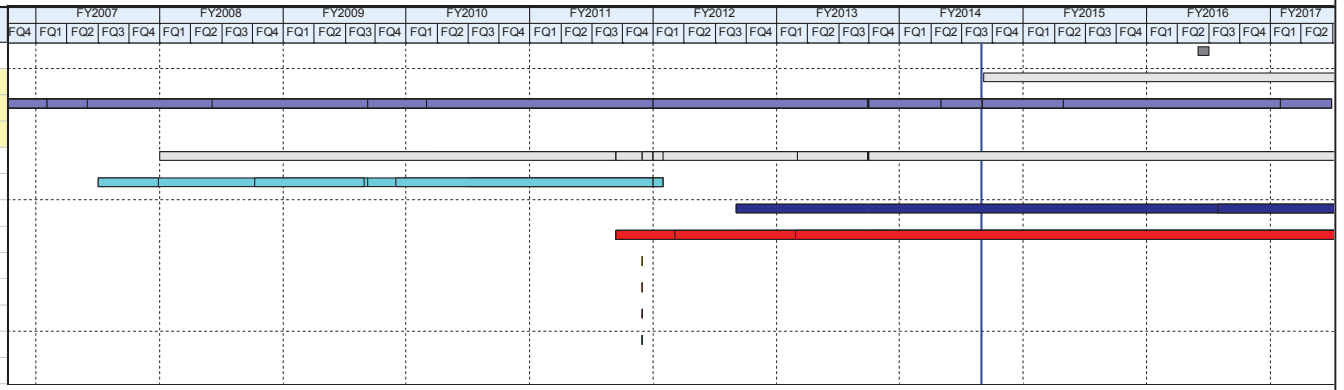
Project Name	Start	Finish
Project Management	31-Mar-00 A	10-Sep-10 A
Planning	31-Mar-00 A	28-Sep-01 A
Environmental	21-May-04 A	21-Dec-04 A
Design	01-Oct-01 A	12-Apr-06 A
Bid & Award	22-Oct-04 A	10-Oct-06 A
Construction Management	11-Apr-05 A	26-Mar-09 A
Construction	11-Apr-05 A	09-Nov-09 A
Close Out	13-Nov-06 A	10-Sep-10 A
University Mound Reservoir - North Bas	24-Oct-05 A	29-Mar-13 A
Project Management	24-Oct-05 A	29-Mar-13 A
Planning	24-Oct-05 A	06-Apr-07 A
Environmental	26-Dec-06 A	18-Jul-07 A
Design	07-Apr-07 A	24-Mar-09 A
Bid & Award	02-Feb-09 A	31-Jul-09 A
Construction Management	03-Aug-09 A	23-Dec-11 A
Construction	27-Jul-09 A	23-Aug-11 A
Close Out	23-Aug-11 A	29-Mar-13 A
Support Projects	13-Apr-04 A	31-Aug-18
System Security Upgrades	07-Jan-06 A	29-Apr-16
Project Management	19-Jun-06 A	29-Apr-16
Planning	19-Jun-06 A	08-Jul-09 A
Environmental	19-Jun-06 A	28-Mar-12 A
Right of Way	26-Nov-08 A	26-Nov-08 A
Design	19-Jun-06 A	03-Apr-15
Bid & Award	07-Jan-06 A	10-Mar-14
Construction Management	13-Nov-06 A	25-Jan-16
Construction	13-Nov-06 A	24-Jan-16
Close Out	24-Sep-07 A	29-Apr-16
Programmatic EIR	13-Apr-04 A	30-Jun-09 A
Project Management	13-Apr-04 A	30-Jun-09 A
Planning	13-Apr-04 A	28-Feb-07 A
Environmental Review	15-Jun-04 A	30-Jun-09 A
Bioregional Habitat Restoration	06-Sep-06 A	28-Jul-16
Project Management	01-Nov-06 A	28-Jul-16
Planning	06-Sep-06 A	31-Dec-07 A
Environmental Review	03-Jan-07 A	30-May-14
Right of Way	02-Jul-08 A	29-May-15
Design	16-Jul-07 A	31-Mar-14
Bid & Award	04-Dec-09 A	29-Aug-14
Construction Management	22-Jun-10 A	03-May-16
Construction	06-Mar-09 A	03-May-16
Closeout	23-May-14	28-Jul-16
Vegetation Restoration of WSIP Constr	02-Jan-13 A	31-Dec-15
Project Management	02-Jan-13 A	31-Dec-15
Construction Management	02-Jan-13 A	30-Nov-15
Construction (Maintenance)	02-Jan-13 A	30-Nov-15



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

APPENDIX H: March 2014 Revised WSIP - Revised **Phase-Level Schedules**

Project Name	Start	Finish
Closeout	01-Dec-15	31-Dec-15
Long Term Mitigation Endowment	05-Mar-14	31-Aug-18
Program Management Project	01-Aug-05 A	30-Dec-16
Watershed Environmental Improvemer	02-Jan-07 A	31-Aug-18
Project Management	02-Jul-07 A	31-Aug-18
Planning	02-Jan-07 A	29-Jul-11 A
Environmental	05-Mar-12 A	31-Jan-18
Right of Way	14-Mar-11 A	29-Mar-18
Design	31-May-11 A	31-May-11 A
Bid & Award	31-May-11 A	31-May-11 A
Construction Management	31-May-11 A	31-May-11 A
Construction	31-May-11 A	31-May-11 A
Closeout	30-Mar-18	31-Aug-18



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

APPENDIX I

2003-2013 SCHEDULE CHANGES

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March 2014 Revised WSIP - 2003 to 2014 Schedule Changes

Project No.	Project Name	2003 CIP Completion Date A	2005 WSIP Completion Date B	Variance, Months (A-B)	2007 Revised WSIP Completion Date C	Variance, Months (B-C)	2009 Revised WSIP Completion Date D	Variance, Months (C-D)	2011 Revised WSIP Completion Date E	Variance, Months (D-E)	2011-2013 Revised Completion Date[1] F	Variance, Months (E-F)	2013 Rivised WSIP Completion Date G	Variance, Months (F-G)	2014 Rivised WSIP Completion Date H	Variance, Months (G-H)
San Joaquin Region																
CUW36401	Lawrence Livermore Water Quality Improvement ***(Completed)***	Mar-11	Nov-11	8 (Late)	Dec-10	11 (Early)	Dec-10	-	Sep-11	9 (Late)	Sep-11	-	Apr-13	19 (Late)	Jul-13	3 (Late)
CUW37301[1]	San Joaquin Pipeline System	May-11	Mar-14	35 (Late)	Mar-14	-	Mar-14	-	Mar-14	-	Mar-14	-	Mar-15	12 (Late)	Mar-15	-
CUW37302	Rehabilitation of Existing San Joaquin Pipelines	-	Jun-14	-	Jun-14	-	Jun-14	-	Mar-14	4 (Early)	Mar-14	-	Aug-13	6 (Early)	Jun-14	10 (Late)
CUW38401[1]	Tesla Treatment Facility	Nov-11	Jul-11	4 (Early)	Mar-12	9 (Late)	Mar-12	-	Sep-12	6 (Late)	Sep-12	-	Sep-13	12 (Late)	Jul-14	10 (Late)
CUW38701	Tesla Portal Disinfection Station ***(Combined with CUW38401)***	Apr-08	Sep-11	41 (Late)	-	-	-	-	-	-	-	-	-	-	-	-
Sunol Valley Region																
CUW35201	Alameda Creek Recapture Project	Dec-06	May-12	66 (Late)	Mar-14	22 (Late)	Aug-14	5 (Late)	Jul-16	23 (Late)	Jul-16	-	Apr-19	33 (Late)	Apr-19	-
CUW35501	Standby Power Facilities - Various Locations ***(Completed)***	Nov-13	Dec-10	35 (Early)	Dec-10	-	Dec-10	-	Dec-10	<1 (Late)	Dec-10	-	Dec-10	-	Dec-10	-
CUW35901[1]	New Irvington Tunnel	Aug-09	Sep-13	50 (Late)	Dec-13	3 (Late)	Dec-13	-	Oct-14	10 (Late)	Jan-16	15 (Late)	Mar-16	2 (Late)	Mar-16	-
CUW35902	Alameda Siphon #4 ***(Completed)***	Aug-09	Apr-11	20 (Late)	Aug-11	4 (Late)	Jun-12	10 (Late)	Jun-12	-	Jun-12	-	Jun-13	13 (Late)	Jun-13	-
CUW37001	Pipeline Repair & Readiness Improvements ***(Completed)***	Sep-04	Mar-07	31 (Late)	Dec-08	21 (Late)	Dec-08	-	Apr-09	3 (Late)	Apr-09	-	Apr-09	-	Apr-09	-
CUW37401[1]	Calaveras Dam Replacement	May-09	May-12	37 (Late)	May-12	-	Dec-15	42 (Late)	Jul-16	8 (Late)	Aug-18	25 (Late)	Aug-18	-	May-19	9 (Late)
CUW37402	Calaveras Reservoir Upgrades ***(Completed)***	-	Jun-06	-	Jul-06	1 (Late)	Jul-06	-	Jul-06	-	Jul-06	-	Jul-06	-	Jul-06	-
CUW37403	San Antonio Backup Pipeline	-	Jun-12	-	Jun-12	-	Dec-13	18 (Late)	Mar-15	14 (Late)	Mar-15	-	Nov-15	9 (Late)	Nov-15	-
CUW38101	SVWTP Expansion & Treated Water Reservoir	Apr-09	Jul-13	51 (Late)	Jul-13	-	Jul-13	-	Dec-13	5 (Late)	Dec-13	-	Feb-14	2 (Late)	May-14	3 (Late)
CUW38102	SVWTP Calaveras Road ***(Eliminated)***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CUW38201	SVWTP Treated Water Reservoir ***(Combined with CUW38101)***	Nov-07	Dec-10	38 (Late)	Mar-07	-	Mar-07	-	Mar-07	-	Mar-07	-	Mar-07	-	Mar-07	-
CUW38601	San Antonio Pump Station Upgrade ***(Completed)***	Oct-05	Dec-11	74 (Late)	Dec-11	<1 (Early)	Dec-11	-	Dec-11	-	Dec-11	-	Jun-12	7 (Late)	Jun-12	-
Bay Division Region																
CUW35301	BDPL Nos. 3 & 4 Crossover/Isolation Valves ***(Completed)***	Aug-10	Sep-08	22 (Early)	Sep-08	-	Sep-08	-	Jul-09	10 (Late)	Jul-09	-	Jul-09	-	Jul-09	-
CUW35302	Seismic Upgrade of BDPL Nos. 3 & 4	Feb-13	Oct-12	4 (Early)	Dec-14	26 (Late)	Dec-14	-	Apr-15	4 (Late)	Apr-15	<1 (Early)	Sep-15	5 (Late)	Dec-15	3 (Late)
CUW36301	SCADA System - Phase II ***(Completed)***	Sep-14	Feb-12	30 (Early)	Feb-12	-	Feb-12	-	Feb-12	-	Feb-12	-	May-13	15 (Late)	May-13	-
CUW36801	BDPL Reliability Upgrade - Tunnel	Feb-13	Jan-14	12 (Late)	Jan-14	-	Aug-15	18 (Late)	Nov-15	3 (Late)	Nov-15	-	Nov-15	-	Mar-16	5 (Late)
CUW36802[1]	BDPL Reliability Upgrade - Pipeline	-	Jan-14	-	Mar-13	11 (Early)	Mar-13	<1 (Late)	Mar-13	-	Oct-13	7 (Late)	Dec-13	3 (Late)	Apr-15	15 (Late)
CUW36803	BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2 ***(Completed)***	-	Jan-14	-	Jun-11	32 (Early)	Jul-11	1 (Late)	May-10	13 (Early)	May-10	-	May-10	-	May-10	-
CUW38001	BDPL Nos. 3 & 4 Crossovers	Jul-10	Apr-13	34 (Late)	Sep-13	5 (Late)	Sep-13	-	May-13	4 (Early)	May-13	-	Jul-13	2 (Late)	Jun-14	11 (Late)
CUW38901	SFPUC/EBMUD Intertie (Completed)	-	Feb-07	-	Jun-08	17 (Late)	Jun-08	-	Dec-11	42 (Late)	Dec-11	-	Sep-13	21 (Late)	Mar-14	6 (Late)
CUW39301	BDPL No. 4 Condition Assessment PCCP Sections ***(Completed)***	-	May-08	-	May-08	-	Feb-09	9 (Late)	Feb-09	-	Feb-09	-	Feb-09	-	Feb-09	-
Peninsula Region																
CUW35401	Lower Crystal Springs Dam Improvements ***(Completed)***	Feb-14	Aug-11	30 (Early)	Aug-11	-	Jun-12	10 (Late)	Sep-12	3 (Late)	Sep-12	-	Dec-12	3 (Late)	Dec-12	-
CUW35601	New Crystal Springs Bypass Tunnel ***(Completed)***	May-09	Oct-10	17 (Late)	Mar-12	16 (Late)	Mar-12	-	Mar-12	<1 (Late)	Mar-12	-	Aug-12	5 (Late)	Aug-12	
CUW35701	Adit Leak Repair - Crystal Springs/Calaveras ***(Completed)***	Dec-07	Jul-08	7 (Late)	Jul-08	-	Jul-08	<1 (Late)	Jul-08	-	Jul-08	-	Jul-08	-	Jul-08	-
CUW36101	Pulgas Balancing - Inlet/Outlet Work ***(Completed)***	Mar-16	May-06	118 (Early)	May-06	-	May-06	-	May-06	-	May-06	-	May-06	-	May-06	-
CUW36102	Pulgas Balancing - Discharge Channel Modifications ***(Completed)***	-	Aug-13	-	Jun-12	14 (Early)	Aug-10	22 (Early)	Jul-10	<1 (Early)	Jul-10	-	Jul-10	-	Jul-10	-
CUW36103	Pulgas Balancing - Structural Rehabilitation and Roof Replacement ***(Completed)***	-	Jan-13	-	Nov-13	9 (Late)	Feb-12	21 (Early)	Feb-12	<1 (Late)	Feb-12	-	Dec-12	10 (Late)	Dec-12	
CUW36104	Pulgas Balancing - Laguna Creek Sedimentation ***(Eliminated)***	-		-		-		-		-		-		-		-
CUW36105[1]	Pulgas Balancing - Modifications of the Existing Dechloramination Facility ***(Completed)***	-	Aug-13	-	May-12	14 (Early)	May-12	-	May-12	-	Mar-13	10 (Late)	Mar-13	-	Mar-13	-

