Westlands Water District

Initial Study/Notice of Preparation

Shasta Dam Raise Project
Environmental Impact Report

November 2018

Subject: Notice of Preparation of a Draft Environmental Impact Report

Project Title: Shasta Dam Raise Project

Project Location: Shasta County

This Notice of Preparation has been prepared to notify agencies and interested parties that Westlands Water District (WWD), as Lead Agency under the California Environmental Quality Act (CEQA), will prepare an environmental impact report (EIR) for the Shasta Dam Raise Project. *This Initial Study/Notice of Preparation contains the proposed project description, location, and potential environmental impacts of implementing the project that WWD's preliminary evaluation has identified.*

Consistent with Public Resources Code Section 21092, your agency or organization is invited to provide comments concerning the scope and content of the EIR that is germane to the statutory responsibilities of your agency or organization in connection with the proposed project. If you do not represent an agency or organization, this notice has been sent to provide you an opportunity to comment on the scope of the review and to identify important issues you believe should be evaluated in the EIR. A written response to this Notice of Preparation will provide you the opportunity to identify and discuss these issues.

In addition, a public scoping meeting will be held to solicit public input on the scope of the environmental documentation, alternatives, concerns, and issues to be addressed in the EIR. The meeting date is as follows:

> Wednesday, December 12, 2018, 5:00 to 7:00 p.m., Holiday Inn Redding, Palomino Room, 1900 Hilltop Drive, Redding, CA

Written comments on the scope of the environmental document must be received on or before Friday, January 4, 2019 and should be sent to:

- *U.S. mail (postmarked by Jan. 4, 2019) or hand-delivery:*

  Shasta Dam Raise Project
  c/o: Stantec
  3301 C Street, Suite 1900
  Sacramento, CA 95816

- *Email:* shastadameir@stantec.com

Due to the time limits mandated by State law, your response must be sent at the earliest possible date, but not later than 30 days after receipt of this notice. Please include the contact person's full name and address in your response.

November 30, 2018

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Abbreviations and Acronyms

AB 52	Assembly Bill 52
CEQA	California Environmental Quality Act
CP	comprehensive plan
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
Delta	Sacramento-San Joaquin River Delta
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
M&I	municipal and industrial
MAF	million acre feet
NEPA	National Environmental Policy Act
NGVD29	National Geodetic Vertical Datum 1929
NOP	Notice of Preparation
NRA	National Recreation Area
P&G	1983 U.S. Water Resources Council *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies*
project	Shasta Dam Raise Project
RBPP	Red Bluff Pumping Plant
Reclamation	U.S. Department of Interior, Bureau of Reclamation
ROD	Record of Decision
SLWRI	Shasta Lake Water Resources Investigation
State	State of California
SWP	State Water Project
TCD	temperature control device

USFS	U.S. Department of Agriculture, Forest Service
WWD	Westlands Water District

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CHAPTER 1
PROJECT DESCRIPTION

1.1 Introduction

This Initial Study has been prepared by Westlands Water District (WWD) to preliminarily identify the types and potential significance of the environmental impacts of raising the existing Shasta Dam and expanding the existing Shasta Reservoir. The Shasta Dam Raise Project (project) is being evaluated pursuant to the California Environmental Quality Act (CEQA), and other pertinent federal, state, and local laws and policies, with WWD serving as the lead agency for compliance with CEQA.

1.1.1 Background and Previous Studies

The U.S. Department of the Interior, Bureau of Reclamation (Reclamation) completed constructing Shasta Dam and Reservoir in 1945. Reclamation operates Shasta Dam and Reservoir, in conjunction with other facilities, to provide flood damage reduction and irrigation and municipal and industrial (M&I) water supply, maintain navigation flows, protect fish in the Sacramento River and the Sacramento-San Joaquin Delta (Delta), and generate hydropower. The Central Valley Project Improvement Act (CVPIA), enacted in 1992, added “fish and wildlife mitigation, protection, and restoration” as a priority equal to water supply, and “fish and wildlife enhancement” as a priority equal to hydropower generation. Major modifications to Shasta Dam include construction of a temperature control device (TCD) in 1997 for improved management of water temperatures in the upper Sacramento River.

Shasta Dam and Reservoir were constructed as an integral element of the Central Valley Project (CVP), with Shasta Reservoir representing about 41 percent of the total reservoir storage capacity of the CVP. The 602-foot-tall Shasta Dam (533 feet above the streambed) and 4.55 million-acre-foot (MAF) Shasta Reservoir are located on the upper Sacramento River in Northern California, north of the City of Redding (see Figure 1.1-1) within the Whiskeytown-Shasta-Trinity National Recreation Area (NRA). Shasta Lake supports extensive water-oriented recreation. Recreation within the Shasta unit of the NRA is managed by U.S. Department of Agriculture, Forest Service (USFS).

Figure 1.1-1. Location of Shasta Dam and Reservoir

In 2000, as a result of the CALFED Programmatic Record of Decision (ROD), increasing demands for water supplies, and growing concerns over declines in ecosystem resources in the Central Valley of California, Reclamation reinitiated a feasibility investigation to evaluate the potential for enlarging Shasta Dam and Reservoir. This feasibility investigation became known as the Shasta Lake Water Resources Investigation (SLWRI).

The SLWRI was conducted consistent with the National Environmental Policy Act (NEPA), the 1983 U.S. Water Resources Council's *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies* (P&G) (WRC 1983), and other pertinent Federal, State of California (State), and local laws and policies. Reclamation served as the Federal lead agency for compliance with NEPA. Cooperating agencies, pursuant to NEPA, included the USFS; Colusa Indian Community Council of the Cachil Dehe Band of Wintun Indians; U.S. Army Corps of Engineers; and U.S. Department of the Interior, Bureau of Indian Affairs.

Major previous Reclamation studies and reports investigating potential enlargement of Shasta Dam and Reservoir include *Enlarged Shasta Lake Investigation Preliminary Findings Report* (Reclamation 1983); *Shasta Dam and Reservoir Enlargement: Appraisal Assessment of the Potential for Enlarging Shasta Dam and Reservoir* (Reclamation 1999); *SLWRI Strategic Agency and Public Involvement Plan* (Reclamation 2003b); *SLWRI Mission Statement Milestone Report* (Reclamation 2003a); *SLWRI Initial Alternatives Information Report*

(Reclamation 2004); *SLWRI Environmental Scoping Report* (2006); *SLWRI Plan Formulation Report* (Reclamation 2007); *SLWRI Draft Feasibility Report* (Reclamation 2011); and *SLWRI Draft Environmental Impact Statement (EIS)* (Reclamation 2013).

Reclamation released the *SLWRI Final EIS* (Reclamation 2014) and *SLWRI Final Feasibility Report* (Reclamation 2015) to the public in 2015. The EIS was prepared in consideration of CEQA requirements. The Final SLWRI EIS and Feasibility Report are located on the Reclamation Mid-Pacific Region website at www.usbr.gov/mp/ncao/shasta-lake.html.

In March 2018, Congress directed $20.5 million in Water Infrastructure for Improvement to the Nation Act funding for Shasta Dam Raise Project pre-construction activities. These activities include:

- Engineering design for 18.5-foot dam raise;
- Coordination with various federal, state, railroad, and local agencies;
- Consultations with tribal interests, land-owners, and government and non-government agencies, and preparing various required documents;
- Identifying non-federal cost share partner(s); and
- Public involvement and stakeholder outreach.

Reclamation initiated pre-construction activities in April 2018.

1.1.2 Westlands Water District

WWD is the largest agricultural water district in the United States, made up of more than 1,000 square miles of prime farmland in western Fresno and Kings Counties. WWD has federal contracts to provide water to 700 family-owned farms that average 875 acres in size. These farms produce more than 60 different high-quality commercial food and fiber crops sold for the fresh, dry, canned, and frozen food markets, domestically and abroad. More than 50,000 people live and work in the communities that depend on WWD's agricultural economy.

