



DATE: January 2, 2024

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

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

RE: Hetch Hetchy Capital Improvement Program Quarterly Report
 Quarterly Report (1st Quarter / FY 2023-2024)

Enclosed please find the Hetch Hetchy Capital Improvement Program (HCIP) Quarterly Report for the 1st Quarter (Q1) 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 July 1, 2023 to September 30, 2023.

This quarterly report incorporates all the changes made to the Hetch Hetchy Capital Improvement projects according to the 10-Year Hetch Hetchy Water and Power Enterprise Capital Plan for FY2023-24 to FY2032-33, presented to and approved by this Commission on February 14, 2023.

Attachment

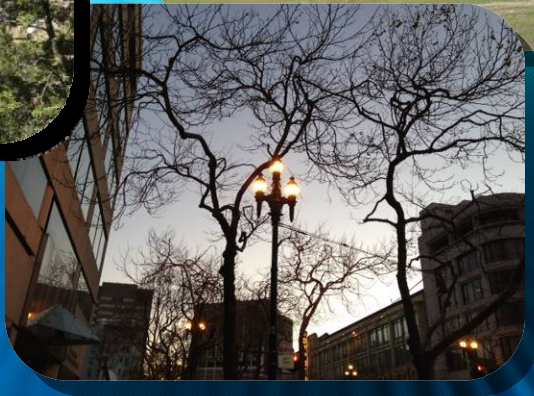
- London N. Breed**
Mayor
- Tim Paulson**
President
- Anthony Rivera**
Vice President
- Newsha K. Ajami**
Commissioner
- Sophie Maxwell**
Commissioner
- Kate H. Stacy**
Commissioner
- Dennis J. Herrera**
General Manager



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



QUARTERLY REPORT

Hetch Hetchy Capital Improvement Program

July 2023 – September 2023

Published: January 2, 2024

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EXECUTIVE SUMMARY

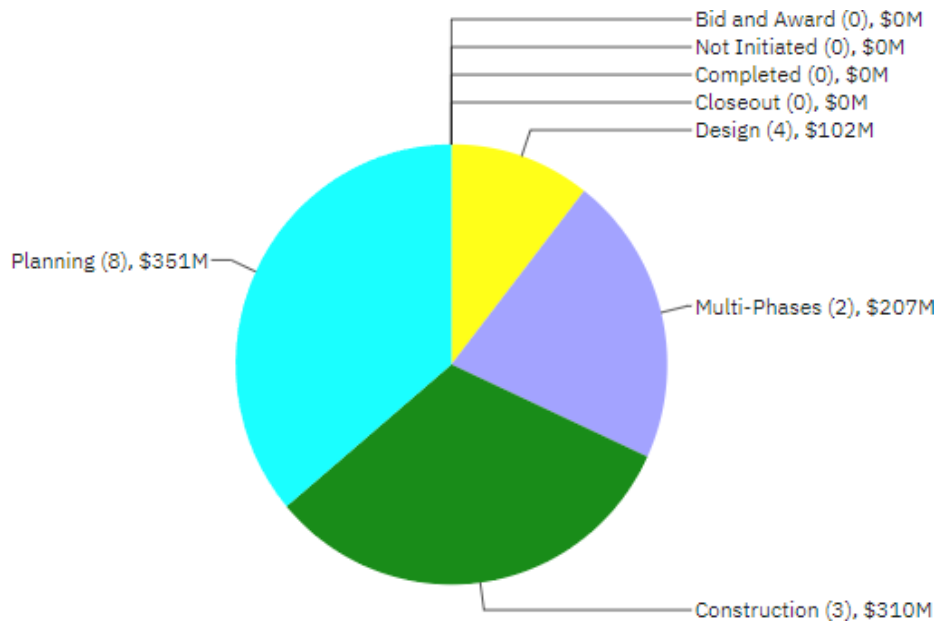
This quarterly report provides a summary update on the Hetch Hetchy Capital Improvement Program (HCIP) that is part of the larger Hetch Hetchy Water Capital Improvement Program. The primary intent of the report is to provide the Commission, stakeholders, and the public with a status summary of the HCIP based on data for the period of July 1, 2023 to September 30, 2023.

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. Of the seventeen (17) projects, thirteen (13) projects are carried forward from the previously approved program. Three projects were completed or combined with other projects from the previously approved program and have been removed - SJPL Tesla Valves Replacement, Holm and Other Powerhouse Projects, and O’Shaughnessy Dam Access and Drainage – while a fourth, Kirkwood Powerhouse Bypass Upgrades, has been deferred and was removed from the program on that basis. Four new projects were added to the program - Moccasin Switchyard Rehabilitation, Moccasin Engineering and Records Building, Early Intake Dam – Long Term, and Moccasin Old Powerhouse Hazard Mitigation.

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: twelve (12) projects in planning, design, or bid & award, three (3) projects in construction, and two (2) projects that are multiple phases.



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 that the 2023 HCIP has a Current Approved Budget and Current Forecast Cost of \$1,032.55M and \$1,081.57M, respectively.

Table A. Program Cost Summary

Program	Expenditures To Date (\$ Million) (A)	Current Approved Budget (\$ Million) (B)	Q1/FY23-24 Forecast Costs (\$ Million) (C)	Cost Variance (\$ Million) (D = B - C)	Cost Variance Over Reporting Period * (\$ Million) (E)
Program Total	\$264.02	\$1,032.55	\$1,081.57	(\$49.01)	-

* Variance is cost variance from the current approved budget that occurred during the quarter. Negative number is reflecting cost increases since last quarter, and positive number is reflecting cost reduction since last quarter.

Table B shows that the 2023 HCIP has an Approved and Forecast Completion Date of 06/30/33.

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)
Overall HCIP Program	10/03/11	10/03/11 A*	06/30/33	06/30/33	-

* "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:

- For the SJPL Valve and Safe Entry Improvements project, materials procurement and fabrication continued in preparation for the winter shutdown for construction contracts; submittals for excavation work under Phase 1A and Phase 1B were prepared. Phase 2 is undergoing an independent technical and cost review. Phase 3 is in Bid & Award, with the contract advertised on September 21.
- For Moccasin Powerhouse Bypass Upgrades project, the Conceptual Engineering Report (CER) construction cost estimate exceeds the current approved budget. The increase in the construction cost estimate from the Alternative Analysis Report to the CER can be attributed to scope refinement, increase in raw material cost, and increase in construction labor cost.

