



August 30, 2019

Assembly Member Rudy Salas - Chair  
 Senator Richard Roth - Vice Chair  
 Joint Legislative Audit Committee  
 1020 N Street, Room 107  
 Sacramento, CA 95814

The Honorable Michael Gardner, Chairman  
 The Honorable Mia Marvelli, Acting Vice-Chair  
 Alfred E. Alquist Seismic Safety Commission  
 2945 Ramco Street, Suite 195  
 West Sacramento, CA 95691

Stefan Cajina, Chief  
 North Coastal Section, Division of Drinking Water  
 State Water Resources Control Board  
 850 Marina Bay Parkway, Bldg P, Second Floor  
 Richmond, CA 94804

**Subject: Fiscal Year (FY) 2018-19 Annual Report  
 Water System Improvement Program  
 San Francisco Public Utilities Commission**

Dear Assembly Member Salas, Senator Roth, Commissioners Gardner and Marvelli, and Mr. Cajina,

In accordance with Section 73502(c) of the California Water Code, the San Francisco Public Utilities Commission (SFPUC) is pleased to submit the enclosed Annual Report describing progress made on the implementation of the Water System Improvement Program (WSIP) during Fiscal Year (FY) 2019- 2019.

The WSIP is a \$4.8 billion, multi-year program to upgrade the SFPUC's Regional and Local Water Systems. The program is delivering capital improvements that enhance the SFPUC's ability to provide reliable, affordable, high quality drinking water in an environmentally sustainable manner 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. The WSIP is structured to cost-effectively meet water quality requirements, improve seismic and delivery reliability through the year 2030, and fulfill water supply objectives through the year 2018.

Section 1 of the enclosed report describes the overall progress made on the WSIP's Regional Program during FY 2018-19 (July 1, 2018 through June 30, 2019) and Section 2 focuses on the major programmatic initiatives undertaken during that time period. Section 3 summarizes the Level of Service (LOS) goals and objectives and addresses progress towards meeting those goals and objectives. Sections 4 and 5

- London N. Breed**  
Mayor
- Ann Moller Caen**  
President
- Francesca Vietor**  
Vice President
- Anson Moran**  
Commissioner
- Sophie Maxwell**  
Commissioner
- Tim Paulson**  
Commissioner
- Harlan L. Kelly, Jr.**  
General Manager



include summaries of procedures used to track and control WSIP project schedules and budgets, and present current schedule and budget forecasts, respectively. Section 6 includes a summary of the achievements and challenges encountered while implementing the program during FY 2018-19. The WSIP Risk Management program and status of risk exposure for active construction projects is summarized in Section 7, and the program delivery strategy for the closeout phase is discussed in Section 8. Finally, Section 9 of the report highlights the current status of the specific projects mentioned in California Assembly Bill (AB) 1823.

Significant progress was made on the implementation of the WSIP during FY 2018-19. Between July 1, 2018 and June 30, 2019, the overall completion of the Regional Program increased from 95.8% to 97.3%. The focus of the program continued to be construction of several ongoing large projects and administrative closeout of projects that recently completed construction. During the reporting period, one project achieved final construction phase completion and two projects achieved final administrative closeout/ project completion. As of June 30, 2019, construction was in progress on five Regional projects valued at \$1,015 million, while construction had been completed on 43 Regional projects valued at \$2,715 million. Besides the WSIP Closeout Project for each of the San Joaquin, Sunol Valley, Bay Division and Peninsula Regions, there are two projects remaining in pre-construction (the Alameda Creek Recapture Project and the Watershed and Environmental Improvement Program). In addition, Phase 2 of the Regional Groundwater Storage and Recovery Project is in design while Phase 1 is nearing construction completion. The largest project in the program, Calaveras Dam Replacement, was substantially completed within the reporting period and is on track to be closed out by the end of the calendar year.

The public draft Environmental Impact Report (EIR) for the Alameda Creek Recapture Project was certified by the San Francisco Planning Department in June 2017, which is the last major EIR planned for the WSIP. Unfortunately, an appeal to the EIR was filed with the San Francisco Board of Supervisors and was upheld at a public hearing in September 2017. The project team is currently working on an update to the EIR which is scheduled to be published for re-circulation in Fall 2019. Another water supply project, the Regional Groundwater Storage and Recovery Project, has two phases. For Phase 1 (associated with Contract B), implementation of changes to address the caustic soda (NaOH) systems, installation of remote sampling analyzers, and modifications to piping connections, pressure relief valves, and programming changes to address a change in chemical from aqueous ammonia to liquid ammonium sulfate were completed. For Phase 2, two test wells have been completed and the final draft Conceptual Engineering Report for the South San Francisco Main well station and the carryover work from Contract B will be issued in Fall 2019.

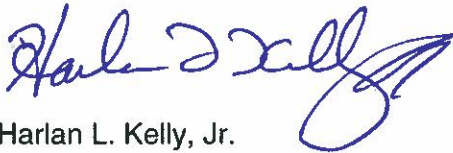
The status of schedule forecasts and variances for all WSIP Regional Projects as of June 30, 2019 is provided in the report. As of June 30, 2019, the overall WSIP is forecast to be complete in December 2021, which is consistent with the current baseline schedule approved as part of the March 2018 Revised WSIP. The overall current approved WSIP completion schedule is driven by the final administrative closeout completion date for Regional Groundwater Storage and Recovery on December 30, 2021. However, as of the end of the reporting period the schedule for Phase 2 of the Regional Groundwater Storage and Recovery Project is currently under evaluation due to potential scope changes and carryover work from Phase 1.

Furthermore, the Alameda Creek Recapture Project forecast has not been updated since the March 2018 Revised WSIP baseline was established because the publication date for the draft EIR to be re-circulated for public review has not yet been determined. Once the draft EIR for this project is published and public comments received, the SFPUC will re-forecast the schedule for this project which may extend beyond the current approved end date of the WSIP. Any future proposed schedule changes would need to be approved by the San Francisco Public Utilities Commission in accordance with the requirements of AB1823.

The current approved WSIP scope is sufficiently funded to complete within the current approved baseline budget (March 2018 Revised WSIP baseline) with over 80% confidence, based on the current understanding of trends and remaining risks in the program.

SFPUC remains committed to work collaboratively with its Regional Wholesale and Retail customers and all program stakeholders and partners to ensure the successful delivery of the 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  
San Francisco Public Utilities Commission

Enclosure

cc: The Honorable Ann Moller Caen, President, SFPUC Commission  
The Honorable Francesca Vietor, Vice President, SFPUC Commission  
The Honorable Anson Moran, Commissioner, SFPUC Commission  
The Honorable, Sophie Maxwell, Commissioner, SFPUC Commission  
The Honorable, Tim Paulson, Commissioner, SFPUC Commission  
Nicole Sandkulla, Chief Executive Officer and General Manager, Bay Area  
Water Supply & Conservation Agency  
Thomas (Tom) Francis, Water Resources Manager, Bay Area Water Supply  
& Conservation Agency  
Vlad Rakhimov, Staff Engineer, North Coastal Section, State Water  
Resources Control Board, Division of Drinking Water  
Darrin Polhemus, Deputy Director, State Water Resources Control  
Board Division of Drinking Water

Daniel Newton, Assistant Deputy Director, Northern California Drinking Water Field Operations Branch, State Water Resources Control Board

Richard (Dick) McCarthy - Executive Director, Alfred E. Alquist Seismic Safety Commission

Fred Turner, Structural Engineer, Alfred E. Alquist Seismic Safety Commission

Barbara Pierce, Chair, BAWSCA (without enclosure)

Gustav Larson, Vice-Chair, BAWSCA (without enclosure)

BAWSCA Member Agencies (without encl., distributed by BAWSCA)



HETCH HETCHY  
WATER SYSTEM  
IMPROVEMENT  
PROGRAM

# 2018-19

## Annual Report

### *Water System Improvement Program*

### *Rebuilding Today For a Better Tomorrow*

August 30, 2019



Hetch Hetchy  
**Regional  
Water  
System**

Services of the San Francisco Public Utilities Commission

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# **FY 2018-19 ANNUAL REPORT**

## **WATER SYSTEM IMPROVEMENT PROGRAM**

### **EXECUTIVE SUMMARY**

Pursuant to the reporting requirements of the Wholesale Regional Water System Security and Reliability Act, the San Francisco Public Utilities Commission (SFPUC) submits this report documenting the progress achieved on the Water System Improvement Program (WSIP) during Fiscal Year (FY) 2018-19 (July 1, 2018 through June 30, 2019). This report only addresses the WSIP regional projects (referred to as the Regional Program). These are the projects that benefit both San Francisco retail customers and the SFPUC's suburban wholesale customers. The Wholesale Regional Water System Security and Reliability Act does not require the SFPUC to report on the WSIP local projects (referred to as the Local Program), which primarily benefit San Francisco retail customers.

The WSIP is a \$4.8 billion-dollar, multi-year program to upgrade the SFPUC's Regional and Local Water Systems. The program is delivering capital improvements that enhance the SFPUC's ability to provide reliable, affordable, high quality drinking water in an environmentally sustainable manner 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. The WSIP is structured to cost-effectively meet water quality requirements, improve seismic and delivery reliability goals through the year 2030, and fulfill water supply objectives through the year 2018.

Significant progress was made on the implementation of the WSIP during FY 2018-19. Between July 1, 2018 and June 30, 2019, the overall completion of the Regional Program increased from 95.8% to 97.3%. As of the end of the reporting period, planning, environmental, design, and construction efforts are 99.8%, 99.7%, 97.6% and 98.2% complete, respectively. The focus of the program continued to be construction of several ongoing large projects and administrative closeout of projects that recently completed construction. During the reporting period, one project achieved final construction phase completion and two projects achieved final administrative closeout / project completion. As of June 30, 2019, construction was in progress on five Regional projects valued at \$1,015 million, while construction had been completed on 43 Regional projects valued at \$2,715 million. Besides the WSIP Closeout Project for each of the San Joaquin, Sunol Valley, Bay Division and Peninsula Regions, there are two projects remaining in pre-construction (the Alameda Creek Recapture Project and the Watershed and Environmental Improvement Program). In addition, Phase 2 of the Regional Groundwater Storage and Recovery Project is in design while Phase 1 is nearing construction completion. The largest project in the program, Calaveras Dam Replacement, was substantially completed within the reporting period and is on track to be closed out by the end of the calendar year.

Some of the more important programmatic initiatives undertaken during FY 2018-19 include continued focus on shutdown management, environmental compliance and public outreach programs. All status updates in this Annual Report are referenced to the latest Baseline Scope, Budget and Schedule, approved on April 20, 2018, which is referred to as the "March 2018 Revised WSIP".

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The scope of the WSIP is based on the primary Level of Service (LOS) goals used to determine project design criteria as follows: water quality (maintain high water quality); seismic reliability (reduce vulnerability to earthquakes); delivery reliability (increase delivery reliability and improve ability to maintain the system); and water supply (meet customer water needs in non-drought and drought periods). In addition, two additional overarching program goals include sustainability (enhance sustainability in all system activities); and cost effectiveness (achieve a cost-effective, fully operational system). Each project that reaches construction substantial completion contributes to increasing the overall reliability of the system and achieving progress towards meeting the LOS goals and objectives. As of end of FY 2018-2019, 41 of the 43 Regional WSIP projects with specific LOS goals have achieved their LOS goals and objectives to date. The two Regional WSIP projects that have not yet achieved their LOS goals include the Alameda Creek Recapture Project (ACRP) and the Regional Groundwater Storage and Recovery Project (RGSRP). The other nine Regional WSIP projects (Support projects and WSIP Closeout projects) do not have specific goals.

The two Regional projects with LOS goals that remain to be completed (ACRP and RGSRP) include the water supply goal as a primary LOS goal. The public draft Environmental Impact Report (EIR) for the ACRP was certified by the San Francisco Planning Department in June 2017, which is the last major EIR planned for the WSIP. Unfortunately, an appeal to the EIR was filed with the San Francisco Board of Supervisors and was upheld at a public hearing in September 2017. The project team is currently working on an update to the draft EIR which is scheduled to be published for re-circulation in Fall 2019. Another water supply project, the Regional Groundwater Storage and Recovery Project (RGSRP), has 13 well sites under construction under Phase 1. The project was re-baselined in 2018 to complete the Phase 1 construction and to install up to three test wells under Phase 2. Two test wells were completed in FY2018-19 and the SFPUC does not intend to install a third test well due to limited potential benefit at high cost. The Phase 2 test wells will not be converted to production wells under the current approved WSIP scope. However, the SFPUC will provide an updated yield estimate for the project in the future based on extended pumping tests and operational experience of the RGSRP wells. After sufficient operational experience has been obtained, the SFPUC will evaluate whether or not it would be appropriate to convert one or more of the existing two test wells, and/or siting future test well(s) in other location(s), into permanent wells based on updated yield estimates. If deemed appropriate to do so, this evaluation would necessarily include schedules for implementation, cost estimates, and funding considerations after the current scheduled completion of WSIP.

The status of schedule forecasts and variances for all WSIP Regional Projects as of June 30, 2019 is provided in the report. As of June 30, 2019, the overall WSIP is forecast to be complete in December 2021, which is consistent with the current baseline schedule approved as part of the March 2018 Revised WSIP. The overall current approved WSIP completion schedule is driven by the final administrative closeout completion date for Regional Groundwater Storage and Recovery on December 30, 2021. However, as of the end of the reporting period the schedule for Phase 2 of the Regional Groundwater Storage and Recovery Project is currently under evaluation due to potential scope changes and carryover work from Phase 1. Furthermore, the Alameda Creek Recapture Project forecast has not been updated since the March 2018 Revised WSIP baseline was established because the publication date for the draft EIR to be re-circulated for public review has not yet been determined. Once the draft EIR for



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this project is published and public comments received, the SFPUC will re-forecast the schedule for this project which may extend beyond the current approved end date of the WSIP. Any future proposed schedule changes would need to be approved by the San Francisco Public Utilities Commission in accordance with the requirements of AB1823.

The only forecast negative budget variance as of the end of the reporting period is the Regional Groundwater Storage and Recovery Project. Due to primarily to remaining unused budget from the Calaveras Dam Replacement, the overall program is forecast to be on budget in accordance with the baseline approved as part of the March 2018 Revised WSIP.

Significant achievements in FY 2018-19 include substantial completion of the Calaveras Dam Replacement Project and the Fish Passage Facilities within the Alameda Creek Watershed at Alameda Creek Diversion Dam (sub-project to the CDRP). Final construction completion and/or project administrative closeout was achieved for the Seismic Upgrade of BDPL Nos. 3 & 4 and System Security Upgrades. In addition, final construction completion and administrative project closeout for the CDRP and Fish Passage Facilities within the Alameda Creek Watershed (sub-project to the CDRP) are expected by the end of calendar year 2019. Finally, substantial progress was made on Job Order Contracts (JOCs) associated with the WSIP Closeout Projects in each of the four regions.

Challenges in FY 2018-19 included the need to make adjustments to the debris rack / rake system and testing of the SCADA system at the Fish Passage Facilities within the Alameda Creek Watershed Project, incorporation of revisions into the draft EIR for recirculation for the ACRP, incorporation of changes to meet revised water quality requirements and flow meter calibration for water blending in Phase 1 RGSRP, and revision of Phase 2 of the RGSRP to incorporate carryover work from Phase 1.

As it would generally be overly conservative to plan for 100% of future potential risks, the SFPUC has elected to use the “80% confidence level” as a relatively conservative estimate of future cost risk for the WSIP. Namely, the “80% confidence level” represents the amount of cost for which one can be 80% confident that future cost risk will not exceed this level. The risk exposure at the “80% confidence level” at the end of the reporting period was \$4.0M, which compares to \$5.8M at the end of the reporting period in the previous year, an indication of the overall risk reduction in WSIP over the last reporting period as major milestones on the CDRP have allowed some large risks to expire. The program’s top 10 risks as of June 30, 2019 belong to two construction contracts: Fish Passage Facilities within the Alameda Creek Watershed (3 risks) and RGSRP (7 risks). The highest risk in the program at the end of the reporting period is from the Fish Passage Facilities within the Alameda Creek Watershed project and concerns the potential claimed costs associated with an accelerated schedule to mitigate for previous schedule impacts. The Regional Groundwater Storage and Recovery project carries seven (7) of the top ten (10) risks for the active WSIP construction contracts, based on likelihood of occurrence and potential cost impact. The top two risks in the RGSR project involve the change of chemical use (during implementation) from aqueous ammonia to ammonium sulfate and the potential challenges in meeting water quality requirements.

At over 97 percent completion and with 41 of 43 regional WSIP projects with specific LOS goals and objectives currently in service, the overall WSIP is in the Closeout Phase. Nevertheless, there are still two large active projects with significant risks that,

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should these risks be realized, could have a negative schedule and/or budget impact to the program. Therefore, it is essential to continue to implement the best practices that have helped to make the WSIP successful to date, and to continue to look for opportunities to become increasingly efficient as the SFPUC strives to bring the WSIP to successful completion over the next several years. As has been the practice since the program was established, the WSIP Director will continue to meet with project teams on a rotation monthly to review status of every budget line item at least twice quarterly. Because of these meetings, staffing adjustments are made in real time to ensure project teams work within the existing budgets, and where appropriate, budget forecasts and resources are adjusted as necessary to help ensure successful completion of every project. In addition, we are continuing to implement our industry best practice Construction Management (CM) Business Processes and Procedures to ensure the available funds are used efficiently and effectively, with emphasis on identification of cost savings wherever possible.

The program-level risk analysis shows that the remaining program risk exposure at the “80% confidence level” is \$4.0 million for active construction contracts as of June 30, 2019. The remaining forecast construction contingency as of June 30, 2019 is \$11.2 million after all current trends have been considered. In addition, the current forecast WSIP Director’s Reserve Fund is \$19.0 million. Therefore, a total of approximately \$30.2 million are available to fund future risks, including both construction risks and unforeseen soft (non-construction) costs. If one conservatively assumes that up to \$5 million is needed for future soft cost risk, this would leave approximately \$25.2 million available to fund potential future construction risks. Accordingly, the analysis shows that the current WSIP is sufficiently funded to complete within the current approved baseline budget and schedule (March 2018 Revised WSIP baseline) with over 80 percent confidence, based on the current understanding of trends and remaining risks in the program.