Water is delivered to WWD through the CVP. After it is released from CVP reservoirs, the water is pumped from the Sacramento-San Joaquin River Delta and delivered 70 miles through the Delta-Mendota Canal to San Luis Reservoir. During the spring and summer, the water is released from San Luis Reservoir and delivered to WWD through the San Luis Canal and the Coalinga Canal. Once it leaves the federal project canals, water is delivered to farms through 1,034 miles of underground pipe and more than 3,300 water meters.

As the CEQA lead agency, WWD determined that the Shasta Dam Raise Project has the potential to result in significant environmental effects, and is preparing an EIR for the project.

1.2 Project Setting

Shasta Dam and Shasta Lake are located on the upper Sacramento River in Northern California, approximately 9 miles northwest of Redding in Shasta County. Because of the potential influence of the proposed modification of Shasta Dam and subsequent system operations and water deliveries on resources over a large geographic area, the project includes both a primary study area and an extended study area. As shown in Figure 1.2-1a, the primary study area includes Shasta Dam and Lake; the lower portions of all contributing major and minor tributaries flowing into Shasta Lake; Trinity and Lewiston reservoirs; and the Sacramento River between Shasta Dam and the Red Bluff Pumping Plant (RBPP), including tributaries at their confluence. The extended study area includes the Sacramento River downstream from the RBPP, including portions of the American and Feather river basins downstream from CVP/State Water Project (SWP) reservoirs and related facilities; the San Francisco Bay/Sacramento-San Joaquin Delta; lower portions of the San Joaquin River basin downstream from CVP reservoirs and related facilities (Friant and New Melones reservoirs); and CVP and SWP facilities and water service areas (shown in Figure 1.2-1b).

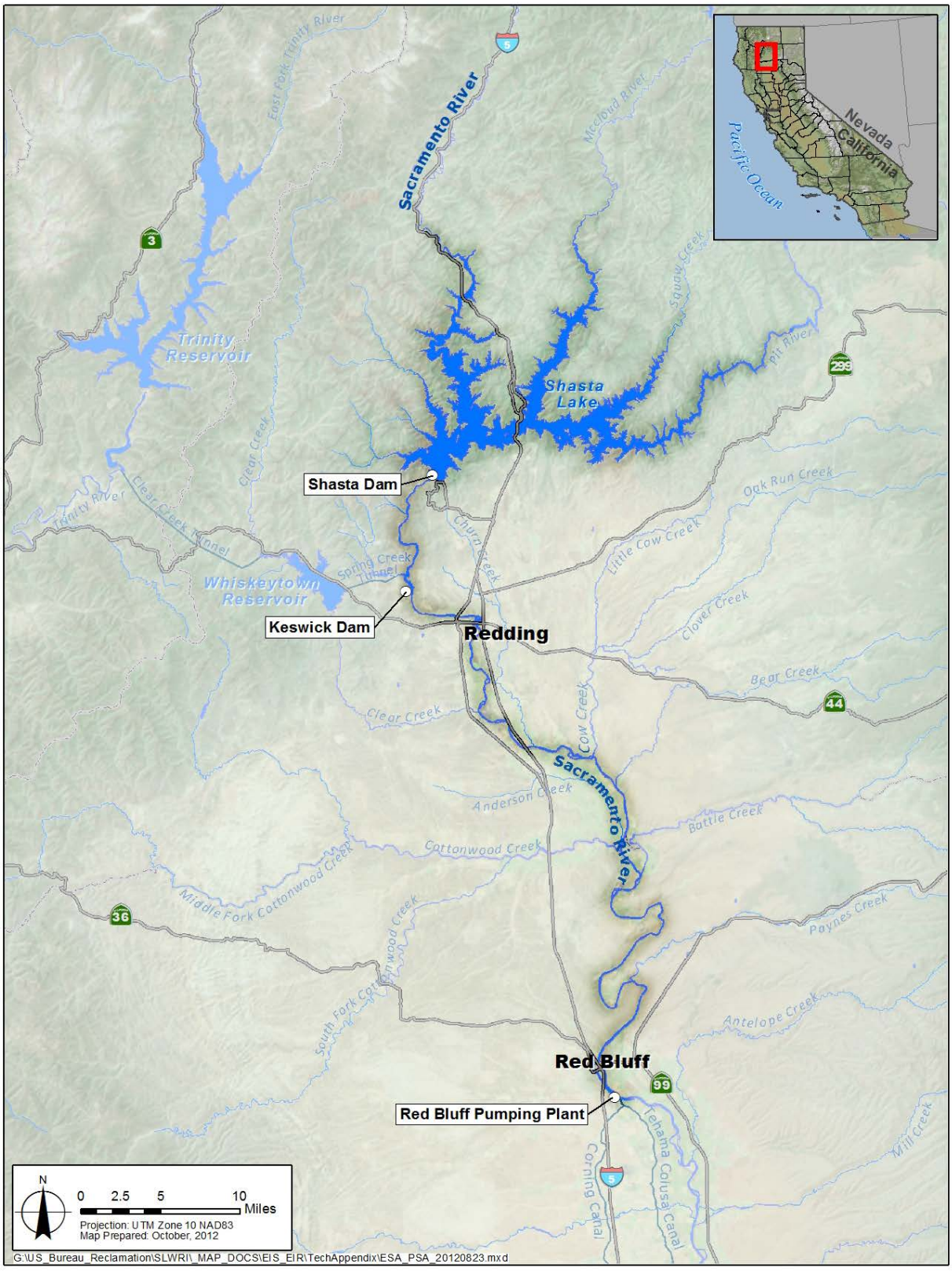

Figure 1.2-1a. Primary Study Area – Shasta Lake Area and Sacramento River from Shasta Dam to Red Bluff Pumping Plant