- For Transmission Lines 7/8 Upgrades project, the contractor finished concrete foundation work and all tower raises in time for the October 1, 2023 power transmission outage to allow installation of the new 115kV conductor. All long lead materials and appurtenances required for the installation of the new conductor are on site.
- For Moccasin Switchyard Rehabilitation, a new project in the 2023 HCIP, the project objective is to replace the existing circuit breakers and bus configuration with new circuit breakers and a more reliable bus configuration. The project is in Planning.
- For the Moccasin Penstock Rehabilitation, the draft Alternatives Analysis Report was updated and workshops were scheduled with management. The project team is pursuing two independent technical reviews of the costs and assumptions regarding the proposed alternatives for replacement as well as short-term rehabilitation measures with interim monitoring.
- For O’Shaughnessy Dam Outlet Works Phase 1, Subproject A (Bulkhead): The Notice-to-Proceed (NTP) for the design phase under the progressive-design-build contract of the new bulkhead system was issued on September 1. Subproject B (Drainage & Misc. Dam Improvements): The drawings and specifications for the improvements are being prepared for advertisement of the construction contract in January 2024. Subproject C (Instream Flow Release Valve Replacement): Construction under a job order contract (JOC) for modification of the tunnel access building began in July 2023. NTP for construction of the instream flow release (IFR) valve replacement was issued on August 28.
- For Moccasin Dam & Reservoir Long-Term Improvements, work continues to re-evaluate the project requirements and scope for alternatives to reduce cost and schedule. A field exploratory drilling program began in September to better define the site geotechnical condition.
- For Cherry Dam Spillway - Short Term Improvements, the draft Alternatives Analysis Report was revised to include revised design criteria for the proposed short-term improvements project, including a lower design flow for flood protection to the upper spill channel and limiting the extent of construction to within the existing Raker Act boundary. This will allow the project construction to be expedited in order to perform the spill channel repairs as quickly as possible.
- For the Mountain Tunnel Improvements Project, Flow Control Facility shaft waterproofing and installation of five of the total thirteen lifts of one-foot-thick concrete lining were completed. Inside the Priest adit, completion of the shotcrete smoothing layer was achieved, and installation of the waterproofing membrane commenced.
- For Bridge Replacement, the Alternative Analysis Report for the Lake Eleanor Bridge Replacement is being revised with the plan being to incorporate the bridge replacement with the upcoming Eleanor Dam Rehabilitation Project.
- For Canyon Tunnel – Hetchy Adit Rehabilitation, the 65% design package was finalized, and the project team started development of the 95% design package that includes the new Horizontal Directional Drilling method for the project.
- For Moccasin Wastewater Treatment Plant, the 100% design package was received, reviewed, and finalized. It is anticipated to advertise in the next quarter.

- For Moccasin Old Powerhouse Hazard Mitigation, a new project in the 2023 HCIP, severe concrete degradation of the historic building will make repair and remediation prohibitively expensive, and demolition is being considered among other alternatives.
- For Moccasin Engineering and Records Building, a new project in the 2023 HCIP, conceptual design was underway for a two-story building to address long-term needs for permanent office space, in the area currently occupied by the Engineering, Records, and Energy Services trailers. The new building will also provide dedicated materials storage, new records and archives space with offices, and a dedicated location for servers currently stored in the existing Administration Building basement.

Quarterly Report

Hetch Hetchy Capital Improvement Program

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



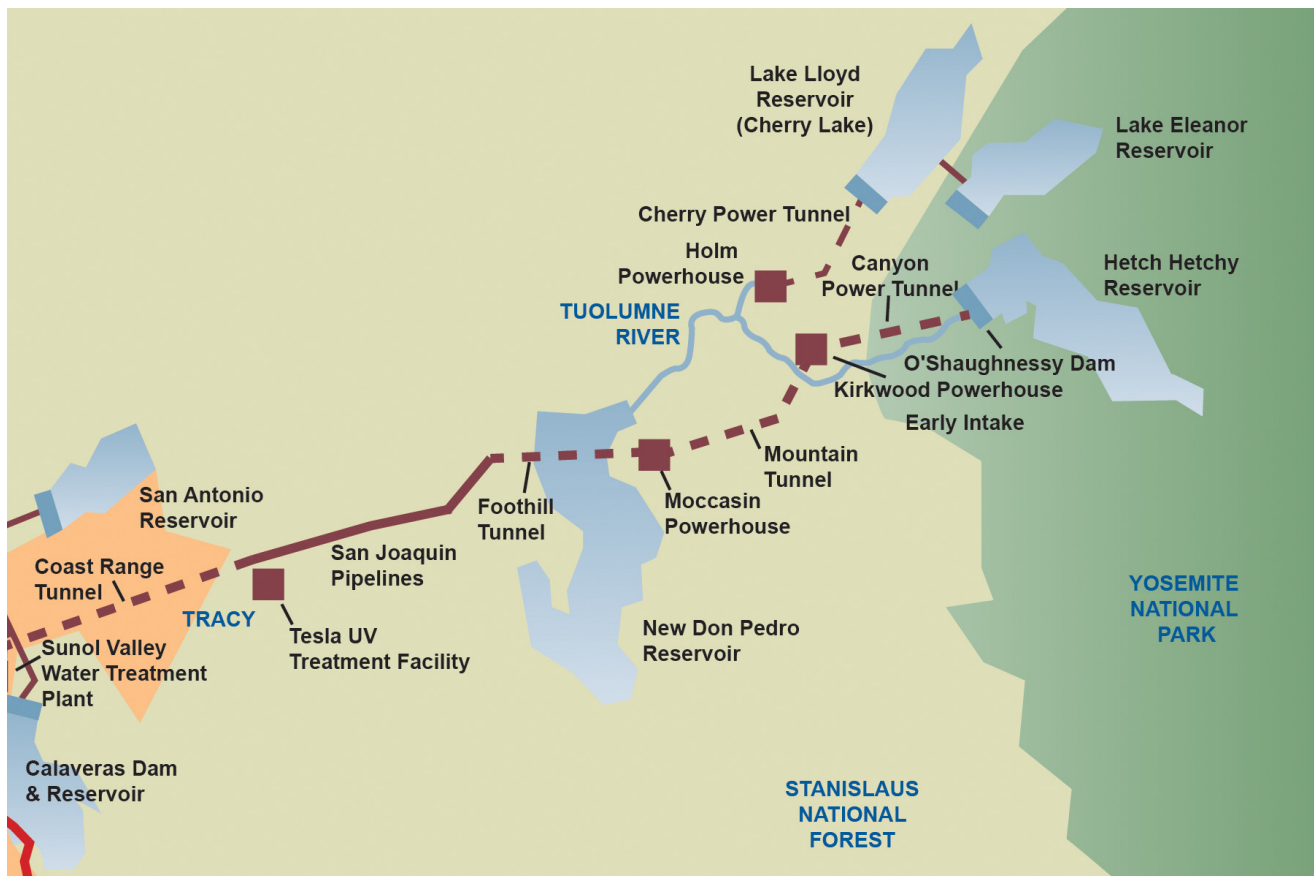
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INTRODUCTION

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 July 1, 2023 and September 30, 2023. This document serves as the first (1st) 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). The 10-Year Capital Plan for FY2023-24 to FY2032-33 is the new baseline for project scopes, schedules, and budgets starting in the first quarter (Q1) of FY2023-24. The 2023 HCIP is a subset of the Hetch Hetchy Water 10-Year CIP for FY2024-2033 and includes individual projects over \$5 million that were then currently active or intended to be active by July 1, 2023 at the time proposed to the Commission on February 14, 2023.

This baseline for comparison will remain the same until adoption of a new 10-Year CIP; the baseline will be updated with the changes in the adopted CIP at the start of the new fiscal year following adoption.

There are seventeen (17) projects in the 2023 HCIP, 13 of which remain from the previously approved program. Three projects were completed or combined with other projects and have been removed from the program – SJPL Tesla Valves Replacement, Holm and Other Powerhouse Projects, and O’Shaughnessy Dam Access and Drainage – while a fourth, Kirkwood Powerhouse Bypass Upgrades, was deferred and has been removed from the program on that basis. Four new projects were added to the program - Moccasin Switchyard Rehabilitation, Moccasin Engineering and Records Building, Early Intake Dam – Long Term, and Moccasin Old Powerhouse Hazard Mitigation. In addition to these 17 projects, there are 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 September 30, 2023 (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.

