




**DATE:** September 3, 2024

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

**FROM:** Dennis J. Herrera, General Manager 

**RE:** Hetch Hetchy Capital Improvement Program Quarterly Report  
 Quarterly Report (4<sup>th</sup> Quarter / FY 2023-2024)

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Enclosed please find the Hetch Hetchy Capital Improvement Program (HCIP) Quarterly Report for the 4<sup>th</sup> Quarter (Q4) of Fiscal Year (FY) 2023-2024. The primary intent of the report is to provide the Commission, stakeholders, and the public with a status summary of the HCIP based on data for the period of April 1, 2024 to June 30, 2024.

Attachment

**London N. Breed**  
 Mayor

**Tim Paulson**  
 President

**Anthony Rivera**  
 Vice President

**Newsha K. Ajami**  
 Commissioner

**Kate H. Stacy**  
 Commissioner

**Dennis J. Herrera**  
 General Manager



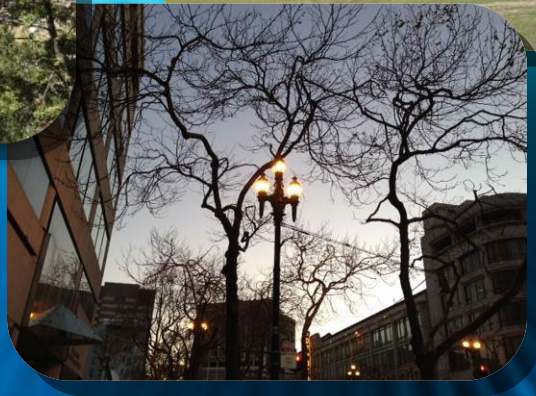
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San Francisco  
**Water Power Sewer**  
Services of the San Francisco Public Utilities Commission



# QUARTERLY REPORT

Hetch Hetchy Capital Improvement Program  
April 2024 – June 2024

Published: September 3, 2024

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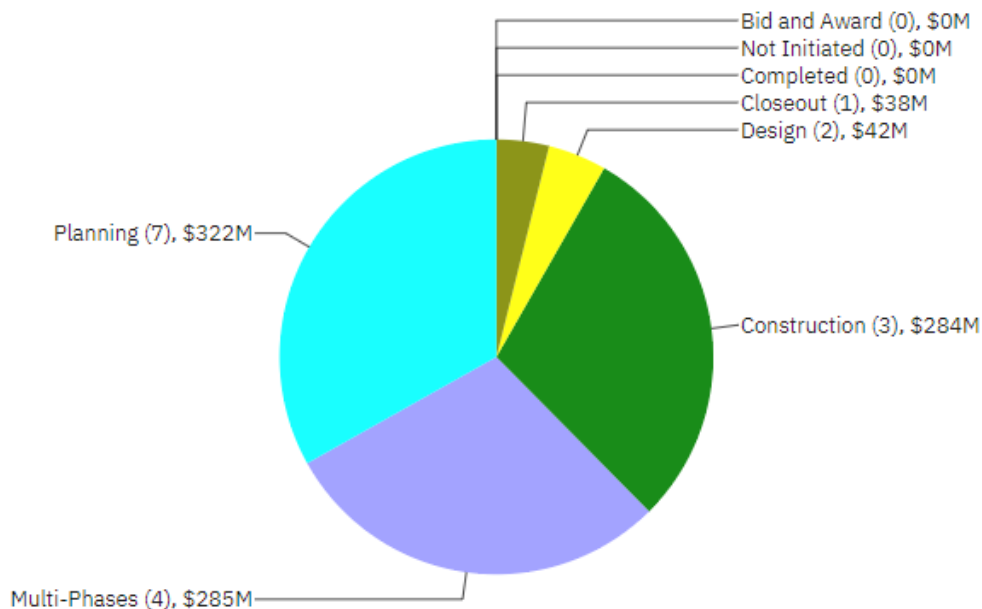
**EXECUTIVE SUMMARY**

This quarterly report provides a summary update on the Hetch Hetchy Capital Improvement Program (HCIP) that is part of the larger Hetch Hetchy Water Capital Improvement Program. The primary intent of the report is to provide the Commission, stakeholders, and the public with a status summary of the HCIP based on data for the period of April 1, 2024 to June 30, 2024.

This quarterly report includes all approved HCIP projects in the Hetch Hetchy Water Capital Improvement Program according to the 10-Year Capital Plan for FY2023-24 to FY2032-33, presented to and adopted by the Commission on February 14, 2023 (2023 HCIP). There are seventeen (17) projects in the 2023 HCIP together with three (3) project development (PD) accounts for program-level expenditures for each of the Water, Power, and Joint Programs.

**Program Current Status:**

As of the end of the reporting period, the status of the 17 HCIP projects (excluding for these purposes the 3 Project Development (PD) accounts) is as follows: nine (9) projects in planning, design, or bid & award; three (3) projects in construction; one (1) project in closeout; and four (4) projects that have subprojects in multiple phases including construction.



**Approved Budget for Projects in Each Phase**

The following Tables provide a high-level summary of the cost and schedule status for this program (including the 3 PD accounts).

Table A shows the Current Approved Budget and Current Forecast Cost of \$1,032.55M and \$1,548.09M, respectively. Reasons for the cost variances are included in Section 7 of this report.

**Table A. Program Cost Summary**

Program	Expenditures To Date (\$ Million) (A)	Current Approved Budget (\$ Million) (B)	Q4/FY23-24 Forecast Costs (\$ Million) (C)	Cost Variance (\$ Million) (D = B - C)	Cost Variance Over Reporting Period * (\$ Million) (E)
<b>Program Total</b>	<b>\$338.60</b>	<b>\$1,032.55</b>	<b>\$1,548.09</b>	<b>(\$515.54)</b>	<b>(\$13.48)</b>

\* Negative number is reflecting cost increases since last quarter, and positive number is reflecting cost reduction since last quarter.

Table B shows a variance of 30 months between the Approved and Forecast Completion Dates. Reasons for individual project schedule variances are included in Section 7 of this report.

**Table B. Current Approved vs. Current Forecast Schedule Dates**

Program	Current Approved Project Start	Actual Start	Current Approved Completion	Current Forecast Completion	Schedule Variance (Months)
<b>Overall HCIP Program</b>	<b>10/03/11</b>	<b>10/03/11 A*</b>	<b>06/30/33</b>	<b>12/31/35</b>	<b>30 (Late)</b>

\* "A" is used after a date to represents an actual date as opposed to a forecast or approved date.

**Program Key Updates:**

The key updates for the HCIP include:

- The SJPL Valve and Safe Entry Improvements Phase 2A (contract HH-1012) contractor received Notice to Proceed in May. The Phase 2B/2C 95% design was completed in May.
- For the Moccasin Powerhouse Bypass Upgrades project, the 35% design review is complete.
- For the Moccasin Powerhouse and Generator Step-Up (GSU) Rehabilitation project, during this quarter, the contractor for Subproject B (contract DB-121R2) completed Generator M2 Dry and Wet Commissioning in April, and partial utilization of Generator M2 was allowed in May. For Subproject C, the 65% design package was received in May and is under review.
- For the Warnerville Substation Rehabilitation – Phase 2 project, a 100% design package has been submitted and is currently under review. PG&E is currently reviewing the 95% design package.
- For the Moccasin Switchyard project, a planning kick-off meeting was scheduled for July with the design team and consultant.
- For the Transmission Lines 7/8 Upgrades project, the project achieved Final Completion on June 5. All work has been completed and final project documentation and approvals are in process.

- For the Moccasin Penstock Rehabilitation project, the Independent Technical Review was completed and the comments were incorporated into the draft Alternative Analysis Report.
- For the Moccasin Engineering & Records Building project, the Conceptual Design was completed in June.
- For the O’Shaughnessy Dam Outlet Works Phase 1 project, the contractor for Subproject A (contract DB-135 for bulkheads rehabilitation) completed the design phase; bids for the construction trade packages are being pursued by the DB-135 contractor. For Subproject B (contract HH-1015 Drainage & Miscellaneous Dam Improvements), the drawings, specifications, and construction bid package for the improvements were finalized for advertisement, and bids were opened on June 20. For Subproject C (contract HH-1011 Instream Flow Release Valve Replacement), the pre-construction JOC contract work was completed. The main contract work made significant progress during the system outage including successful installation of two new knife gate isolation valves.
- For the Moccasin Dam & Reservoir Long-Term Improvements project, the draft Conceptual Engineering Report was issued to staff and project stakeholders for review and comments on June 21.
- For the Cherry Dam Spillway - Short Term Improvements project, the project team completed a combined Alternatives Analysis-Conceptual Engineering Report, and design phase will start in July 2024.
- For the Mountain Tunnel Improvements Project (contract HH-1000), during this quarter, construction work focused on completing the access stairs for the 150-foot deep Flow Control Facility shaft; continuing work on the concrete invert slab in the Priest Adit and continuing excavation and support of the large cut wall near Adit 8/9. Contract HH-1013 (Moccasin Water Treatment Plant) was awarded on May 14. Discussions are taking place on alternative delivery methods to complete the required improvements at South Fork.
- For the Bridge Replacement project, for the Lake Eleanor Dam Bridge project, the combined draft Alternative Analysis Report – Conceptual Engineering Report for the interim repair was completed. For the O’Shaughnessy Adit Access Bridge, the project team completed the 65% design.
- For the Moccasin Wastewater Treatment Plant Replacement (contract HH-1010) project, the contractor received construction Notice to Proceed in June.

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# Quarterly Report

## Hetch Hetchy Capital Improvement Program

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**HETCH HETCHY WATER AND POWER (HHWP)–  
WATER DIVISION CAPITAL IMPROVEMENT PROGRAMS**



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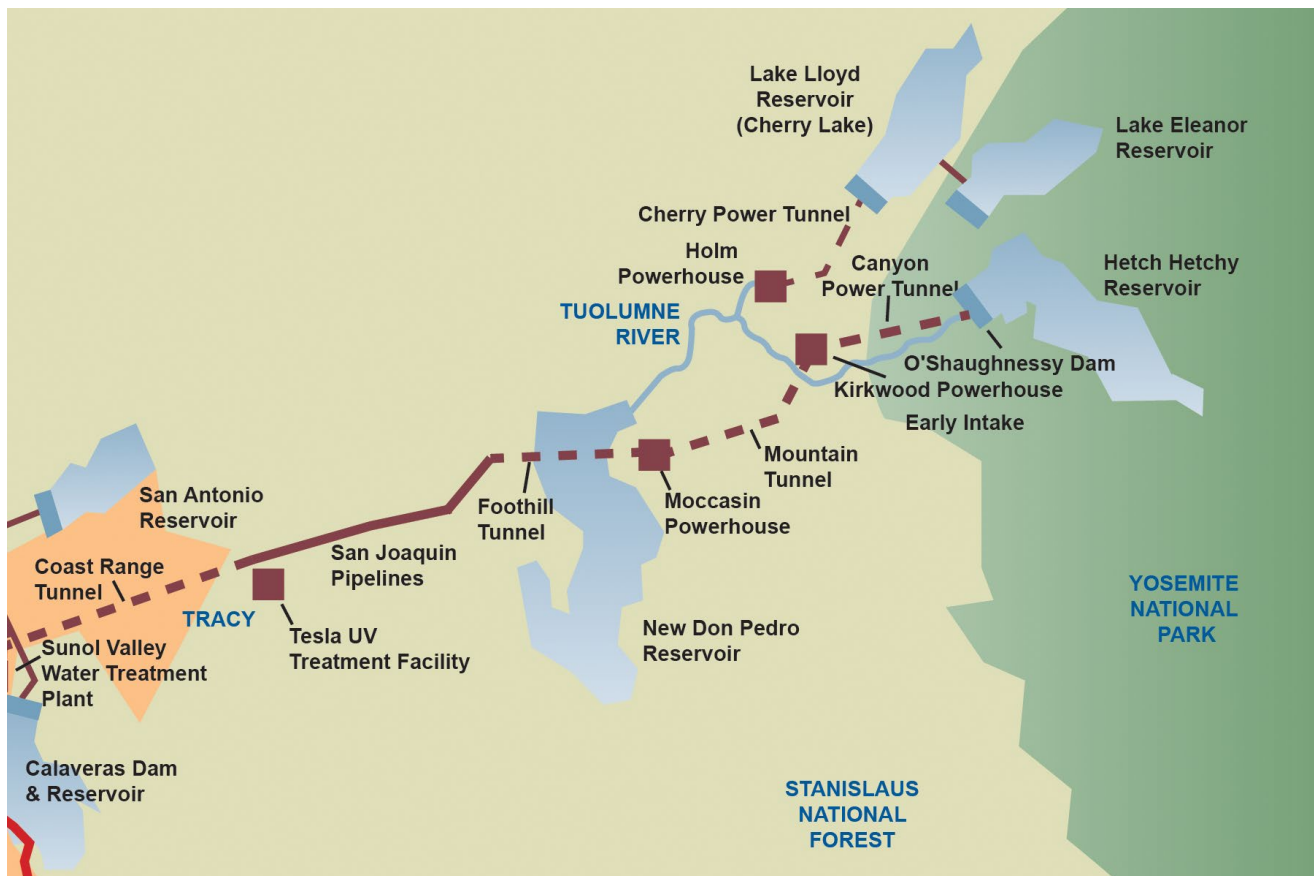
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**INTRODUCTION**