March 2014 Revised WSIP - 2003 to 2014 Schedule Changes

Project No.	Project Name	2003 CIP Completion Date A	2005 WSIP Completion Date B	Variance, Months (A-B)	2007 Revised WSIP Completion Date C	Variance, Months (B-C)	2009 Revised WSIP Completion Date D	Variance, Months (C-D)	2011 Revised WSIP Completion Date E	Variance, Months (D-E)	2011-2013 Revised Completion Date[1] F	Variance, Months (E-F)	2013 Rivised WSIP Completion Date G	Variance, Months (F-G)	2014 Rivised WSIP Completion Date H	Variance, Months (G-H)
CUW36501	Cross Connection Controls ***(Completed)***	Sep-15	May-09	76 (Early)	Feb-09	3 (Early)	Feb-09	-	Apr-09	2 (Late)	Apr-09	-	Apr-09	-	Apr-09	-
CUW36601	HTWTP Short-Term Improvements (Demo Filters) ***(Completed)***	Nov-12	Jun-06	77 (Early)	Nov-06	5 (Late)	Nov-06	<1 (Late)	Nov-06	-	Nov-06	-	Nov-06	-	Nov-06	-
CUW36602	HTWTP Short-Term Improvements - Remaining Filters ***(Combined with CUW36603)***	-	Sep-10	-	Feb-08	31 (Early)	Feb-08	-	Feb-08	-	Feb-08	-	Feb-08	-	Feb-08	-
CUW36603	HTWTP Short-Term Improvements - Coagulation & Flocculation/ Remaining Filters ***(Completed)***	-	Sep-10	-	Sep-10	-	Sep-10	-	Jul-10	1 (Early)	Jul-10	-	Jul-10	-	Jul-10	-
CUW36701	HTWTP Long-Term Improvements	Mar-16	Apr-14	23 (Early)	Jun-14	2 (Late)	Jun-14	-	Dec-15	18 (Late)	Dec-15	-	Jan-16	1 (Late)	Jan-16	-
CUW36702	Peninsula Pipelines Seismic Upgrade	-	-	-	-	-	Dec-14	-	Jul-16	19 (Late)	Jul-16	-	Jul-16	-	Jul-16	-
CUW36901	Capuchino Valve Lot Improvements ***(Completed)***	Mar-16	Jul-09	80 (Early)	Feb-09	5 (Early)	Aug-08	6 (Early)	Aug-08	-	Aug-08	-	Aug-08	-	Aug-08	-
CUW37101	Crystal Springs/San Andreas Transmission Upgrade	Jul-11	Apr-14	33 (Late)	Apr-14	-	Apr-14	-	Apr-14	<1 (Late)	Apr-14	-	Jan-15	8 (Late)	Jun-15	6 (Late)
CUW37801	Crystal Springs Pipeline No. 2 Replacement	Nov-15	Apr-12	43 (Early)	Apr-12	-	Jul-13	15 (Late)	Sep-13	2 (Late)	Sep-13	-	Sep-13	-	Jul-14	10 (Late)
CUW37901	San Andreas Pipeline No. 3 Installation ***(Completed)***	Nov-14	Jun-11	41 (Early)	May-12	11 (Late)	May-12	-	Nov-11	6 (Early)	Nov-11	-	Aug-12	9 (Late)	Aug-12	-
CUW39101	Baden and San Pedro Valve Lots Improvements ***(Completed)***	-	Oct-11	-	Aug-11	2 (Early)	Aug-11	-	Aug-12	11 (Late)	Aug-12	-	Mar-13	8 (Late)	Mar-13	-
San Francisco Regional Region																
CUW30103	Regional Groundwater Storage and Recovery		Feb-14	-	Dec-13	2 (Early)	Sep-14	9 (Late)	Jun-16	21 (Late)	Jun-16	-	Jul-16	1 (Late)	Jul-18	24 (Late)
CUW35801	Sunset Reservoir - North Basin ***(Completed)***	Oct-14	May-09	65 (Early)	May-09	<1 (Early)	May-09	<1 (Late)	Sep-10	16 (Late)	Sep-10	-	Sep-10	-	Sep-10	-
CUW37201	University Mound Reservoir - North Basin ***(Completed)***	Aug-11	Mar-11	5 (Early)	Mar-11	-	Dec-11	9 (Late)	Jan-12	1 (Late)	Feb-12	1 (Late)	Mar-13	13 (Late)	Mar-13	-
Support Projects																
CUW36302[2]	System Security Upgrade	-	Feb-12	-	Feb-12	-	Feb-12	-	Apr-16	50 (Late)	Apr-16	-	Apr-16	-	Apr-16	-
CUW38801	Programmatic EIR ***(Completed)***	-	Jan-08	-	May-08	4 (Late)	Jun-09	13 (Late)	Jun-09	-	Jun-09	-	Jun-09	-	Jun-09	-
CUW38802	Bioregional Habitat Restoration	-	-	-	Aug-11	-	Aug-11	-	Jun-16	58 (Late)	Jun-16	-	Jul-16	1 (Late)	Jul-16	-
CUW38803[1]	Vegetation Restoration of WSIP Construction Sites	-	-	-	-	-	-	-	-	-	Oct-13	-	Oct-13	-	Dec-15	26 (Late)
CUW38804	Long Term Mitigation Endowment														Aug-18	-
CUW39201	Program Management Project	-	Jun-14	-	Dec-14	6 (Late)	Dec-15	12 (Late)	Jul-16	8 (Late)	Jul-16	-	Jul-16	-	Dec-16	5 (Late)
CUW39401	Watershed Environmental Improvement Program	-	Jun-13	-	Jun-13	<1 (Late)	Jun-13	-	Jun-14	12 (Late)	Jun-14	-	May-15	10 (Late)	Aug-18	40 (Late)
Regional Program Sub-Total		**Mar-16**	**Jun-14**	**21 (Early)**	**Dec-14**	**6 (Late)**	**Dec-15**	**12 (Late)**	**Jul-16**	**8 (Late)**	**Aug-18**	**25 (Late)**	**Apr-19**	**7 (Late)**	**May-19**	**2 (Late)**
San Francisco Local Program								-								
All Original Local Projects		**Apr-13**	**Jun-13**	**2 (Late)**	**Nov-12**	**6 (Early)**	**Mar-14**	**15 (Late)**	**Jun-15**	**15 (Late)**	**Jun-15**	**-**	**Aug-15**	**2 (Late)**	**Aug-15**	**-**
Water Supply Projects		**Apr-13**	**Apr-13**	**<1 (Early)**	**Sep-13**	**6 (Late)**	**Oct-14**	**13 (Late)**	**Jul-16**	**21 (Late)**	**Jul-16**	**-**	**Oct-19**	**38 (Late)**	**Sep-22**	**35 (Late)**
Local Program Sub-Total		**Apr-13**	**Jun-13**	**1 (Late)**	**Nov-12**	**6 (Early)**	**Oct-14**	**22 (Late)**	**Jul-16**	**21 (Late)**	**Jul-16**	**-**	**Oct-19**	**38 (Late)**	**Sep-22**	**35 (Late)**
Regional + Local Program Sub-Total		**Mar-16**	**Jun-14**	**21 (Early)**	**Dec-14**	**6 (Late)**	**Dec-15**	**12 (Late)**	**Jul-16**	**8 (Late)**	**Aug-18**	**25 (Late)**	**Oct-19**	**13 (Late)**	**Sep-22**	**35 (Late)**

Notes:

(1) Revisions to project schedule approved by Commission between adoption of 2011 Revised WSIP Schedule and Proposed 2013 Revised WSIP Schedule.

(2) In the 2005 Revised WSIP, the System Upgrade project was combined with the SCADA System Phase II project, and the combined project was budgeted under the Bay Division Region. In the 2007 and 2009 Revised WSIP, the System Security Upgrade project was budgeted separately under the Bay Division Region (budgets reflected herein under Support Proejcts)managed under the Bay Division Region. In the 2011 Revised WSIP and subsequent program revisions, the System Security Upgrade Project was reported under the Support Projects.