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## **LIST OF ACRONYMS**

|             |   |
|-------------|---|
| AB          | Assembly Bill   |
| ACDD        | Alameda Creek Division Dam  |
| ACRP        | Alameda Creek Recapture Project   |
| APWA        | American Public Works Association   |
| ARM         | Active Risk Management  |
| ASCE        | American Society of Civil Engineers   |
| BA-B        | Borrow Area B   |
| BAWSCA      | Bay Area Water Supply and Conservation Agency                                       |
| BDPL        | Bay Division Pipelines  |
| BHR         | Bioregional Habitat Restoration   |
| CAMP        | Comprehensive Air Monitoring Plan   |
| CDRP        | Calaveras Dam Replacement Project   |
| CEQA        | California Environmental Quality Act  |
| CIP         | Capital Improvement Program   |
| CM          | Construction Management   |
| CMAA        | Construction Management Association of America                                      |
| CMB         | Construction Management Bureau  |
| CMIS        | Construction Management Information System  |
| CSPL2       | Crystal Springs Pipeline No. 2  |
| CS/SA       | Crystal Springs/San Andreas   |
| DRB         | Dispute Resolution Board  |
| DSOD        | Division of Safety of Dams (State of California)                                    |
| EIR         | Environmental Impact Report   |
| ENR         | Engineering News-Record   |
| FPF Project | Fish Passage Facilities with Alameda Creek Watershed at Alameda Creek Diversion Dam |
| FY          | Fiscal Year   |
| HTWTP       | Harry Tracy Water Treatment Plant   |
| JOC         | Job Order Contract  |
| LOS         | Level of Service  |
| LTI         | Long-Term Improvements  |
| MGD         | Million Gallons per Day   |
| MID/TID     | Modesto Irrigation District and/or Turlock Irrigation District                      |
| NIT         | New Irvington Tunnel  |
| NMFS        | National Marine Fisheries Service   |
| NOA         | Naturally Occurring Asbestos  |
| NOC         | Notice of Change  |
| NTP         | Notice to Proceed   |
| OCEA        | Outstanding Civil Engineering Achievement Award                                     |
| PCCP        | Pre-stressed Concrete Cylinder Pipe   |
| PPSU        | Peninsula Pipelines Seismic Upgrade   |
| PTFE        | Polytetrafluoroethylene   |
| RBOC        | Revenue Bond Oversight Committee  |
| RGSRP       | Regional Groundwater Storage and Recovery Project                                   |
| ROW         | Right-of-Way  |
| RWBC        | R.W. Block Consulting, Inc.   |
| SABPL       | San Antonio Backup Pipeline   |
| SFPUC       | San Francisco Public Utilities Commission   |
| SJPL        | San Joaquin Pipeline  |
| SSBPL       | Sunset Supply Branch Pipeline   |

## **LIST OF ACRONYMS**

|       |   |
|-------|---|
| SSIP  | Sewer System Improvement Program                      |
| SVWTP | Sunol Valley Water Treatment Plant                    |
| WSIP  | Water System Improvement Program                      |
| WSTD  | Water Enterprise, Water Supply and Treatment Division |

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## 1.0 OVERALL PROGRAM PROGRESS

### 1.1 Program Status Summary

Significant progress has been made on the implementation of the Water System Improvement Program (WSIP) during Fiscal Year (FY) 2018-2019 (July 1, 2018 through June 30, 2019) with overall progress increasing from 95.8% to 97.3%. Overall, actual performance (97.3%) on the Regional Program is 1.2% behind schedule based on the March 2018 Revised WSIP. The overall program schedule variance is primarily due to the extension of Calaveras Dam Replacement Project (CDRP) contracts and delay in the completion of Phase 1 construction and Phase 2 design of the Regional Groundwater Storage and Recovery project. The status of each of these projects are discussed within this report.

As indicated in Table 1-1, planning, environmental, design, and construction efforts are 99.8%, 99.7%, 97.6%, and 98.2% complete, respectively.

**Table 1-1: WSIP Regional Program Performance<sup>1</sup>**

| Phase                     | June 30, 2018 |              | June 30, 2019          |              |
|---------------------------|---------------|--------------|------------------------|--------------|
|                           | % Planned     | % Actual     | % Planned <sup>2</sup> | % Actual     |
| Planning                  | 99.6%         | 99.6%        | 99.8%                  | 99.8%        |
| Environmental             | 98.8%         | 99.0%        | 99.7%                  | 99.7%        |
| Design                    | 97.9%         | 97.3%        | 99.6%                  | 97.6%        |
| Bid & Award               | 95.6%         | 96.1%        | 97.8%                  | 97.3%        |
| Construction              | 96.2%         | 96.5%        | 98.7%                  | 98.2%        |
| Closeout                  | 71.5%         | 71.3%        | 77.7%                  | 71.6%        |
| <b>Program Cumulative</b> | <b>95.8%</b>  | <b>95.8%</b> | <b>98.5%</b>           | <b>97.3%</b> |

<sup>1</sup> Percent completion does not include Support Projects in the WSIP Regional Program.

<sup>2</sup> Incorporates the March 2018 Revised WSIP schedule and budget revisions approved by the Commission in April 2018

In recent years, the focus of the program has been on construction activities and administrative closeout of completed projects. Table 1-2 compares the number of projects in each phase and their corresponding total approved value at the beginning of the reporting period (June 30, 2018) to those at the end of the reporting period (June 30, 2019). As of the end of the reporting period, 5 regional projects are in construction with a total value of \$1,015 million and 43 additional projects with a total value of \$2,715 million are in close-out or have been completed. Besides the WSIP Closeout Projects, the two (2) Regional projects remaining in pre-construction are the Alameda Creek Recapture Project and the Watershed and Environmental Improvement Program. In addition, Phase 2 of Regional Groundwater Storage and Recovery is in design while Phase 1 is nearing construction completion.

**Table 1-2: Status of WSIP Regional Projects**

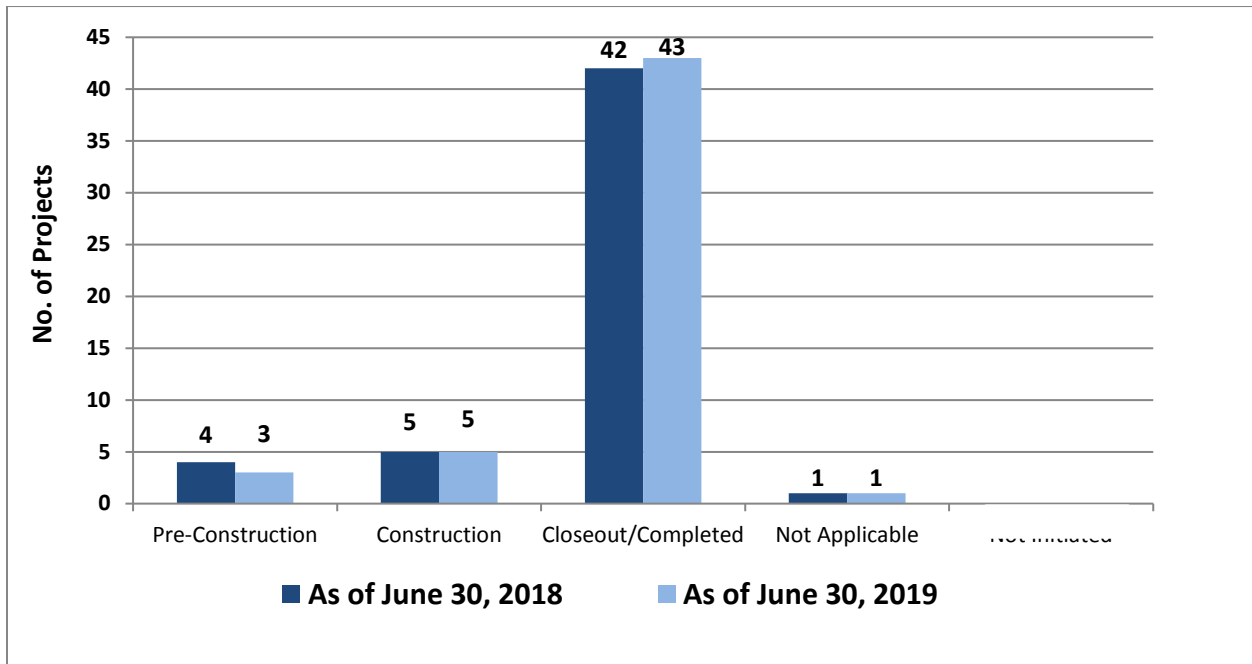
| Project Phase               | June 30, 2018 Status |                           | June 30, 2019 Status |  |
|-----------------------------|----------------------|---------------------------|----------------------|--|
|                             | No. of Projects      | Total Project Value (\$M) | No. of Projects      | Total Project Value (\$M) <sup>1</sup> |
| Planning                    | 0                    | \$0                       | 0                    | \$0                                    |
| Design                      | 4                    | \$75                      | 3                    | \$61                                   |
| Bid & Award                 | 0                    | \$0                       | 0                    | \$0                                    |
| Construction                | 5                    | \$1,016                   | 5                    | \$1,015                                |
| Closeout                    | 2                    | \$172                     | 1                    | \$96                                   |
| Completed                   | 40                   | \$2,527                   | 42                   | \$2,619                                |
| Not Applicable <sup>2</sup> | 1                    | \$12                      | 1                    | \$12                                   |
| <b>Total</b>                | <b>52</b>            | <b>\$3,803</b>            | <b>52</b>            | <b>\$3,803</b>                         |

<sup>1</sup> Based on budget approved as part of the March 2018 Revised WSIP.

<sup>2</sup> The "Not Applicable" category is for one Support project, the Long-Term Mitigation Endowment, that does not have construction activities.

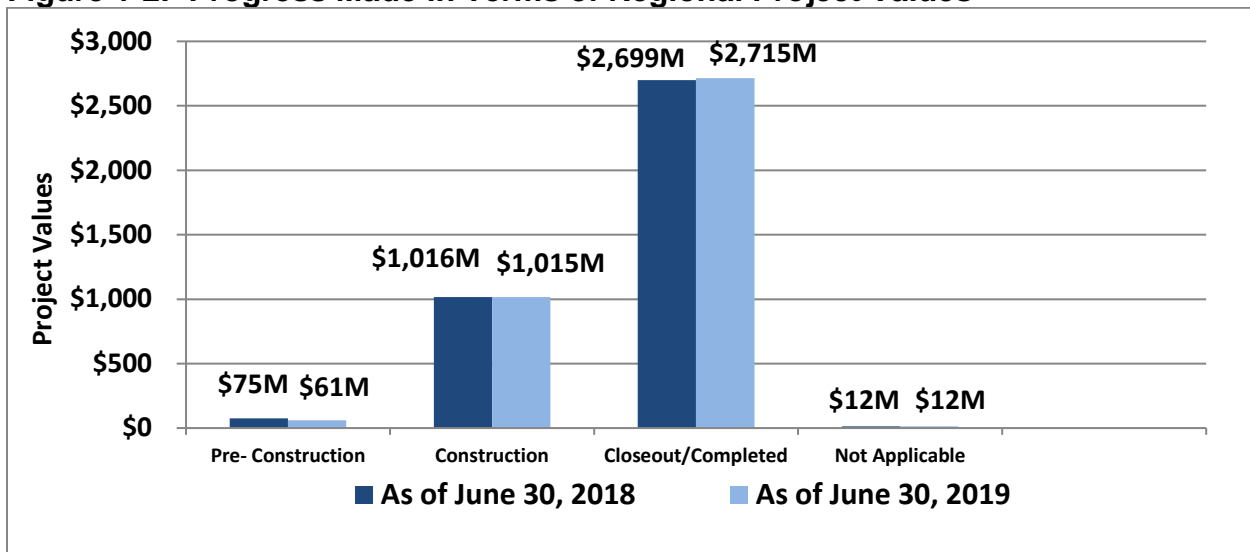
To better illustrate the progress made during the FY 2018-2019, some of the key program-level data included in Table 1-2 are graphically presented in Figures 1-1 and 1-2.

**Figure 1-1: Progress Made in Terms of No. of Regional Projects**





**Figure 1-2: Progress Made in Terms of Regional Project Values**



During the reporting period, one project achieved final construction phase completion and two projects achieved final administrative closeout / project completion. These milestones are summarized below:

Final Construction Phase Completion:

- System Security Upgrades – April 9, 2019

Project Administrative Closeout / Project Completion:

- Seismic Upgrade of BDPL Nos. 3 & 4 – July 30, 2018
- System Security Upgrades - April 9, 2019

**1.2 Program Baseline Budget and Schedule**

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

Subsequently, the WSIP Baseline Budget and Schedule were revised in 2007, 2009, 2011, 2013, 2014, 2015, 2016, 2017, and 2018, and these revisions were approved by the San Francisco Public Utilities Commission on February 26, 2008, July 28, 2009, July 12, 2011, April 23, 2013, April 22, 2014, December 8, 2015, April 26, 2016, February 14, 2017, and April 10, 2018, respectively. All status updates in this Annual Report are referenced to the latest Baseline Budget and Schedule, approved on April 20, 2018, which is referred to as the “March 2018 Revised WSIP”.

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## 2.0 PROGRAMMATIC INITIATIVES (FY2018-19)

This section describes some of the more important programmatic initiatives undertaken during FY 2018-19.

### 2.1 Shutdown Management

The WSIP team continued to actively manage the WSIP shutdowns during FY 2018-19. Table 2-1 summarizes the WSIP shutdowns that were active in FY 2018-19. Overall to date, 208 (or 97%) of the 215 WSIP system shutdowns and hot taps have been completed as shown in Figure 2-1. Seven shutdowns are planned during the coming fiscal year.

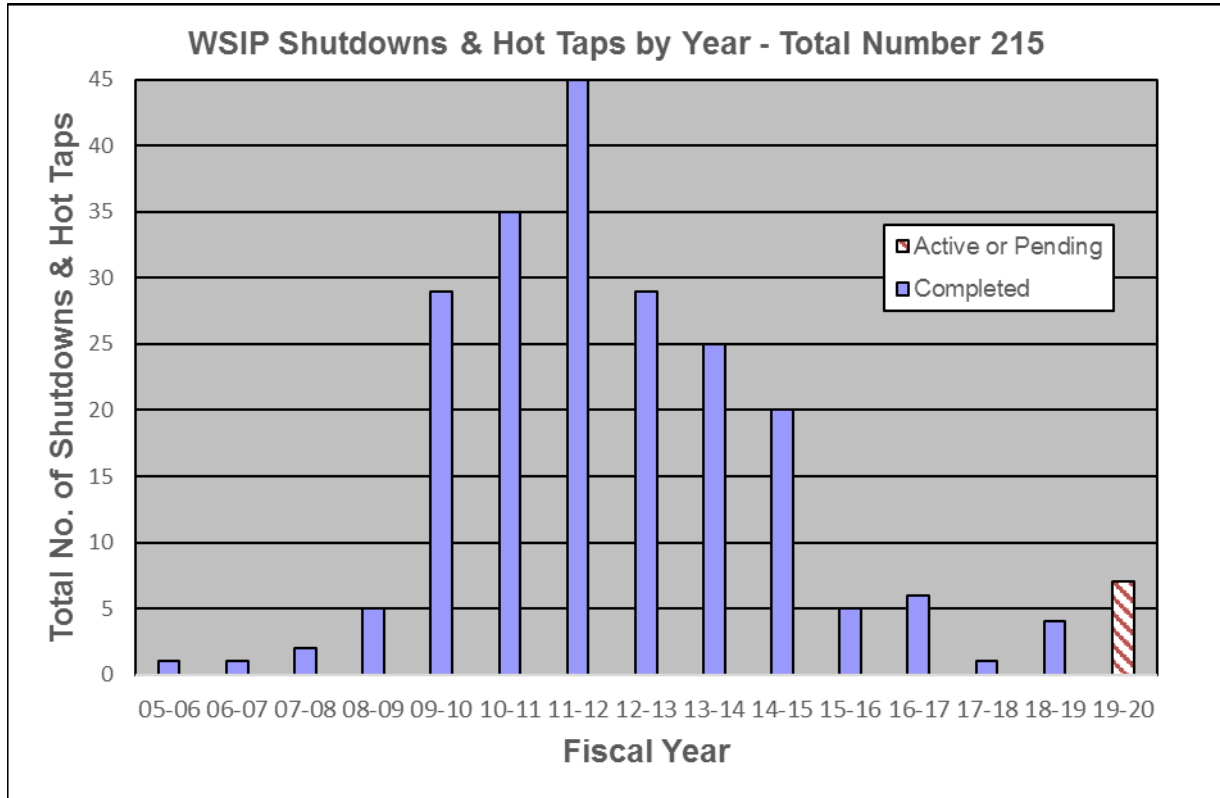
To mitigate operational risks, the SFPUC continues to carefully plan and stagger outages at the various water facilities. Whenever there is a forecasted change to a contract start date, a pre-purchased equipment delivery date, or a contractor's equipment delivery date, the impact on the schedule of a contract's shutdowns is analyzed. We have found that in most cases, existing shutdowns can be maintained, or work-around strategies can be identified. In the rare cases where a shutdown window needs to be moved, a program-level analysis is undertaken to assess the potential impact on other system shutdowns. Potential changes to the overall WSIP Master System Shutdown Schedule are discussed at weekly Water Supply and Treatment Division (WSTD) and Hetch Hetchy Water and Power (HHWP) Operations Meetings, at bimonthly WSIP Shutdown Coordination Meetings, at quarterly HHWP/WSTD coordination meetings, and at contract specific break-out meetings which include representatives from the WSIP team and WSTD Operations staff. Also, part of the shutdown coordination effort involves juggling WSIP shutdowns and WSIP warranty shutdowns simultaneously with operational shutdowns and non-WSIP shutdowns.

**Table 2-1: Summary of Shutdowns & Hot Taps Started & Completed in FY18-19**

|   | <b>Shutdowns and Hot Taps</b> | <b>Date Started</b> | <b>Date Completed</b> |
|---|-------------------------------|---------------------|-----------------------|
| 1 | GW/12 (hot tap)               | 8/8/2018            | 8/8/2018              |
| 2 | GW/10 (hot tap)               | 9/5/2018            | 9/5/2018              |
| 3 | GW/1 (hot tap)                | 9/12/2018           | 9/12/2018             |
| 4 | GW/16 (hot tap)               | 2/27/2019           | 2/27/2019             |

GW – Regional Ground Water Storage and Recovery

**Figure 2-1: Number of Shutdowns and Hop Taps by Fiscal Year**



**2.2 Environmental Program**

**CEQA**

The total number of California Environmental Quality Act (CEQA) documents approved to date for WSIP regional projects is as follows: 16 Environmental Impact Reports (EIRs) certified, 7 Initial Study/Mitigated Negative Declarations approved, and 13 Categorical Exemptions issued.

**Resource Agency Permits**

One hundred resource agency permits have been obtained since the start of the Program, and permitting is 99% complete. No new permits were issued during FY 2018-19. Only one project, the Alameda Creek Recapture Project in the Sunol Region, requires the issuance of one new permit. Permitting is complete in all other regions.

**Environmental Construction Compliance**

During FY 2018-19, the WSIP environmental construction compliance staff participated in construction activities on two Sunol Region projects and on one San Francisco Region project. Construction of the habitat compensation sites under the Bioregional Habitat Restoration Project in the Sunol and Peninsula Regions is complete. Environmental construction compliance for these projects included contractor training, San Francisco

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Planning Department and resource agency coordination, resolution of compliance events, amendment of existing permits, and implementation of required local, State, and Federal reporting procedures. In addition, revegetation of WSIP sites in areas that are only temporarily affected by construction is underway, as required by CEQA mitigation measures and resource agency permits. As of the end of FY 2018-19, revegetation work has been completed on 13 WSIP project sites, comprising approximately 150 acres. Work on 11 project sites comprising over 360 acres continues. Revegetation monitoring began at the Calaveras Dam Replacement and Fish Passage Facilities at the Alameda Creek Diversion Dam project sites during this year. These activities were initially performed under the Vegetation Restoration of WSIP Post Construction Sites Project (CUW 38803) and are continuing under Water Enterprise operations.

While implementing mandated mitigation measures and permit conditions, the WSIP environmental construction compliance staff, led by the Bureau of Environmental Management, resolved several challenges during construction, thus successfully avoiding any construction delays. Challenges included discovery of cultural and paleontological resources, nesting of migratory birds at construction sites, and handling of construction water properly. The WSIP was 99% compliant in construction (534 environmental field inspections in FY 2018-19)<sup>1</sup> and has not received any violation notices from the resource agencies that issued project permits (U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, National Marine Fisheries Service, Regional Water Quality Control Board, the State Historic Preservation Office, and the Bay Conservation and Development Commission). The 1% non-compliance issues were successfully resolved by the construction contractors.

## **2.3 Public Outreach Program**

The Public Outreach Team for the WSIP kept pace with the significant milestones achieved by the projects in FY 2018-19.

The Team organized two high-profile events to celebrate major milestones for the Calaveras Dam Replacement Project (CDRP). On September 21, 2018, several members of the media joined SFPUC Commissioners, our wholesale partners, and representatives from the California Division of Safety of Dams (DSOD) for a ribbon cutting on the spillway bridge to celebrate the New Calaveras Dam reaching its full height. Media coverage included front page stories in the San Jose Mercury News / Bay Area News Group papers; stories in the San Francisco Chronicle and the World Journal; and TV/radio news stories on KPIX, KTVU, KCBS, and KQED. On May 3, 2019 approximately 350 community partners, elected officials and their representatives, as well as project staff (current and previous) celebrated the substantial completion of the project at a ceremony and luncheon on top of the New Calaveras Dam.