The Hetch Hetchy Water and Power (HHWP) Water Division is the division responsible for operating, managing, and maintaining the HHWP system and facilities. This includes water facilities that are part of the Regional Water System from Hetch Hetchy Reservoir, located in Yosemite National Park, to Alameda East Portal, located in Sunol Valley and power facilities located from Early Intake to Newark. The HHWP Water Division operates, manages, and maintains three impoundment reservoirs, three regulating reservoirs, four powerhouses, one switchyard, three substations, 170 miles of pipeline and tunnels, almost 50 miles of paved road, over 160 miles of transmission lines, watershed land, and right-of-way property. HHWP Water Division provides 85 percent of the San Francisco Public Utilities Commission (SFPUC) water supply for 2.7 million residential, commercial, and industrial customers in Alameda, Santa Clara, San Mateo, and San Francisco counties. On average, HHWP Water Division generates about 1,650 gigawatt hours (GWH) of clean hydro-generated power annually. A majority of HHWP staff is based in Moccasin, CA, which is 140 miles east of San Francisco.

The HHWP Water Division's capital improvement programs are divided into two programs: Hetch Hetchy Capital Improvement Program (HCIP) and Renewal and Replacement (R&R). This report provides a quarterly status update on the HCIP, a group of capital improvement projects that are greater than \$5M in value and have been approved by the Commission as part of the SFPUC's 10-Year Capital Improvement Program. The status of the Hetch Hetchy R&R projects is reported annually in the Annual Report on Water Enterprise-Managed Capital Improvement Projects.

The map below shows the location of the assets and facilities associated with HHWP.



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**HETCH HETCHY CAPITAL IMPROVEMENT PROGRAM (HCIP)**

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## 1. PROGRAM DESCRIPTION

The Hetch Hetchy Capital Improvement Program (HCIP) is a multi-year group of capital projects to upgrade existing, aging infrastructure so that it will meet the challenges of today and the future. These projects will deliver improvements that enhance the SFPUC's ability to provide reliable, affordable, high quality water to its 2.7 million customers in an environmentally sustainable manner. The goals are to 1) provide capital improvements needed to cost-effectively ensure that water quality, seismic reliability, delivery reliability, and water supply objectives established for the Regional Water System facilities managed by HHWP are met, while 2) optimizing the benefits of HHWP power facilities operations. Ongoing development of the HCIP will sustain the Regional Water System's status as an unfiltered water source and a gravity-driven system.

The scope of HCIP is divided into three major project types: Water, Power, and Joint. The Water sub-program includes only asset improvements benefiting the SFPUC's water customers. The Power sub-program includes only asset improvements used to generate environmentally friendly hydroelectric energy. The Joint sub-program includes projects for assets that are used for both water delivery and power generation. In addition, projects in each sub-program of the HCIP have been further organized by asset type consisting of the following:

### Water Infrastructure

- Water Conveyance – projects to enhance the reliability of water delivery through pipelines and penstocks, allowing for both delivery of water to SFPUC customers and delivery of water to powerhouses for power generation.

### Power Infrastructure

- Powerhouse – projects to improve facilities at the Holm, Kirkwood, and Moccasin powerhouses.
- Switchyard & Substations – projects to meet operational objectives for power, including reliability, regulatory compliance, and sustainability.
- Transmission Lines – projects to expand or improve power assets for electricity transmission

### Joint (Water and Power) Infrastructure

- Dams & Reservoirs – projects to improve assets used for storage and delivery of water to SFPUC customers, as well as for water storage for power generation.
- Mountain Tunnel – projects to address deficiencies with the Mountain Tunnel, a critical, non-redundant link in the Hetch Hetchy and Regional Water System that conveys water from Kirkwood Powerhouse to Priest Reservoir.
- Roads & Bridges – projects to replace or improve bridges that are utilized to access HHWP assets.
- Tunnels – projects to repair tunnels along the HHWP system (other than Mountain Tunnel).
- Utilities – projects to expand or improve utilities for asset and work locations such as water and wastewater treatment facilities.
- Buildings – projects to provide safe and code compliant work spaces.

## 2. PROGRAM STATUS

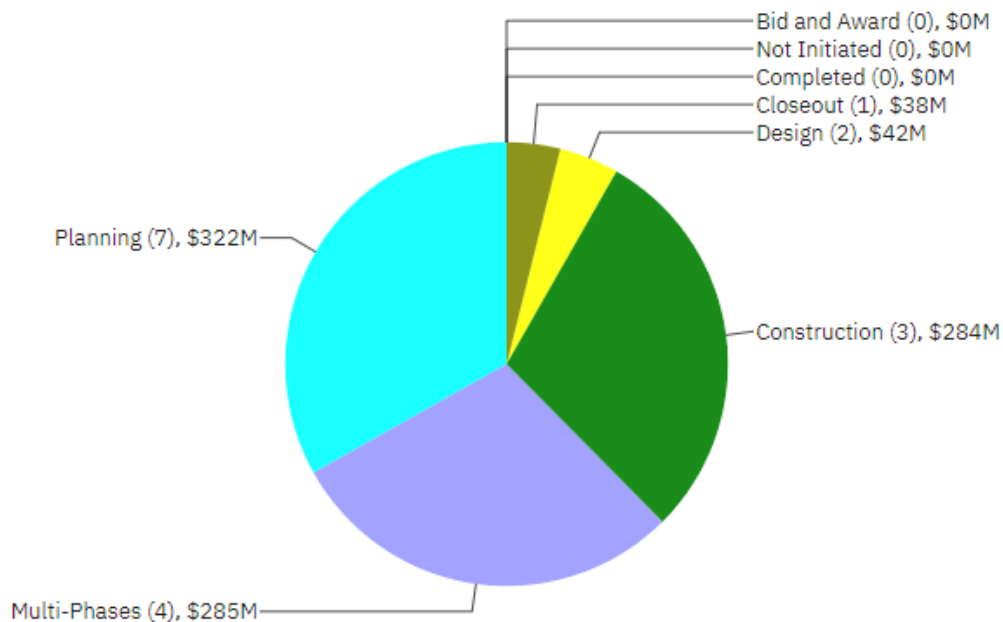
This Quarterly Report presents the progress made on HCIP between April 1, 2024 and June 30, 2024. This document serves as the fourth (4th) Quarterly Report in Fiscal Year 2023-2024 (FY24) published for the HCIP.

This quarterly report includes all HCIP projects in the Hetch Hetchy Water Capital Improvement Program according to the 10-Year Capital Plan for FY2023-24 to FY2032-33 (FY24-33 CIP), presented to and adopted by the Commission on February 14, 2023, under Resolution No. 23-0037 (2023 HCIP).

There are seventeen (17) projects in the 2023 HCIP together with three (3) project development (PD) accounts for program-level expenditures for each of the Water, Power, and Joint Programs. A description of each project and of each project development account is provided in the Appendix A of this report.

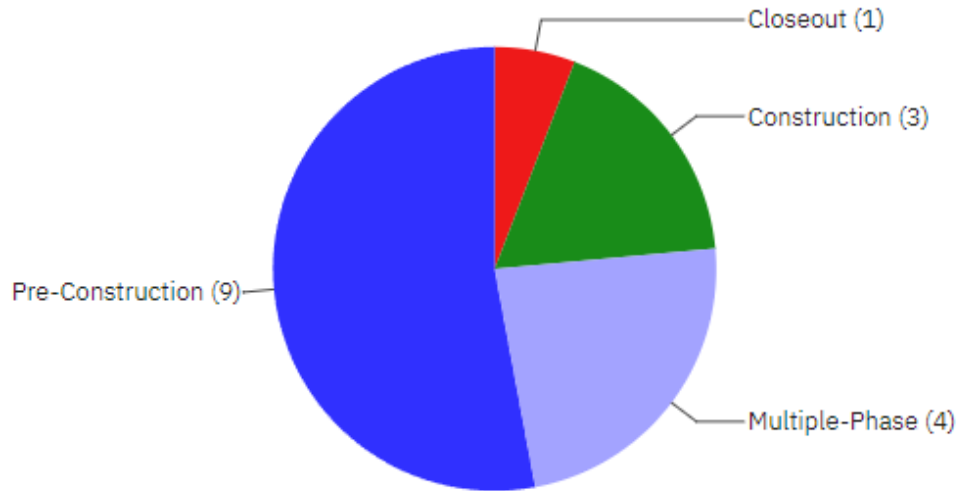
The accrued PD expenditures are included in the Cost Summary in Table 3 in order to give an accurate report of the overall HCIP cost performance.

Figure 2.1 shows the total Approved Budget for all seventeen (17) projects in each phase of the program as of June 30, 2024 (PD accounts do not have phases and are not included in Figure 2.1). The number of projects currently in each phase is shown in parentheses.



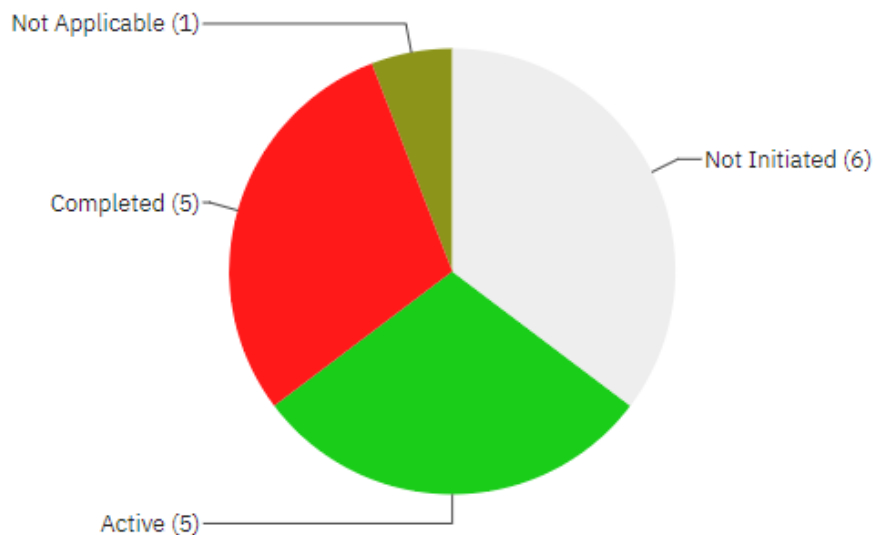
**Figure 2.1 Approved Budget for Projects in Each Phase**

Figure 2.2 shows the total number of projects in the following stages as of June 30, 2024: Pre-construction, Construction, and Post-construction.



**Figure 2.2 Number of Projects in Pre-construction, Construction, and Post-Construction**

Figure 2.3 summarizes the environmental review status of the HCIP projects as of June 30, 2024. Environmental review is performed for projects under California Environmental Quality Act (CEQA).



**Figure 2.3 Program Environmental Review**

### 3. PROGRAM COST SUMMARY

Table 3 provides an overall cost summary of the 17 HCIP projects and 3 HCIP PD accounts at the end of the quarter. It shows the Expenditures to Date, Current Approved Budget, Current Forecast Cost, the Cost Variance between the Approved and Forecast Costs, and the Cost Variance Over the Reporting Period (difference between cost forecasts reported in Q3/FY23-24 and in Q4/FY23-24). The Current Approved Budget and Forecast Cost for the HCIP are \$1,032.55 million and \$1,548.09 million, respectively.