APPENDIX J

REVISED PROJECT BUDGETS

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APPENDIX J: March 2014 Revised WSIP – Revised Project Budgets

PROJECT NO.	PROJECT	CONSTRUCTION COSTS (1)	DELIVERY COSTS (2)	OTHER COSTS (3)	TOTAL PROJECT COSTS
San Joaquin Region		**$222,432,339**	**$116,023,567**	**$8,455,766**	**$346,911,672**
CUW36401	Lawrence Livermore Water Quality Improvement ***(Completed)***	$1,481,801	$2,716,679	-	$4,198,480
CUW37301	San Joaquin Pipeline System	$128,187,871	$74,066,619	$3,706,956	$205,961,446
CUW37302	Rehabilitation of Existing San Joaquin Pipelines	$11,437,358	$9,822,927	$24,000	$21,284,284
CUW38401	Tesla Treatment Facility	$81,325,310	$27,336,065	$4,724,810	$113,386,184
CUW38701	Tesla Portal Disinfection Station ***(Combined with CUW38401)***	-	$2,081,278	-	$2,081,278
Sunol Valley Region		**$1,032,072,632**	**$322,936,558**	**$19,213,696**	**$1,374,222,885**
CUW35201	Alameda Creek Recapture Project	$13,600,000	$14,953,000	$858,000	$29,411,000
CUW35501	Standby Power Facilities - Various Locations ***(Completed)***	$9,602,901	$3,344,879	-	$12,947,780
CUW35901	New Irvington Tunnel	$271,122,509	$63,627,021	$4,361,465	$339,110,995
CUW35902	Alameda Siphon #4 ***(Completed)***	$41,479,253	$23,352,351	$261,978	$65,093,582
CUW37001	Pipeline Repair & Readiness Improvements ***(Completed)***	$2,763,325	$2,442,168	-	$5,205,493
CUW37401	Calaveras Dam Replacement	$556,453,500	$149,166,168	$12,692,096	$718,311,764
CUW37402	Calaveras Reservoir Upgrades ***(Completed)***	$1,274,600	$415,953	-	$1,690,552
CUW37403	San Antonio Backup Pipeline	$34,142,649	$19,990,352	$559,800	$54,692,801
CUW38101	SVWTP Expansion & Treated Water Reservoir	$94,117,029	$35,176,786	$469,856	$129,763,671
CUW38102	SVWTP Calaveras Road ***(Eliminated)***	-	$34,654	-	$34,654
CUW38201	SVWTP Treated Water Reservoir ***(Combined with CUW38101)***	-	$5,056,596	-	$5,056,596
CUW38601	San Antonio Pump Station Upgrade ***(Completed)***	$7,516,865	$5,376,631	$10,500	$12,903,996
Bay Division Region		**$477,610,645**	**$173,367,886**	**$15,035,980**	**$666,014,510**
CUW35301	BDPL Nos. 3 & 4 Crossover/Isolation Valves ***(Completed)***	$20,649,649	$6,362,185	-	$27,011,834
CUW35302	Seismic Upgrade of BDPL Nos. 3 & 4	$43,567,581	$29,585,793	$1,975,885	$75,129,259
CUW36301	SCADA System - Phase II ***(Completed)***	$5,400,070	$4,061,569	$18,450	$9,480,089
CUW36801	BDPL Reliability Upgrade - Tunnel	$231,783,640	$51,807,843	$4,007,655	$287,599,138
CUW36802	BDPL Reliability Upgrade - Pipeline	$149,252,731	$63,195,591	$8,436,645	$220,884,968
CUW36803	BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2 ***(Completed)***	$2,363,367	$683,615	-	$3,046,981
CUW38001	BDPL Nos. 3 & 4 Crossovers	$14,867,048	$14,849,157	$597,345	$30,313,550
CUW38901	SFPUC/EBMUD Intertie ***(Completed)***	$9,726,559	$855,240	-	$10,581,799
CUW39301	BDPL No. 4 Condition Assessment PCCP Sections ***(Completed)***	-	$1,966,891	-	$1,966,891
Peninsula Region		**$542,136,772**	**$251,611,984**	**$15,759,174**	**$809,507,930**
CUW35401	Lower Crystal Springs Dam Improvements ***(Completed)***	$20,357,966	$14,523,458	$50,000	$34,931,424
CUW35601	New Crystal Springs Bypass Tunnel ***(Completed)***	$57,409,887	$23,957,546	$92,603	$81,460,035
CUW35701	Adit Leak Repair - Crystal Springs/Calaveras ***(Completed)***	$1,706,478	$1,080,845	-	$2,787,322
CUW36101	Pulgas Balancing - Inlet/Outlet Work ***(Completed)***	$638,020	$1,127,918	-	$1,765,938
CUW36102	Pulgas Balancing - Discharge Channel Modifications ***(Completed)***	$903,240	$1,943,846	$64,531	$2,911,617
CUW36103	Pulgas Balancing - Structural Rehabilitation and Roof Replacement ***(Completed)***	$13,276,548	$6,804,183	$151,483	$20,232,215
CUW36104	Pulgas Balancing - Laguna Creek Sedimentation ***(Eliminated)***	-	$503,928	-	$503,928
CUW36105	Pulgas Balancing - Modifications of the Existing Dechloramination Facility ***(Completed)***	$2,054,696	$3,285,334	$50,000	$5,390,031

APPENDIX J: March 2014 Revised WSIP – Revised Project Budgets

PROJECT NO.	PROJECT	CONSTRUCTION COSTS (1)	DELIVERY COSTS (2)	OTHER COSTS (3)	TOTAL PROJECT COSTS
CUW36501	Cross Connection Controls ***(Completed)***	$1,835,224	$2,090,210	$23,509	$3,948,944
CUW36601	HTWTP Short-Term Improvements (Demo Filters) ***(Completed)***	$1,683,042	$1,384,862	-	$3,067,903
CUW36602	HTWTP Short-Term Improvements - Remaining Filters ***(Combined with CUW36603)***	-	$1,424,510	-	$1,424,510
CUW36603	HTWTP Short-Term Improvements - Coagulation & Flocculation/ Remaining Filters ***(Completed)***	$15,214,291	$3,391,412	-	$18,605,702
CUW36701	HTWTP Long-Term Improvements	$195,021,299	$75,336,314	$7,880,724	$278,238,337
CUW36702	Peninsula Pipelines Seismic Upgrade	$23,483,217	$16,092,444	$2,517,967	$42,093,628
CUW36901	Capuchino Valve Lot Improvements ***(Completed)***	$1,576,733	$1,226,420	-	$2,803,153
CUW37101	Crystal Springs/San Andreas Transmission Upgrade	$140,153,985	$56,490,214	$4,135,401	$200,779,600
CUW37801	Crystal Springs Pipeline No. 2 Replacement	$34,087,702	$21,580,576	$386,598	$56,054,876
CUW37901	San Andreas Pipeline No. 3 Installation ***(Completed)***	$17,087,803	$10,001,396	$406,359	$27,495,558
CUW39101	Baden and San Pedro Valve Lots Improvements ***(Completed)***	$15,646,639	$9,366,568	-	$25,013,207
San Francisco Regional Region		**$156,138,848**	**$59,443,341**	**$5,689,381**	**$221,271,570**
CUW30103	Regional Groundwater Storage and Recovery	$72,206,804	$35,683,815	$5,689,381	$113,580,000
CUW35801	Sunset Reservoir - North Basin ***(Completed)***	$52,777,386	$11,494,184	-	$64,271,570
CUW37201	University Mound Reservoir - North Basin ***(Completed)***	$31,154,659	$12,265,341	-	$43,420,000
Support Projects		**$7,290,118**	**$163,029,366**	**$86,349,868**	**$256,669,351**
CUW36302	System Security Upgrade	$7,290,118	$11,334,755	-	$18,624,873
CUW38801	Programmatic EIR ***(Completed)*** (4)	-	$10,730,307	-	$10,730,307
CUW38802	Bioregional Habitat Restoration	-	$31,575,787	$54,093,955	$85,669,741
CUW38803	Vegetation Restoration of WSIP Construction Sites	-	$1,428,770	$771,230	$2,200,000
CUW38804	Long Term Mitigation Endowment	-	-	$12,000,000	$12,000,000
CUW39201	Program Management Project (4)	-	$105,741,527	$1,702,902	$107,444,429
CUW39401	Watershed Environmental Improvement Program	-	$2,218,220	$17,781,781	$20,000,000
Regional Program Sub-Total		**$2,437,681,354**	**$1,086,412,701**	**$150,503,864**	**$3,674,597,919**
Local Program Sub-Total		**$428,484,791**	**$186,675,278**	**$4,025,684**	**$619,185,753**
Regional + Local Programs Sub-Total		**$2,866,166,145**	**$1,273,087,978**	**$154,529,549**	**$4,293,783,672**
Program Management Reserve					**-**
Financing Cost					**$471,700,000**
PROGRAM TOTAL					**$4,765,483,672**

(1) **Construction Costs** include the Construction Base Bid, Construction Contingency and owner-provided equipment/material.

(2) **Delivery Costs** include program and project management, planning, environmental (CEQA, permitting, construction compliance), design, construction management, and engineering support during construction.

(3) **Other Costs** include environmental mitigation, art enrichment, security improvements, and real estate transactions.

(4) Program activities managed and tracked separately but not included in 48 regional project count.

APPENDIX K

2003-2013 BUDGET CHANGES

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March 2014 Revised WSIP - 2003 to 2014 Budget Changes