Communications staff also reopened Calaveras Road to thru traffic during this time frame. We alerted local stakeholders, as well as the map app programs such as WAZE, Google, and 511 to show the road now open. In addition to the large events noted above, the

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<sup>1</sup> During FY 2018-19, activities on the Regional Groundwater Storage and Recovery Project in the San Francisco Region consisted of interior work. As such, environmental inspections were not performed.

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project team hosted more than 25 tours of the project site for members of the public, internal partners, and external agencies in order to educate and inform them about the project and its purpose and need.

Construction on the Fish Passage Facilities Project was also substantially completed and placed into service during this year. In March 2019, a reporter from KPIX visited the new fish ladder to see it in action. Communications staff also filmed and interviewed SFPUC biologists to promote the project and our stewardship goals on our social media channels. Communications staff continued to work with East Bay Regional Park District staff on the final items needed to close out the project.

On the Peninsula, crews returned to the Sawyer Camp Trail area to construct some erosion control measures along the Crystal Springs / San Andreas Pipeline alignment. Communications worked with San Mateo County Parks staff to alert trail users of the project and minimize disruptions to trail access.

In January 2019, Communications staff worked with our Peninsula partners to formally reopen the Skyline Bridge across Lower Crystal Springs Dam. The bridge was removed prior to the WSIP project to raise the parapet wall and upgrade the spillway and stilling basin of the dam. San Mateo County completed work to replace the bridge over the dam this year. Communications staff worked with San Mateo County staff to highlight the SFPUC's work to bring the dam up to current DSOD-mandated standards. SFPUC staff toured the new bridge with reporters and spoke at the ribbon cutting ceremony. Media coverage included the San Mateo Daily Journal and San Jose Mercury News.

Work on the Regional Groundwater Storage and Recovery Project Phase I focused on preparing the well stations for initial functional testing activities. Communications staff responded to constituent questions and liaised between the project team and local municipalities where the well stations are sited.

The outreach team utilized various social media channels and multimedia platforms to communicate important information about the WSIP as well as to reinforce positive SFPUC messaging. Given that the program is 97% complete, communications merged the @WSIPinTheNews Twitter account with the SFPUC's general @sfwater Twitter account. Through the @sfwater Twitter account, we reached many SFPUC followers with stories of WSIP successes.

Since 2010, we have done over 625 tweets through our @SawyerCampTrail Twitter handle, highlighting the WSIP's Peninsula Regional projects and project milestones on the Peninsula.

The outreach team also provides original, engaging content and project updates on a Peninsula blog and an East Bay blog. The Peninsula Blog, highlighting the Sawyer Camp Trail and life along the watershed, receives on average over 900-page views per month and has had a total of more than 97,000 page views since its launch in 2010. The East Bay blog highlights people and work related to the WSIP, and receives, on average, more than 3,000 page views each month and a total of more than 290,000 page-views since the blog launched in 2010. These sites continue to provide effective and engaging tools for our community to learn about our projects, agency, and efforts in the respective regions. To further our reach, the outreach team works in conjunction with the SFPUC's social media

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efforts to achieve complimentary content for the SFPUC's Facebook page, LinkedIn, YouTube channel, and Twitter handle.

The outreach team also facilitated submittals for industry awards during the reporting period. The WSIP program has received 66 industry awards since 2010.

The Calaveras Dam Replacement Project was recognized this year with several distinct awards in 2019 including: American Public Works Association (APWA) Nor Cal Chapter- Structures Award (projects more than \$75M); American Public Works Association (APWA) Nor Cal Chapter- Contractor of the Year Award, Dragados, Flatiron, Sukut Joint Venture; U.S. Society of Dams (USSD) Constructed Project of the Year; Construction Management Association of America (CMAA), Northern California Project Achievement Award, Public Works Project, (larger than \$60 million category); International Partnering Institute (IPI) Partnered Project of the Year Award; American Public Works Association, National Award, Public Works Project of the Year; and ENR Best Regional Projects, 2019 Award of Merit for Water/Environment category. In addition, the WSIP's Fish Passage Facilities Project won the American Public Works Association (APWA) Nor Cal Chapter- Environmental Award (projects between \$25-75M).

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### 3.0 LEVEL OF SERVICE (LOS) GOALS

#### 3.1 WSIP Goals and Objectives

Table 3-1 provides a summary of the WSIP goals and objectives in accordance with the March 2018 Revised WSIP.

**Table 3-1: WSIP Goals and Objectives**

| Program Goal  | System Performance Objective  |
|---|---|
| <p><b><u>WATER QUALITY</u></b><br/>           Maintain high water quality</p>   | <ul style="list-style-type: none"> <li>• Design improvements to meet current and foreseeable future federal and state water quality requirements.</li> <li>• Provide clean, unfiltered water originating from Hetch Hetchy Reservoir and filtered water from local watersheds.</li> <li>• Continue to implement watershed protection measures.</li> </ul>   |
| <p><b><u>SEISMIC RELIABILITY</u></b><br/>           Reduce vulnerability to earthquakes</p>                                       | <ul style="list-style-type: none"> <li>• Design improvements to meet current seismic standards.</li> <li>• 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.</li> <li>• Restore facilities to meet average-day demand of up to 300 mgd within thirty (30) days after a major earthquake.</li> </ul> |
| <p><b><u>DELIVERY RELIABILITY</u></b><br/>           Increase delivery reliability and improve ability to maintain the system</p> | <ul style="list-style-type: none"> <li>• Provide operational flexibility to allow planned maintenance shutdown of individual facilities without interrupting customer service.</li> <li>• Provide operational flexibility to minimize the risk of service interruption due to unplanned facility upsets or outages.</li> <li>• Provide operational flexibility and system capacity to replenish local reservoirs as needed.</li> <li>• 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.</li> </ul>  |

| Program Goal   | System Performance Objective   |
|--|--|
| <p><b><u>WATER SUPPLY</u></b><br/> <i>Meet customer water needs in non-drought and drought periods</i></p> | <ul style="list-style-type: none"> <li>• <i>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 2019.</i></li> <li>• <i>Meet dry-year delivery needs through 2019 while limiting rationing to a maximum 20 percent system-wide reduction in water service during extended droughts.</i></li> <li>• <i>Diversify water supply options during non-drought and drought periods.</i></li> <li>• <i>Improve use of new water sources and drought management, including groundwater, recycled water, conservation and transfers.</i></li> </ul> |
| <p><b><u>SUSTAINABILITY</u></b><br/> <i>Enhance sustainability in all system activities</i></p>            | <ul style="list-style-type: none"> <li>• <i>Manage natural resources and physical systems to protect watershed ecosystems.</i></li> <li>• <i>Meet, at a minimum, all current and anticipated legal requirements for protection of fish and wildlife habitat.</i></li> <li>• <i>Manage natural resources and physical systems to protect public health and safety.</i></li> </ul>   |
| <p><b><u>COST-EFFECTIVENESS</u></b><br/> <i>Achieve a cost-effective, fully operational system</i></p>     | <ul style="list-style-type: none"> <li>• <i>Ensure cost-effective use of funds.</i></li> <li>• <i>Maintain gravity-driven system.</i></li> <li>• <i>Implement regular inspection and maintenance program for all facilities.</i></li> </ul>  |

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

### 3.2 Progress Towards Meeting LOS Goals

The scope of the WSIP is based on the first four 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. The SFPUC remains committed to achieving all the LOS goals established for the system.

Table 3-2 lists the projects with their individual contribution to LOS goals, and indicates which projects have been substantially completed. This tabulation demonstrates the progress that has been achieved in the WSIP toward meeting these goals. As of the end of FY2018-19, 41 of the 43 Regional WSIP projects with specific LOS goals have achieved their LOS goals and objectives to date. The other nine Regional WSIP projects (Support projects and WSIP Closeout projects) do not have specific LOS goals.

**Table 3-2: Progress Towards Meeting LOS Goals**

| Project No.                  | Project Name / Construction Contract  | Actual / Approved Substantial Completion Date | LOS Goals (P =Primary, S =Secondary) |                     |                      |              | Actual Operational Service Start             | Construction Progress Toward LOS Goals |
|------------------------------|---|---|--------------------------------------|---------------------|----------------------|--------------|--|--|
|                              |   |   | Water Quality                        | Seismic Reliability | Delivery Reliability | Water Supply |  |  |
| <b>San Joaquin Projects</b>  |   |   |                                      |                     |                      |              |  |  |
| CUW36401                     | Lawrence Livermore Water Quality Improvement<br><i>(Completed)</i>  | 08/31/10                                      | P                                    |                     |                      |              | 08/31/10                                     | 100%                                   |
| CUW37301                     | San Joaquin Pipeline System<br><i>(Completed)</i><br>(A) HH935A Crossovers<br>(B) HH935B Western Segment<br>(C) HH935C Eastern Segment                                    | (A) 01/06/12<br>(B) 05/27/13<br>(C) 06/21/13  |                                      |                     | P                    |              | (A) 01/06/12<br>(B) 05/27/13<br>(C) 06/21/13 | 100%                                   |
| CUW37302                     | Rehabilitation of Existing San Joaquin Pipelines (Roselle Crossover; <i>Completed</i> )   | 05/13/11                                      |                                      |                     | P                    |              | 05/13/11                                     | 100%                                   |
| CUW38401                     | Tesla Treatment Facility<br><i>(Completed)</i><br>(A) DB116 Tesla Treatment Facility Design-Build Contract<br>(B) HH953 Tesla Portal Protection                           | (A) 06/24/11<br>(B) 08/05/13                  | P                                    | S                   | S                    |              | (A) 06/24/11<br>(B) 08/05/13                 | 100%                                   |
| <b>Sunol Valley Projects</b> |   |   |                                      |                     |                      |              |  |  |
| CUW35201                     | Alameda Creek Recapture   | 11/30/20                                      |                                      |                     |                      | P            |  | 0%                                     |
| CUW35501                     | Standby Power Facilities - Various Locations <i>(Completed)</i><br>(A) WD-2553 East Bay - Standby Power Facilities<br>(B) WD-2511 Peninsula - Standby Power Facilities    | (A) 09/11/08<br>(B) 04/15/10                  |                                      | P                   | S                    |              | (A) 09/11/08<br>(B) 04/15/10                 | 100%                                   |
| CUW35901                     | New Irvington Tunnel<br><i>(Completed)</i>  | 09/19/15                                      |                                      | S                   | P                    |              | 02/27/15                                     | 100%                                   |
| CUW35902                     | Alameda Siphon #4<br><i>(Completed)</i>   | 12/16/11                                      |                                      | P                   | S                    |              | 12/16/11                                     | 100%                                   |
| CUW37001                     | Pipeline Repair & Readiness Improvements <i>(Completed)</i><br>(A) WD-2530 Phase A 8 Pipe Storage Sites<br>(B) WD-2530 Phase B Pipe Rolling Machine Facility @ Sunol Yard | (A) 02/09/07<br>(B) 07/14/08                  |                                      | P                   | S                    |              | (A) 02/09/07<br>(B) 07/14/08                 | 100%                                   |
| CUW37401                     | Calaveras Dam Replacement<br>(A) WD-2551 Calaveras Dam Replacement<br>(B) WD-2729 Alameda Creek Diversion Dam   | (A) 04/12/19<br>(B) 02/15/19                  |                                      | S                   | P                    | S            | (A) 04/12/19<br>(B) 02/15/19                 | (A) 100%<br>(B) 98%                    |
| CUW37402                     | Calaveras Reservoir Upgrades<br><i>(Completed)</i>  | 10/06/05                                      | P                                    |                     |                      |              | 10/06/05                                     | 100%                                   |
| CUW37403                     | San Antonio Backup Pipeline<br><i>(Completed)</i>   | 12/31/14                                      |                                      |                     | P                    |              | 12/31/14                                     | 100%                                   |

| Project No.                  | Project Name / Construction Contract   | Actual / Approved Substantial Completion Date | LOS Goals (P =Primary, S =Secondary) |                     |                      |              | Actual Operational Service Start             | Construction Progress Toward LOS Goals |
|------------------------------|--|---|--------------------------------------|---------------------|----------------------|--------------|--|--|
|                              |  |   | Water Quality                        | Seismic Reliability | Delivery Reliability | Water Supply |  |  |
| <b>Bay Division Projects</b> |  |   |                                      |                     |                      |              |  |  |
| CUW38101                     | SVWTP Expansion & Treated Water Reservoir <i>(Completed)</i>   | 05/17/13                                      | P                                    |                     | P                    |              | 05/17/13                                     | 100%                                   |
| CUW38601                     | San Antonio Pump Station Upgrade <i>(Completed)</i>  | 06/30/11                                      |                                      |                     | P                    |              | 06/30/11                                     | 100%                                   |
| CUW35301                     | BDPL Nos. 3&4 Crossover/ Isolation Valves <i>(Completed)</i>   | 11/15/07                                      |                                      | P                   |                      |              | 11/15/07                                     | 100%                                   |
| CUW35302                     | Seismic Upgrade of BDPL Nos. 3 & 4 <i>(Completed)</i>  | 10/26/15                                      |                                      | P                   |                      |              | 06/20/14                                     | 100%                                   |
| CUW36301                     | SCADA System - Phase II <i>(Completed)</i>   | 11/29/10                                      |                                      |                     | P                    |              | 11/29/10                                     | 100%                                   |
| CUW36801                     | BDPL Reliability Upgrade - Tunnel <i>(Completed)</i>   | 05/20/15                                      |                                      | P                   | S                    |              | 10/15/14                                     | 100%                                   |
| CUW36802                     | BDPL Reliability Upgrade – Pipeline <i>(Completed)</i><br>(A) WD-2541 East Bay<br>(B) WD-2542 Peninsula<br>(C) WD-2665 Cordilleras | (A) 12/09/11<br>(B) 06/13/12<br>(C) 03/05/13  |                                      | P                   | S                    |              | (A) 12/09/11<br>(B) 06/13/12<br>(C) 03/05/13 | 100%                                   |
| CUW36803                     | BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2 <i>(Completed)</i>  | 05/28/10                                      |                                      |                     | P                    |              | 05/28/10                                     | 100%                                   |
| CUW38001                     | BDPL Nos. 3 & 4 - Crossovers <i>(Completed)</i>  | 08/15/12                                      |                                      | P                   | S                    |              | 08/15/12                                     | 100%                                   |
| CUW38901                     | SFPUC/EBMUD Intertie <i>(Completed)</i>  | 09/07/07                                      |                                      |                     | P                    |              | 09/07/07                                     | 100%                                   |
| CUW39301                     | BDPL No. 4 Condition Assessment PCCP Sections <i>(Completed)</i>   | 02/06/09                                      |                                      | P                   | S                    |              | 02/06/09                                     | 100%                                   |
| <b>Peninsula Projects</b>    |  |   |                                      |                     |                      |              |  |  |
| CUW35401                     | Lower Crystal Springs Dam Improvements <i>(Completed)</i>  | 11/20/11                                      |                                      |                     | P                    | S            | 11/20/11                                     | 100%                                   |
| CUW35601                     | New Crystal Springs Bypass Tunnel <i>(Completed)</i>   | 07/14/11                                      |                                      | P                   | S                    |              | 07/14/11                                     | 100%                                   |
| CUW35701                     | Adit Leak Repair - Crystal Springs/Calaveras <i>(Completed)</i>  | 11/30/07                                      |                                      |                     | P                    |              | 11/30/07                                     | 100%                                   |
| CUW36101                     | Pulgas Balancing – Inlet / Outlet Work <i>(Completed)</i>  | 02/02/06                                      | P                                    |                     | S                    |              | 02/02/06                                     | 100%                                   |
| CUW36102                     | Pulgas Balancing - Discharge Channel Modifications <i>(Completed)</i>  | 10/23/09                                      |                                      |                     | P                    |              | 10/23/09                                     | 100%                                   |
| CUW36103                     | Pulgas Balancing - Structural Rehabilitation & Roof Replacement <i>(Completed)</i>   | 07/26/11                                      | P                                    |                     | S                    |              | 07/26/11                                     | 100%                                   |
| CUW36105                     | Pulgas Balancing - Modifications of Existing Dechloramination Facility <i>(Completed)</i>  | 08/27/12                                      | P                                    |                     | S                    |              | 08/27/12                                     | 100%                                   |

| Project No.                            | Project Name / Construction Contract  | Actual / Approved Substantial Completion Date | LOS Goals (P =Primary, S =Secondary) |                     |                      |              | Actual Operational Service Start | Construction Progress Toward LOS Goals |
|--|---|---|--------------------------------------|---------------------|----------------------|--------------|----------------------------------|--|
|  |   |   | Water Quality                        | Seismic Reliability | Delivery Reliability | Water Supply |                                  |  |
| CUW36501                               | Cross Connection Controls<br><i>(Completed)</i>   | 11/26/08                                      | P                                    |                     |                      |              | 11/26/08                         | 100%                                   |
| CUW36601                               | HTWTP Short-Term Improvements - Demo Filters<br><i>(Completed)</i>  | 01/11/06                                      |                                      | P                   | S                    |              | 01/11/06                         | 100%                                   |
| CUW36603                               | HTWTP Short-Term Improvements - Coagulation & Flocculation/Remaining Filters<br><i>(Completed)</i>  | 12/21/09                                      |                                      | P                   | S                    |              | 12/21/09                         | 100%                                   |
| CUW36701                               | HTWTP Long -Term Improvements<br><i>(Completed)</i>   | 09/08/15                                      |                                      | P                   | S                    |              | 09/08/15                         | 100%                                   |
| CUW36702                               | Peninsula Pipelines Seismic Upgrade<br><i>(Completed)</i>   | 10/30/15                                      |                                      | P                   |                      |              | 10/30/15                         | 100%                                   |
| CUW36901                               | Capuchino Valve Lot Improvements<br><i>(Completed)</i>  | 02/14/08                                      |                                      |                     | P                    |              | 02/14/08                         | 100%                                   |
| CUW37101                               | Crystal Springs/San Andreas Transmission Upgrade<br><i>(Completed)</i>  | 06/30/14                                      |                                      | P                   | S                    |              | 09/02/14                         | 100%                                   |
| CUW37801                               | Crystal Springs Pipeline No. 2 Replacement<br><i>(Completed)</i>  | 01/31/13                                      |                                      | P                   | S                    |              | 01/31/13                         | 100%                                   |
| CUW37901                               | San Andreas Pipeline No. 3 Installation<br><i>(Completed)</i>   | 03/29/11                                      |                                      | P                   | S                    |              | 03/29/11                         | 100%                                   |
| CUW39101                               | Baden & San Pedro Valve Lots Improvements<br><i>(Completed)</i>   | 03/31/11                                      |                                      | P                   | S                    |              | 03/31/11                         | 100%                                   |
| <b>San Francisco Regional Projects</b> |   |   |                                      |                     |                      |              |                                  |  |
| CUW30103                               | Regional Groundwater Storage and Recovery<br>(A) WD-2600 Test Well Drilling<br>(B) WD-2668 Regional Groundwater Storage and Recovery<br>(C) Regional Groundwater Storage and Recovery (Phase 2) | (A) 07/23/12<br>(B) 12/31/17<br>(C) 02/28/21  |                                      |                     |                      | P            | (A) 07/23/12                     | (A) 100%<br>(B) 99%<br>(C) 0%          |
| CUW35801                               | Sunset Reservoir - North Basin<br><i>(Completed)</i>  | 09/19/08                                      |                                      | P                   | S                    |              | 09/19/08                         | 100%                                   |
| CUW37201                               | University Mound Reservoir - North Basin<br><i>(Completed)</i>  | 05/25/11                                      |                                      | P                   | S                    |              | 05/25/11                         | 100%                                   |

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

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## **4.0 PROJECT SCHEDULES**

As of June 30, 2019, the overall WSIP is forecast to be complete in December 2021, which is consistent with the current baseline schedule approved as part of the March 2018 Revised WSIP. The overall current approved WSIP completion schedule is driven by the final administrative closeout completion date for Regional Groundwater Storage and Recovery on December 30, 2021. However, as of the end of the reporting period the schedule for Phase 2 of the Regional Groundwater Storage and Recovery Project is currently under evaluation due to potential scope changes and carryover work from Phase 1. Furthermore, the Alameda Creek Recapture Project forecast has not been updated since the March 2018 Revised WSIP baseline was established because the publication date for the draft EIR to be re-circulated for public review has not yet been determined. Once the draft EIR for this project is published and public comments received, the SFPUC will re-forecast the schedule for this project which may extend beyond the current approved end date of the WSIP. Any future proposed schedule changes would need to be approved by the San Francisco Public Utilities Commission in accordance with the requirements of AB1823.