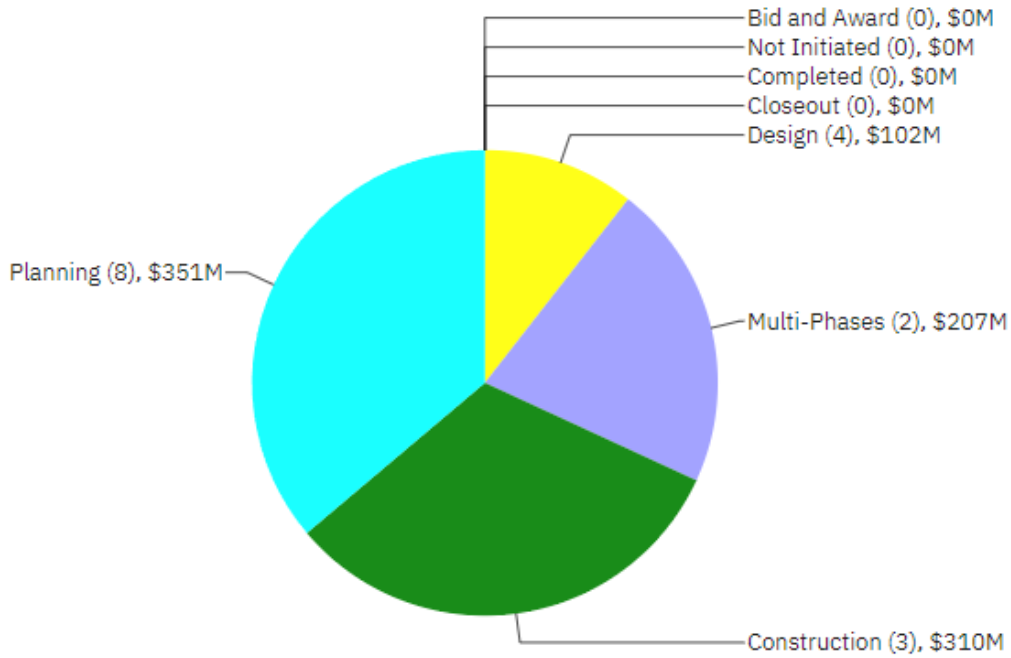


Figure 2.1 Approved Budget for Projects in Each Phase

Figure 2.2 shows the total number of projects in the following stages as of September 30, 2023: Pre-construction, Construction, and Post-construction.

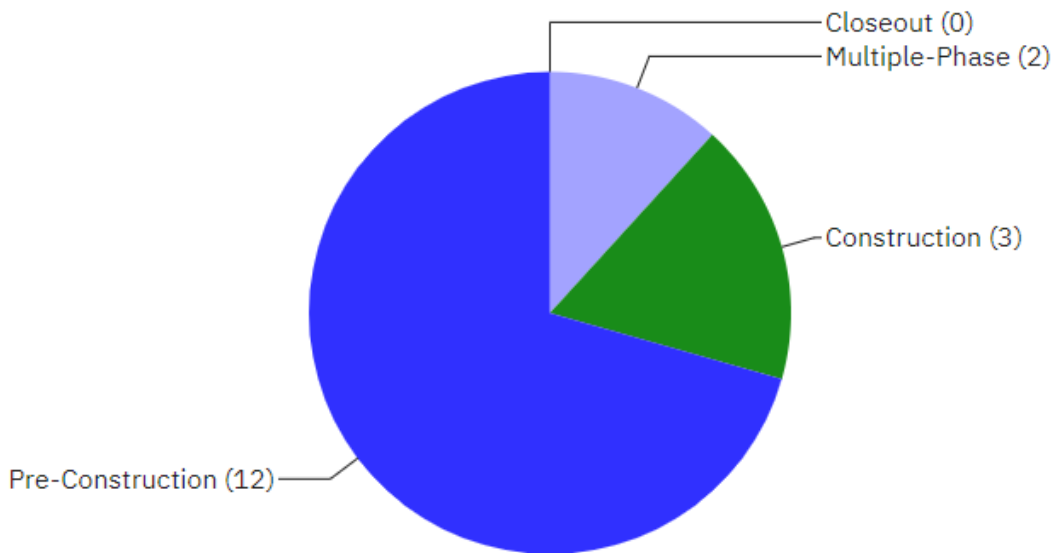


Figure 2.2 Number of Projects in Pre-construction, Construction, and Post-Construction

Figure 2.3 summarizes the environmental review status of the HCIP projects as of September 30, 2023. Environmental review is performed for projects under California Environmental Quality Act (CEQA).

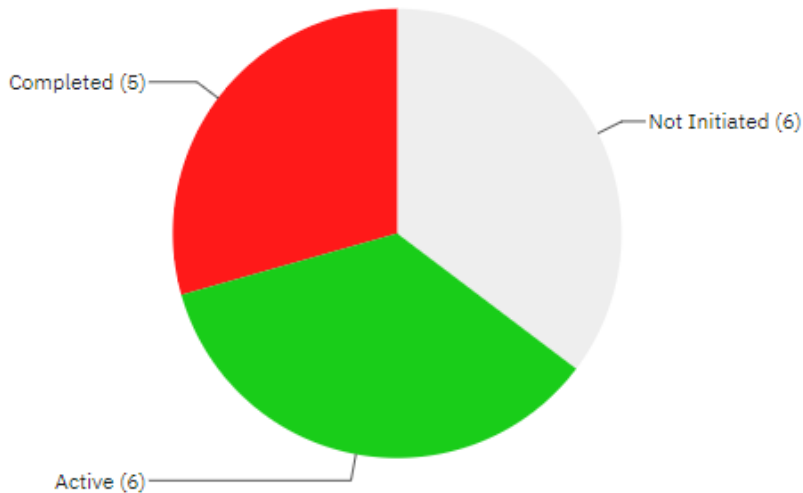


Figure 2.3 Program Environmental Review

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 Q4/FY22-23 and in Q1/FY23-24). The Current Approved Budget and Forecast Cost for the HCIP under the FY24-33 CIP are \$1,032.55 million and \$1,081.57 million, respectively.

The overall 2023 HCIP negative Cost Variance of \$49.01 in Table 3 can be attributed to the following projects and their variances provided below: the reasons for the project variances are reported in section 7:

- Moccasin Powerhouse and GSU Rehabilitation continuation of \$33.84M negative variance from Q4 of FY22/23.
- Moccasin Powerhouse Bypass Upgrades continuation of \$13.28M negative variance from Q4 of FY22/23.
- Warnerville substation Rehabilitation continuation of \$1.89M negative cost variance from Q4 of FY22/23.