Project No.	Project Name	2003 Baseline Budget A	2005 Baseline Budget B	Variance (A-B)	2007 Revised WSIP Budget C	Variance (B-C)	2009 Revised WSIP Budget D	Variance (C-D)	2011 Revised WSIP Budget E	Variance (D-E)	2011-2013 Revised Budget[1, 2] F	Variance (E-F)	2013 Revised WSIP Budget G	Variance (F-G)	2014 Revised WSIP Budget H	Variance (G-H)
San Joaquin Region		**$454,340,058**	**$559,341,529**	**($105,001,471)**	**$486,201,180**	**$73,140,349**	**$430,052,456**	**$56,148,724**	**$342,820,653**	**$87,231,803**	**$351,886,307**	**($9,065,655)**	**$348,691,060**	**$3,195,247**	**$346,911,672**	**$1,779,388**
CUW36401	Lawrence Livermore Water Quality Improvement ***(Completed)***	$1,800,828	$4,235,258	($2,434,430)	$4,355,200	($119,942)	$3,900,231	$454,969	$4,205,166	($304,935)	$4,205,167	($1)	$4,205,166	$1	$4,198,480	$6,686
CUW37301 [1]	San Joaquin Pipeline System	$391,379,655	$352,732,000	$38,647,655	$270,346,843	$82,385,157	$278,055,413	($7,708,570)	$203,608,758	$74,446,655	$209,928,252	($6,319,494)	$207,416,022	$2,512,230	$205,961,446	$1,454,576
CUW37302 [1]	Rehabilitation of Existing San Joaquin Pipelines	$0	$80,000,000	($80,000,000)	$89,999,545	($9,999,545)	$31,852,309	$58,147,236	$22,242,218	$9,610,091	$22,276,151	($33,933)	$21,318,258	$957,893	$21,284,284	$33,974
CUW38401 [1]	Tesla Treatment Facility	$50,645,454	$101,643,001	($50,997,547)	$119,404,314	($17,761,313)	$114,162,348	$5,241,966	$110,683,233	$3,479,115	$113,395,460	($2,712,227)	$113,670,336	($274,876)	$113,386,184	$284,152
CUW38701	Tesla Portal Disinfection Station ***(Combined with CUW38401)***	$10,514,121	$20,731,270	($10,217,149)	$2,095,278	$18,635,992	$2,082,155	$13,123	$2,081,278	$877	$2,081,278	$0	$2,081,278	$0	$2,081,278	$0
Sunol Valley Region		**$442,165,999**	**$870,904,713**	**($428,738,714)**	**$957,767,968**	**($86,863,255)**	**$1,053,987,667**	**($96,219,699)**	**$1,056,068,082**	**($2,080,415)**	**$1,188,168,081**	**($132,099,999)**	**$1,262,521,783**	**($74,353,702)**	**$1,374,222,885**	**($111,701,102)**
CUW35201	Upper Alameda Creek Filter Gallery	$6,730,672	$18,809,304	($12,078,632)	$21,855,361	($3,046,057)	$21,855,361	$0	$45,746,807	($23,891,446)	$45,746,807	$0	$24,403,000	$21,343,807	$29,411,000	($5,008,000)
CUW35501	Standby Power Facilities - Various Locations ***(Completed)***	$5,498,790	$9,949,735	($4,450,945)	$13,110,232	($3,160,497)	$13,110,232	$0	$12,947,780	$162,452	$12,947,780	$0	$12,947,780	$0	$12,947,780	$0
CUW35901 [1]	New Irvington Tunnel	$143,928,778	$214,650,004	($70,721,226)	$342,679,908	($128,029,904)	$337,703,984	$4,975,924	$313,424,513	$24,279,471	$319,924,513	($6,500,000)	$323,734,000	($3,809,487)	$339,110,995	($15,376,995)
CUW35902 [1]	Alameda Siphon #4 ***(Completed)***	$0	$78,577,000	($78,577,000)	$61,859,768	$16,717,232	$60,881,458	$978,310	$61,645,964	($764,506)	$66,045,964	($4,400,000)	$65,082,000	$963,964	$65,093,582	($11,582)
CUW37001	Pipeline Repair & Readiness Improvements ***(Completed)***	$3,369,860	$5,591,770	($2,221,910)	$5,653,459	($61,689)	$5,407,880	$245,579	$5,205,493	$202,387	$5,205,493	$0	$5,205,493	$0	$5,205,493	$0
CUW37401 [1]	Calaveras Dam Replacement	$150,000,000	$256,511,407	($106,511,407)	$307,756,121	($51,244,714)	$409,444,761	($101,688,640)	$415,637,844	($6,193,083)	$532,637,844	($117,000,000)	$620,813,000	($88,175,156)	$718,311,764	($97,498,764)
CUW37402	Calaveras Reservoir Upgrades ***(Completed)***	$0	$1,740,055	($1,740,055)	$2,306,690	($566,635)	$1,690,553	$616,137	$1,690,552	$1	$1,690,552	$0	$1,690,552	$0	$1,690,552	$0
CUW37403	San Antonio Backup Pipeline	$0	$7,677,000	($7,677,000)	$32,328,158	($24,651,158)	$39,202,680	($6,874,522)	$54,867,139	($15,664,459)	$54,867,138	$1	$55,490,000	($622,862)	$54,692,801	$797,199
CUW38101 [1]	SVWTP Expansion & Treated Water Reservoir	$81,974,044	$133,108,002	($51,133,958)	$149,143,167	($16,035,165)	$144,872,375	$4,270,792	$126,384,532	$18,487,843	$130,584,532	($4,200,000)	$135,170,000	($4,585,468)	$129,763,671	$5,406,329
CUW38102	SVWTP Calaveras Road ***(Eliminated)***	$0	$0	$0	$390,820	($390,820)	$34,653	$356,167	$34,654	($1)	$34,654	$0	$34,654	$0	$34,654	$0
CUW38201	SVWTP Treated Water Reservoir ***(Combined with CUW38101)***	$46,978,215	$102,436,436	($55,458,221)	$5,082,923	$97,353,513	$5,070,808	$12,115	$5,057,035	$13,773	$5,057,035	$0	$5,056,596	$439	$5,056,596	$0
CUW38601	San Antonio Pump Station Upgrade ***(Completed)***	$3,685,640	$41,854,000	($38,168,360)	$15,601,361	$26,252,639	$14,712,922	$888,439	$13,425,768	$1,287,154	$13,425,768	$0	$12,894,707	$531,061	$12,903,996	($9,289)
Bay Division Region		**$330,657,813**	**$749,730,402**	**($419,072,589)**	**$796,170,605**	**($46,440,203)**	**$785,113,675**	**$11,056,930**	**$691,915,562**	**$93,198,113**	**$705,833,449**	**($13,917,887)**	**$665,079,503**	**$40,753,946**	**$666,014,510**	**($935,007)**
CUW35301	BDPL Nos. 3 & 4 Crossover/Isolation Valves ***(Completed)***	$42,003,012	$27,600,158	$14,402,854	$28,588,382	($988,224)	$27,731,316	$857,066	$27,014,559	$716,757	$27,014,559	$0	$27,011,834	$2,725	$27,011,834	$0
CUW35302 [2]	Seismic Upgrade of BDPL Nos. 3 & 4	$0	$66,792,849	($66,792,849)	$66,786,229	$6,620	$85,193,182	($18,406,953)	$92,199,810	($7,006,628)	$91,567,810	$632,000	$78,211,285	$13,356,525	$75,129,259	$3,082,026
CUW36301	SCADA System - Phase II ***(Completed)***	$28,713,137	$36,098,999	($7,385,862)	$21,288,390	$14,810,609	$18,232,832	$3,055,558	$10,420,832	$7,812,000	$10,420,832	$0	$9,498,352	$922,480	$9,480,089	$18,263
CUW36801	BDPL Reliability Upgrade - Tunnel	$248,969,805	$572,022,634	($323,052,829)	$352,320,841	$219,701,793	$346,660,244	$5,660,597	$307,081,069	$39,579,175	$307,081,069	$0	$286,372,630	$20,708,439	$287,599,138	($1,226,508)
CUW36802 [1&2]	BDPL Reliability Upgrade - Pipeline	$0	$0	$0	$260,114,266	($260,114,266)	$250,629,058	$9,485,208	$207,372,702	$43,256,356	$221,922,589	($14,549,887)	$217,884,968	$4,037,621	$220,884,968	($3,000,000)
CUW36803	BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2 ***(Completed)***	$0	$0	$0	$4,109,984	($4,109,984)	$2,885,190	$1,224,794	$3,046,681	($161,491)	$3,046,681	$0	$3,046,981	($300)	$3,046,981	$0
CUW38001	BDPL Nos. 3 & 4 Crossovers	$10,971,859	$36,616,911	($25,645,052)	$43,033,869	($6,416,958)	$33,944,441	$9,089,428	$33,253,264	$691,177	$33,253,263	$1	$30,473,544	$2,779,719	$30,313,550	$159,994
CUW38901	SFPUC/EBMUD Intertie ***(Completed)***	$0	$8,598,851	($8,598,851)	$8,429,072	$169,779	$8,429,072	$0	$9,559,755	($1,130,683)	$9,559,755	$0	$10,613,018	($1,053,263)	$10,581,799	$31,219
CUW39301	BDPL No. 4 Condition Assessment PCCP Sections ***(Completed)***	$0	$2,000,000	($2,000,000)	$2,119,540	($119,540)	$2,028,308	$91,232	$1,966,891	$61,417	$1,966,891	$0	$1,966,891	$0	$1,966,891	$0
Peninsula Region		**$272,785,754**	**$700,531,784**	**($427,746,030)**	**$712,372,425**	**($11,840,641)**	**$894,784,082**	**($182,411,657)**	**$771,655,408**	**$123,128,674**	**$773,912,408**	**($2,257,000)**	**$808,596,773**	**($34,684,365)**	**$809,507,930**	**($911,157)**
CUW35401 [1]	Lower Crystal Springs Dam Improvements ***(Completed)***	$16,888,718	$27,752,222	($10,863,504)	$30,411,202	($2,658,980)	$36,253,097	($5,841,895)	$33,510,000	$2,743,097	$35,767,000	($2,257,000)	$34,920,718	$846,282	$34,931,424	($10,706)
CUW35601 [2]	New Crystal Springs Bypass Tunnel ***(Completed)***	$49,483,542	$83,222,790	($33,739,248)	$100,622,777	($17,399,987)	$94,608,996	$6,013,781	$86,444,995	$8,164,001	$86,089,995	$355,000	$81,462,828	$4,627,167	$81,460,035	$2,793
CUW35701	Adit Leak Repair - Crystal Springs/Calaveras ***(Completed)***	$2,194,818	$3,748,452	($1,553,634)	$3,236,526	$511,926	$2,792,885	$443,641	$2,787,322	$5,563	$2,787,322	$0	$2,787,322	$0	$2,787,322	$0
CUW36101	Pulgas Balancing - Inlet/Outlet Work ***(Completed)***	$15,776,324	$1,667,532	$14,108,792	$1,766,937	($99,405)	$1,765,940	$997	$1,765,938	$2	$1,765,938	$0	$1,765,938	$0	$1,765,938	$0
CUW36102	Pulgas Balancing - Discharge Channel Modifications ***(Completed)***	$0	$8,111,422	($8,111,422)	$9,485,990	($1,374,568)	$4,432,368	$5,053,622	$2,898,902	$1,533,466	$2,898,902	$0	$2,911,617	($12,715)	$2,911,617	$0
CUW36103	Pulgas Balancing - Structural Rehabilitation and Roof Replacement ***(Completed)***	$0	$36,712,846	($36,712,846)	$21,247,383	$15,465,463	$21,247,383	$0	$21,363,694	($116,311)	$21,363,695	($1)	$20,226,342	$1,137,353	$20,232,215	($5,873)
CUW36104	Pulgas Balancing - Laguna Creek Sedimentation ***(Eliminated)***	$0	$0	$0	$902,301	($902,301)	$495,889	$406,412	$503,928	($8,039)	$503,928	$0	$503,928	$0	$503,928	$0
CUW36105 [2]	Pulgas Balancing - Modifications of the Existing Dechloramination Facility ***(Completed)***	$0	$0	$0	$8,699,000	($8,699,000)	$6,158,246	$2,540,754	$5,790,114	$368,132	$6,145,114	($355,000)	$5,463,595	$681,519	$5,390,031	$73,564
CUW36501	Cross Connection Controls ***(Completed)***	$3,895,491	$6,111,779	($2,216,288)	$6,244,597	($132,818)	$3,802,674	$2,441,923	$3,965,943	($163,269)	$3,965,944	($1)	$3,948,944	$17,000	$3,948,944	$0