All but two projects with Level of Service (LOS) goals involving construction activities (Alameda Creek Recapture and Regional Groundwater Storage and Recovery) have achieved their LOS goals and objectives. Three other support projects (the Bioregional Habitat Restoration (BHR) Program; the Watershed Environmental Improvement Program; and the Long-Term Mitigation Endowment) and the WSIP Closeout projects will also extend to near the end of the program; however, these projects do not directly contribute to the system's LOS.

### **4.1 Tracking and Controlling Project Schedules**

The WSIP Management Team continues to pro-actively monitor and control program and project schedules. Detailed business processes, well defined procedures, and best practices are in place to support early identification of schedule issues and timely development of recovery plans to mitigate any forecast delays as required.

The WSIP uses best practices common in the industry to forecast dates that accord with the best available information at the given moment they are reported in the WSIP Quarterly Reports. It is important to note that forecast dates can move each month based on the latest, best available data from the individual project teams (including information from the construction contractor in the field). When warranted, the WSIP Director will direct a project team to accelerate selected construction activities to mitigate forecasted delays.

### **4.2 Keeping the Public and Stakeholders Informed**

To make sure the general public and stakeholders are kept informed of project status and potential changes, the WSIP Management Team publishes extensive quarterly reports that include cost and schedule forecasts for all projects. These reports are distributed to the

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Program's oversight bodies (i.e., SFPUC Commission, RBOC, and BAWSCA) and posted on the Program's website (sfwater.org/wsip). The WSIP Director presents these quarterly reports to the Commission and makes himself available for questions related to them at a public Commission meeting quarterly. Likewise, throughout the year, the WSIP Director presents informative updates on the Program's status to various interested governmental and other entities (e.g., County Board of Supervisors, wholesale water agencies) and at public forums throughout the system's service area.

Additionally, the WSIP team conducts regular informational tours of East Bay project sites with elected officials, wholesale agency representatives, and other key stakeholders. These outreach efforts are promoted on a regular basis through social media platforms and email communications with stakeholders. Finally, the WSIP Communication team issues news releases and organizes special media events to highlight major program milestones (e.g., start of or completion of construction activities and completion of key projects).

### **4.3 Project Schedule Forecast and Variances**

The status of schedule forecasts and variances for WSIP Regional Projects are shown in Table 4-1 as of the end of FY 2018-19. The table provides the original 2005 baseline and the current approved completion dates for each project. Additionally, the current forecast completion date for each project is provided. As can be seen in the table, two (2) active Regional WSIP Projects are currently forecasted to be completed behind schedule in accordance with the current approved completion dates. The forecast completion date for WSIP San Joaquin Closeout project has been extended by one (1) year due to the delay of Planning Phase for the Solar Panels Sub-Project. The rebid of one of the WSIP Peninsula Project contracts resulted in three (3) months schedule delay. System Security Upgrades project has been completed with six (6) months delay due to the resolution of disagreement in final billing for the third As-Needed Security Integration Services Construction Contract. The approved project-level and phase-level schedules are included in Appendix A. Additional detail regarding the forecasts presented below may be found in the WSIP Quarterly Report for the 4th Quarter of FY 2018-19 (Appendix B).



**Table 4-1: Project Schedule Forecast and Variances**

| Project No.                | Project Name  | 2005 Approved Completion | Current Approved Completion <sup>1</sup> | June 2019 Forecasted Completion | Schedule Variance (Calendar Days) |
|----------------------------|---|--------------------------|--|---------------------------------|-----------------------------------|
| <b>San Joaquin Region</b>  |   |                          |  |                                 |                                   |
| CUW36401                   | Lawrence Livermore Water Quality Improvement <i>(Completed)</i>     | 11/7/2011                | 7/31/2013                                | 7/31/2013                       | -                                 |
| CUW37301                   | San Joaquin Pipeline System <i>(Completed)</i>                      | 3/25/2014                | 3/31/2016                                | 3/31/2016                       | -                                 |
| CUW37302                   | Rehabilitation of Existing San Joaquin Pipelines <i>(Completed)</i> | 6/30/2014                | 10/31/2014                               | 10/31/2014                      | -                                 |
| CUW38401                   | Tesla Treatment Facility <i>(Completed)</i>                         | 7/1/2011                 | 1/30/2015                                | 1/30/2015                       | -                                 |
| CUW38701                   | Tesla Portal Disinfection Station <i>(Combined with CUW38401)</i>   | 9/2/2011                 | 6/29/2007                                | 6/29/2007                       | -                                 |
| CUWSJI0101                 | WSIP Closeout - San Joaquin   | -                        | 12/20/2019                               | 12/18/2020                      | (364)                             |
| <b>Sunol Valley Region</b> |   |                          |  |                                 |                                   |
| CUW35201                   | Alameda Creek Recapture Project                                     | 5/25/2012                | 11/3/2021                                | 11/3/2021                       | -                                 |
| CUW35501                   | Standby Power Facilities - Various Locations <i>(Completed)</i>     | 12/6/2010                | 12/22/2010                               | 12/22/2010                      | -                                 |
| CUW35901                   | New Irvington Tunnel <i>(Completed)</i>                             | 9/17/2013                | 3/31/2018                                | 3/31/2018                       | -                                 |
| CUW35902                   | Alameda Siphon #4 <i>(Completed)</i>                                | 4/14/2011                | 6/28/2013                                | 6/28/2013                       | -                                 |
| CUW37001                   | Pipeline Repair & Readiness Improvements <i>(Completed)</i>         | 3/30/2007                | 4/16/2009                                | 4/16/2009                       | -                                 |
| CUW37401                   | Calaveras Dam Replacement   | 5/25/2012                | 12/20/2019                               | 12/20/2019                      | -                                 |
| CUW37402                   | Calaveras Reservoir Upgrades <i>(Completed)</i>                     | 6/16/2006                | 7/28/2006                                | 7/28/2006                       | -                                 |
| CUW37403                   | San Antonio Backup Pipeline <i>(Completed)</i>                      | 6/29/2012                | 6/30/2016                                | 6/30/2016                       | -                                 |
| CUW38101                   | SVWTP Expansion & Treated Water Reservoir <i>(Completed)</i>        | 7/9/2013                 | 10/31/2014                               | 10/31/2014                      | -                                 |
| CUW38102                   | SVWTP Calaveras Road <i>(Eliminated)</i>                            | -                        | 12/14/2007                               | 12/14/2007                      | -                                 |
| CUW38201                   | SVWTP Treated Water Reservoir <i>(Combined with CUW38101)</i>       | 12/21/2010               | 3/2/2007                                 | 3/2/2007                        | -                                 |

| Project No.                | Project Name  | 2005 Approved Completion | Current Approved Completion <sup>1</sup> | June 2019 Forecasted Completion | Schedule Variance (Calendar Days) |
|----------------------------|---|--------------------------|--|---------------------------------|-----------------------------------|
| CUW38601                   | San Antonio Pump Station Upgrade <i>(Completed)</i>                         | 12/12/2011               | 6/29/2012                                | 6/29/2012                       | -                                 |
| CUWSVI0101                 | WSIP Closeout - Sunol Valley  | -                        | 6/30/2021                                | 6/30/2021                       | -                                 |
| <b>Bay Division Region</b> |   |                          |  |                                 |                                   |
| CUW35301                   | BDPL Nos. 3 & 4 Crossover/ Isolation Valves <i>(Completed)</i>              | 9/30/2008                | 7/31/2009                                | 7/31/2009                       | -                                 |
| CUW35302                   | Seismic Upgrade of BDPL Nos. 3 & 4 <i>(Completed)</i>                       | 10/15/2012               | 7/30/2018                                | 7/30/2018                       | -                                 |
| CUW36301                   | SCADA System - Phase II <i>(Completed)</i>                                  | 2/24/2012                | 5/28/2013                                | 5/28/2013                       | -                                 |
| CUW36801                   | BDPL Reliability Upgrade / Tunnel <i>(Completed)</i>                        | 1/31/2014                | 8/30/2016                                | 8/30/2016                       | -                                 |
| CUW36802                   | BDPL Reliability Upgrade - Pipeline <i>(Completed)</i>                      | 1/31/2014                | 3/31/2016                                | 3/31/2016                       | -                                 |
| CUW36803                   | BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2 <i>(Completed)</i> | 1/31/2014                | 5/28/2010                                | 5/28/2010                       | -                                 |
| CUW38001                   | BDPL Nos. 3 & 4 Crossovers <i>(Completed)</i>                               | 4/24/2013                | 6/30/2014                                | 6/30/2014                       | -                                 |
| CUW38901                   | SFPUC/EBMUD Intertie <i>(Completed)</i>                                     | 2/7/2007                 | 3/20/2014                                | 3/20/2014                       | -                                 |
| CUW39301                   | BDPL No. 4 Condition Assessment PCCP Sections <i>(Completed)</i>            | 5/1/2008                 | 2/6/2009                                 | 2/6/2009                        | -                                 |
| CUWBDP0101                 | WSIP Closeout - Bay Division  | -                        | 6/30/2020                                | 6/30/2020                       | -                                 |
| <b>Peninsula Region</b>    |   |                          |  |                                 |                                   |
| CUW35401                   | Lower Crystal Springs Dam Improvements <i>(Completed)</i>                   | 8/16/2011                | 12/28/2012                               | 12/28/2012                      | -                                 |
| CUW35601                   | New Crystal Springs Bypass Tunnel <i>(Completed)</i>                        | 10/28/2010               | 8/17/2012                                | 8/17/2012                       | -                                 |
| CUW35701                   | Adit Leak Repair - Crystal Springs/Calaveras <i>(Completed)</i>             | 7/3/2008                 | 7/31/2008                                | 7/31/2008                       | -                                 |
| CUW36101                   | Pulgas Balancing - Inlet/Outlet Work <i>(Completed)</i>                     | 5/11/2006                | 5/11/2006                                | 5/11/2006                       | -                                 |

| Project No.                          | Project Name  | 2005 Approved Completion | Current Approved Completion <sup>1</sup> | June 2019 Forecasted Completion | Schedule Variance (Calendar Days) |
|--------------------------------------|---|--------------------------|--|---------------------------------|-----------------------------------|
| CUW36102                             | Pulgas Balancing - Discharge Channel Modifications<br><i>(Completed)</i>                            | 8/5/2013                 | 7/30/2010                                | 7/30/2010                       | -                                 |
| CUW36103                             | Pulgas Balancing - Structural Rehabilitation and Roof Replacement<br><i>(Completed)</i>             | 1/27/2013                | 12/28/2012                               | 12/28/2012                      | -                                 |
| CUW36104                             | Pulgas Balancing - Laguna Creek Sedimentation<br><i>(Eliminated)</i>                                | -                        | 12/31/2007                               | 12/31/2007                      | -                                 |
| CUW36105                             | Pulgas Balancing - Modifications of the Existing Dechloramination Facility<br><i>(Completed)</i>    | 8/8/2013                 | 3/20/2013                                | 3/20/2013                       | -                                 |
| CUW36501                             | Cross Connection Controls<br><i>(Completed)</i>   | 5/15/2009                | 4/30/2009                                | 4/30/2009                       | -                                 |
| CUW36601                             | HTWTP Short-Term Improvements (Demo Filters)<br><i>(Completed)</i>                                  | 6/1/2006                 | 11/14/2006                               | 11/14/2006                      | -                                 |
| CUW36602                             | HTWTP Short-Term Improvements - Remaining Filters<br><i>(Combined with CUW36603)</i>                | 9/8/2010                 | 2/22/2008                                | 2/22/2008                       | -                                 |
| CUW36603                             | HTWTP Short-Term Improvements - Coagulation & Flocculation/ Remaining Filters<br><i>(Completed)</i> | 9/8/2010                 | 7/28/2010                                | 7/28/2010                       | -                                 |
| CUW36701                             | HTWTP Long-Term Improvements<br><i>(Completed)</i>  | 4/8/2014                 | 12/30/2016                               | 12/30/2016                      | -                                 |
| CUW36702                             | Peninsula Pipelines Seismic Upgrade<br><i>(Completed)</i>   | -                        | 7/6/2016                                 | 7/6/2016                        | -                                 |
| CUW36901                             | Capuchino Valve Lot Improvements<br><i>(Completed)</i>  | 7/1/2009                 | 8/19/2008                                | 8/19/2008                       | -                                 |
| CUW37101                             | Crystal Springs/San Andreas Transmission Upgrade<br><i>(Completed)</i>                              | 4/1/2014                 | 6/30/2015                                | 6/30/2015                       | -                                 |
| CUW37801                             | Crystal Springs Pipeline No. 2 Replacement<br><i>(Completed)</i>                                    | 4/27/2012                | 12/31/2014                               | 12/31/2014                      | -                                 |
| CUW37901                             | San Andreas Pipeline No. 3 Installation<br><i>(Completed)</i>                                       | 6/16/2011                | 8/30/2012                                | 8/30/2012                       | -                                 |
| CUW39101                             | Baden and San Pedro Valve Lots Improvements<br><i>(Completed)</i>                                   | 10/12/2011               | 3/29/2013                                | 3/29/2013                       | -                                 |
| CUWPWI0101                           | WSIP Closeout - Peninsula   | -                        | 5/19/2021                                | 8/5/2021                        | (78)                              |
| <b>San Francisco Regional Region</b> |   |                          |  |                                 |                                   |
| CUW30103                             | Regional Groundwater Storage and Recovery   | 2/15/2014                | 12/30/2021                               | 12/30/2021                      | -                                 |

| Project No.             | Project Name  | 2005 Approved Completion | Current Approved Completion <sup>1</sup> | June 2019 Forecasted Completion | Schedule Variance (Calendar Days) |
|-------------------------|---|--------------------------|--|---------------------------------|-----------------------------------|
| CUW35801                | Sunset Reservoir - North Basin<br><i>(Completed)</i>                    | 5/6/2009                 | 9/10/2010                                | 9/10/2010                       | -                                 |
| CUW37201                | University Mound Reservoir - North Basin<br><i>(Completed)</i>          | 3/10/2011                | 3/29/2013                                | 3/29/2013                       | -                                 |
| <b>Support Projects</b> |   |                          |  |                                 |                                   |
| CUW36302                | System Security Upgrades<br><i>(Completed)</i>                          | 2/24/2012                | 9/28/2018                                | 4/9/2019                        | (193)                             |
| CUW38801                | Programmatic EIR <i>(Completed)</i>                                     | 1/18/2008                | 6/30/2009                                | 6/30/2009                       | -                                 |
| CUW38802                | Bioregional Habitat Restoration   | -                        | 9/30/2021                                | 9/30/2021                       | -                                 |
| CUW38803                | Vegetation Restoration of WSIP Construction Sites<br><i>(Completed)</i> | -                        | 6/30/2016                                | 6/30/2016                       | -                                 |
| CUW38804                | Long Term Mitigation Endowment  | -                        | 9/30/2021                                | 9/30/2021                       | -                                 |
| CUW39201                | Program Management Project  | 6/29/2014                | 12/30/2021                               | 12/30/2021                      | -                                 |
| CUW39401                | Watershed Environmental Improvement Program                             | 6/1/2013                 | 1/8/2021                                 | 1/8/2021                        | -                                 |

<sup>1</sup> Incorporates the March 2018 Revised WSIP schedule approved by the Commission in April 2018.

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## 5.0 PROJECT BUDGETS

As of June 30, 2019, the forecasted overall WSIP total program cost (regional and local projects) is \$4,787.8M, which is the same as the Commission Approved Budget (March 2018 Revised WSIP). As of the end of FY 2018-19, the current forecasted remaining construction contingency is \$11.2M not including contingency budget reserved to cover the June 2019 forecasted construction change orders (approved, potential, and pending change orders) and anticipated trends on currently active construction contracts. In addition to the remaining contingency for active projects, there is currently approximately \$19.0M in the WSIP Director's Reserve to cover future potential project/program risks.

### 5.1 Tracking and Controlling 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 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. 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 mitigate project variances.

#### 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.

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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, thereby avoiding unnecessary delays and associated costs.
- 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 bi-lateral 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, has taken the following actions in recent years to reduce and better control the remaining delivery costs of the WSIP:

- 
- Implement significant reductions in both City and Consultant resources at the program and project levels in accordance with the WSIP Staff Transition Plan.
  - Transition work from Consultants to City staff to the extent feasible.
  - Transition WSIP staff to other City and SFPUC Capital Programs as more WSIP projects get completed.
  - Request final invoices/statements from consultants and other City departments immediately following completion of work to avoid further charges.
  - Terminate cost codes for completed activities to avoid further project charges.
  - Accelerate project close out to minimize cost after construction completion.
  - Establish 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.

## **5.2 Project Budget Forecast and Variances**

The status of cost forecasts for WSIP Regional Projects are shown in Table 5-1 as of the end of FY 2018-19. The table provides the original 2005 baseline budget and the current approved budget for each project. Additionally, the current forecast cost for each project is provided. As can be seen in the table, all WSIP Regional Projects excluding Regional Groundwater Storage and Recovery project are currently forecasted to be completed on or under budget. The Phase 1 of the Regional Groundwater Storage and Recovery construction is currently forecasted at \$7.2 million over the approved budget. In addition, as of the end of the reporting period, the budget for Phase 2 of the Regional Groundwater Storage and Recovery Project is currently under evaluation due to potential scope changes and carryover work from Phase 1. Funding would be available to cover the Phase 1 budget shortfall in addition to any shortfall for Phase 2 from the remaining Director's Reserve, currently at \$19 million for the entire WSIP. Additional detail regarding the forecasts presented below may be found in the WSIP Quarterly Report for the 4th Quarter of FY 2018-19 (Appendix B).