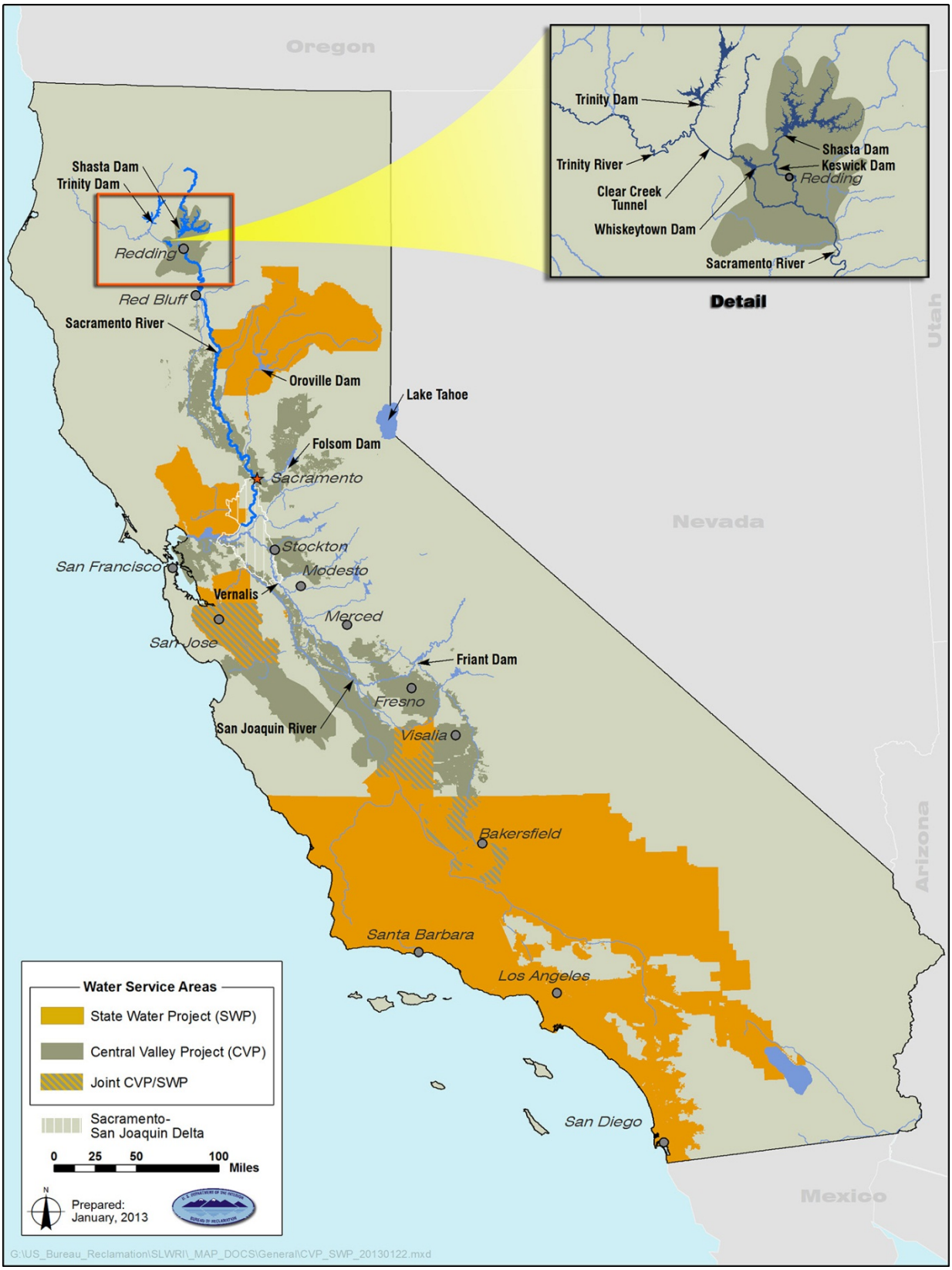

Figure 1.2-1b. Central Valley Project and State Water Project Facilities and Water Service Areas

1.3 Project Objectives

This project has two primary objectives and five secondary objectives to optimize the water supply benefits and improve environmental water management of Shasta Dam and Reservoir:

Primary Objectives

- Increase the survival of anadromous fish populations in the Sacramento River, primarily upstream from the RBPP
- Increase water supply and water supply reliability for agricultural, M&I, and environmental purposes to help meet current and future water demands

Secondary Objectives

- Conserve, restore, and enhance ecosystem resources in the Shasta Lake area and along the upper Sacramento River
- Reduce flood damage along the Sacramento River
- Develop additional hydropower generation capabilities at Shasta Dam
- Maintain and increase recreation opportunities at Shasta Lake
- Maintain or improve water quality conditions in the Sacramento River downstream from Shasta Dam and in the Delta

1.4 Project Description

In addition to the No Project Alternative, six action alternatives are anticipated to be evaluated in the project EIR. These six action alternatives were described in the 2014 Final SLWRI EIS, Chapter 2, “Alternatives.” Additional refinements to these action alternatives may occur through the CEQA process. In the Final SLWRI Feasibility Report and Final EIS, these action alternatives are referred to as comprehensive plans. For ease of reference, WWD anticipates the Draft EIR will use similar terminology.

Each of the comprehensive plans includes enlarging Shasta Dam and Reservoir and a variety of management measures aimed to address the project objectives. All of the comprehensive plans include eight common management measures:

- **Enlarge Shasta Lake cold-water pool** – All action alternatives would involve enlarging the cold-water pool by raising Shasta Dam to enlarge Shasta Reservoir.
- **Modify temperature control device** – Minimum modifications to the TCD under all action alternatives would include raising the existing structure and modifying the shutter control.
- **Increase conservation storage** – All action alternatives would increase the conservation storage in Shasta Reservoir by raising Shasta Dam.

- **Reduce demand** – All action alternatives would include a water conservation program to augment current water use efficiency practices.

- **Modify flood operations** – Enlarging Shasta Reservoir would require adjustment of the existing flood operation guidelines, or rule curves, to reflect physical modifications, such as an increase in dam/spillway elevation; the rule curves would be revised with the goal of reducing flood damage and enhancing other objectives to the extent feasible.

- **Modify hydropower facilities** – Enlarging Shasta Dam would require various modifications to the dam's existing hydropower facilities to enable their continued efficient use.

- **Maintain and increase recreation opportunities** – Recreation is important to the Shasta Lake region; therefore, existing recreation opportunities would be maintained and/or increased under all action alternatives.

- **Maintain or improve water quality** – All action alternatives would maintain and potentially improve water quality by increasing Delta outflow during drought years and reducing salinity during critical periods, and may also provide additional operational flexibility for responses to Delta emergencies.

1.4.1 Comprehensive Plan 1 (CP1) – 6.5-Foot Dam Raise, Anadromous Fish Survival and Water Supply Reliability

	CP1
Dam Raise	6.5 feet
Increased Storage	256,000 acre-feet
Focus	Anadromous Fish Survival & Water Supply Reliability
Major Components	Dam Modifications & Reservoir Area Relocations
	Mitigation Measures

Comprehensive Plan (CP)1 focuses on both anadromous fish survival and water supply reliability. This alternative primarily consists of enlarging Shasta Dam by raising the crest 6.5 feet and implementing the set of eight common management measures described above. CP1 would also include and mitigation measures. By raising Shasta Dam from a crest at elevation 1,077.5 feet above mean sea level (elevation 1,077.5) to elevation 1,084.0 (based on the National Geodetic Vertical Datum 1929 (NGVD29)),[1] in combination with spillway modifications, this alternative would increase the height of the reservoir's full pool by 8.5 feet. This increase in full pool height would add approximately 256,000 acre-feet of additional storage to the overall reservoir capacity. Accordingly, the overall full pool storage would increase from 4.55 MAF to 4.81 MAF.

Under CP1, the additional storage in Shasta Reservoir would be used to increase water supply reliability and to expand the cold-water pool for downstream anadromous fisheries. Enlarging Shasta Reservoir would increase the depth and volume of the cold-water pool, improving

[1] Dam crest elevations are based on NGVD29. All current feasibility-level designs and figures for Shasta Dam and appurtenant structures are based on NGVD29.

Reclamation's ability to release cold water from Shasta Dam and regulate seasonal water temperatures for fish in the upper Sacramento River during critical periods. This alternative (and all action alternatives) includes extending the existing TCD for efficient use of the expanded cold-water pool. CP1 would increase water supply reliability for agricultural, M&I, and environmental purposes. CP1 would also help reduce future water shortages by increasing irrigation and M&I deliveries, primarily during drought periods.

CP1 also addresses secondary planning objectives related to hydropower generation, recreation, flood damage reduction, ecosystem restoration, and water quality. Higher water surface elevations in the reservoir would result in an increase in power generation. CP1 includes features to at least maintain the existing recreation capacity at Shasta Lake, and water-oriented recreation experiences would be enhanced due to an increase in average lake surface area, reduced drawdown during the recreation season, and modernization of recreation facilities. Enlarging Shasta Dam would provide for incidental increased reservoir capacity to capture flood flows, which could reduce flood damage along the upper Sacramento River. Improved fisheries conditions as a result of CP1, and increased flexibility to meet flow and temperature requirements, could also enhance overall ecosystem resources in the Sacramento River. Additional storage in Shasta Reservoir would also provide improved operational flexibility for meeting Delta water quality objectives through increased and/or high-flow releases to improve Delta water quality.

Operations for water supply, hydropower, and environmental and other regulatory requirements would be similar to existing operations, except during dry and critical years when a portion of the increased storage in Shasta Reservoir would be reserved to specifically focus on increasing M&I deliveries. In dry years, 70,000 acre-feet of the 256,000 acre-feet increased storage capacity in Shasta Reservoir would be reserved for increasing M&I deliveries. In critical years, 35,000 acre-feet of the increased storage capacity would be reserved for increasing M&I deliveries.