Table 3. Cost Summary

Subprograms	Expenditures To Date (\$ Million) (A)	Current Approved Budget (\$ Million) (B)	Q1/FY23-24 Forecast Costs (\$ Million) (C)	Cost Variance (\$ Million) (D = B - C)	Cost Variance Over Reporting Period * (\$ Million) (E)
Water Infrastructure	\$24.81	\$149.42	\$149.42	-	-
Water Conveyance (Water)	\$19.86	\$140.66	\$140.66	-	-
Water Infrastructure Project Development	\$4.95	\$8.76	\$8.76	-	-
Power Infrastructure	\$84.52	\$191.65	\$240.67	(\$49.01)	-
Powerhouse	\$34.06	\$94.11	\$141.23	(\$47.12)	-
Switchyard & Substations (Power)	\$23.06	\$43.99	\$45.88	(\$1.89)	-
Transmission Lines	\$23.58	\$37.97	\$37.97	-	-
Power Infrastructure Project Development	\$3.82	\$15.59	\$15.59	-	-
Joint Infrastructure	\$154.69	\$691.48	\$691.48	-	-
Water Conveyance (Joint)	\$7.09	\$47.25	\$47.25	-	-
Building (Joint)	\$0.19	\$60.72	\$60.72	-	-
Dams & Reservoirs (Joint)	\$10.49	\$234.76	\$234.76	-	-
Mountain Tunnel	\$122.18	\$238.22	\$238.22	-	-
Powerhouse (Joint)	\$0.65	\$17.40	\$17.40	-	-
Roads & Bridges (Joint)	\$3.04	\$29.37	\$29.37	-	-
Tunnels (Joint)	\$1.46	\$14.99	\$14.99	-	-
Utilities (Joint)	\$1.64	\$12.03	\$12.03	-	-
Joint Infrastructure Project Development	\$7.96	\$36.73	\$36.73	-	-
Overall Program Total	\$264.02	\$1,032.55	\$1,081.57	(\$49.01)	-

* Variance is cost variance from the current approved budget that occurred during the quarter. 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 overall HCIP is currently both approved and forecast to be completed in June 2033.

Figure 4. Program Schedule Summary

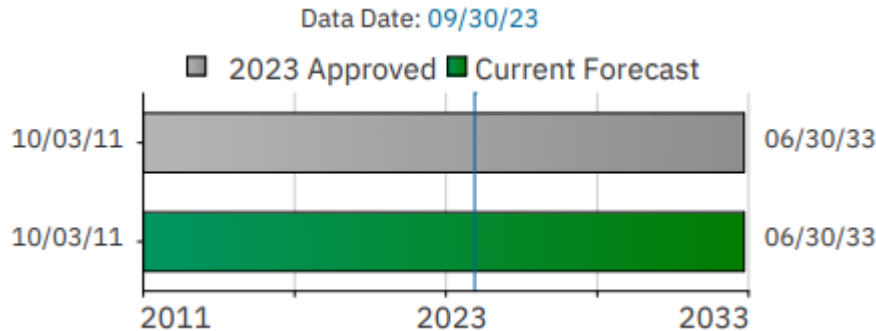


Table 4. FY24-33 CIP Approved vs. Current Forecast Schedule Dates

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	06/30/33	-
Power Infrastructure	05/29/12	05/29/12 A*	06/30/33	06/30/33	-
Joint Infrastructure	10/03/11	10/03/11 A*	06/30/33	06/30/33	-
Overall HCIP Projects	10/03/11	10/03/11 A*	06/30/33	06/30/33	-

* "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 (Q1 FY23-24), the following major project milestones were achieved:

- Bid Advertisement for SJPL Valve and Safe Entry Improvement (Phase 3)
- Construction NTP for O’Shaughnessy Dam Outlet Works Phase I (Subproject C)

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 ¹		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
Water Infrastructure														
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), 05/30/23 (Phase 2) & 03/31/23 (Phase 3)		05/16/22 (Phase 1A), 11/07/22 (Phase 1B), 06/12/24 (Phase 2) & 04/28/24 (Phase 3)		Q1 - FY23-24	
Phase 1A Phase 1B Phase 2 Phase 3	\$140.7	03/13/28	\$95.3	07/01/25	\$95.3	07/01/25	\$98.9	03/13/28	\$140.7	03/13/28	\$140.7	03/13/28	\$140.7	03/13/28
Power Infrastructure														
10036809 - Moccasin Powerhouse Bypass Upgrades	FY24-33		09/18/20		03/31/23		11/30/23		07/31/24		01/08/25		Q1 - FY23-24	
	\$27.4	12/01/27	\$15.0	12/01/27	\$40.7	12/01/27	TBD	TBD	TBD	TBD	TBD	TBD	\$40.7	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) & 09/30/24 (Phase 3)		06/07/21 (Phase 1), 08/15/22 (Phase 2) & 01/01/26 (Phase 3)		Q1 - FY23-24	
Phase 1 Phase 2 Phase 3	\$66.7	12/03/27	\$18.0	10/03/18	\$66.7	04/13/27	\$66.7	12/03/27	\$66.7	12/03/27	\$66.7	12/03/27	\$100.6	12/29/28
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), 04/22/21 (Phase B) & 06/30/23 (Phase C)		12/24/16 (Phase A), 08/16/21 (Phase B) & 04/04/24 (Phase C)		10/04/17 (Phase A), N/A (Phase B) & 02/28/25 (Phase C)		Q1 - FY23-24	
Phase A (DB-127R) Phase B Phase C	\$34.2	11/25/26	\$27.2	11/25/26	\$34.2	11/25/26	\$34.2	11/25/26	\$34.2	11/25/26	\$24.3	03/04/20	\$36.1	11/25/26
10039568 - Moccasin Switchyard Rehabilitation	FY24-33		11/01/22		11/27/24		02/28/25		08/29/25		06/02/26		Q1 - FY23-24	
	\$9.7	11/30/28	\$9.7	11/30/28	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	\$9.7	11/30/28
10035721 - Transmission Lines 7/8 Upgrades	FY24-33		12/02/19		12/07/20 ²		03/19/21		09/24/21		09/28/22		Q1 - FY23-24	
	\$38.0	01/31/25	\$38.0	01/31/25	\$38.0	01/31/25	\$38.0	01/31/25	\$38.0	01/31/25	\$38.0	01/31/25	\$38.0	01/31/25
Joint Infrastructure														
10014088 - Moccasin Penstock Rehabilitation	FY24-33		02/01/16		06/25/24		07/10/24		08/23/24		04/16/25		Q1 - FY23-24	
	\$47.3	02/28/28	\$13.2	12/31/24	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	\$47.3	02/28/28
10039680 - Moccasin Engineering and Records Building ⁵	FY24-33		12/14/22		02/29/24		08/30/24		02/28/25		07/22/26		Q1 - FY23-24	
	\$60.7	06/30/31	\$60.7	06/30/31	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	\$60.7	06/30/31