March 2014 Revised WSIP - 2003 to 2014 Budget Changes

Project No.	Project Name	2003 Baseline Budget A	2005 Baseline Budget B	Variance (A-B)	2007 Revised WSIP Budget C	Variance (B-C)	2009 Revised WSIP Budget D	Variance (C-D)	2011 Revised WSIP Budget E	Variance (D-E)	2011-2013 Revised Budget[1, 2] F	Variance (E-F)	2013 Revised WSIP Budget G	Variance (F-G)	2014 Revised WSIP Budget H	Variance (G-H)
CUW36601	HTWTP Short-Term Improvements (Demo Filters) ***(Completed)***	$2,996,539	$4,381,375	($1,384,836)	$3,234,505	$1,146,870	$3,062,332	$172,173	$3,067,227	($4,895)	$3,067,227	$0	$3,067,903	($676)	$3,067,903	$0
CUW36602	HTWTP Short-Term Improvements - Remaining Filters ***(Combined with CUW36603)***	$0	$16,079,372	($16,079,372)	$1,385,576	$14,693,796	$1,396,761	($11,185)	$1,424,553	($27,792)	$1,424,553	$0	$1,424,510	$43	$1,424,510	$0
CUW36603	HTWTP Short-Term Improvements - Coagulation & Flocculation/ Remaining Filters ***(Completed)***	$0	$9,741,617	($9,741,617)	$24,833,123	($15,091,506)	$19,579,133	$5,253,990	$18,604,528	$974,605	$18,604,527	$1	$18,605,702	($1,175)	$18,605,702	$0
CUW36701	HTWTP Long-Term Improvements	$37,391,665	$167,570,000	($130,178,335)	$175,760,181	($8,190,181)	$359,063,409	($183,303,228)	$276,896,409	$82,167,000	$276,896,409	$0	$283,238,337	($6,341,928)	$278,238,337	$5,000,000
CUW36702	Peninsula Pipelines Seismic Upgrade	$0	$0	$0	$0	$0	$15,000,000	($15,000,000)	$30,616,959	($15,616,959)	$30,616,959	$0	$42,093,629	($11,476,670)	$42,093,628	$1
CUW36901	Capuchino Valve Lot Improvements ***(Completed)***	$1,663,210	$3,573,782	($1,910,572)	$3,494,350	$79,432	$2,818,378	$675,972	$2,803,153	$15,225	$2,803,153	$0	$2,803,153	$0	$2,803,153	$0
CUW37101	Crystal Springs/San Andreas Transmission Upgrade	$58,169,947	$148,582,655	($90,412,708)	$170,668,718	($22,086,063)	$192,070,722	($21,402,004)	$164,722,000	$27,348,722	$164,722,000	$0	$193,623,446	($28,901,446)	$200,779,600	($7,156,154)
CUW37801	Crystal Springs Pipeline No. 2 Replacement	$58,997,400	$93,926,000	($34,928,600)	$68,316,098	$25,609,902	$71,243,333	($2,927,235)	$57,469,321	$13,774,012	$57,469,321	$0	$57,195,477	$273,844	$56,054,876	$1,140,601
CUW37901	San Andreas Pipeline No. 3 Installation ***(Completed)***	$25,328,100	$42,029,941	($16,701,841)	$46,659,868	($4,629,927)	$31,903,033	$14,756,835	$29,910,051	$1,992,982	$29,910,051	$0	$27,500,388	$2,409,663	$27,495,558	$4,830
CUW39101	Baden and San Pedro Valve Lots Improvements ***(Completed)***	$0	$47,319,999	($47,319,999)	$35,403,293	$11,916,706	$27,089,503	$8,313,790	$27,110,368	($20,865)	$27,110,368	$0	$25,052,994	$2,057,374	$25,013,207	$39,787
San Francisco Regional Region		**$109,366,305**	**$204,092,052**	**($94,725,747)**	**$182,804,822**	**$21,287,230**	**$160,330,360**	**$22,474,462**	**$194,089,200**	**($33,758,840)**	**$194,089,199**	**$1**	**$208,183,000**	**($14,093,801)**	**$221,271,570**	**($13,088,570)**
CUW30103	Regional Groundwater Storage and Recovery	$0	$39,233,443	($39,233,443)	$44,579,270	($5,345,827)	$49,848,731	($5,269,461)	$85,291,731	($35,443,000)	$85,291,730	$1	$100,491,430	($15,199,700)	$113,580,000	($13,088,570)
CUW35801	Sunset Reservoir - North Basin ***(Completed)***	$44,853,501	$61,975,999	($17,122,498)	$65,922,929	($3,946,930)	$64,334,929	$1,588,000	$64,374,385	($39,456)	$64,374,385	$0	$64,271,570	$102,815	$64,271,570	$0
CUW37201	University Mound Reservoir - North Basin ***(Completed)***	$64,512,804	$102,882,610	($38,369,806)	$72,302,623	$30,579,987	$46,146,700	$26,155,923	$44,423,084	$1,723,616	$44,423,084	$0	$43,420,000	$1,003,084	$43,420,000	$0
Support Projects		**$0**	**$81,347,001**	**($81,347,001)**	**$186,892,911**	**($105,545,910)**	**$189,757,910**	**($2,864,999)**	**$253,945,595**	**($64,187,685)**	**$258,033,901**	**($4,088,306)**	**$255,178,920**	**$2,854,981**	**$256,669,351**	**($1,490,431)**
CUW36302 [3]	System Security Upgrade	$0	$0	$0	$9,380,032	($9,380,032)	$9,380,032	$0	$16,667,553	($7,287,521)	$16,667,553	$0	$18,855,409	($2,187,856)	$18,624,873	$230,536
CUW38801	Programmatic EIR ***(Completed)***	$0	$9,271,001	($9,271,001)	$11,086,441	($1,815,440)	$11,086,441	$0	$10,730,307	$356,134	$10,730,307	$0	$10,730,307	$0	$10,730,307	$0
CUW38802 [1]	Bioregional Habitat Restoration	$0	$0	$0	$47,281,219	($47,281,219)	$48,146,219	($865,000)	$89,805,677	($41,659,458)	$89,236,983	$568,694	$95,948,775	($6,711,792)	$85,669,741	$10,279,034
CUW38803 [1]	Vegetation Restoration of WSIP Construction Sites	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,200,000	($2,200,000)	$2,200,000	$0	$2,200,000	$0
CUW38804	Long Term Mitigation Endowment											$0		$0	$12,000,000	($12,000,000)
CUW39201 [1]	Program Management Project	$0	$52,076,000	($52,076,000)	$108,525,251	($56,449,251)	$110,525,250	($1,999,999)	$116,742,058	($6,216,808)	$119,199,058	($2,457,000)	$107,444,429	$11,754,629	$107,444,429	$0
CUW39401	Watershed Environmental Improvement Program	$0	$20,000,000	($20,000,000)	$20,000,000	$0	$20,000,000	$0	$20,000,000	$0	$20,000,000	$0	$20,000,000	$0	$20,000,000	$0
Deferred/Cancelled Regional Projects		**$47,580,797**	**$0**	**$47,580,797**	**$3,865,000**	**($3,865,000)**	**$0**	**$3,865,000**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Regional Program Sub-Total		**$1,656,896,726**	**$3,407,351,000**	**($1,750,454,274)**	**$3,546,503,829**	**($139,152,829)**	**$3,514,026,150**	**$32,477,679**	**$3,310,494,499**	**$203,531,651**	**$3,471,923,344**	**($161,428,845)**	**$3,548,251,038**	**($76,327,694)**	**$3,674,597,919**	**($126,346,881)**
San Francisco Local Program														**$0**		
Non-Water Supply Projects		**$301,412,973**	**$383,202,000**	**($81,789,027)**	**$383,202,000**	**$0**	**$368,742,000**	**$14,460,000**	**$360,618,130**	**$8,123,870**	**$360,618,130**	**$0**	**$339,220,100**	**$21,398,030**	**$337,873,220**	**$1,346,880**
Water Supply Projects		**$116,441,065**	**$241,403,557**	**($124,962,492)**	**$220,428,918**	**$20,974,639**	**$231,088,110**	**($10,659,192)**	**$281,312,534**	**($50,224,424)**	**$281,312,533**	**$1**	**$281,312,533**	**$0**	**$281,312,533**	**$0**
Local Projects Sub-Total		**$417,854,038**	**$383,202,000**	**$34,652,038**	**$383,202,000**	**$0**	**$599,830,110**	**($216,628,110)**	**$641,930,664**	**($42,100,554)**	**$641,930,663**	**$1**	**$620,532,633**	**$21,398,030**	**$619,185,753**	**$1,346,880**
Regional + Local Program Sub-Total		**$2,074,750,764**	**$3,790,553,000**	**($1,715,802,236)**	**$3,929,705,829**	**($139,152,829)**	**$4,113,856,260**	**($184,150,431)**	**$3,952,425,163**	**$161,431,097**	**$4,113,854,007**	**($161,428,844)**	**$4,168,783,672**	**($54,929,665)**	**$4,293,783,672**	**($125,000,000)**
Financing Cost		**$662,988,000**	**$552,419,000**	**$110,569,000**	**$462,419,000**	**$90,000,000**	**$471,700,000**	**($9,281,000)**	**$471,700,000**	**$0**	**$471,700,000**	**$0**	**$471,700,000**	**$0**	**$471,700,000**	**$0**
Program Escalation [4]		**$481,044,000**	**$0**	**$481,044,000**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Program Management Reserve [5]		**$408,927,000**	**$0**	**$408,927,000**	**$0**	**$0**	**$0**	**$0**	**$161,431,097**	**($161,431,097)**	**$2,253**	**$161,428,844**	**$0**	**$2,253**	**$0**	**$0**
Program Total		**$3,627,709,764**	**$4,342,972,000**	**($715,262,236)**	**$4,392,124,829**	**($49,152,829)**	**$4,585,556,260**	**($193,431,431)**	**$4,585,556,260**	**$0**	**$4,585,556,260**	**$0**	**$4,640,483,672**	**($54,927,412)**	**$4,765,483,672**	**($125,000,000)**

Notes:

(1) Revisions to project budget funded from Program Management Reserve and approved by Commission between adoption of 2011 Revised WSIP Budget and Proposed 2013 Revised WSIP Budget.

(2) Revisions to project budget funded by transfer of project savings allowed within the same appropriation category and approved by Commission between adoption of 2011 Revised WSIP Budget and Proposed 2013 Revised WSIP Budget.

(3) In the 2005 Revised WSIP, the System Upgrade project was combined with the SCADA System Phase II project, and the combined project was budgeted under the Bay Division Region. In the 2007 and 2009 Revised WSIP, the System Security Upgrade project was budgeted separately under the Bay Division Region (budgets reflected herein under Support Proje Division Region. In the 2011 Revised WSIP and subsequent program revisions, the System Security Upgrade Project was reported under the Support Projects.

(4) Escalation for the 2003 WSIP Budget was estimated at the program level only. Escalation for the 2005, 2007 and 2009 Revised WSIP Budgets was estimated at the project-specific level.

(5) A Program Management Reserve was included only in the 2003 WSIP Budget and the 2011 WSIP Revised Budget.