1.4.2 Comprehensive Plan 2 (CP2) – 12.5-Foot Dam Raise, Anadromous Fish Survival and Water Supply Reliability

	CP2
Dam Raise	*12.5 feet*
Increased Storage	*443,000 acre-feet*
Focus	*Anadromous Fish Survival & Water Supply Reliability*
Major Components	*Dam Modifications & Reservoir Area Relocations*
	Mitigation Measures

CP2 focuses on both anadromous fish survival and water supply reliability. This alternative primarily consists of enlarging Shasta Dam by raising the crest 12.5 feet and implementing the set of eight common management measures described above. CP2 would also include mitigation measures. A dam raise of 12.5 feet was chosen because it represents a midpoint between the likely smallest dam raise considered and the largest practical dam raise that would not require relocating the Pit River Bridge. By raising Shasta Dam from a crest at elevation 1,077.5 to elevation 1,090.0 (NGVD29), in combination with spillway modifications, CP2 would increase the height of the reservoir's full pool by 14.5 feet. This increase in full pool height would add approximately 443,000 acre-feet of storage to the reservoir's capacity. Accordingly, storage in the overall full pool would increase from 4.55 MAF to 5.0 MAF.

Under CP2, the additional storage in Shasta Reservoir would be used to increase water supply reliability and to expand the cold-water pool for downstream anadromous fisheries. CP2 would increase the ability of Shasta Dam to regulate seasonal water temperatures for fish, primarily during critical periods, and would increase water supply reliability for agricultural, M&I, and environmental purposes. CP2 would also help reduce future water shortages through increasing irrigation and M&I deliveries, primarily during drought periods.

CP2 also addresses secondary planning objectives related to hydropower generation, recreation, flood damage reduction, ecosystem restoration, and water quality. Higher water surface elevations in the reservoir would result in an increase in power generation. CP2 includes features to at least maintain the existing recreation capacity at Shasta Lake, and water-oriented recreation experiences would be enhanced due to an increase in average lake surface area, reduced drawdown during the recreation season, and modernization of recreation facilities. Enlarging Shasta Dam would provide for incidental increased reservoir capacity to capture flood flows, which could reduce flood damage along the upper Sacramento River. Improved fisheries conditions as a result of CP2, and increased flexibility to meet flow and temperature requirements, could also enhance overall ecosystem resources in the Sacramento River. Additional storage in Shasta Reservoir would also provide improved operational flexibility for meeting Delta water quality objectives through increased and/or high-flow releases to improve Delta water quality.

Operations for water supply, hydropower, and environmental and other regulatory requirements would be similar to existing operations, except during dry and critical years when a portion of the increased storage in Shasta Reservoir would be reserved to specifically focus on increasing M&I deliveries. In dry years, 120,000 acre-feet of the 443,000 acre-feet increased storage capacity in Shasta Reservoir would be reserved for increasing M&I deliveries. In critical years,

60,000 acre-feet of the increased storage capacity would be reserved for increasing M&I deliveries.

1.4.3 Comprehensive Plan (CP3) – 18.5-Foot Dam Raise, Agricultural Water Supply Reliability and Anadromous Fish Survival

CP3 focuses on both agricultural water supply reliability and anadromous fish survival. This alternative primarily consists of enlarging Shasta Dam and Reservoir by raising the dam crest 18.5 feet and implementing the set of eight common management measures described above. CP3 would also include mitigation measures.

	CP3
Dam Raise	*18.5 feet*
Increased Storage	*634,000 acre-feet*
Focus	*Agricultural Water Supply Reliability & Anadromous Fish Survival*
Major Components	*Dam Modifications & Reservoir Area Relocations*
	Mitigation Measures

By raising Shasta Dam from a crest at elevation 1,077.5 to elevation 1,096.0 (NGVD29), in combination with spillway modifications, CP3 would increase the height of the reservoir's full pool by 20.5 feet. This increase in full pool height would add approximately 634,000 acre-feet of storage to the reservoir's capacity. Accordingly, storage in the overall full pool would be increased from 4.55 MAF to 5.19 MAF. Although higher dam raises are technically and physically feasible, 18.5 feet is the largest dam raise that would not require extensive and costly reservoir area relocations, such as relocating the Pit River Bridge, Interstate 5, and the Union Pacific Railroad tunnels.

Because CP3 focuses on increasing agricultural water supply reliability and anadromous fish survival, none of the increased storage capacity in Shasta Reservoir would be reserved for increasing M&I deliveries. Operations for water supply, hydropower, and environmental and other regulatory requirements would be similar to existing operations. The additional storage would be retained for water supply reliability and to expand the cold-water pool for downstream anadromous fisheries. CP3 would increase the ability of Shasta Dam to regulate seasonal water temperatures for fish, primarily during critical periods, and would increase water supply reliability for agricultural, M&I, and environmental purposes. CP3 would also help reduce future water shortages through increasing irrigation deliveries.

CP3 also addresses secondary planning objectives related to hydropower generation, recreation, flood damage reduction, ecosystem restoration, and water quality. Higher water surface elevations in the reservoir would result in an increase in power generation. CP3 includes features to at least maintain the existing recreation capacity at Shasta Lake, and water-oriented recreation experiences would be enhanced due to an increase in average lake surface area, reduced drawdown during the recreation season, and modernization of recreation facilities. Enlarging Shasta Dam would provide for incidental increased reservoir capacity to capture flood flows, which could reduce flood damage along the upper Sacramento River. Improved fisheries conditions as a result of CP3, and increased flexibility to meet flow and temperature requirements, could also enhance overall ecosystem resources in the Sacramento River. Additional storage in Shasta Reservoir would also provide improved operational flexibility

for meeting Delta water quality objectives through increased and/or high-flow releases to improve Delta water quality.

1.4.4 Comprehensive Plan 4 (CP4) and Comprehensive Plan 4A (CP4A) – 18.5-Foot Dam Raise, Anadromous Fish Focus with Water Supply Reliability

CP4 and CP4A focus on increasing anadromous fish survival, while also increasing water supply reliability. CP4 and CP4A are identical except for Shasta Dam and reservoir operations. CP4 and CP4A have similar reservoir operations in that they each dedicate a portion of the new storage in Shasta Lake for fisheries purposes; however, the portion of this dedicated storage varies.

	CP4 and CP4A
Dam Raise	*18.5 feet*
Increased Storage	*634,000 acre-feet*
Focus	*Anadromous Fish Survival with Water Supply Reliability*
Major Components	*Dam Modifications & Reservoir Area Relocations*
	Adaptive Management *CP4 –Reserving 378,000 acre-feet of Storage for Cold-Water Pool* *CP4A – Reserving 191,000 acre-feet of Storage for Cold-Water Pool*
	Augment Spawning Gravel
	Restore Riparian, Floodplain, & Side Channel Habitat

These alternatives primarily consist of enlarging Shasta Dam and Reservoir by raising the dam crest 18.5 feet and implementing the set of eight common management measures described above. CP4 and CP4A would also include mitigation measures. In addition, CP4 and CP4A would dedicate a portion of the increased storage in Shasta Reservoir for maintaining cold-water volumes to benefit anadromous fish in the upper Sacramento River. CP4 and CP4A also include two additional ecosystem restoration features: (1) augmenting spawning gravel in the upper Sacramento River at targeted locations to provide either immediate spawning habitat or long-term recruitment, and (2) restoring riparian, floodplain, and side channel habitat in the upper Sacramento River to provide rearing habitat for juvenile salmonids.