The overall 2023 HCIP negative Cost Variance of \$515.54 million in Table 3 can be attributed to the following projects and PD accounts, and their variances are provided below. All but one of these variances were included as revised budget requests that were submitted to the Commission in early 2024 and were adopted by the Commission on February 13, 2024 as part of the FY25-34 10-Year CIP. The one new variance this quarter is a \$13.48M cost increase on the Moccasin Powerhouse and GSU Rehabilitation project. The revised budgets will be shown as the approved budgets beginning in the first quarter of FY24-25. The reasons for the project variances are reported in section 7:

- SJPL Valve and Safe Entry Improvement forecast cost increased by \$17.09M.
- Water Infrastructure Project Development forecast cost increased by \$4.15M.
- Moccasin Powerhouse and GSU Rehabilitation continuation of \$33.84M negative variance from Q4 of FY22/23 and an additional forecast increase of \$13.48M in FY23/24 for a total of \$47.32M negative variance.
- Moccasin Powerhouse Bypass Upgrades continuation of \$13.28M negative variance from Q4 of FY22/23 and an additional forecast increase of \$0.38M in FY23/24 for a total of \$13.66M negative variance.
- Moccasin Switchyard Rehabilitation forecast cost increased by \$9.97M.
- Warnerville Substation Rehabilitation continuation of \$1.89M negative cost variance from Q4 of FY22/23 and an additional forecast cost increase of \$1.27M in FY23/24 for a total of \$3.16M negative variance.
- Transmission Lines 7/8 Upgrades forecast cost decreased by \$2.54M.
- Power Infrastructure Project Development forecast cost increased by \$2.28M.
- Moccasin Penstock Rehabilitation forecast cost increased by \$283.92M.
- Moccasin Engineering and Records Building forecast cost increased by \$28.01M.
- Early Intake Dam - Long Term forecast cost increased by \$11.33M.
- Moccasin Dam & Reservoir Long-Term Improvements forecast cost increased by \$69.01M.
- Cherry Dam Spillway - Short Term Improvements forecast cost decreased by \$9.97M.
- O'Shaughnessy Dam Outlet Works Phase I forecast cost decreased by \$4.25M.
- Mountain Tunnel Improvement Project forecast cost increased by \$30.45M.
- Moccasin Old Powerhouse Hazard Mitigation forecast cost decreased by \$3.93M.
- Bridge Replacement (2 Bridges) forecast cost decreased by \$24.18M.
- Canyon Tunnel - Hetchy Adit Rehabilitation forecast cost increased by \$15.15M.
- Moccasin Wastewater Treatment Plant forecast cost increased by \$3.35M.
- Joint Infrastructure Project Development forecast cost increased by \$21.55M.

**Table 3. Cost Summary**

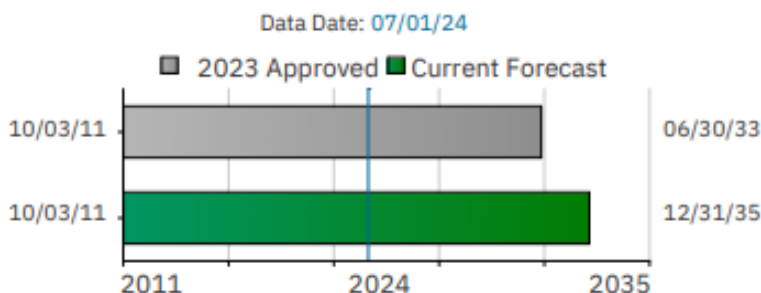
Subprograms	Expenditures To Date (\$ Million) (A)	Current Approved Budget (\$ Million) (B)	Q4/FY23-24 Forecast Costs (\$ Million) (C)	Cost Variance (\$ Million) (D = B - C)	Cost Variance Over Reporting Period * (\$ Million) (E)
<b>Water Infrastructure</b>	<b>\$43.29</b>	<b>\$149.42</b>	<b>\$170.67</b>	<b>(\$21.24)</b>	-
Water Conveyance (Water)	\$37.93	\$140.66	\$157.75	(\$17.09)	-
Water Infrastructure Project Development	\$5.36	\$8.76	\$12.91	(\$4.15)	-
<b>Power Infrastructure</b>	<b>\$106.27</b>	<b>\$191.65</b>	<b>\$265.51</b>	<b>(\$73.85)</b>	<b>(\$13.48)</b>
Powerhouse	\$46.06	\$94.11	\$155.09	(\$60.99)	(\$13.48)
Switchyard & Substations (Power)	\$23.94	\$43.99	\$57.12	(\$13.13)	-
Transmission Lines	\$31.85	\$37.97	\$35.43	\$2.54	-
Power Infrastructure Project Development	\$4.42	\$15.59	\$17.87	(\$2.28)	-
<b>Joint Infrastructure</b>	<b>\$189.04</b>	<b>\$691.48</b>	<b>\$1,111.92</b>	<b>(\$420.44)</b>	-
Water Conveyance (Joint)	\$8.21	\$47.25	\$331.17	(\$283.92)	-
Building (Joint)	\$0.70	\$60.72	\$88.73	(\$28.01)	-
Dams & Reservoirs (Joint)	\$22.44	\$234.76	\$300.88	(\$66.12)	-
Mountain Tunnel	\$139.66	\$238.22	\$268.67	(\$30.45)	-
Powerhouse (Joint)	\$0.73	\$17.40	\$13.47	\$3.93	-
Roads & Bridges (Joint)	\$3.76	\$29.37	\$5.19	\$24.18	-
Tunnels (Joint)	\$2.00	\$14.99	\$30.14	(\$15.15)	-
Utilities (Joint)	\$2.01	\$12.03	\$15.38	(\$3.35)	-
Joint Infrastructure Project Development	\$9.53	\$36.73	\$58.29	(\$21.55)	-
<b>Overall Program Total</b>	<b>\$338.60</b>	<b>\$1,032.55</b>	<b>\$1,548.09</b>	<b>(\$515.54)</b>	<b>(\$13.48)</b>

\* Negative number is reflecting cost increases since last quarter, and positive number is reflecting cost reduction since last quarter.

**4. PROGRAM SCHEDULE SUMMARY**

Figure 4 and Table 4 compare the FY24–33 CIP Approved Schedule and the Current Forecast Schedule for the HCIP. As shown in Table 4, the HCIP approved and forecast schedules are June 2033 and December 2035 respectively.

**Figure 4. Program Schedule Summary**



**Table 4. FY24-33 CIP Approved vs. Current Forecast Schedule Dates**

Sub-Program	CIP Approved Project Start	Actual Start	CIP Approved Completion	Current Forecast Completion	Schedule Variance (Months)
Water Infrastructure	03/26/12	03/26/12 A*	06/30/33	06/30/34	12 (Late)
Power Infrastructure	05/29/12	05/29/12 A*	06/30/33	06/30/34	12 (Late)
Joint Infrastructure	10/03/11	10/03/11 A*	06/30/33	12/31/35	30 (Late)
<b>Overall HCIP Projects</b>	<b>10/03/11</b>	<b>10/03/11 A*</b>	<b>06/30/33</b>	<b>12/31/35</b>	<b>30 (Late)</b>

\* "A" is used after a date to reference an actual date as opposed to a forecast or approved date.

**5. BUDGET AND SCHEDULE TREND SUMMARY**

This Table 5 contains all approved HCIP projects that are active and in any of the planning, design, bid and award, or construction phases. The table excludes all Project Development accounts, as well as any projects that are either not-initiated, on-hold, in closeout, or completed.

During this Quarter (Q4 FY23-24), the following major project milestones were achieved:

- 35% Design review was completed for Moccasin Powerhouse Bypass Upgrades
- 95% Design completion was achieved for Phases 2B and 2C for SJPL Valve and Safe Entry Improvement
- Construction Notice-to-Proceed was issued for Phase 2A for SJPL Valve and Safe Entry Improvement
- Bid Package was advertised, and bids were opened for O’Shaughnessy Dam Outlet Works Phase I (Subproject B)
- Combined Alternatives Analysis-Conceptual Engineering Report was finalized for Cherry Dam Spillway - Short Term Improvements
- Construction Notice-to-Proceed was issued for Moccasin Wastewater Treatment Plant.
- Transmission Lines 7/8 Upgrades is now in Closeout phase.



**Table 5. Budget and Schedule Trend Summary**

All Costs are shown in million

Project Name	Most Recent CIP Approved Budget		Project Initiation		CER		35% Design		95% Design		Awarded Construction <sup>1</sup>		Current Status	
	Approved Budget	Approved Completion	Forecast Cost	Forecast Completion	Forecast Cost	Forecast Completion	Forecast Cost	Forecast Completion	Forecast Cost	Forecast Completion	Forecast Cost	Forecast Completion	Forecast Cost	Forecast Completion
	a	b	c	d	e	f	g	h	i	j	k	l	m	n
<b>Water Infrastructure</b>														
10035575 - SJPL Valve and Safe Entry Improvement	FY24-33		07/01/19		04/16/21		03/03/21 (Phase 1A), 05/28/21 (Phase 1B), 08/19/22 (Phase 2) & 12/30/21 (Phase 3)		07/14/21 (Phase 1A), 10/29/21 (Phase 1B), 06/08/23 (Phase 2A), 05/21/24 (Phase 2B/2C) & 03/31/23 (Phase 3)		03/08/22 (Phase 1A), 08/23/22 (Phase 1B), 02/27/24 (Phase 2A), 01/17/25 (Phase 2B/2C) & 01/09/24 (Phase 3)		Q4 - FY23-24	
Phase 1A	\$140.7	03/13/28	\$95.3	07/01/25	\$95.3	07/01/25	\$98.9	03/13/28	\$157.8	02/28/29	\$157.8	02/28/29	\$157.8	02/28/29
Phase 1B														
Phase 2A														
Phase 2B/2C														
Phase 3														
<b>Power Infrastructure</b>														
10036809 - Moccasin Powerhouse Bypass Upgrades	FY24-33		09/18/20		03/31/23		03/13/24		07/27/24		06/30/25		Q4 - FY23-24	
	\$27.4	12/01/27	\$15.0	12/01/27	\$40.7	12/01/27	\$41.1	12/01/27	TBD	TBD	TBD	TBD	\$41.1	12/01/27
10014086 - Moccasin Powerhouse and GSU Rehabilitation	FY24-33		01/04/16		05/14/21		07/29/19 (Phase 1), 10/01/19 (Phase 2) & 12/29/23 (Phase 3)		09/09/20 (Phase 1), 05/11/22 (Phase 2) & 10/31/24 (Phase 3)		04/13/21 (Phase 1), 05/11/21 (Phase 2) & 10/31/25 (Phase 3)		Q4 - FY23-24	
Phase 1	\$66.7	12/03/27	\$18.0	10/03/18	\$66.7	04/13/27	\$100.6	12/31/28	\$66.7	12/03/27	\$66.7	12/03/27	\$114.0	12/31/28
Phase 2														
Phase 3														
10014087 - Warnerville Substation Rehabilitation	FY24-33		09/01/15 (Phase A), 07/01/20 (Phase B) & 01/01/21 (Phase C)		02/29/16 (Phase A), 04/29/22 (Phase B) & 04/28/23 (Phase C)		04/01/16 (Phase A), 01/18/21 (Phase B) & 06/30/23 (Phase C)		12/24/16 (Phase A), 08/16/21 (Phase B) & 03/20/24 (Phase C)		5/23/17 (Phase A), N/A (Phase B) & 02/28/25 (Phase C)		Q4 - FY23-24	
Phase A - DB-127R	\$34.2	11/25/26	\$27.2	11/25/26	\$34.2	11/25/26	\$34.2	11/25/26	\$37.4	11/25/26	\$37.4	11/25/26	\$37.4	11/25/26
Phase B - Contingency Plan														
Phase C - HH-1008														
10039568 - Moccasin Switchyard Rehabilitation	FY24-33		11/01/22		05/31/25		11/30/25		09/30/26		06/30/27		Q4 - FY23-24	
	\$9.7	11/30/28	\$9.7	11/30/28	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	\$19.7	01/31/30
<b>Joint Infrastructure</b>														
10014088 - Moccasin Penstock Rehabilitation	FY24-33		02/01/16		09/03/26		03/05/27		03/02/29		03/05/31		Q4 - FY23-24	
	\$47.3	02/28/28	\$13.2	12/31/24	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	\$331.2	12/08/34
10039680 - Moccasin Engineering and Records Building <sup>4</sup>	FY24-33		12/14/22		05/31/24		08/30/24		04/30/26		07/22/26		Q4 - FY23-24	
	\$60.7	06/30/31	\$60.7	06/30/31	\$88.700	05/31/29	\$88.700	05/31/29	\$88.700	05/31/29	\$88.700	05/31/29	\$88.7	05/31/29