APPENDIX L

IMPACTS ON SEISMIC RELIABILITY GOAL

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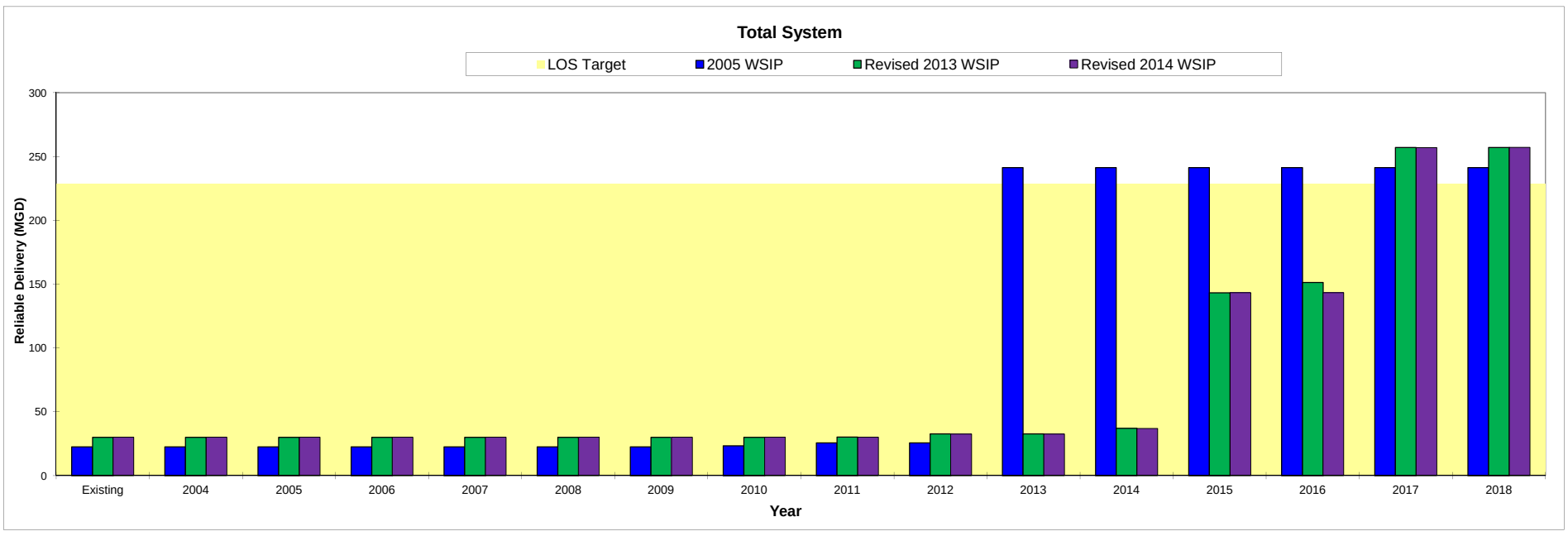
San Andreas Earthquake - 6/24/2014



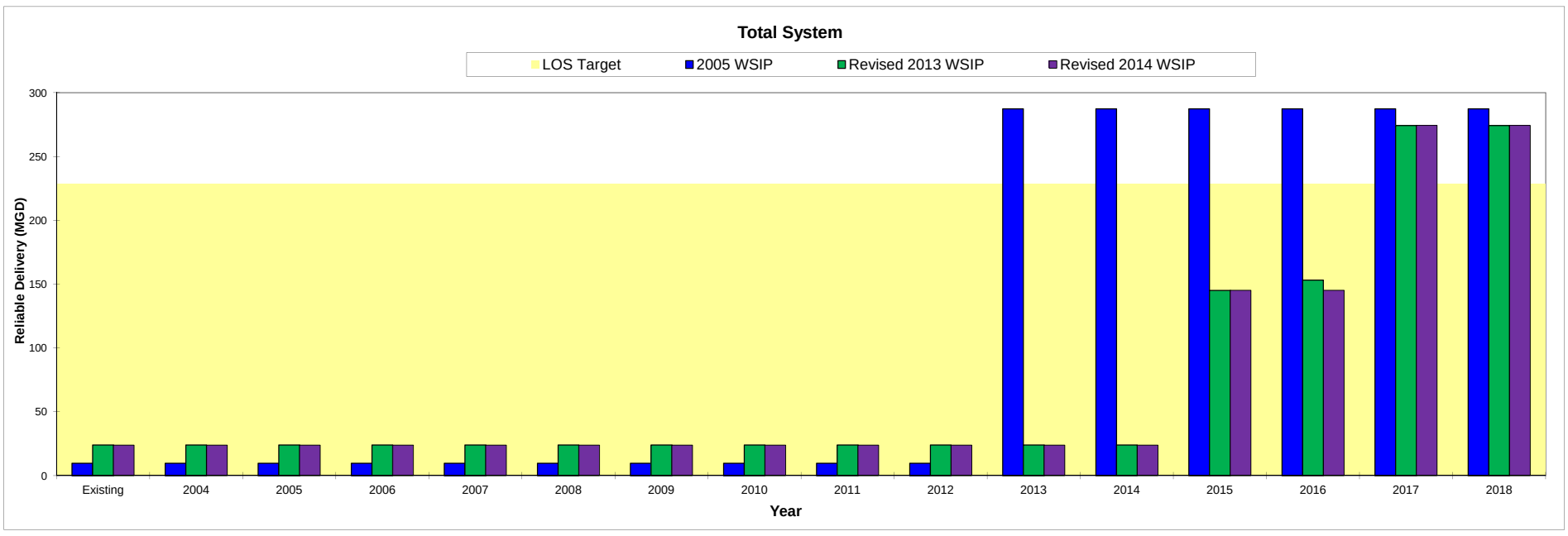
2005 WSIP	Existing	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Bay Area Desal	(No Projects)	(No Projects)	(No Projects)	●	●	●	●	●	●	●	●	(Completed)	(Completed)	(Completed)	(Completed)	(Completed)
EBMUD Intertie				●	●	●	●	●	●	●	●					
BDPL 4 Slipline Ass.					●	●	●	●	●	●	●					
Pipeline R & R					●	●	●	●	●	●	●					
Adit Leak Repair						●	●	●	●	●	●					
BDPL 3 & 4 Valves						●	●	●	●	●	●					
Sunset Reservoir						●	●	●	●	●	●					
Cross Conn. Controls						●	●	●	●	●	●					
Capuchino VL							●	●	●	●	●					
HTWTP Short-Term								●	●	●	●					
CS Bypass Tunnel								●	●	●	●					
University Mound Res								●	●	●	●					
Standby Power								●	●	●	●					
SVWTP TWR								●	●	●	●					
Alameda Siphons								●	●	●	●					
SA PL No. 3								●	●	●	●					
Advanced Disinfection								●	●	●	●					
LCS Dam									●	●	●					
Tesla Portal Disinf.									●	●	●					
Baden/San Pedro VL's									●	●	●					
Lawrence Livermore									●	●	●					
SAPS & San Ant PL									●	●	●					
SCADA									●	●	●					
CS PL No. 2 (City/Pen)									●	●	●					
Recycled Water									●	●	●					
Calaveras Dam									●	●	●					
Alameda Crk Fishery									●	●	●					
BDPL 3 & 4 X-overs										●	●					
Hayward Fault X-ing										●	●					
Pulgas Res. Rehab										●	●					
Additional 40 MGD											●					
Irvington Tunnel											●					
BDPL Reliability											●					
Groundwater Proj's											●					
CS/SA Trans. Upgrade											●					
SJPL No. 4											●					
HTWTP Long-Term											●					

Rev 2013 WSIP	Existing	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
HTWTP Short-Term	(No Projects)	(No Projects)	(No Projects)	●	●	●	●	●	●	●	●	●	●	●	●	●
Calaveras Res				●	●	●	●	●	●	●	●	●	●	●	●	●
Pulgas Inlet/Outlet				●	●	●	●	●	●	●	●	●	●	●	●	●
BDPL3&4 Isolat Valves					●	●	●	●	●	●	●	●	●	●	●	●
Adit Leak Repair					●	●	●	●	●	●	●	●	●	●	●	●
EBMUD Intertie					●	●	●	●	●	●	●	●	●	●	●	●
Capuchino VL						●	●	●	●	●	●	●	●	●	●	●
Pipeline R & R						●	●	●	●	●	●	●	●	●	●	●
Sunset Reservoir						●	●	●	●	●	●	●	●	●	●	●
Cross Conn Controls						●	●	●	●	●	●	●	●	●	●	●
BDPL4 Cond Assess							●	●	●	●	●	●	●	●	●	●
HTWTP Short-Term							●	●	●	●	●	●	●	●	●	●
Pulgas Disch Chan							●	●	●	●	●	●	●	●	●	●
Lawrence Livermore								●	●	●	●	●	●	●	●	●
Standby Power								●	●	●	●	●	●	●	●	●
BDPL 1&2 Relocation								●	●	●	●	●	●	●	●	●
SCADA Phase 2								●	●	●	●	●	●	●	●	●
Alameda Siphon 4									●	●	●	●	●	●	●	●
Baden/San Pedro VL									●	●	●	●	●	●	●	●
New CS Bypass Tunnel									●	●	●	●	●	●	●	●
Pulgas Struct Rehab									●	●	●	●	●	●	●	●
SAPS Upgrades									●	●	●	●	●	●	●	●
Tesla Treat Facility									●	●	●	●	●	●	●	●
Univ Mound Res									●	●	●	●	●	●	●	●
BDPL5 Pipeline (EB)									●	●	●	●	●	●	●	●
LCS Dam Improv									●	●	●	●	●	●	●	●
SAPL No. 3 Install									●	●	●	●	●	●	●	●
SJPL-Roselle X-over									●	●	●	●	●	●	●	●
Pulgas Dechloram										●	●	●	●	●	●	●
SJPL Crossovers										●	●	●	●	●	●	●
BDPL5 Pipeline (Pen)										●	●	●	●	●	●	●
BDPL 3&4 Crossovers										●	●	●	●	●	●	●
SJPL-West Reaches											●	●	●	●	●	●
CSPL No. 2 Replace											●	●	●	●	●	●
SJPL-East Segment											●	●	●	●	●	●
SVWTP Exp&TWR											●	●	●	●	●	●
BDPL5 Microtunnel											●	●	●	●	●	●
CS/SA Upgrade												●	●	●	●	●
HTWTP Long-Term												●	●	●	●	●
S.Ant Backup PL												●	●	●	●	●
BDPL3&4 Hayward Fault												●	●	●	●	●
New Irving Tunnel													●	●	●	●
PPSU Ph1-WSIP													●	●	●	●
PPSU Ph2-WtrCIP													●	●	●	●
BDPL 5 Tunnel													●	●	●	●
Regional Groundwater														●	●	●
PPSU Ph3-WtrCIP															●	●
Calaveras Dam															●	●
Alameda Creek																●