The additional storage created by the 18.5-foot dam raise would be used to improve the ability to meet water temperature objectives and habitat requirements for anadromous fish during drought years and increase water supply reliability. By raising Shasta Dam from a crest at elevation 1,077.5 to elevation 1,096.0 (NGVD29), in combination with spillway modifications, CP4 and CP4A would increase the overall full pool storage from 4.55 MAF to 5.19 MAF. Of the increased reservoir storage space, about 378,000 acre-feet would be dedicated to increasing the supply of cold water for anadromous fish survival purposes in CP4; 191,000 acre-feet would be dedicated in CP4A. Operations of the cold-water pool would be subject to an adaptive management plan that may include operational changes to the timing and magnitude of release from Shasta Dam to benefit anadromous fish. For CP4, operations for the remaining portion of increased storage (approximately 256,000 acre-feet) would be the same as for CP1, with 70,000 acre-feet reserved in dry years and 35,000 acre-feet reserved in critical years to specifically focus on increasing M&I deliveries. For CP4A, operations for the remaining portion of increased storage (approximately 443,000 acre-feet) would be the same as in CP2, with 120,000 acre-feet reserved in dry years and 60,000 acre-feet reserved in critical years to specifically focus on increasing M&I deliveries.

CP4 and CP4A also address secondary planning objectives related to hydropower generation, recreation, flood damage reduction, ecosystem restoration, and water quality. Higher water surface elevations in the reservoir would result in an increase in power generation. CP4 and CP4A include features to at least maintain the existing recreation capacity at Shasta Lake, and water-oriented recreation experiences would be enhanced due to an increase in average lake surface area, reduced drawdown during the recreation season, and modernization of recreation facilities. Enlarging Shasta Dam would provide for incidental increased reservoir capacity to capture flood flows, which could reduce flood damage along the upper Sacramento River. Improved fisheries conditions as a result of CP4 and CP4A, and increased flexibility to meet flow and temperature requirements, could also enhance overall ecosystem resources in the Sacramento River. Additional storage in Shasta Reservoir would also provide improved operational flexibility for meeting Delta water quality objectives through increased and/or high-flow releases to improve Delta water quality.

1.4.5 Comprehensive Plan 5 (CP5) – 18.5-Foot Dam Raise, Combination Plan

	CP5
Dam Raise	*18.5 feet*
Increased Storage	*634,000 acre-feet*
Focus	*Water Supply Reliability, Anadromous Fish Survival, Ecosystem Restoration, and Recreation*
Major Components	*Dam Modifications & Reservoir Area Relocations*
	Construct Resident Fish Habitat at Shasta Lake & along Tributaries
	Augment Spawning Gravel
	Restore Riparian, Floodplain, & Side Channel Habitat
	Increase Recreation Opportunities

CP5 focuses on anadromous fish survival, increased water supply reliability, ecosystem enhancements in the Shasta Lake area and the upper Sacramento River upstream from the RBPP, and increased recreation opportunities around Shasta Lake. This alternative primarily consists of raising Shasta Dam 18.5 feet; implementing the set of eight common management measures described above; constructing additional resident fish habitat in Shasta Lake and along the lower reaches of its tributaries (the Sacramento River, the McCloud River, and Squaw Creek); constructing shoreline fish habitat around Shasta Lake; augmenting spawning gravel in the upper Sacramento River; restoring riparian, floodplain, and side channel habitat in the upper Sacramento River; and increasing recreation opportunities at Shasta Lake. CP5 would also include mitigation measures. By raising Shasta Dam from a crest at elevation 1,077.5 to elevation 1,096.0 (NGVD29), in combination with spillway modifications, CP5 would increase the height of the reservoir's full pool by 20.5 feet, increasing the overall full pool storage from 4.55 MAF to 5.19 MAF.

Under CP5, the additional storage in Shasta Reservoir would be used to increase water supply reliability and to expand the cold-water pool for downstream anadromous fisheries. Enlarging Shasta Reservoir would increase the depth and volume of the cold-water pool, increasing the ability of Reclamation to release cold water from Shasta Dam and regulate seasonal water temperatures for fish in the upper Sacramento River during critical periods. This alternative (and

all action alternatives) includes extending the existing TCD for efficient use of the expanded cold-water pool. CP5 would increase water supply reliability for agricultural, M&I, and environmental purposes. CP5 would also help reduce future water shortages through increasing irrigation and M&I deliveries, primarily during drought periods.

CP5 also addresses secondary planning objectives related to hydropower generation, recreation, flood damage reduction, ecosystem restoration, and water quality. Higher water surface elevations in the reservoir would result in an increase in power generation. CP5 includes features to at least maintain the existing recreation capacity at Shasta Lake, and water-oriented recreation experiences would be enhanced due to an increase in average lake surface area, reduced drawdown during the recreation season, and modernization of recreation facilities. Enlarging Shasta Dam would provide for incidental increased reservoir capacity to capture flood flows, which could reduce flood damage along the upper Sacramento River. Improved fisheries conditions as a result of CP5, and increased flexibility to meet flow and temperature requirements, could also enhance overall ecosystem resources in the Sacramento River. Additional storage in Shasta Reservoir would also provide improved operational flexibility for meeting Delta water quality objectives through increased and/or high-flow releases to improve Delta water quality.

Operations for water supply, hydropower, and environmental and other regulatory requirements would be similar to existing operations, except during dry and critical years when a portion of the increased storage in Shasta Reservoir would be reserved to specifically focus on increasing M&I deliveries. In dry years, 150,000 acre-feet of the 634,000 acre-feet increased storage capacity in Shasta Reservoir would be reserved for increasing M&I deliveries. In critical years, 75,000 acre-feet of the increased storage capacity would be reserved for increasing M&I deliveries.

1.4.6 Summary of Comprehensive Plan Physical Features

The following sections describe the physical features of the comprehensive plans (action alternatives).

Physical Features
The comprehensive plans (action alternatives) involve raising Shasta Dam by 6.5 feet to 18.5 feet, increasing the storage capacity in Shasta Reservoir by 256,000 acre-feet to 634,000 acre-feet, and constructing a common set of features, as shown in Table 1.4-6. Features and related construction activities under all comprehensive plans would include the following:

- Clearing vegetation from portions of the inundated reservoir area
- Constructing the dam, appurtenant structures, reservoir area dikes, and railroad embankments
- Relocating roadways, bridges, recreation facilities, utilities, and miscellaneous minor infrastructure

Table 1.4-6. Summary of Physical Features of Action Alternatives

	Action Alternatives					
Main Features	**CP1**	**CP2**	**CP3**	**CP4**	**CP4A**	**CP5**
Dam and Appurtenant Structures						
Shasta Dam						
Crest Raise (feet)	6.5	12.5	18.5	18.5	18.5	18.5
Full Pool Height Increase (feet)	8.5	14.5	20.5	20.5	20.5	20.5
Elevation of Dam Crest (feet)[1]	1084.0	1090.0	1096.0	1096.0	1096.0	1096.0
Elevation of Full Pool (feet)[2]	1,078.2	1,084.2	1,090.2	1,090.2	1,090.2	1,090.2
Capacity Increase (acre-feet)	256,000	443,000	634,000	634,000	634,000	634,000
Main Dam	Raise dam crest. Construct new parapets and utility gallery. Raise existing elevator tower and hoist tower.	Raise dam crest. Construct new parapets and utility gallery. Raise existing elevator tower and hoist tower.	Raise dam crest. Construct new parapets and utility gallery. Raise existing elevator tower and hoist tower.	Raise dam crest. Construct new parapets and utility gallery. Raise existing elevator tower and hoist tower.	Raise dam crest. Construct new parapets and utility gallery. Raise existing elevator tower and hoist tower.	Raise dam crest. Construct new parapets and utility gallery. Raise existing elevator tower and hoist tower.
Wing Dams	Raise to meet dam crest. Relocate gantry crane on right wing dam.	Raise to meet dam crest. Relocate gantry crane on right wing dam.	Raise to meet dam crest. Relocate gantry crane on right wing dam.	Raise to meet dam crest. Relocate gantry crane on right wing dam.	Raise to meet dam crest. Relocate gantry crane on right wing dam.	Raise to meet dam crest. Relocate gantry crane on right wing dam.
Spillway	Raise crest and extend piers. Replace 3 drum gates with 6 sloping fixed-wheel gates.	Raise crest and extend piers. Replace 3 drum gates with 6 sloping fixed-wheel gates.	Raise crest and extend piers. Replace 3 drum gates with 6 sloping fixed-wheel gates.	Raise crest and extend piers. Replace 3 drum gates with 6 sloping fixed-wheel gates.	Raise crest and extend piers. Replace 3 drum gates with 6 sloping fixed-wheel gates.	Raise crest and extend piers. Replace 3 drum gates with 6 sloping fixed-wheel gates.
River Outlets	Replace 4 lower-tier tube valves with jet flow gates.	Replace 4 lower-tier tube valves with jet flow gates.	Replace 4 lower-tier tube valves with jet flow gates.	Replace 4 lower-tier tube valves with jet flow gates.	Replace 4 lower-tier tube valves with jet flow gates.	Replace 4 lower-tier tube valves with jet flow gates.
Temperature Control Device	Raise/modify controls.	Raise/modify controls.	Raise/modify controls.	Raise/modify controls.	Raise/modify controls.	Raise/modify controls.
Shasta Powerplant/ Penstocks	Raise penstock hoists.	Raise penstock hoists.	Raise penstock hoists.	Raise penstock hoists.	Raise penstock hoists.	Raise penstock hoists.