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 ¹		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
Water Infrastructure														
10032903 - O'Shaughnessy Dam Outlet Works Phase I ³	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)		12/15/23 (Subproject A), N/A (Subproject B) & 11/16/22 (Subproject C)		03/31/24 (Subproject A), N/A (Subproject B) & 12/23/22 (Subproject C)		06/13/23 (Subproject A), 06/30/24 (Subproject B) & 06/13/23 (Subproject C)		Q1 - 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	\$48.0	09/17/25
Subproject D (Planning Only)														
Subproject E (Planning Only)														
10037351 - Moccasin Dam & Reservoir Long-Term Improvements	FY24-33		05/03/21		06/28/24		11/21/24		05/29/26		04/20/27		Q1 - FY23-24	
	\$73.2	06/30/28	\$83.2	07/01/27	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	\$73.2	06/30/28
10014115 - Cherry Dam Spillway - Short Term Improvements	FY24-33		03/01/21		06/28/24		09/30/24		02/05/25		12/18/25		Q1 - FY23-24	
	\$24.9	11/01/27	\$11.9	07/01/27	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	\$24.9	11/01/27
10039119 - Early Intake Dam – Long Term	FY24-33		06/30/23		12/31/24		07/14/25		01/04/27		03/02/29		Q1 - FY23-24	
	\$88.7	06/30/31	\$88.7	06/30/31	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	\$88.7	06/30/31
10014114 - Mountain Tunnel Improvement Project	FY24-33		10/03/11		12/29/17		05/15/18		07/31/19		10/13/20		Q1 - 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	\$238.2	06/03/27
10037077 - Moccasin Old Powerhouse Hazard Mitigation	FY24-33		01/01/21		06/28/24		09/02/24		09/01/25		10/01/26		Q1 - FY23-24	
	\$17.4	06/30/28	\$12.2	01/31/25	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	\$17.4	06/30/28
10035086 - Bridge Replacement (2 Bridges)	FY24-33		02/27/20		6/24/24 (Subproject 1) & 03/17/23 (Subproject 2)		11/03/24 (Subproject 1) & 08/25/23 (Subproject 2)		05/02/25 (Subproject 1) & 04/30/24 (Subproject 2)		02/19/26 (Subproject 1) & 05/01/25 (Subproject 2)		Q1 - FY23-24	
Subproject 1	\$29.4	12/30/27	\$44.3	12/30/25	\$29.4	12/30/27	\$29.4	12/30/27	TBD	TBD	TBD	TBD	\$29.4	12/30/27
Subproject 2														
10014108 - Canyon Tunnel Rehabilitation	FY24-33		02/03/14		03/06/23		03/30/16		12/14/23		04/01/25		Q1 - 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	\$15.0	12/30/26
10014110 - Moccasin Wastewater Treatment Plant ⁴	FY24-33		01/03/22		-		04/29/22		03/23/23		06/06/24		Q1 - FY23-24	
	\$12.0	04/07/26	\$8.8	04/07/26	-	-	\$8.8	04/07/26	\$12.0	04/07/26	TBD	TBD	\$12.0	04/07/26

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 the date the Design Criteria Report (DCR) was finalized for Transmission Lines 7/8 Upgrade project. CER was not required for the project.
3. This represents that Contract A will be doing Progressive Design Build during Construction. Contract B is in the process of finalizing the design. Contract D & E will not be doing CER.
4. This represents that the project started during the Design Phase.
5. This is a building project which follows a different set of milestones. Dates shown for CER, 35% Design, and 95% Design above are for CD (Conceptual Design), SD (Schematic Design), and CD (Contract Document).

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)
	(**)	(+)	(++)			(+++)	(+++)	(+)	(++)		(+++)
Water Infrastructure											
Water Conveyance (Water)											
10035575 SJPL Valve and Safe Entry Improvement	MP	\$140,662	\$140,662	\$140,662	\$19,861	\$0	0%	03/13/28	03/13/28	03/13/28	0
Power Infrastructure											
Powerhouse											
10036809 Moccasin Powerhouse Bypass Upgrades	DS	\$27,391	\$27,391	\$40,671	\$1,328	(\$13,280)	(48%)	12/01/27	12/01/27	12/01/27	0
10014086 Moccasin Powerhouse and GSU Rehabilitation	MP	\$66,714	\$66,714	\$100,556	\$32,730	(\$33,842)	(51%)	12/03/27	12/03/27	12/29/28	(392)
Switchyard & Substations (Power)											
10014087 Warnerville Substation Rehabilitation	CN	\$34,248	\$34,248	\$36,138	\$22,926	(\$1,890)	(6%)	11/25/26	11/25/26	11/25/26	0

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

** Phase Status Legend		
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 FY23-32.
(++) Current Approved Budget and Schedule: The budget and schedule approved as part of 10-year CIP for FY23-32, 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) (+++)
10039568 Moccasin Switchyard Rehabilitation	PL	\$9,739	\$9,739	\$9,739	\$133	\$0	0%	11/30/28	11/30/28	11/30/28	0
Transmission Lines											
10035721 Transmission Lines 7/8 Upgrades	CN	\$37,969	\$37,969	\$37,969	\$23,576	\$0	0%	01/31/25	01/31/25	01/31/25	0
Joint Infrastructure											
Water Conveyance (Joint)											
10014088 Moccasin Penstock Rehabilitation	PL	\$47,251	\$47,251	\$47,251	\$7,087	\$0	0%	02/28/28	02/28/28	02/28/28	0
Buildings (Joint)											
10039680 Moccasin Engineering and Records Building	PL	\$60,725	\$60,725	\$60,725	\$194	\$0	0%	06/30/31	06/30/31	06/30/31	0
Dams & Reservoirs (Joint)											

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

** Phase Status Legend			
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 FY23-32.
(++) Current Approved Budget and Schedule: The budget and schedule approved as part of 10-year CIP for FY23-32, plus any additional budget and schedule changes approved by the Commission as part of construction contract award.
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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) (+++)
10032903 O'Shaughnessy Dam Outlet Works Phase I	DS	\$47,981	\$47,981	\$47,981	\$6,297	\$0	0%	09/17/25	09/17/25	09/17/25	0
10037351 Moccasin Dam & Reservoir Long-Term Improvements	PL	\$73,176	\$73,176	\$73,176	\$2,459	\$0	0%	06/30/28	06/30/28	07/28/28	(28)
10014115 Cherry Dam Spillway - Short Term Improvements	PL	\$24,856	\$24,856	\$24,856	\$1,586	\$0	0%	11/01/27	11/01/27	11/01/27	0
10039119 Early Intake Dam - Long Term	PL	\$88,742	\$88,742	\$88,742	\$150	\$0	0%	06/30/31	06/30/31	06/30/31	0
Mountain Tunnel											
10014114 Mountain Tunnel Improvement Project	CN	\$238,219	\$238,219	\$238,219	\$122,184	\$0	0%	06/03/27	06/03/27	06/03/27	0
Powerhouse (Joint)											

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

** Phase Status Legend			
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 FY23-32.
(++) Current Approved Budget and Schedule: The budget and schedule approved as part of 10-year CIP for FY23-32, 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) (+++)
10037077 Moccasin Old Powerhouse Hazard Mitigation	PL	\$17,401	\$17,401	\$17,401	\$647	\$0	0%	06/30/28	06/30/28	06/30/28	0
Roads & Bridges (Joint)											
10035086 Bridge Replacement (2 Bridges)	PL	\$29,371	\$29,371	\$29,371	\$3,040	\$0	0%	12/30/27	12/30/27	12/30/27	0
Tunnels (Joint)											
10014108 Canyon Tunnel - Hetchy Adit Rehabilitation	DS	\$14,993	\$14,993	\$14,993	\$1,455	\$0	0%	12/30/26	12/30/26	12/30/26	0
Utilities (Joint)											
10014110 Moccasin Wastewater Treatment Plant	DS	\$12,029	\$12,029	\$12,029	\$1,635	\$0	0%	04/07/26	04/07/26	04/07/26	0

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

** Phase Status Legend			
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 FY23-32.
(++) Current Approved Budget and Schedule: The budget and schedule approved as part of 10-year CIP for FY23-32, 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.