**Table 5. Budget and Schedule Trend Summary (continued)**

All Costs are shown in million

Project Name	Most Recent CIP Approved Budget		Project Initiation		CER		35% Design		95% Design		Awarded Construction <sup>1</sup>		Current Status	
	Approved Budget	Approved Completion	Forecast Cost	Forecast Completion	Forecast Cost	Forecast Completion	Forecast Cost	Forecast Completion	Forecast Cost	Forecast Completion	Forecast Cost	Forecast Completion	Forecast Cost	Forecast Completion
	a	b	c	d	e	f	g	h	i	j	k	l	m	n
<b>Water Infrastructure</b>														
10032903 - O'Shaughnessy Dam Outlet Works Phase I <sup>2</sup>	FY24-33		02/01/18		09/30/21 (Subproject A), Complete (Subproject B), 09/30/22 (Subproject C), N/A (Subproject D) & N/A (Subproject E)		01/12/24 (Subproject A) <sup>6</sup> , N/A (Subproject B) & 11/16/22 (Subproject C)		04/30/24 (Subproject A) <sup>6</sup> , N/A (Subproject B) & 12/23/22 (Subproject C)		06/13/23 (Subproject A), 11/12/24 (Subproject B) & 06/13/23 (Subproject C)		Q4 - FY23-24	
Subproject A														
Subproject B														
Subproject C	\$48.0	09/17/25	\$17.2	12/31/24	\$47.9	09/16/25	\$48.0	09/16/25	\$48.0	09/16/25	\$48.0	09/16/25	\$43.7	06/30/26
Subproject D (Planning Only)														
Subproject E (Planning Only)														
10037351 - Moccasin Dam & Reservoir Long-Term Improvements	FY24-33		05/03/21		08/30/24		12/31/25		12/30/27		12/04/29		Q4 - FY23-24	
	\$73.2	06/30/28	\$83.2	07/01/27	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	\$142.2	12/29/34
10014115 - Cherry Dam Spillway - Short Term Improvements	FY24-33		03/01/21		06/28/24		09/30/24		02/05/25		12/18/25		Q4 - FY23-24	
	\$24.9	11/01/27	\$11.9	07/01/27	\$14.9	06/30/27	TBD	TBD	TBD	TBD	TBD	TBD	\$14.9	06/30/27
10039119 - Early Intake Dam – Long Term	FY24-33		06/30/23		07/31/25		01/31/27		01/31/29		01/31/31		Q4 - FY23-24	
	\$88.7	06/30/31	\$88.7	06/30/31	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	\$100.1	12/31/35
10014114 - Mountain Tunnel Improvement Project	FY24-33		10/03/11		12/29/17		05/15/18		07/31/19		10/13/20		Q4 - FY23-24	
	\$238.2	06/03/27	\$114.0	12/30/21	\$246.1	12/31/26	\$238.2	12/31/26	\$238.2	12/31/26	\$238.2	06/03/27	\$268.7	06/03/27
10037077 - Moccasin Old Powerhouse Hazard Mitigation	FY24-33		01/01/21		08/30/24		09/01/27		05/05/28		02/15/29		Q4 - FY23-24	
	\$17.4	06/30/28	\$12.2	01/31/25	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	\$13.5	07/01/30
10035086 - Bridge Replacement (2 Bridges)	FY24-33		02/27/20		6/30/24 (Subproject 1) & 03/17/23 (Subproject 2)		N/A (Subproject 1) & N/A (Subproject 2) <sup>5</sup>		N/A (Subproject 1) & N/A (Subproject 2) <sup>5</sup>		N/A (Subproject 1) & N/A (Subproject 2) <sup>5</sup>		Q4 - FY23-24	
Subproject 1														
Subproject 2	\$29.4	12/30/27	\$44.3	12/30/25	\$29.4	12/30/27	TBD	TBD	TBD	TBD	TBD	TBD	\$5.2	07/01/24
10014108 - Canyon Tunnel - Hetchy Adit Rehabilitation	FY24-33		02/03/14		03/17/23		03/30/16		09/19/24		02/16/27		Q4 - FY23-24	
	\$15.0	12/30/26	\$0.5	06/30/16	\$15.0	12/30/26	\$8.0	06/30/18	TBD	TBD	TBD	TBD	\$30.1	12/31/30
10014110 - Moccasin Wastewater Treatment Plant <sup>3</sup>	FY24-33		01/03/22		-		04/29/22		03/23/23		02/27/24		Q4 - FY23-24	
	\$12.0	04/07/26	\$8.8	04/07/26	-	-	\$8.8	04/07/26	\$12.0	04/07/26	\$15.4	02/20/28	\$15.4	02/20/28

**Footnotes:**

1. This represents forecast project cost and project completion date at the time of award of construction contract (or award of CM/GC or Design-Build contracts/packages).
2. This represents that Subproject A will be doing Progressive Design Build during Construction. Subproject B is in the process of finalizing the design. Subprojects D & E will not be doing CER.
3. This represents that the project started during the Design Phase.
4. This is a building project which follows a different set of milestones. Dates shown for CER, 35% Design, and 95% Design above are for Conceptual Design, Schematic Design, and Contract Document.
5. This represents the moving of design and construction scope for the bridge subprojects to projects 10014108 (Canyon Tunnel - Hetchy Adit Rehabilitation) and 10030759 (Eleanor Dam Rehabilitation).
6. Dates shown are for 50% Design and 100% Design.

6. PROJECT PERFORMANCE SUMMARY\*

All costs are shown in \$1,000s

Project Name	Active Phase (a) (**)	CIP Approved Budget (b) (+)	Current Approved Budget (c) (++)	Current Forecast Cost (d)	Expenditures to Date (e)	Cost Variance (f=c-d) (+++)	% Cost Changes (g=f/c) (+++)	CIP Completion Date (h) (+)	Approved Completion Date (i) (++)	Forecast Completion Date (j)	Schedule Variance (Days) (k=i-j) (+++)
<b>Water Infrastructure</b>											
<b>Water Conveyance (Water)</b>											
10035575 SJPL Valve and Safe Entry Improvement	MP	\$140,662	\$140,662	\$157,752	\$37,934	(\$17,090)	(12%)	03/13/28	03/13/28	02/28/29	(352)
<b>Power Infrastructure</b>											
<b>Powerhouse</b>											
10036809 Moccasin Powerhouse Bypass Upgrades	DS	\$27,391	\$27,391	\$41,056	\$1,932	(\$13,665)	(50%)	12/01/27	12/01/27	12/01/27	0
10014086 Moccasin Powerhouse and GSU Rehabilitation	MP	\$66,714	\$66,714	\$114,035	\$44,128	(\$47,321)	(71%)	12/03/27	12/03/27	12/31/28	(394)
<b>Switchyard &amp; Substations (Power)</b>											

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

**\*\* Phase Status Legend**

<span style="border: 1px solid black; padding: 2px;">PL</span> Planning	<span style="border: 1px solid black; padding: 2px;">DS</span> Design
<span style="border: 1px solid black; padding: 2px;">BA</span> Bid & Award	<span style="border: 1px solid black; padding: 2px;">CN</span> Construction
	<span style="border: 1px solid black; padding: 2px;">MP</span> Multiple-Phase

**Footnotes:**

- (+) **CIP Approved Budget and Project Completion Date:** The budget and schedule approved as part of 10-year CIP for FY24-33.
- (++) **Current Approved Budget and Schedule:** The budget and schedule approved as part of 10-year CIP for FY24-33, plus any additional budget and schedule changes approved by the Commission as part of construction contract award.
- (+++)  
(+++)  
(+++)

Negative number reflects cost overrun (or schedule delay) and positive number reflects cost underrun (or ahead of schedule). Projects with a forecasted cost overrun greater than 10%, or forecasted delay of greater than 6 months or 10%, will be highlighted in grey.

Project Name	Active Phase (a) (**)	CIP Approved Budget (b) (+)	Current Approved Budget (c) (++)	Current Forecast Cost (d)	Expenditures to Date (e)	Cost Variance (f=c-d) (+++)	% Cost Changes (g=f/c) (+++)	CIP Completion Date (h) (+)	Approved Completion Date (i) (++)	Forecast Completion Date (j)	Schedule Variance (Days) (k=i-j) (+++)
10014087 Warnerville Substation Rehabilitation	CN	\$34,248	\$34,248	\$37,407	\$23,736	(\$3,159)	(9%)	11/25/26	11/25/26	11/25/26	0
10039568 Moccasin Switchyard Rehabilitation	PL	\$9,739	\$9,739	\$19,708	\$207	(\$9,969)	(102%)	11/30/28	11/30/28	01/31/30	(427)
<b>Joint Infrastructure</b>											
<b>Water Conveyance (Joint)</b>											
10014088 Moccasin Penstock Rehabilitation	PL	\$47,251	\$47,251	\$331,172	\$8,209	(\$283,921)	(601%)	02/28/28	02/28/28	12/08/34	(2,475)
<b>Buildings (Joint)</b>											
10039680 Moccasin Engineering and Records Building	PL	\$60,725	\$60,725	\$88,734	\$698	(\$28,009)	(46%)	06/30/31	06/30/31	05/31/29	760
<b>Dams &amp; Reservoirs (Joint)</b>											
10032903 O'Shaughnessy Dam Outlet Works Phase I	MP	\$47,981	\$47,981	\$43,731	\$15,819	\$4,250	9%	09/17/25	09/17/25	06/30/26	(286)

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

**\*\* Phase Status Legend**

<b>PL</b> Planning	<b>DS</b> Design
<b>BA</b> Bid & Award	<b>CN</b> Construction
	<b>MP</b> Multiple-Phase

**Footnotes:**

- (+) **CIP Approved Budget and Project Completion Date:** The budget and schedule approved as part of 10-year CIP for FY24-33.
- (++) **Current Approved Budget and Schedule:** The budget and schedule approved as part of 10-year CIP for FY24-33, plus any additional budget and schedule changes approved by the Commission as part of construction contract award.
- (+++)  
Negative number reflects cost overrun (or schedule delay) and positive number reflects cost underrun (or ahead of schedule). Projects with a forecasted cost overrun greater than 10%, or forecasted delay of greater than 6 months or 10%, will be highlighted in grey.

Project Name	Active Phase (a) (**)	CIP Approved Budget (b) (+)	Current Approved Budget (c) (++)	Current Forecast Cost (d)	Expenditures to Date (e)	Cost Variance (f=c-d) (+++)	% Cost Changes (g=f/c) (+++)	CIP Completion Date (h) (+)	Approved Completion Date (i) (++)	Forecast Completion Date (j)	Schedule Variance (Days) (k=i-j) (+++)
10037351 Moccasin Dam & Reservoir Long-Term Improvements	PL	\$73,176	\$73,176	\$142,188	\$4,152	(\$69,012)	(94%)	06/30/28	06/30/28	12/29/34	(2,373)
10014115 Cherry Dam Spillway - Short Term Improvements	PL	\$24,856	\$24,856	\$14,886	\$1,952	\$9,970	40%	11/01/27	11/01/27	06/30/27	124
10039119 Early Intake Dam - Long Term	PL	\$88,742	\$88,742	\$100,072	\$515	(\$11,330)	(13%)	06/30/31	06/30/31	12/31/35	(1,645)
<b>Mountain Tunnel</b>											
10014114 Mountain Tunnel Improvement Project	CN	\$238,219	\$238,219	\$268,669	\$139,661	(\$30,450)	(13%)	06/03/27	06/03/27	06/03/27	0
<b>Powerhouse (Joint)</b>											
10037077 Moccasin Old Powerhouse Hazard Mitigation	PL	\$17,401	\$17,401	\$13,475	\$734	\$3,926	23%	06/30/28	06/30/28	07/01/30	(731)
<b>Roads &amp; Bridges (Joint)</b>											

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

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

**Footnotes:**

- (+) **CIP Approved Budget and Project Completion Date:** The budget and schedule approved as part of 10-year CIP for FY24-33.
- (++) **Current Approved Budget and Schedule:** The budget and schedule approved as part of 10-year CIP for FY24-33, plus any additional budget and schedule changes approved by the Commission as part of construction contract award.
- (+++)  
Negative number reflects cost overrun (or schedule delay) and positive number reflects cost underrun (or ahead of schedule). Projects with a forecasted cost overrun greater than 10%, or forecasted delay of greater than 6 months or 10%, will be highlighted in grey.