Table 1.4-6. Summary of Physical Features of Action Alternatives (contd.)

	Action Alternatives					
Main Features	**CP1**	**CP2**	**CP3**	**CP4**	**CP4A**	**CP5**
Pit 7 Dam/Powerhouse	Increase height of training walls on dam spillway. Install a tailwater depression system. Modify other Pit 7 ancillary facilities.	Increase height of training walls on dam spillway. Install a tailwater depression system. Modify other Pit 7 ancillary facilities.	Increase height of training walls on dam spillway. Install a tailwater depression system. Modify other Pit 7 ancillary facilities.	Increase height of training walls on dam spillway. Install a tailwater depression system. Modify other Pit 7 ancillary facilities.	Increase height of training walls on dam spillway. Install a tailwater depression system. Modify other Pit 7 ancillary facilities.	Increase height of training walls on dam spillway. Install a tailwater depression system. Modify other Pit 7 ancillary facilities.
Reservoir Area Clearing	Clear 150 acres completely and 220 acres with overstory removal.	Clear 240 acres completely and 350 acres with overstory removal.	Clear 340 acres completely and 500 acres with overstory removal.	Clear 340 acres completely and 500 acres with overstory removal.	Clear 340 acres completely and 500 acres with overstory removal.	Clear 340 acres completely and 500 acres with overstory removal.
Reservoir Area Dikes and Railroad Embankments	Construct 3 railroad embankments and 2 new dikes.	Construct 3 railroad embankments and 3 new dikes.	Construct 3 railroad embankments and 4 new dikes.	Construct 3 railroad embankments and 4 new dikes.	Construct 3 railroad embankments and 4 new dikes.	Construct 3 railroad embankments and 4 new dikes.
Relocations						
Roadways	Match replacement widths to existing paved roads to be replaced.	Match replacement widths to existing paved roads to be replaced.	Match replacement widths to existing paved roads to be replaced.	Match replacement widths to existing paved roads to be replaced.	Match replacement widths to existing paved roads to be replaced.	Match replacement widths to existing paved roads to be replaced.
Length of Relocated Roadway (linear feet)	16,700	28,400	33,100	33,100	33,100	33,100
Number of Road Segments Affected	10	21	30	30	30	30
Vehicle Bridges	Relocate 4 bridges, modify 1 bridge.	Relocate 4 bridges, modify 1 bridge.	Relocate 4 bridges, modify 1 bridge.	Relocate 4 bridges, modify 1 bridge.	Relocate 4 bridges, modify 1 bridge.	Relocate 4 bridges, modify 1 bridge.
Railroad	Relocate 2 bridges and realign track in-between, modify 1 bridge	Relocate 2 bridges and realign track in-between, modify 1 bridge	Relocate 2 bridges and realign track in-between, modify 1 bridge	Relocate 2 bridges and realign track in-between, modify 1 bridge	Relocate 2 bridges and realign track in-between, modify 1 bridge	Relocate 2 bridges and realign track in-between, modify 1 bridge
Recreation Facilities	Modify or replace 9 marinas, 6 public boat ramps, 6 resorts, 202 campsites/day-use sites/RV sites, 2 USFS facilities, 8.1 miles of trail, and 2 trailheads.	Modify or replace 9 marinas, 6 public boat ramps, 6 resorts, 261 campsites/ day-use sites/RV sites, 2 USFS facilities, 9.9 miles of trail, and 2 trailheads.	Modify or replace 9 marinas, 6 public boat ramps, 6 resorts, 328 campgrounds/day-use areas/RV sites, 2 USFS facilities, 11.6 miles of trail, and 2 trailheads.	Modify or replace 9 marinas, 6 public boat ramps, 6 resorts, 328 campgrounds/day-use areas/RV sites, 2 USFS facilities, 11.6 miles of trail, and 2 trailheads.	Modify or replace 9 marinas, 6 public boat ramps, 6 resorts, 328 campgrounds/day-use areas/RV sites, 2 USFS facilities, 11.6 miles of trail, and 2 trailheads.	Modify or replace 9 marinas, 6 public boat ramps, 6 resorts, 328 campgrounds/day-use areas/RV sites, 2 USFS facilities, 11.6 miles of trail, and 2 trailheads. Add 6 trailheads and 18 miles of new hiking trails.
Utilities	Relocate inundated utilities. Construct wastewater treatment facilities.	Relocate inundated utilities. Construct wastewater treatment facilities.	Relocate inundated utilities. Construct wastewater treatment facilities.	Relocate inundated utilities. Construct wastewater treatment facilities.	Relocate inundated utilities. Construct wastewater treatment facilities.	Relocate inundated utilities. Construct wastewater treatment facilities.

Table 1.4-6. Summary of Physical Features of Action Alternatives (contd.)

Action Alternatives						
Main Features	**CP1**	**CP2**	**CP3**	**CP4**	**CP4A**	**CP5**
Ecosystem Enhancements	None	None	None	Reserve 378 TAF of the additional storage for cold-water supply for anadromous fish. Implement adaptive management plan to benefit anadromous fish. Augment spawning gravel in the upper Sacramento River at the rate of up to 10,000 tons per year. Restore riparian, floodplain, and side channel habitat along the upper Sacramento River.	Reserve 191 TAF of the additional storage for cold-water supply for anadromous fish. Implement adaptive management plan to benefit anadromous fish. Augment spawning gravel in the upper Sacramento River at the rate of up to 10,000 tons per year. Restore riparian, floodplain, and side channel habitat along the upper Sacramento River.	Construct shoreline fish habitat around Shasta Lake. Enhance aquatic habitat in tributaries to Shasta Lake to improve fish passage. Augment spawning gravel in the upper Sacramento River at the rate of up to 10,000 tons per year. Restore riparian, floodplain, and side channel habitat along the upper Sacramento River.

Notes:
[1] Dam crest elevations are based on the National Geodetic Vertical Datum of 1929 (NGVD29). All current feasibility-level designs and figures for Shasta Dam and appurtenant structures are based on NGVD29.
[2] Full pool elevations are based on the North American Vertical Datum of 1988 (NAVD88), which is 2.66 feet higher than NGVD29. All current feasibility-level designs and figures for reservoir area infrastructure modifications and relocations to accommodate increased water levels are based on a 2001 aerial survey of the reservoir using NAVD88.

Key:
CP = comprehensive plan
RV = recreational vehicle
TAF = thousand acre-feet
USFS = U.S. Department of Agriculture, Forest Service

Comprehensive plans CP4, CP4A, and CP5 would also include features and related construction activities associated with gravel augmentation and restoring riparian, floodplain, and side channel habitat along the upper Sacramento River. Additional features and related construction activities associated with Shasta Lake and tributary shoreline enhancements and features to increase Shasta Lake recreation opportunities are included under CP5. Figure 1.4-6 shows major features in the Shasta Lake area common to all comprehensive plans.