Rev 2014 WSIP	Existing	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
HTWTP Short-Term	(No Projects)	(No Projects)	(No Projects)	●	●	●	●	●	●	●	●	●	●	●	●	●
Calaveras Res				●	●	●	●	●	●	●	●	●	●	●	●	●
Pulgas Inlet/Outlet				●	●	●	●	●	●	●	●	●	●	●	●	●
BDPL3&4 Isolat Valves					●	●	●	●	●	●	●	●	●	●	●	●
Adit Leak Repair					●	●	●	●	●	●	●	●	●	●	●	●
EBMUD Intertie					●	●	●	●	●	●	●	●	●	●	●	●
Capuchino VL						●	●	●	●	●	●	●	●	●	●	●
Pipeline R & R						●	●	●	●	●	●	●	●	●	●	●
Sunset Reservoir						●	●	●	●	●	●	●	●	●	●	●
Cross Conn Controls						●	●	●	●	●	●	●	●	●	●	●
BDPL4 Cond Assess							●	●	●	●	●	●	●	●	●	●
HTWTP Short-Term							●	●	●	●	●	●	●	●	●	●
Pulgas Disch Chan							●	●	●	●	●	●	●	●	●	●
Lawrence Livermore								●	●	●	●	●	●	●	●	●
Standby Power								●	●	●	●	●	●	●	●	●
BDPL 1&2 Relocation								●	●	●	●	●	●	●	●	●
SCADA Phase 2								●	●	●	●	●	●	●	●	●
Alameda Siphon 4									●	●	●	●	●	●	●	●
Baden/San Pedro VL									●	●	●	●	●	●	●	●
New CS Bypass Tunnel									●	●	●	●	●	●	●	●
Pulgas Struct Rehab									●	●	●	●	●	●	●	●
SAPS Upgrades									●	●	●	●	●	●	●	●
Tesla Treat Facility									●	●	●	●	●	●	●	●
Univ Mound Res									●	●	●	●	●	●	●	●
BDPL5 Pipeline (EB)									●	●	●	●	●	●	●	●
LCS Dam Improv									●	●	●	●	●	●	●	●
SAPL No. 3 Install									●	●	●	●	●	●	●	●
SJPL-Roselle X-over									●	●	●	●	●	●	●	●
Pulgas Dechloram										●	●	●	●	●	●	●
SJPL Crossovers										●	●	●	●	●	●	●
BDPL5 Pipeline (Pen)										●	●	●	●	●	●	●
BDPL 3&4 Crossovers										●	●	●	●	●	●	●
SJPL-West Reaches											●	●	●	●	●	●
CSPL No. 2 Replace											●	●	●	●	●	●
SJPL-East Segment											●	●	●	●	●	●
SVWTP Exp&TWR											●	●	●	●	●	●
BDPL5 Microtunnel											●	●	●	●	●	●
CS/SA Upgrade												●	●	●	●	●
HTWTP Long-Term												●	●	●	●	●
S.Ant Backup PL												●	●	●	●	●
BDPL3&4 Hayward Fault													●	●	●	●
New Irving Tunnel													●	●	●	●
PPSU Ph1-WSIP													●	●	●	●
PPSU Ph2-WtrCIP													●	●	●	●
BDPL 5 Tunnel													●	●	●	●
Regional Groundwater															●	●
PPSU Ph3-WtrCIP															●	●
Calaveras Dam																●
Alameda Creek																●

Note: The reliable delivery is that flow which can be delivered with 90% level of confidence, i.e. there is a 10% probability that the system may deliver less than this amount.

Hayward Earthquake - 6/24/2014



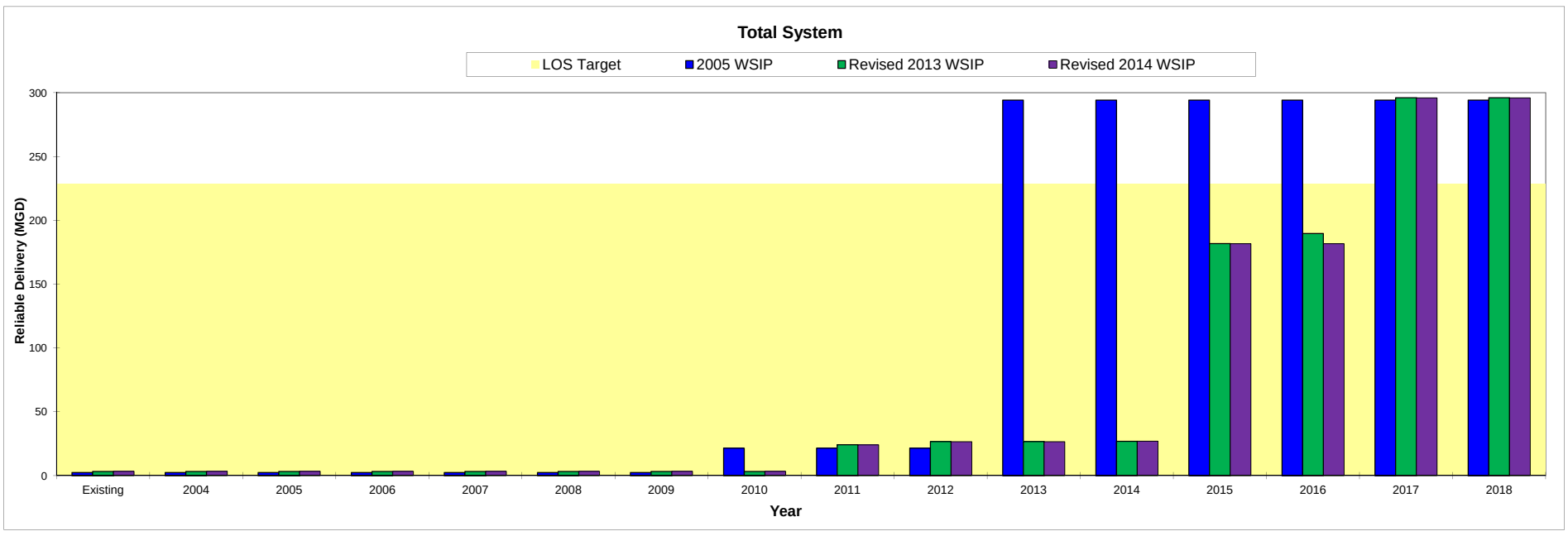
2005 WSIP	Existing	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Bay Area Desal	(No Projects)	(No Projects)	(No Projects)	●	●	●	●	●	●	●	●	(Completed)	(Completed)	(Completed)	(Completed)	(Completed)
EBMUD Intertie				●	●	●	●	●	●	●	●					
BDPL 4 Slipline Ass.					●	●	●	●	●	●	●					
Pipeline R & R					●	●	●	●	●	●	●					
Adit Leak Repair						●	●	●	●	●	●					
BDPL 3 & 4 Valves						●	●	●	●	●	●					
Sunset Reservoir						●	●	●	●	●	●					
Cross Conn. Controls						●	●	●	●	●	●					
Capuchino VL							●	●	●	●	●					
HTWTP Short-Term								●	●	●	●					
CS Bypass Tunnel								●	●	●	●					
University Mound Res								●	●	●	●					
Standby Power								●	●	●	●					
SVWTP TWR								●	●	●	●					
Alameda Siphons								●	●	●	●					
SA PL No. 3								●	●	●	●					
Advanced Disinfection								●	●	●	●					
LCS Dam									●	●	●					
Tesla Portal Disinf.									●	●	●					
Baden/San Pedro VL's									●	●	●					
Lawrence Livermore									●	●	●					
SAPS & San Ant PL									●	●	●					
SCADA									●	●	●					
CS PL No. 2 (City/Pen)									●	●	●					
Recycled Water									●	●	●					
Calaveras Dam									●	●	●					
Alameda Crk Fishery									●	●	●					
BDPL 3 & 4 X-overs										●	●					
Hayward Fault X-ing										●	●					
Pulgas Res. Rehab										●	●					
Additional 40 MGD											●					
Irvington Tunnel											●					
BDPL Reliability											●					
Groundwater Proj's											●					
CS/SA Trans. Upgrade											●					
SJPL No. 4											●					
HTWTP Long-Term											●					

Rev 2013 WSIP	Existing	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
HTWTP Short-Term	(No Projects)	(No Projects)	(No Projects)	●	●	●	●	●	●	●	●	●	●	●	●	●
Calaveras Res				●	●	●	●	●	●	●	●	●	●	●	●	●
Pulgas Inlet/Outlet				●	●	●	●	●	●	●	●	●	●	●	●	●
BDPL3&4 Isolat Valves					●	●	●	●	●	●	●	●	●	●	●	●
Adit Leak Repair					●	●	●	●	●	●	●	●	●	●	●	●
EBMUD Intertie					●	●	●	●	●	●	●	●	●	●	●	●
Capuchino VL						●	●	●	●	●	●	●	●	●	●	●
Pipeline R & R						●	●	●	●	●	●	●	●	●	●	●
Sunset Reservoir						●	●	●	●	●	●	●	●	●	●	●
Cross Conn Controls						●	●	●	●	●	●	●	●	●	●	●
BDPL4 Cond Assess							●	●	●	●	●	●	●	●	●	●
HTWTP Short-Term							●	●	●	●	●	●	●	●	●	●
Pulgas Disch Chan							●	●	●	●	●	●	●	●	●	●
Lawrence Livermore								●	●	●	●	●	●	●	●	●
Standby Power								●	●	●	●	●	●	●	●	●
BDPL 1&2 Relocation								●	●	●	●	●	●	●	●	●
SCADA Phase 2								●	●	●	●	●	●	●	●	●
Alameda Siphon 4									●	●	●	●	●	●	●	●
Baden/San Pedro VL									●	●	●	●	●	●	●	●
New CS Bypass Tunnel									●	●	●	●	●	●	●	●
Pulgas Struct Rehab									●	●	●	●	●	●	●	●
SAPS Upgrades									●	●	●	●	●	●	●	●
Tesla Treat Facility									●	●	●	●	●	●	●	●
Univ Mound Res									●	●	●	●	●	●	●	●
BDPL5 Pipeline (EB)									●	●	●	●	●	●	●	●
LCS Dam Improv									●	●	●	●	●	●	●	●
SAPL No. 3 Install									●	●	●	●	●	●	●	●
SJPL-Roselle X-over									●	●	●	●	●	●	●	●
Pulgas Dechloram										●	●	●	●	●	●	●
SJPL Crossovers										●	●	●	●	●	●	●
BDPL5 Pipeline (Pen)										●	●	●	●	●	●	●
BDPL 3&4 Crossovers										●	●	●	●	●	●	●
SJPL-West Reaches											●	●	●	●	●	●
CSPL No. 2 Replace											●	●	●	●	●	●
SJPL-East Segment											●	●	●	●	●	●
SVWTP Exp&TWR											●	●	●	●	●	●
BDPL5 Microtunnel											●	●	●	●	●	●
CS/SA Upgrade												●	●	●	●	●
HTWTP Long-Term												●	●	●	●	●
S.Ant Backup PL												●	●	●	●	●
BDPL3&4 Hayward Fault												●	●	●	●	●
New Irving Tunnel													●	●	●	●
PPSU Ph1-WSIP													●	●	●	●
PPSU Ph2-WtrCIP													●	●	●	●
BDPL 5 Tunnel													●	●	●	●
Regional Groundwater														●	●	●
PPSU Ph3-WtrCIP															●	●
Calaveras Dam															●	●
Alameda Creek																●