Project Name	Active Phase (a) (**)	CIP Approved Budget (b) (+)	Current Approved Budget (c) (++)	Current Forecast Cost (d)	Expenditures to Date (e)	Cost Variance (f=c-d) (+++)	% Cost Changes (g=f/c) (+++)	CIP Completion Date (h) (+)	Approved Completion Date (i) (++)	Forecast Completion Date (j)	Schedule Variance (Days) (k=i-j) (+++)
10035086 Bridge Replacement (2 Bridges)	MP	\$29,371	\$29,371	\$5,194	\$3,760	\$24,177	82%	12/30/27	12/30/27	07/01/24	1,277
<b>Tunnels (Joint)</b>											
10014108 Canyon Tunnel - Hetchy Adit Rehabilitation	DS	\$14,993	\$14,993	\$30,138	\$2,000	(\$15,145)	(101%)	12/30/26	12/30/26	12/31/30	(1,462)
<b>Utilities (Joint)</b>											
10014110 Moccasin Wastewater Treatment Plant	CN	\$12,029	\$12,029	\$15,377	\$2,009	(\$3,348)	(28%)	04/07/26	04/07/26	02/20/28	(684)

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

**\*\* Phase Status Legend**

<span style="border: 1px solid black; padding: 2px;">PL</span> Planning	<span style="border: 1px solid black; padding: 2px;">DS</span> Design
<span style="border: 1px solid black; padding: 2px;">BA</span> Bid & Award	<span style="border: 1px solid black; padding: 2px;">CN</span> Construction
	<span style="border: 1px solid black; padding: 2px;">MP</span> Multiple-Phase

**Footnotes:**

- (+) **CIP Approved Budget and Project Completion Date:** The budget and schedule approved as part of 10-year CIP for FY24-33.
- (++) **Current Approved Budget and Schedule:** The budget and schedule approved as part of 10-year CIP for FY24-33, plus any additional budget and schedule changes approved by the Commission as part of construction contract award.
- (+++)  
Negative number reflects cost overrun (or schedule delay) and positive number reflects cost underrun (or ahead of schedule). Projects with a forecasted cost overrun greater than 10%, or forecasted delay of greater than 6 months or 10%, will be highlighted in grey.



**7. PROJECT STATUS REPORT**

**10035575 - SJPL Valve and Safe Entry Improvement**

**Project Description:** Allow safe entry into all sections of SJPLs for inspection, maintenance, and capital improvements while the remainder of the system stays in operation. This project will allow for isolation of the pipelines to prevent a water engulfment hazard during Permit-Required Confined Space (PRCS) entry of a pipeline. In addition, replacement of the butterfly valves TUV 201 through 401 inside Tesla Valve Vault will be completed under this project.

<b>Program:</b> Water Infrastructure	<b>Project Status:</b> Multi-Phases	<b>Environmental Status:</b> Completed (Various)
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<b>Project Cost:</b>		<b>Project Schedule:</b>	
Approved	\$ 140.66 M	Approved 07/01/19	03/13/28
Forecast	\$ 157.75 M	Forecast 07/01/19	02/28/29
Actual	\$ 37.93 M	Project Percent Complete: 29.0%	

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion	
Current Forecast	A	01/27/22 A	12/25/21 A	05/16/22 A	03/14/25
	B	01/27/22 A	04/21/22 A	11/07/22 A	09/11/24
	C	01/27/22 A	11/28/23 A	05/13/24 A	07/07/25
	D	01/27/22 A	08/27/24	04/01/25	08/30/28
	E	08/10/22 A	09/21/23 A	02/26/24 A	05/22/25

**Progress and Status:**

This project is divided into five (5) sub-projects, (A) Phase 1A – Pipeline 2 Tesla & Oakdale Entry Improvements – HH-1005; (B) Phase 1B – Pipelines 3&4 Tesla & Oakdale Entry Improvements - HH-1006; (C) Phase 2A – Crossover Valve Improvement pipelines 2&3 – HH-1012; (D) Phase 2B/2C – Crossover P4J Removable Spool Piece and Valve Improvements - HH-1016; and (E) Phase 3 - Tesla Surge Tower – HH-1009. For Phase 1A, the contractor continued to work on a corrective action plan for the 42-inch diameter knife gate valves which failed to pass the factory acceptance tests. The valves are scheduled to be retested in next quarter. If they pass acceptance tests, the 42-inch valves will be installed in the upcoming full system outage that begins later this year. For Phase 1B, the contractor continued to work on punch list items and is on track to achieve Substantial and Final Completion next quarter. For Phase 2A, “Notice to Proceed” for Construction Contract HH-1012 was issued in May. The construction duration for HH-1012 reflects the dates and durations issued in the Awarded Contract, which is one month earlier than previously forecast. The contractor is working on work plans and submittals. For Phases 2B & 2C, 95% design was achieved in May. An independent technical review on the 95% design and a third-party cost estimate are being performed. For Phase 3, the contractor started the environmental survey and focused on submitting their work plans and tracking the delivery of the large diameter pipes.



*HH-1009 Segments of Surge Pipes in Factory*

The contractor continues to work with the valve manufacturer to correct the problems. The project team is working with HHWP staff to minimize the impacts if an additional shutdown is required.

**Issues and Challenges:**

As reported previously, the budget and schedule forecasts have been updated to reflect the FY25-34 CIP. For Phase 1A (HH-1005) the quality the 42-inch valves are still a concern.

**10036809 - Moccasin Powerhouse Bypass Upgrades**

**Project Description:** Upgrade/replace high-pressure energy-dissipating valves, control systems, and associated structures to absorb 1,147 feet of pressure head and 430 cubic feet per second flow without damage.

<b>Program:</b> Power Infrastructure	<b>Project Status:</b> Design	<b>Environmental Status:</b> Active (Cat Ex)
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<b>Project Cost:</b>		<b>Project Schedule:</b>	
Approved	\$ 27.39 M	Approved 09/18/20	12/01/27
Forecast	\$ 41.06 M	Forecast 09/18/20	12/01/27
Actual	\$ 1.93 M	Project Percent Complete: 7.1%	

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	12/31/24	01/02/25	09/01/25	08/31/27

**Progress and Status:**

The 35% design review is complete. The design team is addressing comments, coordinating with Operations for the outage requirements, and continuing the design.

**Issues and Challenges:**

As reported previously, the budget forecast has been updated to reflect the FY25-34 CIP. The increase in the construction cost estimate from the high-level estimate in the Alternative Analysis Report in 2020 to the Conceptual Engineering Report completed in March 2023 can be attributed to more detailed scope and pipeline alignment, increase in raw material costs, and an increase in construction labor cost. Another challenge to the project is to coordinate the construction sequencing and outages with multiple other ongoing projects in Moccasin.



*Axial Control Valve Similar to What is Planned for Use in the Moccasin Powerhouse Bypass Upgrade Project*

**10014086 - Moccasin Powerhouse and GSU Rehabilitation**

**Project Description:** The project is broken down into three components: 1) Generator Rehabilitation – replace the entire generator and associated equipment, including new stator cores and coils, rotor poles, relays, and rotor rim; 2) GSU Replacement – replace two of the three existing generator step-up transformers (GSUs), new foundations and oil containment, and relay upgrades; and 3) Power Plant Systems Upgrades – replace the 480 V switchgear, 13.8 kV switchgear, motor control centers, main control boards, protective relays, cooling water piping, and improving oil containment systems.

<b>Program:</b> Power Infrastructure	<b>Project Status:</b> Multi-Phases	<b>Environmental Status:</b> Active (Various)
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<b>Project Cost:</b>		<b>Project Schedule:</b>	
Approved	\$ 66.71 M	Approved 01/04/16	12/03/27
Forecast	\$ 114.03 M	Forecast 01/04/16	12/31/28
Actual	\$ 44.13 M	Project Percent Complete: 72.7%	

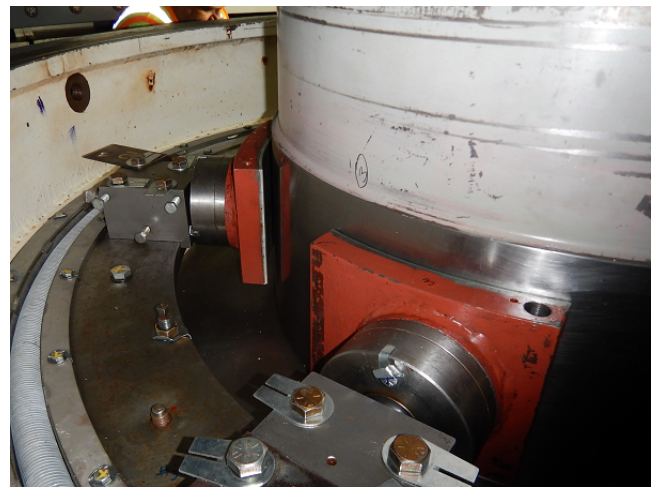
Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion	
Current Forecast	A	09/28/20 A	11/20/20 A	06/07/21 A	06/26/23 A
	B	09/28/20 A	10/30/20 A	08/15/22 A	06/17/25
	C	04/30/25	05/01/25	01/01/26	06/30/28

**Progress and Status:**

This project is divided into 3 subprojects, (A) Moccasin Powerhouse Generator Step-Up (GSU's) Transformers HH-1003R; (B) Moccasin Powerhouse Generators Rewind – DB-121R2; and (C) Moccasin Powerhouse Systems Upgrade. For Subproject A, contract HH-1003R is currently in closeout. For Subproject B, contract DB-121R2 for the Generator M2 rehabilitation, the contractor completed Generator M2 Dry and Wet commissioning in April and partial utilization of Generator M2 in May. The rehabilitation of major components of Generator M1 is meanwhile scheduled for Substantial Completion in April 2025. For Subproject C, the 65% design package was received in May and is under review.

**Issues and Challenges:**

As previously reported, the budget and schedule forecasts have been updated to reflect the FY25-34 CIP. The forecast project costs have increased for the following reasons: Subproject A: HH-1003R had a construction phase cost increase due to unforeseen site conditions and additional construction management costs. Subproject B: DB-121R2 final completion is forecasted to be delayed one year due to supply chain issues. Due to this schedule delay, DB-121R2's construction management costs are forecasted to increase. Subproject C: Moccasin Powerhouse Systems Upgrade project's cost estimate at the end of 35% design was higher than the previous estimate during the planning phase. The overall Subproject C's cost increased due to design detail development and scope refinement, higher construction and procurement costs, additional construction management and support costs, and a one-year construction period extension to allow more time for coordination.



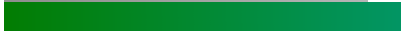




*Setting Up Generator M2 for Commissioning*

**10014087 - Warnerville Substation Rehabilitation**

**Project Description:** Remaining work includes the replacement of four oil circuit breakers, bushings, surge arrestors, disconnect switches, current voltage transformer, insulators, relay protection, and other ancillary equipment.