Program: Water Infrastructure	Project Status: Multi-Phases	Environmental Status: Completed (Various)
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Project Cost:		Project Schedule:	
Approved	\$ 140.66 M	Approved 07/01/19	03/13/28
Forecast	\$ 140.66 M	Forecast 07/01/19	03/13/28
Actual	\$ 19.86 M	Project Percent Complete: 16.8%	

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	09/13/24
	B	01/27/22 A	04/21/22 A	11/07/22 A	09/11/24
	C	01/27/22 A	11/10/23	06/12/24	05/24/27
	D	08/10/22 A	09/21/23 A	04/28/24	07/25/25

Progress and Status:

This project is divided into four (4) 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 2 - Pelican, Roselle, Emery and P4J Entry Improvements; and (D) Phase 3 - Tesla Surge Tower HH-1009. For Phase 1A, the contractor focused on materials fabrication and procurement to prepare for the next winter construction outage during the Mountain Tunnel shutdown planned for December 5, 2023 to March 11, 2024. For Phase 1B, the contractor prepared submittals for required excavation work. For Phase 2, the 95% design is under independent technical and cost review. For Phase 3, the project team advertised contract HH-1009 on September 21. The bid opening will be early November, with Notice To Proceed anticipated for April 2024.

Issues and Challenges:

For Phase 1B, the contractor anticipates a delay in valve fabrication which could delay arrival of the valves to after the start of the winter construction outage next quarter. An update to potential impacts will be reported next quarter.



HH-1005 Factory Fabrication of 36-Inch Diameter Valves

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.

Program: Power Infrastructure	Project Status: Design	Environmental Status: Not Initiated (TBD)
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Project Cost:		Project Schedule:	
Approved	\$ 27.39 M	Approved 09/18/20	12/01/27
Forecast	\$ 40.67 M	Forecast 09/18/20	12/01/27
Actual	\$ 1.33 M	Project Percent Complete: 5.3%	

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	08/26/24	08/27/24	04/26/25	06/01/27

Progress and Status:

The consultant continued the design phase. The geotechnical core drilling and underground survey are scheduled for December 2023. The Draft Design Criteria Report (DCR) will be submitted in October 2023. The 35% Design drawing package is scheduled for March 2024.

Issues and Challenges:

The Conceptual Engineering Report (CER) construction cost estimate exceeds the current approved budget. The increase in the construction cost estimate from the Alternative Analysis Report to the CER can be attributed to scope refinement, increase in raw material cost, and increase in construction labor cost.



Penstock Tie-in Point and Proposed Valve House Location

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.

Program: Power Infrastructure	Project Status: Multi-Phases	Environmental Status: Active (Various)
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Project Cost:		Project Schedule:	
Approved	\$ 66.71 M	Approved 01/04/16	12/03/27
Forecast	\$ 100.56 M	Forecast 01/04/16	12/29/28
Actual	\$ 32.73 M	Project Percent Complete: 56.1%	

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. Subproject A contract HH-1003R achieved Final Completion sooner than anticipated in June 2023. Closeout Commission agenda item is scheduled for November 2023. Final Closeout report is scheduled for December 2023. For Subproject B contract DB-121R2 for the Generator M2 rehabilitation, the contractor mobilized for construction in August 2023 and anticipates partial utilization of Generator M2 by April 2024. The rehabilitation of major components of Generator M1 is meanwhile scheduled for Substantial Completion in April 2025. For subproject C, the 35% construction cost estimate was received in July 2023. The Technical Steering Committee will review the 35% design package and cost estimate; presentation to them by the project team will be in December 2023. The 65% design package is anticipated in January 2024.

Issues and Challenges:

The forecasted project cost exceeds the approved budget 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 expected to increase. Subproject C: Moccasin Powerhouse Systems Upgrade project's cost estimate at the end of conceptual engineering was higher than the previous estimate during the needs assessment phase. The overall Subproject C's cost increased due to additional



DB-121R2 Stator Frame being manufactured in Sorel-Tracy, Quebec

scope, 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. The cost and schedule were reviewed and updated for purposes of the FY25/34 capital planning cycle.

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.

Program: Power Infrastructure	Project Status: Construction	Environmental Status: Active (TBD)
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Project Cost:		Project Schedule:	
Approved	\$ 34.25 M	Approved 09/01/15	11/25/26
Forecast	\$ 36.14 M	Forecast 09/01/15	11/25/26
Actual	\$ 22.93 M	Project Percent Complete: 67.7%	

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	A	01/24/17 A	10/05/17 A	03/31/24
	B	09/06/24	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” HH-1008 (which would be issued only if needed), the contracting strategy was considered for a contingency contract to 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 worked on the 65% design package, and anticipates submitting it for review next quarter.

Issues and Challenges:

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.



High Voltage Disconnect Switches (WSR Phase 2)

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 .

Program: Power Infrastructure	Project Status: Planning	Environmental Status: Not Initiated (TBD)
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Project Cost:		Project Schedule:	
Approved		Approved 11/01/22	
Forecast	\$ 9.74 M	Forecast 11/01/22	
Actual	\$ 0.13 M	Project Percent Complete: 1.7%	

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	09/29/25	09/30/25	06/02/26	05/30/28

Progress and Status:

The Moccasin Switchyard is a 230kV switchyard operationally divided into a 230kV system and a 115kV system. The project objective is to replace the aging oil circuit breakers and H-Bus configuration with new circuit breakers and a more reliable bus configuration. The project will also address the need for back-up power supply for the town of Moccasin. Consultant planning and design support is scheduled to kick off in December 2023.

Issues and Challenges:

Because the project is in early planning, clarifying the operational and reliability needs and requirements and determining the latest technology in circuit breakers and bus configurations for rehabilitation of the switchyard will result in scope refinement that may impact the cost assumptions.



Existing Moccasin Switchyard

10035721 - Transmission Lines 7/8 Upgrades

Project Description: 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).

Program: Power Infrastructure	Project Status: Construction	Environmental Status: Completed (Permitting Only)
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Project Cost:		Project Schedule:	
Approved	\$ 37.97 M	Approved 12/02/19	01/31/25
Forecast	\$ 37.97 M	Forecast 12/02/19	01/31/25
Actual	\$ 23.58 M	Project Percent Complete: 65.5%	

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	11/04/21 A	02/11/22 A	09/28/22 A	07/26/24

Progress and Status:

The contractor finished concrete foundation work and all tower raises in time for the October 1, 2023 power transmission outage to allow installation of the new 115kV conductor. All long lead materials and appurtenances required for the installation of the new conductor are on site.

Issues and Challenges:

None at this time.








Tower 557S Raise - HH-1007 Transmission Line 7/8 Upgrades

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.