Rev 2014 WSIP	Existing	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
HTWTP Short-Term	(No Projects)	(No Projects)	(No Projects)	●	●	●	●	●	●	●	●	●	●	●	●	●
Calaveras Res				●	●	●	●	●	●	●	●	●	●	●	●	●
Pulgas Inlet/Outlet				●	●	●	●	●	●	●	●	●	●	●	●	●
BDPL3&4 Isolat Valves					●	●	●	●	●	●	●	●	●	●	●	●
Adit Leak Repair					●	●	●	●	●	●	●	●	●	●	●	●
EBMUD Intertie					●	●	●	●	●	●	●	●	●	●	●	●
Capuchino VL						●	●	●	●	●	●	●	●	●	●	●
Pipeline R & R						●	●	●	●	●	●	●	●	●	●	●
Sunset Reservoir						●	●	●	●	●	●	●	●	●	●	●
Cross Conn Controls						●	●	●	●	●	●	●	●	●	●	●
BDPL4 Cond Assess							●	●	●	●	●	●	●	●	●	●
HTWTP Short-Term							●	●	●	●	●	●	●	●	●	●
Pulgas Disch Chan							●	●	●	●	●	●	●	●	●	●
Lawrence Livermore								●	●	●	●	●	●	●	●	●
Standby Power								●	●	●	●	●	●	●	●	●
BDPL 1&2 Relocation								●	●	●	●	●	●	●	●	●
SCADA Phase 2								●	●	●	●	●	●	●	●	●
Alameda Siphon 4									●	●	●	●	●	●	●	●
Baden/San Pedro VL									●	●	●	●	●	●	●	●
New CS Bypass Tunnel									●	●	●	●	●	●	●	●
Pulgas Struct Rehab									●	●	●	●	●	●	●	●
SAPS Upgrades									●	●	●	●	●	●	●	●
Tesla Treat Facility									●	●	●	●	●	●	●	●
Univ Mound Res									●	●	●	●	●	●	●	●
BDPL5 Pipeline (EB)									●	●	●	●	●	●	●	●
LCS Dam Improv									●	●	●	●	●	●	●	●
SAPL No. 3 Install									●	●	●	●	●	●	●	●
SJPL-Roselle X-over									●	●	●	●	●	●	●	●
Pulgas Dechloram										●	●	●	●	●	●	●
SJPL Crossovers										●	●	●	●	●	●	●
BDPL5 Pipeline (Pen)										●	●	●	●	●	●	●
BDPL 3&4 Crossovers										●	●	●	●	●	●	●
SJPL-West Reaches											●	●	●	●	●	●
CSPL No. 2 Replace											●	●	●	●	●	●
SJPL-East Segment											●	●	●	●	●	●
SVWTP Exp&TWR											●	●	●	●	●	●
BDPL5 Microtunnel											●	●	●	●	●	●
CS/SA Upgrade												●	●	●	●	●
HTWTP Long-Term												●	●	●	●	●
S.Ant Backup PL												●	●	●	●	●
BDPL3&4 Hayward Fault													●	●	●	●
New Irving Tunnel													●	●	●	●
PPSU Ph1-WSIP													●	●	●	●
PPSU Ph2-WtrCIP													●	●	●	●
BDPL 5 Tunnel													●	●	●	●
Regional Groundwater															●	●
PPSU Ph3-WtrCIP															●	●
Calaveras Dam																●
Alameda Creek																●

Note: The reliable delivery is that flow which can be delivered with 90% level of confidence, i.e. there is a 10% probability that the system may deliver less than this amount.

Calaveras Earthquake - 6/24/2014



2005 WSIP	Existing	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Bay Area Desal	(No Projects)	(No Projects)	(No Projects)	●	●	●	●	●	●	●	●	(Completed)	(Completed)	(Completed)	(Completed)	(Completed)
EBMUD Intertie				●	●	●	●	●	●	●	●					
BDPL 4 Slipline Ass.					●	●	●	●	●	●	●					
Pipeline R & R					●	●	●	●	●	●	●					
Adit Leak Repair						●	●	●	●	●	●					
BDPL 3 & 4 Valves						●	●	●	●	●	●					
Sunset Reservoir						●	●	●	●	●	●					
Cross Conn. Controls						●	●	●	●	●	●					
Capuchino VL							●	●	●	●	●					
HTWTP Short-Term								●	●	●	●					
CS Bypass Tunnel								●	●	●	●					
University Mound Res								●	●	●	●					
Standby Power								●	●	●	●					
SVWTP TWR								●	●	●	●					
Alameda Siphons								●	●	●	●					
SA PL No. 3								●	●	●	●					
Advanced Disinfection								●	●	●	●					
LCS Dam									●	●	●					
Tesla Portal Disinf.									●	●	●					
Baden/San Pedro VL's									●	●	●					
Lawrence Livermore									●	●	●					
SAPS & San Ant PL									●	●	●					
SCADA									●	●	●					
CS PL No. 2 (City/Pen)									●	●	●					
Recycled Water									●	●	●					
Calaveras Dam									●	●	●					
Alameda Crk Fishery									●	●	●					
BDPL 3 & 4 X-overs										●	●					
Hayward Fault X-ing										●	●					
Pulgas Res. Rehab										●	●					
Additional 40 MGD											●					
Irvington Tunnel											●					
BDPL Reliability											●					
Groundwater Proj's											●					
CS/SA Trans. Upgrade											●					
SJPL No. 4											●					
HTWTP Long-Term											●					

Rev 2013 WSIP	Existing	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
HTWTP Short-Term	(No Projects)	(No Projects)	(No Projects)	●	●	●	●	●	●	●	●	●	●	●	●	●
Calaveras Res				●	●	●	●	●	●	●	●	●	●	●	●	●
Pulgas Inlet/Outlet				●	●	●	●	●	●	●	●	●	●	●	●	●
BDPL3&4 Isolat Valves					●	●	●	●	●	●	●	●	●	●	●	●
Adit Leak Repair					●	●	●	●	●	●	●	●	●	●	●	●
EBMUD Intertie					●	●	●	●	●	●	●	●	●	●	●	●
Capuchino VL						●	●	●	●	●	●	●	●	●	●	●
Pipeline R & R						●	●	●	●	●	●	●	●	●	●	●
Sunset Reservoir						●	●	●	●	●	●	●	●	●	●	●
Cross Conn Controls						●	●	●	●	●	●	●	●	●	●	●
BDPL4 Cond Assess							●	●	●	●	●	●	●	●	●	●
HTWTP Short-Term							●	●	●	●	●	●	●	●	●	●
Pulgas Disch Chan							●	●	●	●	●	●	●	●	●	●
Lawrence Livermore								●	●	●	●	●	●	●	●	●
Standby Power								●	●	●	●	●	●	●	●	●
BDPL 1&2 Relocation								●	●	●	●	●	●	●	●	●
SCADA Phase 2								●	●	●	●	●	●	●	●	●
Alameda Siphon 4									●	●	●	●	●	●	●	●
Baden/San Pedro VL									●	●	●	●	●	●	●	●
New CS Bypass Tunnel									●	●	●	●	●	●	●	●
Pulgas Struct Rehab									●	●	●	●	●	●	●	●
SAPS Upgrades									●	●	●	●	●	●	●	●
Tesla Treat Facility									●	●	●	●	●	●	●	●
Univ Mound Res									●	●	●	●	●	●	●	●
BDPL5 Pipeline (EB)									●	●	●	●	●	●	●	●
LCS Dam Improv									●	●	●	●	●	●	●	●
SAPL No. 3 Install									●	●	●	●	●	●	●	●
SJPL-Roselle X-over									●	●	●	●	●	●	●	●
Pulgas Dechloram										●	●	●	●	●	●	●
SJPL Crossovers										●	●	●	●	●	●	●
BDPL5 Pipeline (Pen)										●	●	●	●	●	●	●
BDPL 3&4 Crossovers										●	●	●	●	●	●	●
SJPL-West Reaches											●	●	●	●	●	●
CSPL No. 2 Replace											●	●	●	●	●	●
SJPL-East Segment											●	●	●	●	●	●
SVWTP Exp&TWR											●	●	●	●	●	●
BDPL5 Microtunnel											●	●	●	●	●	●
CS/SA Upgrade												●	●	●	●	●
HTWTP Long-Term												●	●	●	●	●
S.Ant Backup PL												●	●	●	●	●
BDPL3&4 Hayward Fault												●	●	●	●	●
New Irving Tunnel													●	●	●	●
PPSU Ph1-WSIP													●	●	●	●
PPSU Ph2-WtrCIP													●	●	●	●
BDPL 5 Tunnel													●	●	●	●
Regional Groundwater														●	●	●
PPSU Ph3-WtrCIP															●	●
Calaveras Dam															●	●
Alameda Creek																●

Rev 2014 WSIP	Existing	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
HTWTP Short-Term	(No Projects)	(No Projects)	(No Projects)	●	●	●	●	●	●	●	●	●	●	●	●	●
Calaveras Res				●	●	●	●	●	●	●	●	●	●	●	●	●
Pulgas Inlet/Outlet				●	●	●	●	●	●	●	●	●	●	●	●	●
BDPL3&4 Isolat Valves					●	●	●	●	●	●	●	●	●	●	●	●
Adit Leak Repair					●	●	●	●	●	●	●	●	●	●	●	●
EBMUD Intertie					●	●	●	●	●	●	●	●	●	●	●	●
Capuchino VL						●	●	●	●	●	●	●	●	●	●	●
Pipeline R & R						●	●	●	●	●	●	●	●	●	●	●
Sunset Reservoir						●	●	●	●	●	●	●	●	●	●	●
Cross Conn Controls						●	●	●	●	●	●	●	●	●	●	●
BDPL4 Cond Assess							●	●	●	●	●	●	●	●	●	●
HTWTP Short-Term							●	●	●	●	●	●	●	●	●	●
Pulgas Disch Chan							●	●	●	●	●	●	●	●	●	●
Lawrence Livermore								●	●	●	●	●	●	●	●	●
Standby Power								●	●	●	●	●	●	●	●	●
BDPL 1&2 Relocation								●	●	●	●	●	●	●	●	●
SCADA Phase 2								●	●	●	●	●	●	●	●	●
Alameda Siphon 4									●	●	●	●	●	●	●	●
Baden/San Pedro VL									●	●	●	●	●	●	●	●
New CS Bypass Tunnel									●	●	●	●	●	●	●	●
Pulgas Struct Rehab									●	●	●	●	●	●	●	●
SAPS Upgrades									●	●	●	●	●	●	●	●
Tesla Treat Facility									●	●	●	●	●	●	●	●
Univ Mound Res									●	●	●	●	●	●	●	●
BDPL5 Pipeline (EB)									●	●	●	●	●	●	●	●
LCS Dam Improv									●	●	●	●	●	●	●	●
SAPL No. 3 Install									●	●	●	●	●	●	●	●
SJPL-Roselle X-over									●	●	●	●	●	●	●	●
Pulgas Dechloram										●	●	●	●	●	●	●
SJPL Crossovers										●	●	●	●	●	●	●
BDPL5 Pipeline (Pen)										●	●	●	●	●	●	●
BDPL 3&4 Crossovers										●	●	●	●	●	●	●
SJPL-West Reaches											●	●	●	●	●	●
CSPL No. 2 Replace											●	●	●	●	●	●
SJPL-East Segment											●	●	●	●	●	●
SVWTP Exp&TWR											●	●	●	●	●	●
BDPL5 Microtunnel											●	●	●	●	●	●
CS/SA Upgrade												●	●	●	●	●
HTWTP Long-Term												●	●	●	●	●
S.Ant Backup PL												●	●	●	●	●
BDPL3&4 Hayward Fault													●	●	●	●
New Irving Tunnel													●	●	●	●
PPSU Ph1-WSIP													●	●	●	●
PPSU Ph2-WtrCIP													●	●	●	●
BDPL 5 Tunnel													●	●	●	●
Regional Groundwater															●	●
PPSU Ph3-WtrCIP															●	●
Calaveras Dam																●
Alameda Creek																●

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