<b>Program:</b> Power Infrastructure	<b>Project Status:</b> Construction	<b>Environmental Status:</b> Active (Cat Ex)
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<b>Project Cost:</b>		<b>Project Schedule:</b>	
Approved	 \$ 34.25 M	Approved 09/01/15	 11/25/26
Forecast	 \$ 37.41 M	Forecast 09/01/15	 11/25/26
Actual	 \$ 23.74 M	Project Percent Complete: 70.0%	

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion	
Current Forecast	A	03/31/16 A	01/10/17 A	11/26/18 A	12/31/24
	B	TBD	TBD	TBD	TBD
	C	06/28/24 A	08/30/24	03/01/25	02/28/26

**Progress and Status:**

This project is divided into 3 subprojects. For Subproject A Warnerville Substation Rehabilitation Phase 1 – DB-127R, the project team in coordination with the City Attorney’s office is working to close out the construction contract. For Subproject B Warnerville “breaker failure contingency plan” JOC-94 (which would be issued only if needed), contingency contract would provide emergency temporary replacement of any breakers that fail until they can be permanently replaced. For Subproject C Warnerville Substation Rehabilitation Phase 2, the design team issued the 100% design package and construction sequencing documents for review and comment. PG&E’s review of the design package is expected in the next quarter.

**Issues and Challenges:**

As previously reported, the budget forecast has been updated to reflect the FY25-34 CIP. The forecasted cost is higher than the approved budget due to higher forecasted construction management costs to administer the Subproject C (Phase 2) construction contract and to provide specialized electrical inspection services and start-up and commissioning support needed for this highly technical electrical project.



Warnerville Substation Ph 2 South Yard PG&E Tie-in Upgrade



**10039568 - Moccasin Switchyard Rehabilitation**

**Project Description:** Replace 115 kV disconnect switches, replace 115 kV bus configuration, replace 230 kV disconnect switches, change 230 kV bus configuration, replace 115 kV circuit breakers, add surge arresters, perform a fault study, perform a grounding study, improve switchyard grading, and replace fencing .

<b>Program:</b> Power Infrastructure	<b>Project Status:</b> Planning	<b>Environmental Status:</b> Not Initiated (TBD)
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<b>Project Cost:</b>		<b>Project Schedule:</b>	
Approved	\$ 9.74 M	Approved 11/01/22	11/30/28
Forecast	\$ 19.71 M	Forecast 11/01/22	01/31/30
Actual	\$ 0.21 M	Project Percent Complete: 5.1%	

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	11/30/26	04/01/27	08/01/27	07/31/29

**Progress and Status:**

The project team worked with the design consultant to confirm the scope of work for the planning phase. The project planning phase will start in July 2024.

**Issues and Challenges:**

As previously reported, the budget and schedule forecasts have been updated to reflect the FY25-34 CIP. The total project cost increased due to updated work plans and revised escalation cost. Also, the schedule change is due to a delay in setting up a professional services task order to perform the planning study due to shortage of staff from both the consultant and SFPUC.



*Existing Moccasin Switchyard*

**10014088 - Moccasin Penstock Rehabilitation**

**Project Description:** The project includes rehabilitation of anchor blocks, penstock coating, penstock saddles, air valves, large diameter butterfly valves, bifurcation sections, and flow meters; and upgrade of electrical system, power transformers, the standby generator in the West Portal Valve House, and the bulkhead isolation valves in the surge tower.

<b>Program:</b> Joint Infrastructure	<b>Project Status:</b> Planning	<b>Environmental Status:</b> Not Initiated (EIR)
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<b>Project Cost:</b>		<b>Project Schedule:</b>	
Approved	\$ 47.25 M	Approved 02/01/16	02/28/28
Forecast	\$ 331.17 M	Forecast 02/01/16	12/08/34
Actual	\$ 8.21 M	Project Percent Complete: 18.1%	

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	09/04/29	09/06/30	05/07/31	05/07/34

**Progress and Status:**

The revised preliminary draft Alternative Analysis Report (AAR) and summary of changes memo were prepared in June. A workshop was held in June to discuss strategy moving forward. Independent Technical Review was completed and the comments were incorporated into the draft AAR.

**Issues and Challenges:**

As previously reported, the budget and schedule forecasts have been updated to reflect the FY25-34 CIP. As reported previously, the budget and schedule forecasts have increased significantly due to the assumed scope change from rehabilitating the existing penstocks to the alternative for constructing a new drop shaft, a tunnel and above grade pipes. While a preferred alternative has not yet been selected, the cost estimate for this alternative was used for cost forecasting.



*Coating of Exposed Pipes upon Completion of Phased Array Ultrasonic Testing*

**10039680 - Moccasin Engineering and Records Building**

**Project Description:** Construct a 25,000 square-foot, two-story building in the area currently occupied by Engineering, Records, and Energy Services trailers.

<b>Program:</b> Joint Infrastructure	<b>Project Status:</b> Planning	<b>Environmental Status:</b> Not Initiated
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<b>Project Cost:</b>		<b>Project Schedule:</b>	
Approved	\$ 60.72 M	Approved 12/14/22	06/30/31
Forecast	\$ 88.73 M	Forecast 12/14/22	05/31/29
Actual	\$ 0.70 M	Project Percent Complete: 2.8%	

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	12/31/25	07/01/26	02/01/27	11/30/28

**Progress and Status:**

Conceptual design was completed in June.

**Issues and Challenges:**

As previously reported, the budget and schedule forecasts have been updated to reflect the FY25-34 CIP. The budget, schedule, and scope changes are a result of modifications to the scope, escalation in costs since the Alternative Analysis Report estimate, and an accelerated schedule.



Concept Design for Moccasin Engineering and Archive Building

**10032903 - O'Shaughnessy Dam Outlet Works Phase I**

**Project Description:** O'Shaughnessy Dam (OSH) was completed in 1923 and raised in 1938. The original outlet works including gates and valves have been in services for more than 98 years. Inspections, condition assessments, and studies concluded that improvements and refurbishments of the outlet works system are needed to ensure safety and reliability. The work will be implemented in two phases. This project is to cover the Phase 1 work. The O'Shaughnessy Dam Outlet Works Phase 1 Project addresses the identified deficiencies of the existing outlet works system at OSH. Work under Phase 1 will include: (1) replacement of two existing instream flow release valves; (2) improvements to access and drainage in the dam gallery and stairs; (3) installation of new bulkheads for the outlet intake; and (4) a planning phase and scoping for the slide gates and drum gates improvements.

<b>Program:</b> Joint Infrastructure	<b>Project Status:</b> Multi-Phases	<b>Environmental Status:</b> Completed (Cat Ex)
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<b>Project Cost:</b>		<b>Project Schedule:</b>	
Approved	\$ 47.98 M	Approved 02/01/18	09/17/25
Forecast	\$ 43.73 M	Forecast 02/01/18	06/30/26
Actual	\$ 15.82 M	Project Percent Complete: 36.4%	

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	A	12/02/22 A	01/13/23 A	05/24/24 A
	B	07/16/20 A	05/03/24 A	01/01/25
	C	12/02/22 A	03/13/23 A	08/28/23 A

**Progress and Status:**

Subproject A (Bulkheads): The design phase under DB-135 was completed. The Bulkhead fabrication trade package was awarded under DB-135. Subproject B (Drainage & Miscellaneous Dam Improvements): The bid package was advertised in May and bids were opened in June. Subproject C (Instream Flow Release Valve Replacement): Construction under HH-1011 contract is currently in progress. The existing piping was removed to allow the construction of the new crane foundation. Subprojects D (Slide Gate) and E (Drum Gate): The engineering consultant continued work on the needs assessment.

**Issues and Challenges:**

As reported previously, the budget and schedule forecasts have been updated to reflect the FY25-34 CIP. In addition, this quarter the forecasted project completion was extended due to longer than expected duration to coordinate the proposed construction water treatment and discharge requirements for the Drainage & Miscellaneous Improvement (Subproject B) contract. A decrease in the forecasted budget is a result from more favorable construction bid prices for the Instream Flow Release Valve Replacement Project and the New Bulkhead System Project.



*New 36-inch Knife Gate Valve Installed at the Diversion Tunnel*



**10037351 - Moccasin Dam & Reservoir Long-Term Improvements**

**Project Description:** A heavy storm event in 2018 caused significant damage to the auxiliary spillway, upstream trash rack and diversion, and downstream area. Subsequent engineering studies concluded that improvements are needed to increase the spillway capacity to safely pass the updated design flood without overtopping the existing embankment dam. This project is needed for dam safety. This project will construct a new concrete spillway with adequate flow capacity along the alignment of the existing auxiliary spillway and additional flood protection to the Moccasin project facilities.

<b>Program:</b> Joint Infrastructure	<b>Project Status:</b> Planning	<b>Environmental Status:</b> Not Initiated (TBD)
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<b>Project Cost:</b>		<b>Project Schedule:</b>	
Approved	\$ 73.18 M	Approved 05/03/21	06/30/28
Forecast	\$ 142.19 M	Forecast 05/03/21	12/29/34
Actual	\$ 4.15 M	Project Percent Complete: 5.8%	

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast A	06/29/29	07/02/29	03/30/30	12/31/33

**Progress and Status:**

The revised draft Conceptual Engineering Report was completed in June. The biological, cultural, wildlife, and terrestrial surveys for the project's environmental permitting continued.

**Issues and Challenges:**

As reported previously, the budget and schedule forecasts have been updated to reflect the FY25-34 CIP. The higher forecasted cost and longer schedule duration are a result of findings from an updated engineering study of the conceptual layout that included significant additional scope for a higher spill crest elevation to provide additional operational and storage flexibility. The higher forecasted cost and extended schedule reflect a more accurate estimate of the project scope requirements, site constraints, seasonal and operational limitations, more extensive environmental approval process, and additional escalation cost for the longer construction duration. However, preliminary results from the additional hydrological studies and geotechnical evaluations indicated potential to reduce scope and lower cost. This will be further evaluated in the near future.








*Physical Model of the Conceptual Design*

**10014115 - Cherry Dam Spillway - Short Term Improvements**

**Project Description:** Cherry Dam Spillway is a 334 foot-wide ogee-type concrete weir that discharges into an unlined adjacent channel. The spillway capacity is designed for 52,000 cfs. A spill of 1,500 cfs in 2010 resulted in significant erosion damage to the unlined spill channel, largescale erosion along the western segment of Cherry Dam, and flooding of Cherry Power Tunnel Adit and a campground downstream. Engineering studies showed that remedial measures and erosion protection for the spill channel are needed to ensure that spill flows from Cherry Valley Dam spillway can be contained without erosion damage to the existing embankment dam and downstream area. Studies also found that long-term improvement to the spillway is needed to increase the hydraulic capacity of the spillway to safely pass the design flood. This project is a short-term interim solution until the long-term spillway improvements are implemented. This project will re-establish containment for the breached spill channel section from the 2010 spill and will improve the flood protection for the dam and downstream area under a normal spill event.

<b>Program:</b> Joint Infrastructure	<b>Project Status:</b> Planning	<b>Environmental Status:</b> Active (MND)
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<b>Project Cost:</b>		<b>Project Schedule:</b>	
Approved		\$ 24.86 M	Approved 03/01/21  11/01/27
Forecast		\$ 14.89 M	Forecast 03/01/21  06/30/27
Actual		\$ 1.95 M	Project Percent Complete: 12.1%

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	12/31/25	07/01/25	02/28/26	12/31/26

**Progress and Status:**

The combined Alternatives Analysis-Conceptual Engineering Report was finalized in June 2024. The design phase will start in July.

**Issues and Challenges:**

As reported previously, the budget and schedule forecasts have been updated to reflect the FY25-34 CIP. A decrease in the forecast cost is a result of reducing the flood protection improvement for the upper spill channel and eliminating improvements for the lower spill channel.



*Erosional Channel in the Project Area, Facing North (April 2024)*

**10039119 - Early Intake Dam - Long Term**

**Project Description:** Replace the existing deteriorated dam with a new concrete dam or diversion structure to provide deliveries from the Tuolumne River watershed, into Mountain Tunnel, for SFPUC customers during emergencies.

<b>Program:</b> Joint Infrastructure	<b>Project Status:</b> Planning	<b>Environmental Status:</b> Not Initiated (TBD)
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<b>Project Cost:</b>		<b>Project Schedule:</b>	
Approved	\$ 88.74 M	Approved 06/30/23	06/30/31
Forecast	\$ 100.07 M	Forecast 06/30/23	12/31/35
Actual	\$ 0.51 M	Project Percent Complete: 1.5%	

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	06/28/30	07/01/30	04/01/31	12/31/34

**Progress and Status:**

The project team continued work on the alternatives analysis and biological and topographic surveys.