**Table 5-1: Project Budget Forecast and Variances**

| Project No.                | Project Name   | 2005 Approved Cost | Current Approved Cost <sup>1</sup> | June 2019 Forecasted Cost | Cost Variance |
|----------------------------|--|--------------------|------------------------------------|---------------------------|---------------|
| <b>San Joaquin Region</b>  |  |                    |                                    |                           |               |
| CUW36401                   | Lawrence Livermore Water Quality Improvement<br><i>(Completed)</i>     | \$4,235,258        | \$4,198,247                        | \$4,198,247               | -             |
| CUW37301                   | San Joaquin Pipeline System<br><i>(Completed)</i>                      | \$352,732,000      | \$203,178,015                      | \$203,178,015             | -             |
| CUW37302                   | Rehabilitation of Existing San Joaquin Pipelines<br><i>(Completed)</i> | \$80,000,000       | \$21,153,622                       | \$21,153,622              | -             |
| CUW38401                   | Tesla Treatment Facility<br><i>(Completed)</i>                         | \$101,643,001      | \$113,211,607                      | \$113,211,607             | -             |
| CUW38701                   | Tesla Portal Disinfection Station<br><i>(Combined with CUW38401)</i>   | \$20,731,270       | \$2,081,278                        | \$2,081,278               | -             |
| CUWSJI0101                 | WSIP Closeout - San Joaquin  | -                  | \$4,376,164                        | \$3,876,376               | \$499,788     |
| <b>Sunol Valley Region</b> |  |                    |                                    |                           |               |
| CUW35201                   | Alameda Creek Recapture Project  | \$18,809,304       | \$34,000,006                       | \$34,000,006              | -             |
| CUW35501                   | Standby Power Facilities - Various Locations<br><i>(Completed)</i>     | \$9,949,735        | \$12,950,566                       | \$12,950,566              | -             |
| CUW35901                   | New Irvington Tunnel<br><i>(Completed)</i>                             | \$214,650,004      | \$340,406,358                      | \$340,406,358             | -             |
| CUW35902                   | Alameda Siphon #4<br><i>(Completed)</i>                                | \$78,577,000       | \$64,950,507                       | \$64,950,507              | -             |
| CUW37001                   | Pipeline Repair & Readiness Improvements<br><i>(Completed)</i>         | \$5,591,770        | \$5,195,381                        | \$5,195,381               | -             |
| CUW37401                   | Calaveras Dam Replacement  | \$256,511,407      | \$823,091,765                      | \$819,781,710             | \$3,310,055   |
| CUW37402                   | Calaveras Reservoir Upgrades<br><i>(Completed)</i>                     | \$1,740,055        | \$1,690,552                        | \$1,690,552               | -             |
| CUW37403                   | San Antonio Backup Pipeline<br><i>(Completed)</i>                      | \$7,677,000        | \$53,594,683                       | \$53,594,683              | -             |
| CUW38101                   | SVWTP Expansion & Treated Water Reservoir<br><i>(Completed)</i>        | \$133,108,002      | \$129,593,674                      | \$129,593,674             | -             |
| CUW38102                   | SVWTP Calaveras Road<br><i>(Eliminated)</i>                            | -                  | \$34,654                           | \$34,654                  | -             |
| CUW38201                   | SVWTP Treated Water Reservoir<br><i>(Combined with CUW38101)</i>       | \$102,436,436      | \$5,056,596                        | \$5,056,596               | -             |
| CUW38601                   | San Antonio Pump Station Upgrade<br><i>(Completed)</i>                 | \$41,854,000       | \$12,894,592                       | \$12,894,592              | -             |



| Project No.                | Project Name  | 2005 Approved Cost | Current Approved Cost <sup>1</sup> | June 2019 Forecasted Cost | Cost Variance |
|----------------------------|---|--------------------|------------------------------------|---------------------------|---------------|
| CUWSVI0101                 | WSIP Closeout - Sunol Valley  | -                  | \$5,989,845                        | \$5,989,845               | -             |
| <b>Bay Division Region</b> |   |                    |                                    |                           |               |
| CUW35301                   | BDPL Nos. 3 & 4 Crossover/Isolation Valves<br><i>(Completed)</i>                        | \$27,600,158       | \$27,039,149                       | \$27,039,149              | -             |
| CUW35302                   | Seismic Upgrade of BDPL Nos. 3 & 4<br><i>(Completed)</i>                                | \$66,792,849       | \$73,623,296                       | \$72,194,219              | \$1,429,077   |
| CUW36301                   | SCADA System - Phase II<br><i>(Completed)</i>   | \$36,098,999       | \$9,470,922                        | \$9,470,922               | -             |
| CUW36801                   | BDPL Reliability Upgrade / Tunnel<br><i>(Completed)</i>                                 | \$572,022,634      | \$272,364,089                      | \$272,364,089             | -             |
| CUW36802                   | BDPL Reliability Upgrade - Pipeline<br><i>(Completed)</i>                               | -                  | \$216,871,156                      | \$216,722,172             | \$148,984     |
| CUW36803                   | BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2<br><i>(Completed)</i>          | -                  | \$3,046,981                        | \$3,046,981               | -             |
| CUW38001                   | BDPL Nos. 3 & 4 Crossovers<br><i>(Completed)</i>  | \$36,616,911       | \$29,910,449                       | \$29,910,449              | -             |
| CUW38901                   | SFPUC/EBMUD Intertie<br><i>(Completed)</i>  | \$8,598,851        | \$9,167,306                        | \$9,167,306               | -             |
| CUW39301                   | BDPL No. 4 Condition Assessment PCCP Sections<br><i>(Completed)</i>                     | \$2,000,000        | \$1,937,599                        | \$1,937,599               | -             |
| CUWBDP0101                 | WSIP Closeout - Bay Division  | -                  | \$4,398,775                        | \$3,800,593               | \$598,182     |
| <b>Peninsula Region</b>    |   |                    |                                    |                           |               |
| CUW35401                   | Lower Crystal Springs Dam Improvements<br><i>(Completed)</i>                            | \$27,752,222       | \$34,859,040                       | \$34,859,040              | -             |
| CUW35601                   | New Crystal Springs Bypass Tunnel<br><i>(Completed)</i>                                 | \$83,222,790       | \$81,466,732                       | \$81,466,732              | -             |
| CUW35701                   | Adit Leak Repair - Crystal Springs/Calaveras<br><i>(Completed)</i>                      | \$3,748,452        | \$2,787,322                        | \$2,787,322               | -             |
| CUW36101                   | Pulgas Balancing - Inlet/Outlet Work<br><i>(Completed)</i>                              | \$1,667,532        | \$1,765,938                        | \$1,765,938               | -             |
| CUW36102                   | Pulgas Balancing - Discharge Channel Modifications<br><i>(Completed)</i>                | \$8,111,422        | \$2,910,007                        | \$2,910,007               | -             |
| CUW36103                   | Pulgas Balancing - Structural Rehabilitation and Roof Replacement<br><i>(Completed)</i> | \$36,712,846       | \$20,238,716                       | \$20,238,716              | -             |

| Project No.                          | Project Name  | 2005 Approved Cost | Current Approved Cost <sup>1</sup> | June 2019 Forecasted Cost | Cost Variance        |
|--------------------------------------|---|--------------------|------------------------------------|---------------------------|----------------------|
| CUW36104                             | Pulgas Balancing - Laguna Creek Sedimentation<br><i>(Eliminated)</i>                                | -                  | \$503,928                          | \$503,928                 | -                    |
| CUW36105                             | Pulgas Balancing - Modifications of the Existing Dechloramination Facility<br><i>(Completed)</i>    | -                  | \$5,390,031                        | \$5,390,031               | -                    |
| CUW36501                             | Cross Connection Controls<br><i>(Completed)</i>   | \$6,111,779        | \$3,948,944                        | \$3,948,944               | -                    |
| CUW36601                             | HTWTP Short-Term Improvements (Demo Filters)<br><i>(Completed)</i>                                  | \$4,381,375        | \$3,067,903                        | \$3,067,903               | -                    |
| CUW36602                             | HTWTP Short-Term Improvements - Remaining Filters<br><i>(Combined with CUW36603)</i>                | \$16,079,372       | \$1,424,510                        | \$1,424,510               | -                    |
| CUW36603                             | HTWTP Short-Term Improvements - Coagulation & Flocculation/ Remaining Filters<br><i>(Completed)</i> | \$9,741,617        | \$18,604,937                       | \$18,604,937              | -                    |
| CUW36701                             | HTWTP Long-Term Improvements<br><i>(Completed)</i>  | \$167,570,000      | \$274,081,969                      | \$274,081,969             | -                    |
| CUW36702                             | Peninsula Pipelines Seismic Upgrade<br><i>(Completed)</i>   | -                  | \$38,825,346                       | \$38,825,346              | -                    |
| CUW36901                             | Capuchino Valve Lot Improvements<br><i>(Completed)</i>  | \$3,573,782        | \$2,803,153                        | \$2,803,153               | -                    |
| CUW37101                             | Crystal Springs/San Andreas Transmission Upgrade<br><i>(Completed)</i>                              | \$148,582,655      | \$190,309,453                      | \$190,309,453             | -                    |
| CUW37801                             | Crystal Springs Pipeline No. 2 Replacement<br><i>(Completed)</i>                                    | \$93,926,000       | \$56,070,509                       | \$56,070,509              | -                    |
| CUW37901                             | San Andreas Pipeline No. 3 Installation<br><i>(Completed)</i>                                       | \$42,029,941       | \$27,495,558                       | \$27,495,558              | -                    |
| CUW39101                             | Baden and San Pedro Valve Lots Improvements<br><i>(Completed)</i>                                   | \$47,319,999       | \$24,990,803                       | \$24,990,803              | -                    |
| CUWPWI0101                           | WSIP Closeout – Peninsula   | -                  | \$13,579,680                       | \$12,786,406              | \$793,274            |
| <b>San Francisco Regional Region</b> |   |                    |                                    |                           |                      |
| CUW30103                             | Regional Groundwater Storage and Recovery   | \$39,233,443       | \$138,793,314                      | \$146,073,314             | <b>(\$7,280,000)</b> |
| CUW35801                             | Sunset Reservoir - North Basin<br><i>(Completed)</i>  | \$61,975,999       | \$64,270,725                       | \$64,270,725              | -                    |
| CUW37201                             | University Mound Reservoir - North Basin<br><i>(Completed)</i>                                      | \$102,882,610      | \$43,266,552                       | \$43,266,552              | -                    |

| Project No.             | Project Name   | 2005 Approved Cost | Current Approved Cost <sup>1</sup> | June 2019 Forecasted Cost | Cost Variance |
|-------------------------|--|--------------------|------------------------------------|---------------------------|---------------|
| <b>Support Projects</b> |  |                    |                                    |                           |               |
| CUW36302                | System Security Upgrades<br><i>(Completed)</i>                       | -                  | \$15,201,310                       | \$14,700,669              | \$500,641     |
| CUW38801                | Programmatic EIR <i>(Completed)</i>                                  | \$9,271,001        | \$10,730,684                       | \$10,730,684              | -             |
| CUW38802                | Bioregional Habitat Restoration                                      | -                  | \$93,341,983                       | \$93,341,983              | -             |
| CUW38803                | Vegetation Restoration of WSIP Construction Sites <i>(Completed)</i> | -                  | \$2,111,546                        | \$2,111,546               | -             |
| CUW38804                | Long Term Mitigation Endowment                                       |                    | \$12,000,000                       | \$12,000,000              | -             |
| CUW39201                | Program Management Project   | \$52,076,000       | \$112,747,230                      | \$112,747,230             | -             |
| CUW39401                | Watershed Environmental Improvement Program                          | \$20,000,000       | \$20,000,000                       | \$20,000,000              | -             |

<sup>1</sup> Incorporates the March 2018 Revised WSIP budget approved by the Commission in April 2018.

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## 6.0 ACHIEVEMENTS AND CHALLENGES

WSIP implementation is organized geographically to make program delivery more manageable and to take into account project adjacency issues. This section highlights the achievements and challenges of the Program's five regional teams.

### 6.1 San Joaquin Region

The status of all regional projects in the San Joaquin Region as of the end of FY 2018-19 is summarized in Table 6-1.

**Table 6-1: Status of San Joaquin Regional Projects as of June 30, 2019**

| Project/Contract Name                        | Status                  |
|--|-------------------------|
| Lawrence Livermore Water Quality Improvement | Completed               |
| SJPL System – Crossovers                     | Completed               |
| SJPL System - Western Segment                | Completed               |
| SJPL System - Eastern Segment                | Completed               |
| Rehabilitation of Existing SJPLs - Roselle   | Completed               |
| Tesla Treatment Facility                     | Completed               |
| Tesla Portal Protection                      | Completed               |
| WSIP Closeout - San Joaquin                  | Active (various phases) |

As of June 30, 2019, construction has been completed for all of the region's seven main construction contracts; the WSIP Closeout Project is still active in various phases.

#### Achievements

The JOC Contractor for the Tesla Portal Facility (Interior Floor Slab and drainage mitigation work as part of the WSIP Closeout – San Joaquin Project) reached final completion for the project during the reporting period. All the closeout deliverables were completed. For the Solar Panel Installations at Oakdale Portal, Knight Ferry Throttling Station, and San Joaquin Junction No. 4, the project team completed the re-evaluation of the existing photo-voltaic systems for three sites and started design during this reporting period. Design is scheduled to be completed, and construction is scheduled to begin using a JOC Contractor in the next reporting period.

#### Challenges

None.

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## 6.2 Sunol Valley Region

The status of all regional projects in the Sunol Valley Region as of the end of FY 2018-19 is summarized in Table 6-2.

**Table 6-2: Status of Sunol Valley Regional Projects as of June 30, 2019**

| <b>Project/Contract Name</b>   | <b>Status</b>  |
|--|--|
| Alameda Creek Recapture Project  | Environmental  |
| Standby Power Facilities - Various Locations   | Completed  |
| New Irvington Tunnel   | Completed  |
| Alameda Siphon #4  | Completed  |
| Pipeline Repair & Readiness Improvements   | Completed  |
| Calaveras Dam Replacement (A)<br>Fish Passage Facilities within Alameda Creek<br>Watershed (B) | (A) Construction – 99.6% Complete <sup>1</sup><br>(B) Construction – 98.4% Complete <sup>1</sup> |
| Calaveras Reservoir Upgrades   | Completed  |
| San Antonio Backup Pipeline  | Completed  |
| SVWTP Expansion & Treated Water Reservoir  | Completed  |
| San Antonio Pump Station Upgrade   | Completed  |
| WSIP Closeout - Sunol Valley   | Active (various phases)  |

<sup>1</sup> Status of construction percentage complete is based on construction base bid plus approved change orders.

As of June 30, 2019, only one of the 11 Sunol Valley main regional projects/contracts remains in pre-construction; eight projects are completed; two contracts remain in construction; and the WSIP Closeout Project is active in various phases.

### Achievements

The Calaveras Dam Replacement Project (CDRP) reached substantial completion on April 12, 2019 and is anticipated to reach Final Completion and Project Closeout in July and December 2019, respectively. Several out of scope items are under consideration to be added for completion by separate Job Order Contracts (JOC) through the WSIP Closeout - Sunol Valley Project. Some of these items might include improvements to the watershed keeper's house and bluestone building, modification to the security gates and fences, and adjustment to the valves appurtenances.

The Fish Passage Facilities within Alameda Creek Watershed Project also reached Substantial Completion during this reporting period, on February 15, 2019. Due to time needed to complete punch list items as well as negotiation on outstanding change orders, Final Completion is anticipated to be in Fall 2019, followed by Administrative Project Completion in December 2019. Several out of scope items have been added to the WSIP Closeout Sunol Valley Project to be executed through the JOC Contracting method. These include installation of a wildlife exclusion fence, modification to the electrical systems, and power supply for the SCADA and video systems.

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The primary focus of work on the Alameda Creek Recapture Project during FY 2018-19 was to perform additional analysis and incorporate appropriate revisions to the Draft Environmental Impact Report (EIR). The Draft EIR was appealed in 2017 and requires re-circulation. The Project Team is revising the Draft EIR for anticipated re-publication and public re-circulation in Fall 2019.

The status of the on-going sub-projects that are part of the WSIP Closeout - Sunol Valley Region are as follows:

- The requirements for the Alameda Siphon Carrier Water System Modifications sub-project were re-evaluated during the reporting period. Based on the results, the Project Team confirmed with Operations that this project is not required to meet the WSIP LOS goals and objectives, and the sub-project was therefore removed from the WSIP Closeout – Sunol Valley Project;
- Construction for both NIT Water Quality Equipment Relocation and San Antonio Backup Pipeline Carrier Water System Modifications have begun and will be completed by the end of the next reporting period; and
- Design for the SVWTP Polymer Feed Facility will continue into FY2019-2020.

### Challenges

Although the Fish Passage Facilities Project reached substantial completion, the Contractor continued work on punch list items, including necessary adjustments to the debris rack / rake system and testing of the SCADA system. With the turnover of staff on the Contractor's side, the construction management team has been making slower than anticipated progress in the negotiation of remaining change orders.

The primary pre-construction challenges for the Alameda Creek Recapture Project are to complete and publish the updated Draft EIR for public re-circulation, complete the Final EIR, and secure the environmental permits.

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### 6.3 Bay Division Region

The status of all regional projects in the Bay Division Region as of the end of FY2018-2019 is summarized in Table 6-3. As indicated in the table, no Bay Division regional projects/contracts remain in pre-construction. As of June 30, 2019, ten projects are complete and the WSIP Closeout Project remains active in various phases.

**Table 6-3: Status of Bay Division Regional Projects as of June 30, 2019**

| <b>Project/Contract Name</b>                             | <b>Status</b>           |
|--|-------------------------|
| BDPL Nos. 3 & 4 Crossover/Isolation Valves               | Completed               |
| Seismic Upgrade of BDPL Nos. 3 & 4                       | Completed               |
| SCADA System - Phase II                                  | Completed               |
| BDPL Reliability Upgrade – Tunnel (Bay Tunnel)           | Completed               |
| BDPL Reliability Upgrade - Pipeline                      | Completed               |
| BDPL Reliability Upgrade - Relocation of BDPL Nos. 1 & 2 | Completed               |
| BDPL Nos. 3 & 4 Crossovers                               | Completed               |
| SFPUC/EBMUD Intertie                                     | Completed               |
| BDPL No. 4 Condition Assessment PCCP Sections            | Completed               |
| BDPL Nos. 3 & 4 Crossover/Isolation Valves               | Completed               |
| WSIP Closeout - Bay Division                             | Active (various phases) |

#### Achievements

During the reporting period, the Seismic Upgrade of BDPL Nos. 3 & 4 Project was completed and closed out.

There are four sub-projects that are part of the WSIP Closeout – Bay Division Region Project. During the reporting period, construction for the BDPL 3X articulated box permanent ventilation fan and BDPL No. 4 sump pump JOC construction work was completed. Closeout deliverables for these sub-projects will be completed during the next reporting period. The design for the BDPL 3 pipe and pipe support coating in the articulated vault and v-ditch drainage system was modified to include an access platform and replacement of the rollers in the vault. The construction work will begin as soon as the Project Team receives a proposal and completes negotiation with the JOC contractor. For the Bay Tunnel Closeout sub-project, all closeout deliverables were completed during the reporting period, and this sub-project is considered to be complete. The last sub-project, Bay Division Pipelines 1 & 2 Decommissioning, was included as part of the WSIP Closeout to allow planning efforts to begin while waiting for it to be set up as a separate project within the 10-year Water CIP. During the reporting period, the Project Team retained AECOM to start the Conceptual Engineering Report for this sub-project.



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### Challenges

The primary challenge for the WSIP Closeout – Bay Division Project is to complete the v-ditch drainage work prior to the upcoming winter season.

### **6.4 Peninsula Region**

The status of all regional projects in the Peninsula Region as of the end of FY 2018-19 is summarized in Table 6-4. As of June 30, 2019, 17 projects are complete and the WSIP Closeout Project is active in various phases.

**Table 6-4: Status of Peninsula Regional Projects as of June 30, 2019**

| <b>Project/Contract Name</b>  | <b>Status</b>           |
|---|-------------------------|
| Lower Crystal Springs Dam Improvements  | Completed               |
| New Crystal Springs Bypass Tunnel   | Completed               |
| Adit Leak Repair - Crystal Springs/Calaveras                                  | Completed               |
| Pulgas Balancing - Inlet/Outlet Work  | Completed               |
| Pulgas Balancing - Discharge Channel Modifications                            | Completed               |
| Pulgas Balancing - Structural Rehabilitation and Roof Replacement             | Completed               |
| Pulgas Balancing - Modifications of the Existing Dechloramination Facility    | Completed               |
| Cross Connection Controls   | Completed               |
| HTWTP Short-Term Improvements - Demo Filters                                  | Completed               |
| HTWTP Short-Term Improvements - Coagulation & Flocculation/ Remaining Filters | Completed               |
| HTWTP Long-Term Improvements  | Completed               |
| Peninsula Pipelines Seismic Upgrade (Phases 1 / 2 / 3)                        | Completed               |
| Capuchino Valve Lot Improvements  | Completed               |
| Crystal Springs/San Andreas Transmission Upgrade                              | Completed               |
| Crystal Springs Pipeline No. 2 Replacement                                    | Completed               |
| San Andreas Pipeline No. 3 Installation                                       | Completed               |
| Baden and San Pedro Valve Lots Improvements                                   | Completed               |
| WSIP Closeout – Peninsula Region  | Active (various phases) |

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### Achievements

All the Peninsula Projects have been successfully completed and closed out except for the WSIP Closeout – Peninsula Project, under which limited activities at HTWTP and other Peninsula Regional Project sites continued. As part of the Harry Tracy Water Treatment Plant items, the filter for the exterior generator was successfully installed and tested. Installation of the two remaining filters has begun. The Commission approved the project closeout for the Erosion on Crystal Springs/San Andreas Pipeline project on April 9, 2019. The Notice to Proceed for Anvil Builders was issued on April 8, 2019 for Lower Crystal Springs Dam (LCSD) Stilling Basin Connecting Channel Project. Parapet wall gap construction for the dam, security assessment around the dam and bridge, and repairs to the drainage channels atop the dam are a few warranty issues that are being addressed under the WSIP Closeout – Peninsula Project.