Program: Joint Infrastructure	Project Status: Planning	Environmental Status: Active (TBD)
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Project Cost:		Project Schedule:	
Approved	 \$ 47.25 M	Approved 02/01/16	 02/28/28
Forecast	 \$ 47.25 M	Forecast 02/01/16	 02/28/28
Actual	 \$ 7.09 M	Project Percent Complete: 16.9%	

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	10/07/24	10/08/24	04/16/25	08/24/27

Progress and Status:

Several workshops were held with SFPUC and HHWP management teams to review the penstock condition assessments, alternatives development and evaluation process, and the favored alternatives. The draft tunnel alternative includes a shaft and tunnel with above-grade pipeline connections at the portal. The team is reviewing proposals for support work from two Independent Technical Review teams to review long-term replacement scenarios, the developed alternatives, selection process, pros and cons associated with each alternative, and costs. This review is anticipated to be completed during the next six months. In addition, a panel of experts from universities and industry will review previous condition assessments and recommend short term rehabilitation measures and an interim monitoring program.

Issues and Challenges:

The estimated costs for all of the alternatives to replace the penstocks are higher than the approved budget, which had been based on the assumption of rehabilitating the existing penstocks. Updated cost estimates are being developed and reviewed for the various alternatives. The forecasted schedules for replacement alternatives are also longer than the approved schedule for rehabilitation only. The forecasts will be updated in the future when the alternative selection process has been further developed.



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.

Program: Joint Infrastructure	Project Status: Planning	Environmental Status: Not Initiated
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Project Cost:		Project Schedule:	
Approved	\$ 60.72 M	Approved 12/14/22	06/30/31
Forecast	\$ 60.72 M	Forecast 12/14/22	06/30/31
Actual	\$ 0.19 M	Project Percent Complete: 0.0%	

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	03/03/25	05/01/26	02/01/27	12/31/30

Progress and Status:

Conceptual design is underway for the revised building program.

Issues and Challenges:

Commencement of design was delayed so a more detailed review of the program assumptions for the building could be performed. Any impacts to the schedule will be reported in future reports.



Site Rendering of Engineering and Records Building and Surface Parking Lot (from July 2020 Assessment).

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.

Program: Joint Infrastructure	Project Status: Design	Environmental Status: Completed (TBD)
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Project Cost:		Project Schedule:	
Approved	\$ 47.98 M	Approved 02/01/18	09/17/25
Forecast	\$ 47.98 M	Forecast 02/01/18	09/17/25
Actual	\$ 6.30 M	Project Percent Complete: 17.1%	

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion	
Current Forecast	A	12/02/22 A	01/13/23 A	09/03/24	07/02/25
	B	07/16/20 A	01/09/24	09/03/24	05/21/25
	C	12/02/22 A	03/13/23 A	08/28/23 A	05/24/25

Progress and Status:

Subproject A (Bulkhead): The Notice-to-Proceed (NTP) for the design phase under DB-135, the progressive-design-build contract for the design and construction of the new bulkhead system, was issued on September 1 to begin work on the bulkhead design. Subproject B (Drainage & Misc Dam Improvements): The drawings and specifications for the improvements are being prepared to advertise for bids in January 2024. Subproject C (Instream Flow Release Valve Replacement): Construction under a JOC contract for modification of the tunnel access building began in July 2023 and will be completed by mid-November 2023. NTP for contract HH-1011 for construction of the instream flow release (IFR) valve replacement was issued on August 28. Construction on the IFR valves replacement will begin in late November 2023. Subprojects D (Slide Gate) and E (Drum Gate): The engineering consultant continued work on the needs assessment.



Concrete Footing Construction Outside of Diversion Tunnel Access Building






Issues and Challenges:

None at this time.

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.

Program: Joint Infrastructure	Project Status: Planning	Environmental Status: Not Initiated (TBD)
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Project Cost:		Project Schedule:	
Approved		\$ 73.18 M	Approved 05/03/21 
Forecast		\$ 73.18 M	Forecast 05/03/21 
Actual		\$ 2.46 M	Project Percent Complete: 3.5%

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	08/03/27	05/07/26	09/03/26	12/26/27

Progress and Status:

An extensive field geotechnical exploratory drilling program began in September 2023.

Issues and Challenges:

The draft Conceptual Engineering Report indicated a longer construction period and higher construction cost estimate than provided for in the approved budget. Additional work including geotechnical investigation, hydraulic studies, and review of the preliminary design details and constructability is being performed to confirm the schedule and cost for this project. The project assumptions for construction shutdown limitations and operational criteria are being revisited to explore potential cost savings. Forecasted cost increase for the project will be reported after an updated cost estimate with any revised assumptions has been performed.








Moccasin Dam and Service Spillway

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.

Program: Joint Infrastructure	Project Status: Planning	Environmental Status: Active (TBD)
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Project Cost:		Project Schedule:	
Approved		\$ 24.86 M	Approved 03/01/21  11/01/27
Forecast		\$ 24.86 M	Forecast 03/01/21  11/01/27
Actual		\$ 1.59 M	Project Percent Complete: 6.8%

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	12/27/24	07/01/25	02/28/26	05/02/27

Progress and Status:

The draft Alternative Analysis Report was revised to include revised design criteria for the proposed short-term improvements project, including a lower design flow (2,000 cubic feet per second (cfs)) for flood protection to the upper spill channel and limiting the extent of construction to the existing Raker Act boundary. This will allow the construction to be expedited in order to perform the spill channel repairs as quickly as possible.

Issues and Challenges:

None at this time.







Cherry Valley Dam Spillway

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.

Program: Joint Infrastructure	Project Status: Planning	Environmental Status: Not Initiated (TBD)
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Project Cost:		Project Schedule:	
Approved		\$ 88.74 M	Approved 06/30/23  06/30/31
Forecast		\$ 88.74 M	Forecast 06/30/23  06/30/31
Actual		\$ 0.15 M	Project Percent Complete: 0.8%

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	06/30/28	07/01/28	03/02/29	12/31/30

Progress and Status:

An engineering study is being performed in the planning phase to evaluate and compare operating and design criteria for a large range of alternatives to replace the existing dam.

Issues and Challenges:

None at this time.








Early Intake Dam and Spillway Aerial View

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.

Program: Joint Infrastructure	Project Status: Construction	Environmental Status: Completed
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Project Cost:		Project Schedule:	
Approved		\$ 238.22 M	Approved 10/03/11  06/03/27
Forecast		\$ 238.22 M	Forecast 10/03/11  06/03/27
Actual		\$ 122.18 M	Project Percent Complete: 52.9%

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	01/14/20 A	11/13/19 A	01/29/21 A	12/03/26

Progress and Status:

Work continued at the Priest Reservoir site including significant work completed within the Flow Control Facility shaft to complete the installation of a waterproofing membrane and placement of five lifts of the final, one-foot-thick, concrete lining. Each lift is about 10 feet high, and a total of 13 lifts are required to complete the entire shaft. Inside the Priest adit completion of the shotcrete smoothing layer was achieved and installation of the waterproofing membrane commenced. At Adit Road 5/6, a 36-inch culvert replacement was completed. Roadway work was put on hold to allow US Forest Service access to the Tuolumne River since Adit Road 8/9 was no longer accessible due to storm damage. Storm damage work at Second Garrote Road was completed. The contractor has mobilized equipment to the Lumsden Road cut wall work area. Outage No. 3 planning and coordination took place as the project team prepares for the 100-day construction outage due to commence in December. Discussions are continuing between the contractor and the City regarding the scope of work at the South Fork site under the contract.



Inside the New Priest Adit showing Waterproofing Membrane






Issues and Challenges:

None at this time.