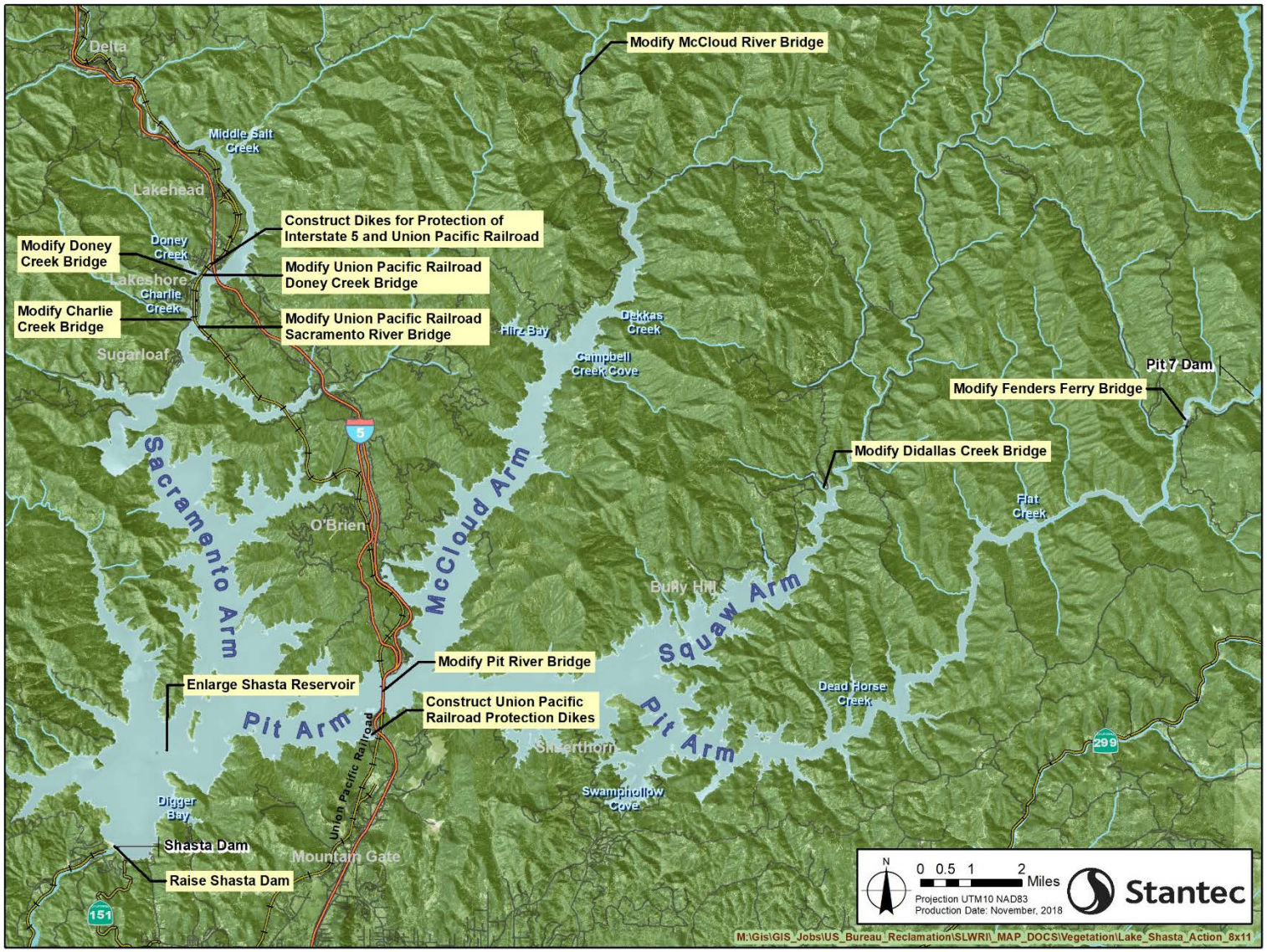

Figure 1.4-6. Major Features Common to All Action Alternatives

1.5 Environmental Review

The EIR prepared by WWD for this project will be used by WWD and, potentially, other agencies to make the CEQA discretionary decisions necessary for project authorization and implementation consistent with federal, state and local agency requirements.

1.5.1 Topics to be Analyzed in EIR

Based on the potential for the proposed project to result in significant impacts on the environment, WWD determined that an EIR is the appropriate level of environmental review. The EIR will assess the proposed project's effects on the environment and identify potentially significant impacts and feasible mitigation measures to reduce or eliminate those impacts. An alternatives analysis for the proposed project will also be included in the EIR. Topics to be analyzed in the EIR, include, but are not necessarily limited to the following: aesthetics, agriculture and forestry resources, air quality, biological resources, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, transportation and traffic, tribal cultural resources, and utilities and service systems. Comments on the Notice of Preparation (NOP) may modify or add to the preliminary assessment of potential issues that will be addressed in the EIR.

1.5.2 Environmental Procedures

The NOP initiates the CEQA process, through which WWD will refine the range of issues and project alternatives to be addressed in the Draft EIR. Please submit any comments on the NOP and the scope of issues to be included in the EIR within 30 days of receipt of this notice (see contact information below). After the 30-day review period for the NOP is complete and all comments have been received, a Draft EIR will be prepared in accordance with CEQA.

Once the Draft EIR is completed, it will be made available for a 45-day public review and comment period. Copies of the Draft EIR will be sent directly to those agencies commenting on the NOP and will also be made available to the public at several locations, including WWD headquarters. Information about the availability of the Draft EIR will also be posted on WWD's website (https://wwd.ca.gov/).

1.6 Contact Information

For further information, please contact:

Kirsten Pringle
Associate Public Affairs Specialist

Attn: Stantec
3301 C Street, Suite 1900
Sacramento, CA 95816
E: shastadameir@stantec.com

Additional information relevant to the project and the Draft EIR can be found at https://wwd.ca.gov/.

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CHAPTER 2
ENVIRONMENTAL EVALUATION

2.1 Overview

Project Title:	**Shasta Dam Raise Project**
Lead agency name and address:	Westlands Water District 3130 N. Fresno Street P.O. Box 6056 Fresno, CA 93703-6056
Contact person and phone number:	Jose Gutierrez, Assistant Chief Operating Officer, Westlands Water District, (559) 241-6215
Project location:	Shasta Dam and Shasta Lake are located on the upper Sacramento River in Northern California, approximately 9 miles northwest of Redding in Shasta County. Because of the potential influence of the proposed modification of Shasta Dam and subsequent system operations and water deliveries on resources over a large geographic area, the project includes both a primary study area and an extended study area. The primary study area includes Shasta Dam and Lake; the lower portions of all contributing major and minor tributaries flowing into Shasta Lake; Trinity and Lewiston reservoirs; and the Sacramento River between Shasta Dam and the RBPP, including tributaries at their confluences. The extended study area includes the Sacramento River downstream from the RBPP, including portions of the American and Feather river basins downstream from CVP/SWP reservoirs and related facilities; the San Francisco Bay/Sacramento-San Joaquin Delta; lower portions of the San Joaquin River basin downstream from CVP reservoirs and related facilities (Friant and New Melones reservoirs); and CVP and SWP facilities and water service areas.
Project sponsor's name and address:	Westlands Water District 3130 N. Fresno Street P.O. Box 6056 Fresno, CA 93703-6056
Land designation:	Land uses in the Shasta Lake and vicinity portion of the primary study area consist primarily of open space and other land uses that support recreational activities in the Shasta Unit of the Whiskeytown-Shasta-Trinity National Recreation Area. This includes riparian reserves and some commercial land. Residential land uses in this area typically characterized as low density and rural. Land uses in the upper Sacramento River area consist of urban, residential, municipal and industrial, and agricultural uses. Land uses in the extended study area vary greatly and include agricultural, open space, low to medium density residential, and recreational.