### Challenges

There are delays associated with the work at LCSD: (1) the required re-bid of the LCSD Stilling Basin Connecting Channel project resulted in a schedule delay of several months; (2) the delay in receiving the cost proposal for JOC 76R-01 North Parapet Wall Extension contract resulted in the delay of the start of construction by four months; (3) the six-month delay for the PRO.76A LCSD Security Assessment is due to delay in acquiring a security consultant to perform the assessment.

## **6.5 San Francisco (Regional) Region**

The status of all regional projects in the San Francisco Region as of the end of FY 2018-19 is summarized in Table 6-5. As indicated in the table, one of the three San Francisco Regional projects/contracts is still active as of the end of the reporting period. The two other projects in this region have been completed and closed out.

**Table 6-5: Status of San Francisco Regional Projects as of June 30, 2019**

| Project/Contract Name                    | Status  |
|--|---|
| Regional Groundwater Storage & Recovery  | (A) Phase 1 Test Wells: Completed<br>(B) Phase 1 Construction: 98.6% Complete <sup>1</sup><br>(C) Phase 2: Pre-Construction |
| Sunset Reservoir - North Basin           | Completed   |
| University Mound Reservoir - North Basin | Completed   |

<sup>1</sup> Status of construction percentage complete is based on construction base bid plus approved change orders.

### Achievements

For Phase 1 (associated with Contract B) of the Regional Groundwater Storage and Recovery Project, the following were completed at various well stations: installation of caustic soda (NaOH) injection systems; installation of remote sampling analyzers; and

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modifications to piping connections, pressure relief valves, and programming to accommodate a change of chemical to be used for treatment from aqueous ammonia to liquid ammonium sulfate.

For Phase 2, the final report for the pump yield and water quality analyses for the first test well at Ludeman North was issued in August 2018. The second test well located at Centennial Trail in South San Francisco was completed in August 2018, and the Construction and Testing Summary Report was issued in October 2018. The final draft Conceptual Engineering Report for the South San Francisco (SSF) Main well station and the carryover work from Contract B that will be included in Phase 2 will be issued in Fall 2019. Additional potential carryover work from Contract B has been identified and will be presented to the SFPUC's Change Control Board for consideration and approval prior to inclusion as part of Phase 2.

### Challenges

For Phase 1 (associated with Contract B), there are increased cost and schedule delays due to the modifications to the chemical system for groundwater treatment, the retrofit of existing transmission line flowmeters, and other changes to programming, access, and treatment testing. Further monitoring and calibration are needed to acquire more accurate and consistent readings on the transmission line flowmeters. These changes have resulted in the delay of the 7-day testing and commissioning of well stations.

For Phase 2, the project team will continue to evaluate potential cost and schedule impacts associated with carryover work from Contract B and will report on these potential impacts within the next reporting period.

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## **7.0 RISK MANAGEMENT**

### **7.1 WSIP Risk Management Protocol**

Project risk registers for a specified contract are developed with the project team members comprised of the project construction manager, operations analyst, project engineer, QA inspector, communications/public outreach personnel, environmental personnel, safety personnel, and scheduler. These individuals identify the risks to the project and later meet with the risk analyst/risk manager in order to provide a qualitative assessment of all risks and to identify the mitigation methods for the risks. Once the qualitative assessment of the risk register is completed, a smaller team, consisting of the project manager, project engineer, and project construction manager review each individual risk thoroughly in order to identify the probability of occurrence along with the cost and schedule impacts. Once the risk register has been finalized with these values, updates to the risk register occur between the project construction manager, project manager, and risk analyst on a monthly basis.

As it would generally be overly conservative to plan for 100% of future potential risks, the SFPUC has elected to use the “80% confidence level” as a relatively conservative estimate of future cost risk for the WSIP. Namely, the “80% confidence level” represents the amount of cost for which one can be 80% confident that future cost risk will not exceed this level. The “80% confidence level” is determined with the use of the Active Risk Manager (ARM) software in which the software takes the identified project/program risks and performs a Monte Carlo simulation. This takes the likelihood of each risk, along with the minimum, most likely, and maximum cost of each risk and performs 1000 iterations of the risk calculation to produce probable cost impact of the risks for the project. This probable cost impact can be expressed in terms of confidence level (confidence level vs. probable cost curve).

### **7.2 Status of Risk to Active Construction Projects**

During FY 2018-2019, the WSIP team continued to implement and refine its Risk Management Program. A total of forty-two (42) risks were closed during the reporting period. In addition, the risk registers for the following construction contracts have been closed:

- Calaveras Dam Replacement

This brought the total of active construction risk registers and individual risks managed through ARM as of the end of the reporting period to two (2) and twenty-two (22), respectively.

Whenever new risk registers are developed, cost impact estimates are prepared to quantify each risk. Risk assessment workshops are held with the project teams responsible to update and track the risk registers. Table 7-1 summarizes the WSIP’s active construction risk registers loaded into the ARM software application as of the end of the reporting period.

**Table 7-1: Summary of Active Construction Risk Registers as of June 30, 2019**

| Construction Contract <sup>1</sup>                     | Date <sup>2</sup> | No. of Risks <sup>3</sup> | Risk Value (\$M) <sup>4</sup> |
|--|-------------------|---------------------------|-------------------------------|
| Regional Groundwater Storage and Recovery              | June-15           | 8                         | 1.9                           |
| Fish Passage Facilities within Alameda Creek Watershed | March-16          | 14                        | 2.4                           |
| <b>Cumulative active risks @ 80% confidence level</b>  |                   | <b>22</b>                 | <b>4.0<sup>5</sup></b>        |

1. Excludes WSIP Local Region, Bioregional Habitat Restoration, and Security contracts.

2. Date when construction risk register was first created and loaded in ARM.

3. Number of individual risks recorded in register as of June 30, 2019.

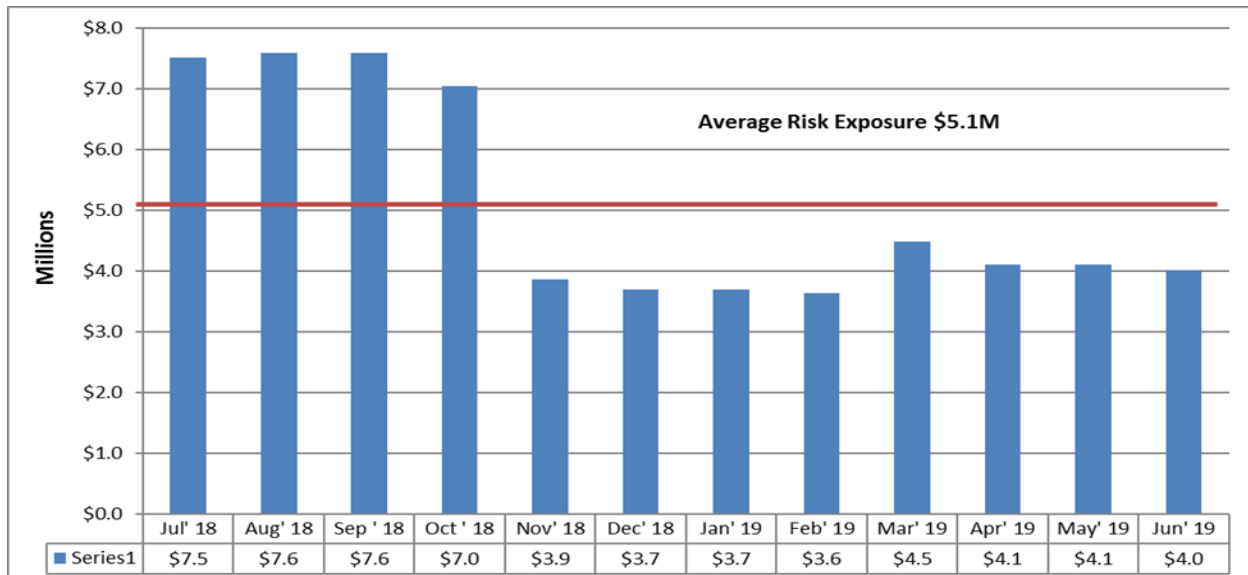
4. Total value of all risks at eighty percent (80%) confidence level as of June 30, 2019.

5. Active projects 80% confidence level when analyzed as a program.

Figure 7-1 shows the reporting period began with a cumulative risk exposure at the 80% confidence level of \$7.5M in July 2018. The risk exposure decreased dramatically on November 2018 to \$3.9M due to the elimination of major risks in CDRP and Fish Passage Facilities Project. The risk exposure at the 80% confidence level remained the same, about \$3.7M, from November 2018 to February 2019. The 80% confidence level had minor fluctuations based on changes in Fish Passage Facilities Project, increasing to \$4.5M, then ending the fiscal year at \$4.0M. The increase was related to schedule acceleration risk, and the decrease was due to elimination of various risks as the project nears completion.

The average risk exposure at the 80% confidence level during the fiscal year 2018-2019 was \$5.1M, in comparison to an average of \$21.8M during the previous fiscal year.

**Figure 7-1: WSIP 80% Confidence Level Construction Risks for FY 2018-19**



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The WSIP Risk Management System ranks risks based on a combination of the likelihood of occurrence and the potential cost impact to the SFPUC. Table 7-2 provides a description of the program's 10 largest risks.

Mitigation plans are developed for each risk identified in the risk register for active construction projects. Action items derived from the risk mitigation plans are individually assigned to construction management (CM) team members and tracked in the ARM software through completion.

Based on the risks summarized above, the two (2) active construction contracts that carry the greatest potential to impact the Program's overall cost and schedule are the Fish Passage Facilities within the Alameda Creek Watershed, the Regional Groundwater Storage & Recovery project.

Three of the current top ten risks for the active WSIP construction contracts, based on likelihood of occurrence and potential cost impact, belong to the Fish Passage Facilities project. The current highest risk addresses the costs associated with the accelerated schedule and extended overhead. Other high risks include the risk of SCADA, and instruments not working properly and the insufficient flow to test system.

Regional Groundwater Recovery and Storage has seven of the current top ten risks for the active WSIP construction contracts, based on likelihood of occurrence and potential cost impact. The current largest risk addresses the change of chemical use (during implementation) from aqueous ammonia to ammonium sulfate. The second highest risk considers challenges in meeting water quality requirements. Additional risks include design errors and omissions, challenges in meeting regulatory and operational requirements (testing), and delays in finalizing permanent easements including utilities, turnover of key personnel, delay in responding to submittals/RFIs in a timely manner and issuing change orders in a timely manner.

**Table 7-2: Top 10 WSIP Risks as of June 30, 2019**

| Project                                   | Risk Description   | Occurrence Probability | Risk Value <sup>1</sup> (\$M) | Mitigation  |
|---|--|------------------------|-------------------------------|---|
| Fish Passage Facilities                   | Accelerated schedule and extended overhead.                              | 75%                    | 1.5                           | Negotiate with Contractor.  |
| Regional Groundwater Storage and Recovery | Change of chemical use from aqueous ammonia to ammonium sulfate.         | 90%                    | 0.2                           | Prepare design changes and secure vendor to supply ammonium sulfate.  |
| Regional Groundwater Storage and Recovery | Challenges in meeting water quality requirements.                        | 70%                    | 0.7                           | Perform sampling tests for all wells to address ammonia issues; Finalize fluoridation addition technical memo.  |
| Regional Groundwater Storage and Recovery | Design errors and omissions.   | 50%                    | 0.5                           | Proactive review of plans and specs, along with RFIs and submittals.  |
| Regional Groundwater Storage and Recovery | Challenges in meeting regulatory and operational requirements (testing). | 50%                    | 0.4                           | Manage project team to complete review and re-design of remaining work in order to complete testing; coordinate with Operations on required parameters for testing. |
| Regional Groundwater Storage and Recovery | Delays in finalizing permanent easements including utilities.            | 50%                    | 0.3                           | Continue to work with property owners to finalize permanent access.   |



| Project                                   | Risk Description  | Occurrence Probability | Risk Value <sup>1</sup> (\$M) | Mitigation  |
|---|---|------------------------|-------------------------------|---|
| Regional Groundwater Storage and Recovery | Turnover of key personnel.  | 50%                    | 0.3                           | Manage CM team with eye towards cross training and flexibility. |
| Fish Passage Facilities                   | SCADA and instruments not working properly (e.g. signals for camera are not transmitted properly).      | 25%                    | 0.4                           | Identify changes to SCADA early in the project.                 |
| Fish Passage Facilities                   | Insufficient flow to test system.   | 40%                    | 0.5                           | Early testing for screens and ladders                           |
| Regional Groundwater Storage and Recovery | Delay in responding to Submittals/RFIs in a timely manner and issuing change orders in a timely manner. | 20%                    | 0.2                           | Coordinate and schedule resources.                              |

<sup>1</sup>. Most likely cost of each risk. The lowest and highest costs of each risk are also recorded in ARM.

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## **8.0 PROGRAM DELIVERY STRATEGY FOR CLOSEOUT PHASE**

At over 97 percent completion and with 41 of 43 regional WSIP projects with specific Level of Service (LOS) goals and objectives currently in service, the overall WSIP is in the Closeout Phase. Nevertheless, there are still several active projects with significant risks that, should these risks be realized, could have a negative schedule and/or budget impact to the program. Therefore, it is essential to continue to implement the best practices that have helped to make the WSIP successful to date, and to continue to look for opportunities to become increasingly efficient as the SFPUC strives towards bringing the WSIP to successful completion.

### **8.1 Plan to Ensure Ongoing and Increasing Cost-Efficient Practices**

As has been the practice since the program was established, the WSIP Director will continue to meet with project Teams on a rotation monthly in order to review status of every budget line item at least twice quarterly. As a result of these meetings, staffing adjustments are made in real time to ensure project teams work within the existing budgets, and where appropriate, budget forecasts and resources are adjusted as necessary to help ensure successful completion of every project. The current staff transition plan for the remainder of WSIP is included in the WSIP Quarterly Reports. Actual staffing levels will continue to be tracked monthly against this plan and appropriate staff adjustments made accordingly to ensure staffing levels stay within the remaining available budget.

In addition, we are continuing to implement our industry best practice Construction Management (CM) Business Processes and Procedures to ensure the available funds are used efficiently and effectively, with emphasis on identification of cost savings wherever possible. The primary features of the best practice processes and procedures that facilitate monitoring and control of WSIP construction are summarized below.

- Change Management - All Owner-requested changes require approval by a Change Control Board, with final approval by the WSIP Director. All changes are required to support Level of Service (LOS) goals and objectives, and independent cost estimates are required for large changes in advance of Contractor pricing.
- Trends Management - Project Teams are required to re-assess Trend values monthly to ensure accurate cost forecasting. Trends are also audited by the Program CM Management Team and discussed and reviewed monthly with the WSIP Director.
- Risk Management - SFPUC continues to proactively monitor and manage risk on all active projects. Risk registers are updated monthly by each Project Team, and thorough review and discussion of the Risk Register is periodically conducted by the Program CM Management Team. Discussion includes review of mitigation measures as well as probabilities and potential impacts (cost and time) to reflect up-to-date overall project risk exposure.
- Claims Avoidance - WSIP continues to enforce the CM Procedures and Business Processes across all projects by regularly auditing the CM Teams and evaluating their performance. Issues and problems are discussed as early as possible with the

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Contractor and elevated up the resolution ladder up to the Resolution Board, if necessary, to avoid any potential claim.

- Schedule Management - We continue to aggressively apply strong schedule control on construction activities and continuously evaluate contractor schedules to ensure approved milestones are met. Project schedule forecasts are reported every month and reviewed and discussed with the Program CM Management Team. Mitigation measures are applied to delays incurred beyond the contractor's contract due to unforeseen conditions. Schedule recoveries are enforced by the Project Teams.
- Program CM Project Audits - The Program CM Management Team conducts regular audits on all active projects, including a review of Risks, Trends, Potential Change Orders, construction schedule, and construction closeout deliverables. Identified problems and potential solutions or mitigation measures are discussed, and project forecasts for budget and schedule updated accordingly.
- Monthly and Quarterly Project Review Meetings - Monthly and Quarterly review meetings are conducted with the WSIP Director to review overall project budget & schedule forecasts as measured against the approved baseline.
- Lessons Learned Reports - Lessons Learned Reports are recorded and posted on the server for all project team members and all SFPUC Infrastructure Bureaus to access. The project team of every active region submits a lesson learned report on an issue or problem that was encountered on his or her active project. Issues are discussed and resolutions are presented. The lesson learned describes how to avoid these issues on future projects.

## **8.2 Adequacy of Current Approved Schedules and Budget Contingencies**

The schedule forecasts presented in this report show that the overall WSIP is forecast to be complete by the current scheduled program completion date of December 30, 2021. This schedule assumes: (1) that the appeal of the EIR for the ACRP will be resolved in a timely manner; and (2) that right-of-way issues associated with the South San Francisco Main well site under the Regional Groundwater Storage and Recovery Project will be negotiated in a timely manner.

As discussed in Section 7 of this report, the program-level risk analysis shows that the remaining program risk exposure at the “80 confidence level” is \$4.0 million for active construction contracts as of June 30, 2019.

The remaining forecast construction contingency as of June 30, 2019 is \$11.2 million after all current trends have been considered. In addition, the current forecast WSIP Director's Reserve Fund is \$19.0 million. Therefore, a total of approximately \$30.2 million are available to fund future risks, including both construction risks and unforeseen soft (non-construction) costs. If one conservatively assumes that up to \$5 million is needed for future soft cost risk, this would leave approximately \$25.2 million available to fund potential future construction risks.

Accordingly, the analysis shows that the current WSIP is sufficiently funded to complete within the current approved baseline budget and schedule (March 2018 Revised WSIP

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baseline) with over 80 percent confidence, based on the current understanding of trends and remaining risks in the program.

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## 9.0 STATUS OF AB 1823 PROJECTS

The status of the ten projects identified in Assembly Bill (AB) 1823 is summarized in Table 9-1. As of June 30, 2019, nine projects are completed, and one project remains in the construction phase.

**Table 9-1: Status of AB 1823 Projects as of June 30, 2019**

|  | <b>Status</b>   |
|--|---|
| New Irvington Tunnel   | Completed   |
| Alameda Siphon #4  | Completed   |
| Calaveras Dam Replacement (A)<br>Fish Passage Facilities at Alameda Creek Diversion<br>Dam (B) | Construction – 100% Complete <sup>1</sup><br>Construction – 98% Complete <sup>1</sup> |
| BDPL Nos. 3 & 4 Crossover/ Isolation Valves  | Completed   |
| Seismic Upgrade of BDPL Nos. 3 & 4   | Completed   |
| BDPL Reliability Upgrade – Tunnel (Bay Tunnel)   | Completed   |
| BDPL Reliability Upgrade – Pipeline  | Completed   |
| BDPL Nos. 3 & 4 Crossovers   | Completed   |
| New Crystal Springs Bypass Tunnel  | Completed   |
| Crystal Springs/San Andreas Transmission Upgrade   | Completed   |

<sup>1</sup> Status of construction percentage complete is based on construction base bid plus approved change orders.