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.

Program: Joint Infrastructure	Project Status: Planning	Environmental Status: Not Initiated (TBD)
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Project Cost:		Project Schedule:	
Approved		\$ 17.40 M	Approved 01/01/21  06/30/28
Forecast		\$ 17.40 M	Forecast 01/01/21  06/30/28
Actual		\$ 0.65 M	Project Percent Complete: 1.6%

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	12/31/25	01/02/26	10/01/26	12/31/27

Progress and Status:

Planning phase is ongoing. The building has severe concrete degradation which will make repairs and remediation prohibitively expensive. Alternatives are being explored which include demolition of the structure.

Issues and Challenges:

None at this time.



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.

Program: Joint Infrastructure	Project Status: Planning	Environmental Status: Active (Various)
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Project Cost:		Project Schedule:	
Approved	\$ 29.37 M	Approved 02/27/20	12/30/27
Forecast	\$ 29.37 M	Forecast 02/27/20	12/30/27
Actual	\$ 3.04 M	Project Percent Complete: 14.8%	

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion	
Current Forecast	A	10/09/25	10/10/25	02/19/26	05/09/27
	B	09/30/24	10/01/24	05/01/25	06/30/27

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 draft Alternative Analysis Report for replacement of the existing bridge was under revision. For the O'Shaughnessy Adit Access Bridge, the project team performed material testing and load rating analysis of the bridge to confirm the load rating and rehabilitation requirements. The selected alternative is being assessed for potential environmental requirements, including wetland delineation, golden eagle and California spotted owl surveys, ambient noise measurement, archeological survey, and historic resources evaluation. The U.S. National Park Service, Yosemite National Park, and the environmental consultant are supporting the project team in developing the Environmental Impact Report (EIR).

Issues and Challenges:

None at this time.








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.

Program: Joint Infrastructure	Project Status: Design	Environmental Status: Active (TBD)
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Project Cost:		Project Schedule:	
Approved		\$ 14.99 M	Approved 02/03/14  12/30/26
Forecast		\$ 14.99 M	Forecast 02/03/14  12/30/26
Actual		\$ 1.46 M	Project Percent Complete: 13.7%

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	12/29/23	08/01/24	04/01/25	06/30/26

Progress and Status:

The project team finalized the 65% design package and started development of the 95% design package with the new Horizontal Directional Drilling method for the project. It is anticipated that the 95% design package will be finalized once material testing and load rating analysis efforts for the O’Shaughnessy Adit Access Bridge are finalized. The proposed improvement is being assessed for potential environmental impacts, including wetland delineation, golden eagle and California spotted owl surveys, ambient noise measurement, archeological survey, and historic resources evaluation. The National Park Service, Yosemite National Park, and the environmental consultant are supporting the Canyon Tunnel - Hetchy Adit Rehabilitation project team to develop the Environmental Impact Report.

Issues and Challenges:

The overall project schedule is being updated to account for preparation of an Environmental Impact Report. Updated schedule and costs will be reflected in the next quarterly report.



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.

Program: Joint Infrastructure	Project Status: Design	Environmental Status: Completed (Cat Ex)
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Project Cost:		Project Schedule:	
Approved	\$ 12.03 M	Approved 01/03/22	04/07/26
Forecast	\$ 12.03 M	Forecast 01/03/22	04/07/26
Actual	\$ 1.64 M	Project Percent Complete: 18.0%	

Key Milestones	Environmental Approval	Bid Advertisement	Construction NTP	Construction Final Completion
Current Forecast	02/22/23 A	10/12/23	06/06/24	12/22/25

Progress and Status:

The final 100% design package was received and reviewed and was finalized at the end of the quarter. Contract specifications and other contract package documents are being developed for the anticipated advertisement in the next quarter.

Issues and Challenges:

None at this time.



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	
Water Infrastructure								
10035575 - SJPL Valve & Safe Entry Improvement - (Contract A, HH-1005)	05/16/22	09/13/24	09/13/24	\$11,704,194	\$11,704,194	0	\$0	66.5%
10035575 - SJPL Valve & Safe Entry Improvement - (Contract B, HH-1006)	11/07/22	09/11/24	09/11/24	\$11,801,808	\$11,801,808	0	\$0	4.8%
Power Infrastructure								
10014086 - Moccasin Powerhouse Transformers Installation - (Contract A, HH-1003R)	06/07/21	06/26/23	06/26/23	\$3,730,105	\$3,730,105	0	\$0	100.0%
10014086 - Moccasin Powerhouse Generator Rehab - (Contract B, DB-121R2)	06/21/21	06/17/25	06/17/25	\$26,999,277	\$26,999,277	0	\$0	54.1%
10014087 - Warnerville Substation - (DB-127R)	10/05/17	03/31/24	03/31/24	\$14,591,450	\$14,591,450	0	\$0	90.4%
10035721 - Transmission Lines 7/8 Upgrade - (HH-1007)	09/28/22	07/26/24	07/26/24	\$24,005,418	\$24,005,418	0	\$0	65.6%
Joint Infrastructure								
10032903 - O'Shaughnessy Dam Outlet Works Phase 1 - Instream Flow Release (Contract C, HH-1011)	08/28/23	05/24/25	05/24/25	\$5,960,000	\$5,960,000	0	\$0	0.0%
10014114 - Mountain Tunnel Improvement - (HH-1000R)	01/29/21	12/03/26	12/03/26	\$143,485,476	\$144,120,833	0	(\$635,357)	48.6%

	Approved	Current	Variance	
	Contract Cost	Forecast Cost	Cost	Percent
Program Total for On-Going Construction	\$242,277,727	\$242,913,085	(\$635,357)	(0.3%)

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 Final Completion includes all approved, pending, and potential change orders, and trends.

9. PROJECTS IN CLOSEOUT

There are no active projects currently in closeout phase.

10. COMPLETED PROJECTS

There are no completed projects.

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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 arresters, 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

AAR	Alternative Analysis Report
CD	Contract Document
CD	Conceptual Design
CEQA	California Environmental Quality Act
CER	Conceptual Engineering Report
CIP	Capital Improvement Program
CM/GC	Construction Manager/General Contractor
DB	Design, Build
DCR	Design Criteria Report
EMB	Engineering Management Bureau
EIR	Environmental Impact Report
FY	Fiscal Year
GSU	Generator Step-Up
GWH	Gigawatt Hours
HCIP	Hetch Hetchy Capital Improvement Program
HH	Hetch Hetchy
HHWP	Hetch Hetchy Water and Power
IFR	Instream Flow Release
JOC	Job Order Contract
MID	Modesto Irrigation District
MPH	Moccasin Powerhouse
NAR	Needs Assessment Report
NHC	Northwest Hydraulic Consultants
NTP	Notice to Proceed
MT	Mountain Tunnel
OSH	O'Shaughnessy Dam
PD	Project Development
PRCS	Permit Required Confined Space
R&R	Renewal and Replacement
RSP	Removable Spool Piece
SBR	Sequence Batch Reactor
SCADA	Supervisory Control and Data Acquisition
SD	Schematic Design
SFPUC	San Francisco Public Utilities Commission
SJPL	San Joaquin Pipeline
TUV	Tesla Ultra Violet
WSIP	Water System Improvement Program
WWTP	Wastewater Treatment Plant

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