**Issues and Challenges:**

As previously reported, the budget and schedule forecasts have been updated to reflect the FY25-34 CIP. An updated engineering study of conceptual alternatives with more detailed evaluation found that more extensive scope and environmental permitting efforts are needed to remove and/or replace the dam. The increase in schedule and budget reflects higher construction and development costs due to challenges related to site constraints, seasonal and operational restrictions, management of river flows during construction, environmental approvals, environmental compliance requirements, and additional cost escalation. The cost and schedule will be re-evaluated when the Draft Alternative Analysis Report is complete.



*Early Intake Dam - Downstream side*

**10014114 - Mountain Tunnel Improvement Project**

**Project Description:** Mountain Tunnel (MT) was constructed between 1917 and 1925 and is a critical, nonredundant link in the Regional Water System, conveying SFPUC Tuolumne River water supply from Kirkwood Powerhouse to Priest Reservoir. Due to the tunnel's 90 years of operation, deferred maintenance, and construction deficiencies from the early 1900s, sections of the tunnel have deteriorated, some more extensively than others. The 2017 MT Inspection and Repairs Project provided an update to the Condition Assessment conducted in 2008. Short-term repairs were also made in 2017 and 2018 to reduce the risk of failures in the concrete lining prior to implementation of the long term project. The MT Improvements (Rehabilitation) Project was selected for design and construction of the preferred engineering alternative that will keep this vital component of the Regional Water System in reliable service for years to come. The budget and schedule are based on the MT Improvement Project construction phase, which is anticipated to take place between 2021 and 2027. For the Mountain Tunnel Improvements Project, the Water portion will rehabilitate the inside of the tunnel and extend the siphon at South Fork, along with related safety improvements to the roadways that access the Mountain Tunnel. The Joint portion of the Mountain Tunnel Improvements consists of work related to the construction of the Flow Control Facility and Priest Adit Tunnel.

<b>Program:</b> Joint Infrastructure	<b>Project Status:</b> Construction	<b>Environmental Status:</b> Completed
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<b>Project Cost:</b>		<b>Project Schedule:</b>	
Approved		Approved 10/03/11	
Forecast	\$ 238.22 M	Forecast 10/03/11	
Actual	\$ 268.67 M	Project Percent Complete: 60.1%	
	\$ 139.66 M		

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion	
Current Forecast	A	01/14/20 A	11/13/19 A	01/29/21 A	12/03/26
	B	N/A	12/11/23 A	09/01/24	10/01/25

**Progress and Status:**

During this quarter, construction work for HH-1000R focused on completing the access stairs for the 150-foot deep Flow Control Facility shaft; continuing work on the concrete invert slab in the Priest Adit; and continuing excavation and support of the large cut wall near Adit 8/9. Contract HH-1013 (Moccasin Water Treatment Plant) was awarded in May. Discussions are taking place on alternative delivery methods to complete the required improvements at South Fork.

**Issues and Challenges:**

As previously reported, the budget forecast has been updated to reflect the FY25-34 CIP. The additional cost reflects the additional funds that may be needed for an additional contract to complete work at South Fork, additional construction management services, and continued site security.



*Priest Adit with Concrete Invert*



**10037077 - Moccasin Old Powerhouse Hazard Mitigation**

**Project Description:** Design and install mitigation measures to prevent the building from collapsing and to prevent hazardous materials (such as lead-based paint and asbestos) from contaminating Moccasin Reservoir.

<b>Program:</b> Joint Infrastructure	<b>Project Status:</b> Planning	<b>Environmental Status:</b> Not Initiated (EIR)
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<b>Project Cost:</b>		<b>Project Schedule:</b>	
Approved	\$ 17.40 M	Approved 01/01/21	06/30/28
Forecast	\$ 13.47 M	Forecast 01/01/21	07/01/30
Actual	\$ 0.73 M	Project Percent Complete: 7.8%	

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	06/30/27	07/03/28	04/01/29	01/01/30

**Progress and Status:**

Alkali Silica Resistivity (ASR) historical reports were completed and incorporated into the final Alternatives Analysis Report (AAR). The highest ranked alternative from the AAR was to demolish the existing structure to mitigate the hazards. It is anticipated that an Environmental Impact Report will be required for this project. The Conceptual Engineering Report started in June for the highest ranked alternative.

**Issues and Challenges:**

As previously reported, the budget and schedule forecasts have been updated to reflect the FY25-34 CIP. The budget, schedule, and scope changes are a result of the decreased construction costs associated with the highest ranked alternative, but also the increased schedule duration due to a longer environmental phase.



*Existing Moccasin Old Powerhouse*

**10035086 - Bridge Replacement (2 Bridges)**

**Project Description:** This project includes rehabilitation and/or replacement of O'Shaughnessy Adit Access Bridge and Lake Eleanor Dam Bridge.

<b>Program:</b> Joint Infrastructure	<b>Project Status:</b> Multi-Phases	<b>Environmental Status:</b> Not Applicable
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<b>Project Cost:</b>		<b>Project Schedule:</b>	
Approved	\$ 29.37 M	Approved 02/27/20	12/30/27
Forecast	\$ 5.19 M	Forecast 02/27/20	07/01/24
Actual	\$ 3.76 M	Project Percent Complete: 25.2%	

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	N/A	N/A	N/A	N/A

**Progress and Status:**

This project is divided into 2 subprojects, (A) Lake Eleanor Dam Bridge; and (B) O'Shaughnessy Adit Access Bridge. For the Lake Eleanor Dam Bridge, the combined draft Alternative Analysis Report – Conceptual Engineering Report for the interim repair was completed. For the O'Shaughnessy Adit Access Bridge, the project team completed the 65% design.

**Issues and Challenges:**

As previously reported, the budget and schedule forecasts have been updated to reflect the FY25-34 CIP. The budget, schedule, and scope changes are a result of moving the bridge replacement design and construction scopes to the respective Canyon Tunnel - Hetchy Adit Rehabilitation and Eleanor Dam Rehabilitation projects, respectively.



*Concrete Footings and Piers of the O'Shaughnessy Adit Access Bridge*

**10014108 - Canyon Tunnel - Hetchy Adit Rehabilitation**

**Project Description:** The project includes installation of a new reinforced concrete plug downstream of the existing plug.

<b>Program:</b> Joint Infrastructure	<b>Project Status:</b> Design	<b>Environmental Status:</b> Active (EIR)
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<b>Project Cost:</b>		<b>Project Schedule:</b>	
Approved	\$ 14.99 M	Approved 02/03/14	12/30/26
Forecast	\$ 30.14 M	Forecast 02/03/14	12/31/30
Actual	\$ 2.00 M	Project Percent Complete: 19.6%	

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	08/31/26	09/01/26	05/01/27	05/01/30

**Progress and Status:**

The independent technical review of the 95% design package was completed. The environmental evaluation, including wetland delineation, golden eagle and California spotted owl surveys, ambient noise measurement, archeological survey, and historic resources evaluation continued.

**Issues and Challenges:**

As previously reported, the budget and schedule forecasts have been updated to reflect the FY25-34 CIP. The budget, schedule, and scope changes are a result of moving the O'Shaughnessy Adit Bridge's scope from the Bridge Replacement Project to this project.



*Canyon Tunnel - Hetchy Adit Bulkhead*

**10014110 - Moccasin Wastewater Treatment Plant**

**Project Description:** This project will replace the existing plant with a package two-train sequencing batch reactor (SBR) plant with grit removal and screening facilities, upgraded electrical and flow monitoring systems, flow equalization, SCADA instrumentation and automation features, and related site improvements.

<b>Program:</b> Joint Infrastructure	<b>Project Status:</b> Construction	<b>Environmental Status:</b> Completed (Cat Ex)
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<b>Project Cost:</b>		<b>Project Schedule:</b>	
Approved	\$ 12.03 M	Approved 01/03/22	04/07/26
Forecast	\$ 15.38 M	Forecast 01/03/22	02/20/28
Actual	\$ 2.01 M	Project Percent Complete: 24.4%	

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	02/22/23 A	10/12/23 A	06/03/24 A	12/29/26

**Progress and Status:**

Construction contract HH-1010 was initiated in June. The construction duration for HH-1010 reflects the dates and durations issued in the Awarded Contract, which is eight months earlier than previously forecast.

**Issues and Challenges:**

As previously reported, the budget and schedule forecasts have been updated to reflect the FY25-34 CIP. Additional scope items, including transformer upgrade, power pole replacement, and pump station improvements, resulted in additional budget and schedule.



*Existing Moccasin Wastewater Treatment Plant*



8. ON-GOING CONSTRUCTION\*

Construction Contract	Schedule			Budget		Variance (Approved - Forecast)		Percent Complete
	NTP Date	Approved Construction Final Completion	Current Forecasted Construction Final Completion**	Approved Contract Cost	Current Forecasted Cost**	Schedule (Cal Days)	Cost	
<b>Water Infrastructure</b>								
10035575 - SJPL Valve & Safe Entry Improvement - (Contract A, HH-1005)	05/16/22	09/13/24	03/14/25	\$15,218,603	\$15,218,603	(182)	\$0	71.9%
10035575 - SJPL Valve & Safe Entry Improvement - (Contract B, HH-1006)	11/07/22	09/11/24	09/11/24	\$11,974,216	\$11,974,216	0	\$0	88.8%
10035575 - SJPL Valve & Safe Entry Improvement - (Contract C, HH-1012)	05/13/24	07/07/25	07/07/25	\$5,602,000	\$5,602,000	0	\$0	0.0%
10035575 - SJPL Valve & Safe Entry Improvement - (Contract E, HH-1009)	02/26/24	05/22/25	05/22/25	\$11,072,938	\$11,072,938	0	\$0	0.0%
<b>Power Infrastructure</b>								
10014086 - Moccasin Powerhouse Generator Rehab - (Contract B, DB-121R2)	08/15/22	06/17/25	06/17/25	\$27,321,037	\$27,321,037	0	\$0	77.4%
10014087 - Warnerville Substation - (DB-127R)	11/26/18	03/31/24	12/31/24	\$14,591,450	\$14,591,450	(275)	\$0	95.0%
10035721 - Transmission Lines 7/8 Upgrade - (HH-1007)	09/28/22	06/05/24	06/05/24	\$24,197,640	\$24,197,640	0	\$0	100.0%
<b>Joint Infrastructure</b>								
10032903 - O'Shaughnessy Dam Outlet Works Phase 1 - Instream Flow Release (Contract C, HH-1011)	08/28/23	05/24/25	05/24/25	\$5,965,627	\$6,231,260	0	(\$265,633)	46.3%
10032903 - O'Shaughnessy Dam Outlet Works Phase 1 - Bulkhead (Contract C, DB-135)	05/24/24	07/01/25	07/01/25	\$6,780,000	\$6,780,000	0	\$0	0.0%
10014114 - Mountain Tunnel Improvement - (HH-1000R)	01/29/21	12/03/26	12/03/26	\$145,188,424	\$147,708,424	0	(\$2,520,000)	56.5%

Note: \* This table reflects Active Construction Contracts with an original contract amount greater than \$1M.

\*\* The Forecasted Cost includes all approved, pending, and potential change orders; and Forecast Final Completion includes all approved, pending, and potential change orders, and trends.

Construction Contract	Schedule			Budget		Variance (Approved - Forecast)		Percent Complete
	NTP Date	Approved Construction Final Completion	Current Forecasted Construction Final Completion**	Approved Contract Cost	Current Forecasted Cost**	Schedule (Cal Days)	Cost	
10014110 - Moccasin Wastewater Treatment Plant - (HH-1010)	06/03/24	12/29/26	12/29/26	\$7,507,640	\$7,507,640	0	\$0	0.0%

	Approved	Current	Variance	
	Contract Cost	Forecast Cost	Cost	Percent
<b>Program Total for On-Going Construction</b>	<b>\$275,419,575</b>	<b>\$278,205,208</b>	<b>(\$2,785,633)</b>	<b>(1%)</b>

Note: \* This table reflects Active Construction Contracts with an original contract amount greater than \$1M.

\*\* The Forecasted Cost includes all approved, pending, and potential change orders; and Forecast Final Completion includes all approved, pending, and potential change orders, and trends.