It should be noted that the original list of projects in AB 1823 includes the BDPL Nos. 1 & 2 - Repair of Caissons/Pipe Bridge Project. That project was removed from the WSIP following completion of a facilities condition assessment that led to the addition of a fifth conduit parallel to BDPL Nos. 1 & 2 to the SFPUC capital program. The conduit, referred to as BDPL No. 5, was completed as part of the BDPL Reliability Upgrade - Tunnel and BDPL Reliability Upgrade - Pipeline projects.

Half of the ten projects listed in AB 1823 contribute to the construction of a new seismically-designed lifeline that now carries water from the Sunol Valley in the East Bay to the mid-Peninsula. That lifeline involves six segments contracted out separately that are now all complete and in service: Alameda Siphon #4, New Irvington Tunnel, BDPL Reliability Upgrade (East Bay Reaches), BDPL Reliability Upgrade – Tunnel (Bay Tunnel), BDPL Reliability Upgrade (Peninsula Reaches) and New Crystal Springs Bypass Tunnel.

The only project in the original list of AB1823 Projects that is not closed out is the Calaveras Dam Replacement Project, which has achieved substantial completion and will be closed out by the end of calendar year 2019.

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**APPENDIX A**

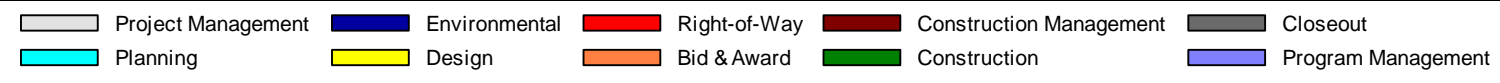
**Current Approved WSIP Schedule  
Regional Projects**

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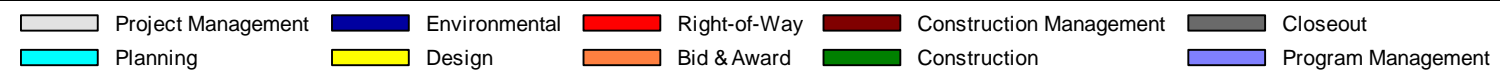
## APPENDIX A: Current Approved WSIP Project-Level Schedules

| Project Name                              | Start       | Finish      | FY2011                 |     | FY2012 |     |     |     | FY2013 |     |     |     | FY2014 |     |     |     | FY2015 |     |     |     | FY2016 |     |     |     | FY2017 |     |     |     | FY2018 |     |     |     | FY2019 |     |     |     | FY2020 |     |     |     | FY2021 |  |  |  | FY2022 |
|---|-------------|-------------|------------------------|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|--|--|--|--------|
|   |             |             | FQ3                    | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    |  |  |  |        |
| <b>Regional Improvement Projects</b>      |             |             |                        |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| <b>San Joaquin Region</b>                 |             |             |                        |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| Lawrence Livermore Water Quality Impr     | 02-Feb-04 A | 31-Jul-13 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| San Joaquin Pipeline System               | 19-Aug-02 A | 31-Mar-16 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| Rehabilitation of Existing San Joaquin P  | 03-Jul-06 A | 31-Oct-14 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| Tesla Treatment Facility                  | 01-Jul-02 A | 30-Jan-15 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| Tesla Portal Disinfection Station         | 01-Jul-02 A | 29-Jun-07 A | COMBINED WITH CUW38401 |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| WSIP Closeout - San Joaquin               | 20-Jun-16 A | 20-Dec-19   |                        |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| <b>Sunol Valley Region</b>                |             |             |                        |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| Alameda Creek Recapture Project           | 30-Sep-03 A | 03-Nov-21   |                        |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| Standby Power Facilities - Various Local  | 11-Jul-02 A | 22-Dec-10 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| New Irvington Tunnel                      | 19-Dec-01 A | 31-Mar-18 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| Alameda Siphon #4                         | 19-Dec-01 A | 28-Jun-13 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| Pipeline Repair & Readiness Improvem      | 21-Apr-03 A | 16-Apr-09 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| Calaveras Dam Replacement                 | 03-Sep-02 A | 20-Dec-19   |                        |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| Calaveras Reservoir Upgrades              | 19-Nov-03 A | 28-Jul-06 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| San Antonio Backup Pipeline               | 17-Dec-03 A | 30-Jun-16 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| SVWTP Expansion & Treated Water Re        | 22-Apr-05 A | 31-Oct-14 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| SVWTP Calaveras Road                      | 01-Feb-07 A | 14-Dec-07 A | ELIMINATED             |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| SVWTP Treated Water Reservoir             | 15-Sep-03 A | 02-Mar-07 A | COMBINED WITH CUW38101 |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| San Antonio Pump Station Upgrade          | 01-Jul-04 A | 29-Jun-12 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| WSIP Closeout - Sunol Valley              | 01-Jul-16 A | 30-Jun-21   |                        |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| <b>Bay Division Region</b>                |             |             |                        |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| BDPL Nos. 3 & 4 Crossover/Isolation Va    | 06-Jan-03 A | 31-Jul-09 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| Seismic Upgrade of BDPL Nos. 3 & 4        | 22-Oct-04 A | 30-Jul-18 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| SCADA System - Phase II                   | 22-Apr-05 A | 28-May-13 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| BDPL Reliability Upgrade / Tunnel         | 19-Dec-01 A | 30-Aug-16 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| BDPL Reliability Upgrade - Pipeline       | 19-Dec-01 A | 31-Mar-16 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| BDPL Reliability Upgrade - Relocation o   | 24-Apr-06 A | 28-May-10 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| BDPL Nos. 3 & 4 Crossovers                | 17-Feb-04 A | 30-Jun-14 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| SFPUC/EBMUD Intertie                      | 24-Jun-02 A | 20-Mar-14 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| BDPL No. 4 Condition Assessment PCC       | 04-Aug-06 A | 06-Feb-09 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| WSIP Closeout - Bay Division              | 01-Jul-16 A | 30-Jun-20   |                        |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| <b>Peninsula Region</b>                   |             |             |                        |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| Lower Crystal Springs Dam Improve         | 01-Nov-00 A | 28-Dec-12 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| New Crystal Springs Bypass Tunnel         | 07-Jan-02 A | 17-Aug-12 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| Adit Leak Repair - Crystal Springs/Calav  | 01-Apr-05 A | 31-Jul-08 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| Pulgas Balancing - Inlet/Outlet Work      | 15-May-02 A | 11-May-06 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| Pulgas Balancing - Discharge Channel I    | 01-Apr-05 A | 30-Jul-10 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| Pulgas Balancing - Structural Rehabilitat | 03-Apr-06 A | 28-Dec-12 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| Pulgas Balancing - Laguna Creek Sedin     | 31-Mar-06 A | 31-Dec-07 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| Pulgas Balancing - Modifications of the E | 02-Apr-07 A | 20-Mar-13 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| Cross Connection Controls                 | 01-Jul-03 A | 30-Apr-09 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |
| HTWTP Short-Term Improvements (De         | 04-Sep-02 A | 14-Nov-06 A | COMPLETED              |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |



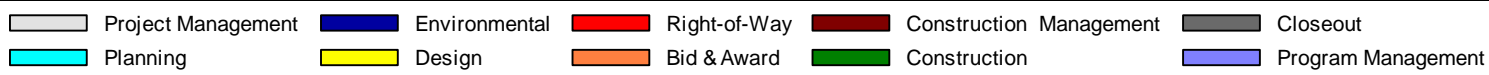
## APPENDIX A: Current Approved WSIP Project-Level Schedules

| Project Name                            | Start       | Finish      | FY11 | FY2012                        |     |     |     | FY2013 |     |     |     | FY2014 |     |     |     | FY2015 |     |     |     | FY2016 |     |     |     | FY2017 |     |     |     | FY2018 |     |     |     | FY2019 |     |     |     | FY2020 |     |     |     | FY2021 |     |     |  | FY2022 |
|---|-------------|-------------|------|-------------------------------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|--|--------|
|   |             |             |      | FQ3                           | FQ4 | FQ1 | FQ2 | FQ3    | FQ4 | FQ1 | FQ2 | FQ3    | FQ4 | FQ1 | FQ2 | FQ3    | FQ4 | FQ1 | FQ2 | FQ3    | FQ4 | FQ1 | FQ2 | FQ3    | FQ4 | FQ1 | FQ2 | FQ3    | FQ4 | FQ1 | FQ2 | FQ3    | FQ4 | FQ1 | FQ2 | FQ3    | FQ4 | FQ1 | FQ2 | FQ3    | FQ4 | FQ1 |  |        |
| HTWTP Short-Term Improvements - Re      | 12-Jan-06 A | 22-Feb-08 A |      | <i>COMBINED WITH CUW36603</i> |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |  |        |
| HTWTP Short-Term Improvements - Cc      | 03-Jul-06 A | 28-Jul-10 A |      | <i>COMPLETED</i>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |  |        |
| HTWTP Long-Term Improvements            | 01-Jul-03 A | 30-Dec-16 A |      | <i>COMPLETED</i>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |  |        |
| Peninsula Pipelines Seismic Upgrade     | 01-Jul-09 A | 06-Jul-16 A |      | <i>COMPLETED</i>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |  |        |
| Capuchino Valve Lot Improvements        | 22-Apr-05 A | 19-Aug-08 A |      | <i>COMPLETED</i>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |  |        |
| Crystal Springs/San Andreas Transmiss   | 18-Aug-03 A | 30-Jun-15 A |      | <i>COMPLETED</i>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |  |        |
| Crystal Springs Pipeline No. 2 Replacen | 15-Jan-04 A | 31-Dec-14 A |      | <i>COMPLETED</i>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |  |        |
| San Andreas Pipeline No. 3 Installation | 15-Jan-04 A | 30-Aug-12 A |      | <i>COMPLETED</i>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |  |        |
| Baden and San Pedro Valve Lots Impro    | 03-Oct-05 A | 29-Mar-13 A |      | <i>COMPLETED</i>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |  |        |
| WSIP Closeout - Peninsula               | 01-Jul-16 A | 19-May-21   |      | <i>COMPLETED</i>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |  |        |
| San Francisco Regional Region           | 31-Mar-00 A | 30-Dec-21   |      | <i>COMPLETED</i>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |  |        |
| Regional Groundwater Storage and Rec    | 01-Jun-03 A | 30-Dec-21   |      | <i>COMPLETED</i>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |  |        |
| Sunset Reservoir - North Basin          | 31-Mar-00 A | 10-Sep-10 A |      | <i>COMPLETED</i>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |  |        |
| University Mound Reservoir - North Bas  | 24-Oct-05 A | 29-Mar-13 A |      | <i>COMPLETED</i>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |  |        |
| Support Projects                        | 13-Apr-04 A | 30-Dec-21   |      | <i>COMPLETED</i>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |  |        |
| System Security Upgrades                | 07-Jan-06 A | 28-Sep-18A  |      | <i>COMPLETED</i>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |  |        |
| Programmatic EIR                        | 13-Apr-04 A | 30-Jun-09 A |      | <i>COMPLETED</i>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |  |        |
| Bioregional Habitat Restoration         | 06-Sep-06 A | 30-Sep-21   |      | <i>COMPLETED</i>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |  |        |
| Vegetation Restoration of WSIP Constr   | 02-Jan-13 A | 30-Jun-16 A |      | <i>COMPLETED</i>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |  |        |
| Long Term Mitigation Endowment          | 05-Mar-14 A | 30-Sep-21   |      | <i>COMPLETED</i>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |  |        |
| Program Management Project              | 01-Aug-05 A | 30-Dec-21   |      | <i>COMPLETED</i>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |  |        |
| Watershed and Environmental Improve     | 02-Jan-07 A | 08-Jan-21   |      | <i>COMPLETED</i>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |  |        |



## APPENDIX A: Current Approved WSIP Phase-Level Schedules

| Project Name                                    | Start       | Finish      | FY2011                        |     |     |     | FY2012 |     |     |     | FY2013 |     |     |     | FY2014 |     |     |     | FY2015 |     |     |     | FY2016 |     |     |     | FY2017 |     |     |     | FY2018 |     |     |     | FY2019 |     |     |     | FY2020 |     |     |     | FY2021 |  |  |  | FY2022 |  |  |  |
|---|-------------|-------------|-------------------------------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|--|--|--|--------|--|--|--|
|   |             |             | FQ1                           | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 |        |  |  |  |        |  |  |  |
| <b>Regional Improvement Projects</b>            | 31-Mar-00 A | 30-Dec-21   |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| <b>San Joaquin Region</b>                       | 01-Jul-02 A | 20-Dec-19   |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| <b>Lawrence Livermore Water Quality Impr</b>    | 02-Feb-04 A | 31-Jul-13 A | <i>COMPLETED</i>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| 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 |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| <b>San Joaquin Pipeline System</b>              | 19-Aug-02 A | 31-Mar-16 A | <i>COMPLETED</i>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| Project Management                              | 19-Aug-02 A | 31-Mar-16 A |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| Planning  | 19-Aug-02 A | 28-Dec-06 A |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| Environmental Review                            | 17-Feb-04 A | 27-Mar-12 A |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| Right of Way                                    | 02-Jan-07 A | 29-Mar-13 A |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| Design  | 02-Jan-07 A | 23-Mar-11 A |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| Bid & Award                                     | 27-Apr-09 A | 21-Jul-11 A |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| Construction Management                         | 03-Feb-09 A | 31-Mar-16 A |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| Construction                                    | 13-Oct-09 A | 31-Mar-16 A |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| Closeout  | 24-Oct-13 A | 31-Mar-16 A |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| <b>Rehabilitation of Existing San Joaquin P</b> | 03-Jul-06 A | 31-Oct-14 A | <i>COMPLETED</i>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| Project Management                              | 03-Jul-06 A | 31-Oct-14 A |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| Planning  | 03-Jul-06 A | 27-Jun-14 A |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| Environmental Review                            | 26-Sep-06 A | 31-Dec-12 A |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| Design  | 31-Jul-06 A | 31-Mar-11 A |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| Bid & Award                                     | 02-May-08 A | 31-Mar-11 A |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| Construction Management                         | 03-Jul-06 A | 19-Sep-11 A |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| Construction                                    | 02-Oct-06 A | 01-Nov-11 A |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| Closeout  | 20-Sep-11 A | 31-Oct-14 A |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| <b>Tesla Treatment Facility</b>                 | 01-Jul-02 A | 30-Jan-15 A | <i>COMPLETED</i>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| Project Management                              | 01-Jul-02 A | 30-Jan-15 A |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| Planning  | 01-Jul-02 A | 29-Jun-07 A |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| Environmental                                   | 30-Jun-06 A | 25-Feb-09 A |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| Right of Way                                    | 17-Mar-08 A | 16-Oct-08 A |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| Design  | 15-Feb-07 A | 20-Nov-09 A |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| Bid & Award                                     | 30-Jan-08 A | 10-Nov-08 A |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| Construction Management                         | 02-Feb-09 A | 31-Oct-14 A |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| Construction                                    | 08-Sep-08 A | 31-Oct-14 A |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| Closeout  | 01-Jul-11 A | 30-Jan-15 A |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| <b>Tesla Portal Disinfection Station</b>        | 01-Jul-02 A | 29-Jun-07 A | <i>COMBINED WITH CUW38#01</i> |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |
| 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 |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |

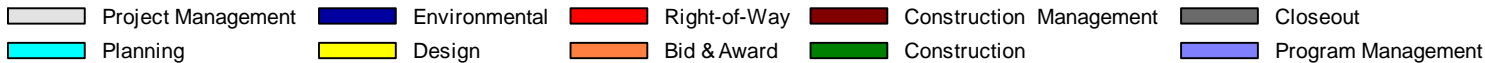






## APPENDIX A: Current Approved WSIP Phase-Level Schedules

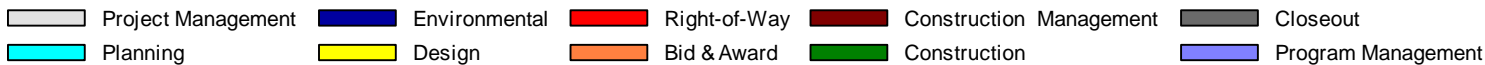
| Project Name   | Start              | Finish             | FY2011                        |     |     |     | FY2012 |     |     |     | FY2013 |     |     |     | FY2014 |     |     |     | FY2015 |     |     |     | FY2016 |     |     |     | FY2017 |     |     |     | FY2018 |     |     |     | FY2019 |     |     |     | FY2020 |     |     |     | FY2021 |  |  |  | FY2022 |  |  |  |  |  |  |  |
|--|--------------------|--------------------|-------------------------------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|--|--|--|--------|--|--|--|--|--|--|--|
|  |                    |                    | FQ1                           | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 |        |  |  |  |        |  |  |  |  |  |  |  |
| Construction   | 23-Jun-10 A        | 20-Sep-13 A        | █                             |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |  |  |  |  |
| Closeout   | 23-Sep-13 A        | 31-Oct-14 A        |                               |     |     |     |        |     |     |     |        |     |     |     | █      |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |  |  |  |  |
| <b>SVWTP Calaveras Road</b>                                  | <b>01-Feb-07 A</b> | <b>14-Dec-07 A</b> | <b>ELIMINATED</b>             |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |  |  |  |  |
| Project Management Cal. Road Imprc                           | 12-Mar-07 A        | 14-Dec-07 A        |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |  |  |  |  |
| Environmental (CatEx) - Cal. Road Im                         | 01-Feb-07 A        | 30-Jul-07 A        |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |  |  |  |  |
| Design - Cal. Road Improvements                              | 02-Apr-07 A        | 14-Dec-07 A        |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |  |  |  |  |
| <b>SVWTP Treated Water Reservoir</b>                         | <b>15-Sep-03 A</b> | <b>02-Mar-07 A</b> | <b>COMBINED WITH CUW38101</b> |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |  |  |  |  |
| 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        |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |  |  |  |  |
| Design   | 03-Nov-04 A        | 02-Mar-07 A        |                               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |  |  |  |  |
| <b>San Antonio Pump Station Upgrade</b>                      | <b>01-Jul-04 A</b> | <b>29-Jun-12 A</b> | <b>COMPLETED</b>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |  |  |  |  |
| 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        | █                             |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |  |  |  |  |
| <b>WSIP Closeout - Sunol Valley</b>                          | <b>01-Jul-16 A</b> | <b>30-Jun-21</b>   | <b>COMPLETED</b>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |  |  |  |  |
| Project Management   | 01-Jul-16 A        | 30-Jun-21          | █                             |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |  |  |  |  |
| Planning   | 01-Jul-16 A        | 29-Jun-18          | █                             |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |  |  |  |  |
| Environmental  | 01-Jul-16 A        | 28-Jun-19          | █                             |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |  |  |  |  |
| Design   | 30-Jan-17 A        | 29-Jul-19          | █                             |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |  |  |  |  |
| Bid & Award (JOC Process)                                    | 03-Apr-17 A        | 17-Dec-19          | █                             |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |  |  |  |  |
| Construction Management                                      | 01-Jul-16 A        | 31-Dec-20          | █                             |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |  |  |  |  |
| Construction   | 01-Jul-16 A        | 31-Dec-20          | █                             |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |  |  |  |  |
| Close Out  | 26-Jun-17 A        | 30-Jun-21          | █                             |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |  |  |  |  |
| <b>Bay Division Region</b>                                   | <b>19-Dec-01 A</b> | <b>30-Jun-20</b>   | <b>COMPLETED</b>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |  |  |  |  |
| <b>BDPL Nos. 3 &amp; 4 Crossover/Isolation V<sub>2</sub></b> | <b>06-Jan-03 A</b> | <b>31-Jul-09 A</b> | <b>COMPLETED</b>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |  |  |  |  |
| 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        | █                             |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |  |  |  |  |
| <b>Seismic Upgrade of BDPL Nos. 3 &amp; 4</b>                | <b>22-Oct-04 A</b> | <b>30-Jul-18 A</b> | <b>COMPLETED</b>              |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |  |  |  |  |
| Project Management   | 22-Oct-04 A        | 30-Jul-18 A        | █                             |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |  |  |  |  |
| 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        | 02-Feb-15 A        | █                             |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |        |  |  |  |  |  |  |  |





## APPENDIX A: Current Approved WSIP Phase-Level Schedules

| Project Name                                   | Start              | Finish             | FY2011  |     | FY2012 |     |     | FY2013 |     |     | FY2014 |     |     | FY2015 |     |     | FY2016 |     |     | FY2017 |     |     | FY2018 |     |     | FY2019 |     |     | FY2020 |     |     | FY2021 |     |     | FY2022 |     |     |
|--|--------------------|--------------------|---|-----|--------|-----|-----|--------|-----|-----|--------|-----|-----|--------|-----|-----|--------|-----|-----|--------|-----|-----|--------|-----|-----|--------|-----|-----|--------|-----|-----|--------|-----|-----|--------|-----|-----|
|  |                    |                    | FQ1   | FQ2 | FQ3    | FQ4 | FQ1 | FQ2    | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4    | FQ1 | FQ2 | FQ3    | FQ4 | FQ1 | FQ2    | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4    | FQ1 | FQ2 | FQ3    | FQ4 | FQ1 | FQ2    | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 |
| Bid and Award - Phase B                        | 03-Nov-08 A        | 04-Sep-12 A        | [Gantt bars for Bid and Award - Phase B]          |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Construction Management - Phase B              | 03-May-10 A        | 30-Apr-18A         | [Gantt bar for Construction Management - Phase B] |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Construction - Phase B                         | 12-Jan-10 A        | 30-Apr-18A         | [Gantt bar for Construction - Phase B]            |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Close Out - Phase B                            | 01-May-18 A        | 30-Jul-18A         | [Gantt bar for Close Out - Phase B]               |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| <b>SCADA System - Phase II</b>                 | <b>22-Apr-05 A</b> | <b>28-May-13 A</b> | <b>COMPLETED</b>                                  |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Project Management                             | 22-Apr-05 A        | 28-May-13 A        | [Gantt bar for Project Management]                |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Planning                                       | 26-Apr-05 A        | 24-Dec-07 A        | [Gantt bar for Planning]                          |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Environmental                                  | 30-Oct-07 A        | 15-Jul-09 A        | [Gantt bar for Environmental]                     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Right of Way                                   | 10-Apr-07 A        | 01-Jun-09 A        | [Gantt bar for Right of Way]                      |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Design   | 26-Dec-07 A        | 27-Jul-09 A        | [Gantt bar for Design]                            |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Bid & Award                                    | 22-Jun-09 A        | 11-Dec-09 A        | [Gantt bar for Bid & Award]                       |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Construction Management                        | 23-Sep-08 A        | 28-Feb-11 A        | [Gantt bar for Construction Management]           |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Construction                                   | 25-Jul-08 A        | 28-Dec-12 A        | [Gantt bar for Construction]                      |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Close Out                                      | 01-Mar-11 A        | 28-May-13 A        | [Gantt bar for Close Out]                         |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| <b>BDPL Reliability Upgrade / Tunnel</b>       | <b>19-Dec-01 A</b> | <b>30-Aug-16 A</b> | <b>COMPLETED</b>                                  |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Project Management                             | 19-Dec-01 A        | 30-Aug-16 A        | [Gantt bar for Project Management]                |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Planning                                       | 19-Dec-01 A        | 31-May-06 A        | [Gantt bar for Planning]                          |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Environmental                                  | 18-Nov-04 A        | 31-Jul-14 A        | [Gantt bar for Environmental]                     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Right of Way                                   | 03-Jul-06 A        | 30-Aug-16 A        | [Gantt bar for Right of Way]                      |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Design - BAY TUNNEL                            | 01-Aug-05 A        | 03-Aug-09 A        | [Gantt bar for Design - BAY TUNNEL]               |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Bid & Award - BAY TUNNEL                       | 01-May-09 A        | 31-Mar-10 A        | [Gantt bar for Bid & Award - BAY TUNNEL]          |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Construction Management - BAY TUN              | 24-Jun-08 A        | 30-Aug-16 A        | [Gantt bar for Construction Management - BAY TUN] |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Construction - BAY TUNNEL                      | 17-Jul-09 A        | 30-May-16 A        | [Gantt bar for Construction - BAY TUNNEL]         |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Close Out - BAY TUNNEL                         | 26-Oct-15 A        | 30-Aug-16 A        | [Gantt bar for Close Out - BAY TUNNEL]            |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| <b>BDPL Reliability Upgrade - Pipeline</b>     | <b>19-Dec-01 A</b> | <b>31-Mar-16 A</b> | <b>COMPLETED</b>                                  |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Project Management                             | 03-Jan-06 A        | 31-Mar-16 A        | [Gantt bar for Project Management]                |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Planning                                       | 19-Dec-01 A        | 31-May-06 A        | [Gantt bar for Planning]                          |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Environmental                                  | 18-Nov-04 A        | 12-Feb-10 A        | [Gantt bar for Environmental]                     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Right of Way                                   | 03-Jul-06 A        | 08-Dec-10 A        | [Gantt bar for Right of Way]                      |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Design - PIPELINE                              | 03-Jan-06 A        | 17-Aug-09 A        | [Gantt bar for Design - PIPELINE]                 |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Bid and Award                                  | 22-Apr-09 A        | 09-Mar-10 A        | [Gantt bar for Bid and Award]                     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Construction Management                        | 23-Sep-08 A        | 31-Mar-16 A        | [Gantt bar for Construction Management]           |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Construction                                   | 04-Jan-10 A        | 31-Mar-16 A        | [Gantt bar for Construction]                      |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Closeout                                       | 14-Jun-12 A        | 31-Mar-16 A        | [Gantt bar for Closeout]                          |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| <b>BDPL Reliability Upgrade - Relocation o</b> | <b>24-Apr-06 A</b> | <b>28-May-10 A</b> | <b>COMPLETED</b>                                  |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Project Management                             | 24-Apr-06 A        | 28-May-10 A        | [Gantt bar for Project Management]                |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Right of Way                                   | 28-May-10 A        | 28-May-10 A        | [Gantt bar for Right of Way]                      |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Design   | 24-Apr-06 A        | 16-Jan-07 A        | [Gantt bar for Design]                            |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Bid and Award                                  | 17-Jan-07 A        | 06-Jan-10 A        | [Gantt bar for Bid and Award]                     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Construction Management                        | 02-Jul-07 A        | 28-May-10 A        | [Gantt bar for Construction Management]           |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Construction                                   | 15-Nov-06 A        | 28-May-10 A        | [Gantt bar for Construction]                      |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Closeout                                       | 28-May-10 A        | 28-May-10 A        | [Gantt bar for Closeout]                          |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| <b>BDPL Nos. 3 &amp; 4 Crossovers</b>          | <b>17-Feb-04 A</b> | <b>30-Jun-14 A</b> | <b>COMPLETED</b>                                  |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Project Management                             | 17-Feb-04 A        | 30-Jun-14 A        | [Gantt bar for Project Management]                |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |
| Planning                                       | 17-Feb-04 A        | 14-Nov-06 A        | [Gantt bar for Planning]                          |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |        |     |     |



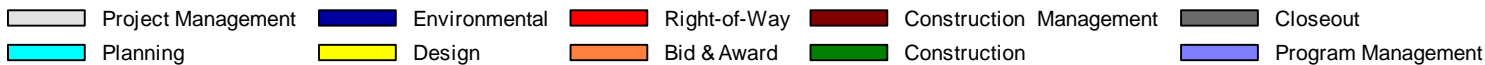




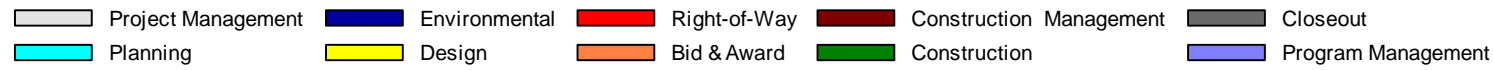
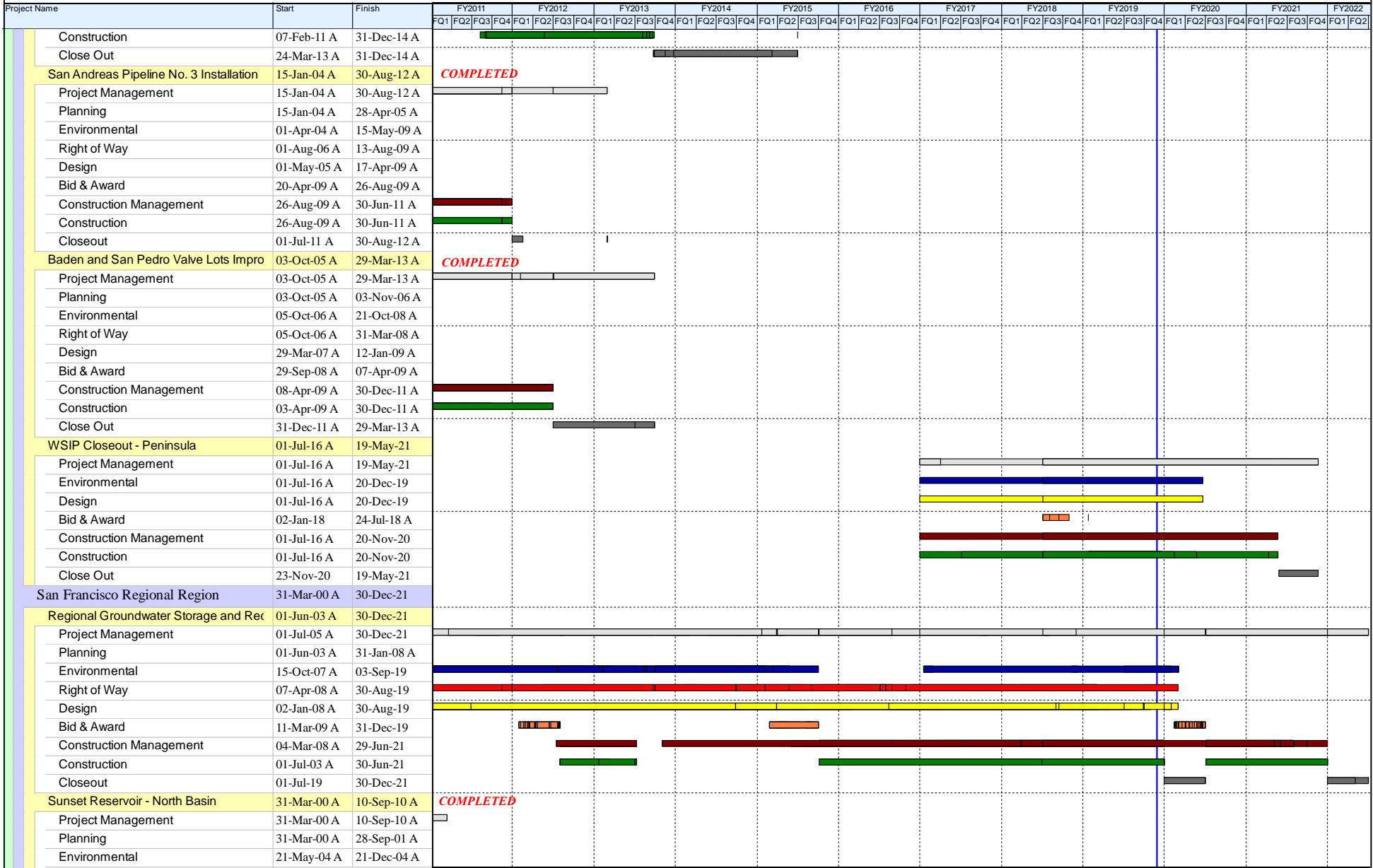


## APPENDIX A: Current Approved WSIP Phase-Level Schedules

| Project Name                                   | Start              | Finish             | FY2011                               |     |     |     | FY2012 |     |     |     | FY2013 |     |     |     | FY2014 |     |     |     | FY2015 |     |     |     | FY2016 |     |     |     | FY2017 |     |     |     | FY2018 |     |     |     | FY2019 |     |     |     | FY2020 |     |     |     | FY2021 |     |     |     | FY2022 |  |  |  |
|--|--------------------|--------------------|--------------------------------------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|--|--|--|
|  |                    |                    | FQ1                                  | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 |        |  |  |  |
| Project Management                             | 01-Jul-03 A        | 30-Dec-16 A        | [Gantt bar: Project Management]      |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Planning                                       | 01-Jul-03 A        | 29-Aug-08 A        | [Gantt bar: Planning]                |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Environmental                                  | 09-Jan-07 A        | 15-Mar-11 A        | [Gantt bar: Environmental]           |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Design   | 02-Sep-08 A        | 15-Oct-10 A        | [Gantt bar: Design]                  |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Bid & Award                                    | 01-Jul-10 A        | 15-Mar-11 A        | [Gantt bar: Bid & Award]             |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Construction Management                        | 16-Mar-11 A        | 30-Sep-16 A        | [Gantt bar: Construction Management] |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Construction                                   | 16-Mar-11 A        | 30-Sep-16 A        | [Gantt bar: Construction]            |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Close Out                                      | 01-Oct-16 A        | 30-Dec-16 A        | [Gantt bar: Close Out]               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| <b>Peninsula Pipelines Seismic Upgrade</b>     | <b>01-Jul-09 A</b> | <b>06-Jul-16 A</b> | <b>COMPLETED</b>                     |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Project Management                             | 01-Jul-09 A        | 06-Jul-16 A        | [Gantt bar: Project Management]      |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Planning                                       | 01-Jul-09 A        | 31-Aug-12 A        | [Gantt bar: Planning]                |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Environmental                                  | 01-Jul-09 A        | 01-Apr-14 A        | [Gantt bar: Environmental]           |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Right of Way                                   | 03-Sep-12 A        | 24-Oct-15 A        | [Gantt bar: Right of Way]            |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Design   | 03-Jan-12 A        | 18-Dec-13 A        | [Gantt bar: Design]                  |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Bid & Award                                    | 15-Nov-13 A        | 28-Apr-14 A        | [Gantt bar: Bid & Award]             |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Construction Management                        | 28-Apr-14 A        | 29-Feb-16 A        | [Gantt bar: Construction Management] |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Construction                                   | 28-Apr-14 A        | 29-Feb-16 A        | [Gantt bar: Construction]            |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Closeout                                       | 29-Feb-16 A        | 06-Jul-16 A        | [Gantt bar: Closeout]                |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| <b>Capuchino Valve Lot Improvements</b>        | <b>22-Apr-05 A</b> | <b>19-Aug-08 A</b> | <b>COMPLETED</b>                     |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Project Management                             | 22-Apr-05 A        | 19-Aug-08 A        | [Gantt bar: Project Management]      |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Planning                                       | 22-Apr-05 A        | 01-Nov-05 A        | [Gantt bar: Planning]                |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Environmental                                  | 01-Nov-05 A        | 14-Nov-06 A        | [Gantt bar: Environmental]           |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Design   | 01-Nov-05 A        | 15-Sep-06 A        | [Gantt bar: Design]                  |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Bid & Award                                    | 18-Sep-06 A        | 29-Jan-07 A        | [Gantt bar: Bid & Award]             |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Construction Management                        | 29-Jan-07 A        | 05-Mar-08 A        | [Gantt bar: Construction Management] |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Construction                                   | 29-Jan-07 A        | 05-Mar-08 A        | [Gantt bar: Construction]            |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Close Out                                      | 06-Mar-08 A        | 19-Aug-08 A        | [Gantt bar: Close Out]               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| <b>Crystal Springs/San Andreas Transmiss</b>   | <b>18-Aug-03 A</b> | <b>30-Jun-15 A</b> | <b>COMPLETED</b>                     |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Project Management                             | 18-Aug-03 A        | 30-Jun-15 A        | [Gantt bar: Project Management]      |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Planning                                       | 18-Aug-03 A        | 20-Apr-07 A        | [Gantt bar: Planning]                |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Environmental                                  | 03-Jan-07 A        | 30-Nov-10 A        | [Gantt bar: Environmental]           |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Right of Way                                   | 27-Mar-06 A        | 30-Jun-10 A        | [Gantt bar: Right of Way]            |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Design   | 15-Oct-07 A        | 15-Jun-10 A        | [Gantt bar: Design]                  |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Bid & Award                                    | 13-Apr-10 A        | 30-Nov-10 A        | [Gantt bar: Bid & Award]             |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Construction Management                        | 01-Dec-10 A        | 31-Dec-14 A        | [Gantt bar: Construction Management] |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Construction                                   | 01-Dec-10 A        | 30-Jun-15 A        | [Gantt bar: Construction]            |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Close Out                                      | 02-Jan-15 A        | 30-Jun-15 A        | [Gantt bar: Close Out]               |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| <b>Crystal Springs Pipeline No. 2 Replacen</b> | <b>15-Jan-04 A</b> | <b>31-Dec-14 A</b> | <b>COMPLETED</b>                     |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Project Management                             | 15-Jan-04 A        | 31-Dec-14 A        | [Gantt bar: Project Management]      |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Planning                                       | 15-Jan-04 A        | 19-Jan-07 A        | [Gantt bar: Planning]                |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Environmental                                  | 01-Apr-04 A        | 30-Jun-11 A        | [Gantt bar: Environmental]           |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Right of Way                                   | 01-Sep-06 A        | 27-Apr-12 A        | [Gantt bar: Right of Way]            |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Design   | 01-Jan-07 A        | 08-Oct-10 A        | [Gantt bar: Design]                  |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Bid & Award                                    | 09-Sep-10 A        | 04-Mar-11 A        | [Gantt bar: Bid & Award]             |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |
| Construction Management                        | 01-Nov-10 A        | 22-Mar-13 A        | [Gantt bar: Construction Management] |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |  |  |  |



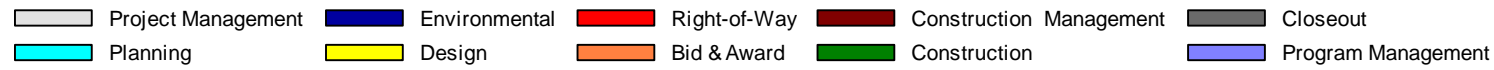
## APPENDIX A: Current Approved WSIP Phase-Level Schedules





## APPENDIX A: Current Approved WSIP Phase-Level Schedules

| Project Name                                | Start       | Finish      | FY2011 |     |     |     | FY2012 |     |     |     | FY2013 |     |     |     | FY2014 |     |     |     | FY2015 |     |     |     | FY2016 |     |     |     | FY2017 |     |     |     | FY2018 |     |     |     | FY2019 |     |     |     | FY2020 |     |  |  | FY2021 |  |  |  | FY2022 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|-------------|-------------|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|-----|-----|--------|-----|--|--|--------|--|--|--|--------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
|   |             |             | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 | FQ3 | FQ4 | FQ1    | FQ2 |  |  |        |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <b>Program Management Project</b>           | 01-Aug-05 A | 30-Dec-21   |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |  |  |        |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <b>Watershed and Environmental Improver</b> | 02-Jan-07 A | 08-Jan-21   |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |  |  |        |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Project Management                          | 02-Jul-07 A | 08-Jan-21   |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |  |  |        |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Planning                                    | 02-Jan-07 A | 29-Jul-11 A |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |  |  |        |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Environmental                               | 05-Mar-12 A | 06-Nov-18   |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |  |  |        |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Right of Way                                | 14-Mar-11 A | 31-Dec-17 A |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |  |  |        |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Design                                      | 31-May-11 A | 30-Oct-18   |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |  |  |        |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Bid & Award                                 | 31-Oct-18   | 03-May-19   |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |  |  |        |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Construction Management                     | 06-May-19   | 06-Jul-20   |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |  |  |        |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Construction                                | 06-May-19   | 06-Jul-20   |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |  |  |        |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Closeout                                    | 07-Jul-20   | 08-Jan-21   |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |     |     |        |     |  |  |        |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |





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**APPENDIX B**  
**WSIP Quarterly Report**  
**Regional Projects (Q4/FY 2018- 2019)**

Report available on the SFPUC Website at the following address:

<https://sfwater.org/index.aspx?page=307>

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