## 9. PROJECTS IN CLOSEOUT

Project Title	Current Approved Construction Phase Completion	Actual Construction Phase Completion	Current Approved Construction Phase Budget	Construction Phase Expenditures To Date
<b>Power Infrastructure</b>				
<b>Transmission Lines</b>				
10035721 - Transmission Lines 7/8 Upgrades	07/26/24	06/05/24	\$26,378,155	\$24,197,640
<b>TOTAL</b>			<b>\$26,378,155</b>	<b>\$24,197,640</b>

**10. COMPLETED PROJECTS**

*There are no completed projects.*

**APPENDICES**

**A PROJECT DESCRIPTIONS**

**B APPROVED PROJECT LEVEL SCHEDULES / BUDGETS**

**C LIST OF ACRONYMS**



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**APPENDIX A. PROJECT DESCRIPTIONS****WATER INFRASTRUCTURE****Water Conveyance (Water)****10035575 SJPL Valve and Safe Entry Improvement**

Allow safe entry into all sections of SJPLs for inspection, maintenance, and capital improvements while the remainder of the system stays in operation. This project will allow for isolation of the pipelines to prevent a water engulfment hazard during Permit-Required Confined Space (PRCS) entry of a pipeline. In addition, replacement of the butterfly valves TUV 201 through 401 inside Tesla Valve Vault will be completed under this project.

**Water Infrastructure Project Development****10014072 WATER ONLY/PROJ DEV**

The project provides programmatic support for Water funded capital projects. The following charges are allocated to the PD Account: 1) task orders for overall program management and project prioritization tasks, where the costs should be distributed over all CIP Projects; 2) infrastructure and Hetch Hetchy staff performing program-level tasks, including capital plan development, budget management (including fund management and cost reallocations), and unifier and quarterly report generation tasks, where the costs should be distributed over all CIP Projects; 3) portal support for the existing SharePoint Portal (including document management and project dashboard reporting); 4) work outreach program; and 5) City Attorney charges for contract development.

**APPENDIX A. PROJECT DESCRIPTIONS****POWER INFRASTRUCTURE****Powerhouse****10036809 Moccasin Powerhouse Bypass Upgrades**

Upgrade/replace high-pressure energy-dissipating valves, control systems, and associated structures to absorb 1,147 feet of pressure head and 430 cubic feet per second flow without damage.

**10014086 Moccasin Powerhouse and GSU Rehabilitation**

The project is broken down into three components: 1) Generator Rehabilitation – replace the entire generator and associated equipment, including new stator cores and coils, rotor poles, relays, and rotor rim; 2) GSU Replacement – replace two of the three existing generator step-up transformers (GSUs), new foundations and oil containment, and relay upgrades; and 3) Power Plant Systems Upgrades – replace the 480 V switchgear, 13.8 kV switchgear, motor control centers, main control boards, protective relays, cooling water piping, and improving oil containment systems.

**Switchyard & Substations (Power)****10014087 Warnerville Substation Rehabilitation**

Remaining work includes the replacement of four oil circuit breakers, bushings, surge arrestors, disconnect switches, current voltage transformer, insulators, relay protection, and other ancillary equipment.

**10039568 Moccasin Switchyard Rehabilitation**

Replace 115 kV disconnect switches, replace 115 kV bus configuration, replace 230 kV disconnect switches, change 230 kV bus configuration, replace 115 kV circuit breakers, add surge arrestors, perform a fault study, perform a grounding study, improve switchyard grading, and replace fencing.

**Transmission Lines****10035721 Transmission Lines 7/8 Upgrades**

This project develops the scope of work, design, and contract documents necessary to bid, award, and manage the reconductoring contract. Reconductoring will include replacement of the existing 115 kV conductors on Lines 7/8 from Warnerville to Standiford substations, resulting in increased capacity and resolving clearance detections. The project is primarily funded by renewable generation developers interconnecting to the California electrical grid who have an adverse impact on Lines 7/8. Remaining funding will come from capital funds previously allocated to the Transmission Line Clearance Mitigation Project (10014089).

**Power Infrastructure Project Development****10014092 POWER ONLY/PROJ DEVELP**

The project provides programmatic support for Power funded capital projects. The following charges are allocated to the PD Account: 1) task orders for overall program management and project prioritization tasks, where the costs should be distributed over all CIP Projects; 2) infrastructure and Hetch Hetchy staff performing program-level tasks, including capital plan development, budget management (including fund management and cost reallocations), and unifier and quarterly report generation tasks, where the costs should be distributed over all CIP Projects; 3) portal support for the existing SharePoint Portal (including document management and project dashboard reporting); 4) work outreach program; and 5) City Attorney charges for contract development.



## APPENDIX A. PROJECT DESCRIPTIONS

### JOINT INFRASTRUCTURE

#### Water Conveyance (Joint)

##### 10014088 Moccasin Penstock Rehabilitation

The project includes rehabilitation of anchor blocks, penstock coating, penstock saddles, air valves, large diameter butterfly valves, bifurcation sections, and flow meters; and upgrade of electrical system, power transformers, the standby generator in the West Portal Valve House, and the bulkhead isolation valves in the surge tower.

#### Buildings (Joint)

##### 10039680 Moccasin Engineering and Records Building

Construct a 25,000 square-foot, two-story building in the area currently occupied by Engineering, Records, and Energy Services trailers.

#### Dams & Reservoirs (Joint)

##### 10032903 O'Shaughnessy Dam Outlet Works Phase I

O'Shaughnessy Dam (OSH) was completed in 1923 and raised in 1938. The original outlet works including gates and valves have been in services for more than 98 years. Inspections, condition assessments, and studies concluded that improvements and refurbishments of the outlet works system are needed to ensure safety and reliability. The work will be implemented in two phases. This project is to cover the Phase 1 work. The O'Shaughnessy Dam Outlet Works Phase 1 Project addresses the identified deficiencies of the existing outlet works system at OSH. Work under Phase 1 will include: (1) replacement of two existing instream flow release valves; (2) improvements to access and drainage in the dam gallery and stairs; (3) installation of new bulkheads for the outlet intake; and (4) a planning phase and scoping for the slide gates and drum gates improvements.

##### 10037351 Moccasin Dam & Reservoir Long-Term Improvements

A heavy storm event in 2018 caused significant damage to the auxiliary spillway, upstream trash rack and diversion, and downstream area. Subsequent engineering studies concluded that improvements are needed to increase the spillway capacity to safely pass the updated design flood without overtopping the existing embankment dam. This project is needed for dam safety. This project will construct a new concrete spillway with adequate flow capacity along the alignment of the existing auxiliary spillway and additional flood protection to the Moccasin project facilities.

##### 10014115 Cherry Dam Spillway - Short Term Improvements

Cherry Dam Spillway is a 334 foot-wide ogee-type concrete weir that discharges into an unlined adjacent channel. The spillway capacity is designed for 52,000 cfs. A spill of 1,500 cfs in 2010 resulted in significant erosion damage to the unlined spill channel, largescale erosion along the western segment of Cherry Dam, and flooding of Cherry Power Tunnel Adit and a campground downstream. Engineering studies showed that remedial measures and erosion protection for the spill channel are needed to ensure that spill flows from Cherry Valley Dam spillway can be contained without erosion damage to the existing embankment dam and downstream area. Studies also found that long-term improvement to the spillway is needed to increase the hydraulic capacity of the spillway to safely pass the design flood. This project is a short-term interim solution until the long-term spillway improvements are implemented. This project will re-establish containment for the breached spill channel section from the 2010 spill and will improve the flood

protection for the dam and downstream area under a normal spill event.

### **10039119 Early Intake Dam - Long Term**

Replace the existing deteriorated dam with a new concrete dam or diversion structure to provide deliveries from the Tuolumne River watershed, into Mountain Tunnel, for SFPUC customers during emergencies.

## **Mountain Tunnel**

### **10014114 Mountain Tunnel Improvement Project**

Mountain Tunnel (MT) was constructed between 1917 and 1925 and is a critical, nonredundant link in the Regional Water System, conveying SFPUC Tuolumne River water supply from Kirkwood Powerhouse to Priest Reservoir. Due to the tunnel's 90 years of operation, deferred maintenance, and construction deficiencies from the early 1900s, sections of the tunnel have deteriorated, some more extensively than others. The 2017 MT Inspection and Repairs Project provided an update to the Condition Assessment conducted in 2008. Short-term repairs were also made in 2017 and 2018 to reduce the risk of failures in the concrete lining prior to implementation of the long term project. The MT Improvements (Rehabilitation) Project was selected for design and construction of the preferred engineering alternative that will keep this vital component of the Regional Water System in reliable service for years to come. The budget and schedule are based on the MT Improvement Project construction phase, which is anticipated to take place between 2021 and 2027. For the Mountain Tunnel Improvements Project, the Water portion will rehabilitate the inside of the tunnel and extend the siphon at South Fork, along with related safety improvements to the roadways that access the Mountain Tunnel. The Joint portion of the Mountain Tunnel Improvements consists of work related to the construction of the Flow Control Facility and Priest Adit Tunnel.

## **Powerhouse (Joint)**

### **10037077 Moccasin Old Powerhouse Hazard Mitigation**

Design and install mitigation measures to prevent the building from collapsing and to prevent hazardous materials (such as lead-based paint and asbestos) from contaminating Moccasin Reservoir.

## **Roads & Bridges (Joint)**

### **10035086 Bridge Replacement (2 Bridges)**

This project includes rehabilitation and/or replacement of O'Shaughnessy Adit Access Bridge and Lake Eleanor Dam Bridge.

## **Tunnels (Joint)**

### **10014108 Canyon Tunnel - Hetchy Adit Rehabilitation**

The project includes installation of a new reinforced concrete plug downstream of the existing plug.

## **Utilities (Joint)**

### **10014110 Moccasin Wastewater Treatment Plant**

This project will replace the existing plant with a package two-train sequencing batch reactor (SBR) plant with grit removal and screening facilities, upgraded electrical and flow monitoring systems, flow equalization, SCADA instrumentation and automation features, and related site improvements.

## **Joint Infrastructure Project Development**

**10014116 JOINT - PROJECT DEVELOPMENT**

The following charges are allocated to the joint funded PD Account: 1) task orders for overall program management and project prioritization tasks, where the costs should be distributed over all CIP Projects; 2) infrastructure and HHWP staff performing program-level tasks, including capital plan development, budget management (including fund management, and cost reallocations), and unifier and quarterly report generation tasks, where the costs should be distributed over all CIP projects; 3) portal support for the existing SharePoint portal (including document management and project dashboard reporting); 4) work outreach program; and 5) City Attorney contract development charges.



**APPENDIX C. LIST OF ACRONYMS**

<b>AAR</b>	Alternative Analysis Report
<b>ASR</b>	Alkali Silica Resistivity
<b>CEQA</b>	California Environmental Quality Act
<b>CER</b>	Conceptual Engineering Report
<b>CIP</b>	Capital Improvement Program
<b>CM/GC</b>	Construction Manager/General Contractor
<b>CFS</b>	Cubic Feet Per Second
<b>DB</b>	Design, Build
<b>EIR</b>	Environmental Impact Report
<b>FY</b>	Fiscal Year
<b>GSU</b>	Generator Step-Up
<b>HCIP</b>	Hetch Hetchy Capital Improvement Program
<b>HH</b>	Hetch Hetchy
<b>HHWP</b>	Hetch Hetchy Water and Power
<b>JOC</b>	Job Order Contract
<b>kV</b>	Kilovolts
<b>MND</b>	Mitigated Negative Declaration
<b>MPH</b>	Moccasin Powerhouse
<b>NHC</b>	Northwest Hydraulic Consultants
<b>NTP</b>	Notice to Proceed
<b>MT</b>	Mountain Tunnel
<b>OSH</b>	O'Shaughnessy Dam
<b>PD</b>	Project Development
<b>PRCS</b>	Permit Required Confined Space
<b>R&amp;R</b>	Renewal and Replacement
<b>SBR</b>	Sequence Batch Reactor
<b>SCADA</b>	Supervisory Control and Data Acquisition
<b>SD</b>	Schematic Design
<b>SFPUC</b>	San Francisco Public Utilities Commission
<b>SJPL</b>	San Joaquin Pipeline
<b>TBD</b>	To Be Determined
<b>TUV</b>	Tesla Ultra Violet
<b>WSIP</b>	Water System Improvement Program
<b>WWTP</b>	Wastewater Treatment Plant

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