Key:
CVP = Central Valley Project
RBPP = Red Bluff Pumping Plant
SWP = State Water Project

2.2 Environmental Checklist Evaluation

The following preliminary evaluation of potential environmental effects was prepared for the Shasta Dam Raise Project consistent with the Environmental Checklist Form provided in Appendix G of the CEQA Guidelines.

2.2.1 Aesthetics

Table 2.2-1a shows preliminary impact determinations for the items in the Environmental Checklist Form related to aesthetics. These preliminary impact determinations are based primarily on the analysis in the 2014 SLWRI Final EIS. Refinements to these impact determinations may occur through scoping and the subsequent analysis supporting the CEQA process. Table 2.2-1b shows the impact statements from the 2014 SLWRI Final EIS that are relevant to aesthetics. The first column in Table 2.2-1b correlates to the questions for aesthetics in the CEQA Guidelines for each impact statement in the 2014 SLWRI Final EIS.

Table 2.2-1a. Aesthetics Section from CEQA Guidelines Appendix G – Environmental Checklist Form

I. AESTHETICS: Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Have a substantial adverse effect on a scenic vista?	☒	☐	☐	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a designated scenic highway?	☐	☐	☒	☐
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☒	☐	☐	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☒	☐	☐	☐

Key:
CEQA = California Environmental Quality Act

Table 2.2-1b. Impacts from 2014 SLWRI Final EIS Corresponding to CEQA Guidelines Questions for Aesthetics

CEQA Guidelines Question	Impact from 2014 SLWRI Final EIS	Impact Determinations in 2014 SLWRI Final EIS			
		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
See EIS Chapter 18, "Aesthetics and Visual Resources"[1] Section 18.3, "Environmental Consequences and Mitigation Measures"					
a, c	Impact Vis-2: Degradation and/or Obstruction of a Scenic View from Key Observation Points (Shasta Lake and Vicinity and Upper Sacramento River)	☒	☐	☐	☐
d	Impact Vis-3: Generation of Increased Daytime Glare and/or Nighttime Lighting (Shasta Lake and Vicinity and Upper Sacramento River)	☒	☐	☐	☐
b	Impact Vis-4: Consistency with Federal and State Scenic Highway Requirements (Shasta Lake and Vicinity and Upper Sacramento River)	☐	☐	☒	☐

Note:
[1] Impact Vis-1 is included in Table 2.2-10b in Section 2.2.10, "Land Use and Planning," of this chapter.
Key:
CEQA = California Environmental Quality Act
EIS = Environmental Impact Statement
SLWRI = Shasta Lake Water Resources Investigation

2.2.2 Agriculture and Forestry Resources

Table 2.2-2a shows preliminary impact determinations for the items in the Environmental Checklist Form related to agricultural and forestry resources. These preliminary impact determinations are based primarily on the analysis in the 2014 SLWRI Final EIS. Refinements to these impact determinations may occur through scoping and the subsequent analysis supporting the CEQA process. Table 2.2-2b shows the impact statements from the 2014 SLWRI Final EIS that are relevant to agriculture and forestry resources. The first column in Table 2.2-2b correlates to the questions for agriculture and forestry resources in the CEQA Guidelines for each impact statement in the 2014 SLWRI Final EIS.

CEQA Guidelines question c for Agriculture and Forestry Resources (e.g., forest and timberland zoning) was considered in the 2014 SLWRI Final EIS. As described in Section 10.3.3 of Chapter 10, “Agricultural and Important Farmland,” (Topics Eliminated from Further Discussion) of the SLWRI Final EIS, none of the lands in the primary study area are zoned forest land, timberland, or timberland zoned Timberland Production in the *Shasta County General Plan* (2004) or the *Tehama County General Plan* (2009). Increasing water supply reliability in the lower Sacramento River to the Delta and in the CVP/SWP service areas would not conflict with existing zoning or directly result in the rezoning of forest land, timberland, or timberland zoned Timberland Production. Therefore, no effects related to conflicts with existing zoning or causing rezoning of forest land are expected to occur in the study area. Accordingly, the EIR is not anticipated to address CEQA Guidelines Question c for Agriculture and Forestry Resources (see Table 2.2-2a).

Table 2.2-2a. Agriculture and Forestry Resources Section from CEQA Guidelines Appendix G – Environmental Checklist Form

II. AGRICULTURE AND FORESTRY RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☒	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☒	☐
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Protection (as defined by Government Code section 51104(g)?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☒	☐	☐	☐
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non- forest use?	☒	☐	☐	☐

Key:
CEQA = California Environmental Quality Act

Table 2.2-2b. Impacts from 2014 SLWRI Final EIS Corresponding to CEQA Guidelines Questions for Agriculture and Forestry Resources

CEQA Guidelines Question	Impact from 2014 SLWRI Final EIS	Impact Determinations in 2014 SLWRI Final EIS			
		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
See EIS Chapter 10, "Agriculture and Important Farmland" Section 10.3, "Environmental Consequences and Mitigation Measures"					
a, b, e	Impact Ag-1: Direct and Indirect Conversion of Important Farmland to Nonagricultural Uses and Cancellation of Williamson Act Contracts in the Vicinity of Shasta Lake	☐	☐	☐	☒
d, e	Impact Ag-2: Direct and Indirect Conversion of Forest Land to Nonforest Uses in the Vicinity of Shasta Lake	☒	☐	☐	☐
a, b, e	Impact Ag-3: Direct and Indirect Conversion of Important Farmland to Nonagricultural Uses and Cancellation of Williamson Act Contracts Along the Upper Sacramento River	☐	☐	☒	☐
d, e	Impact Ag-4: Direct and Indirect Conversion of Forest Land to Nonforest Uses Along the Upper Sacramento River	☐	☐	☒	☐
a, b, e	Impact Ag-5: Direct and Indirect Conversion of Important Farmland to Nonagricultural Uses and Cancellation of Williamson Act Contracts in the Extended Study Area	☐	☐	☒	☐
d	Impact Ag-6: Direct and Indirect Conversion of Forest Land to Nonforest Uses in the Extended Study Area	☐	☐	☒	☐

Key:
CEQA = California Environmental Quality Act
EIS = Environmental Impact Statement
SLWRI = Shasta Lake Water Resources Investigation

2.2.3 Air Quality

Table 2.2-3a shows preliminary impact determinations for the items in the Environmental Checklist Form related to air quality. These preliminary impact determinations are based primarily on the analysis in the 2014 SLWRI Final EIS. Refinements to these impact determinations may occur through scoping and the subsequent analysis supporting the CEQA process. Table 2.2-3b shows the impact statements from the 2014 SLWRI Final EIS that are relevant to air quality. The first column in Table 2.2-3b correlates to the questions for air quality in the CEQA Guidelines for each impact statement in the 2014 SLWRI Final EIS.

Table 2.2-3a. Air Quality Section from CEQA Guidelines Appendix G – Environmental Checklist Form

III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Conflict with or obstruct implementation of applicable air quality plans?	☒	☐	☐	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☒	☐	☐	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☒	☐	☐	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Key:
CEQA = California Environmental Quality Act

Table 2.2-3b. Impacts from 2014 SLWRI Final EIS Corresponding to CEQA Guidelines Questions for Air Quality

CEQA Guidelines Question	Impact from 2014 SLWRI Final EIS	Impact Determinations in 2014 SLWRI Final EIS			
		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
See EIS Chapter 5, "Air Quality and Climate" Section 5.3, "Environmental Consequences and Mitigation Measures"					
a, b, c	Impact AQ-1: Short-Term Emissions of Criteria Air Pollutants and Precursors at Shasta Lake and Vicinity During Project Construction	☒	☐	☐	☐
a, b, c	Impact AQ-2: Long-Term Emissions of Criteria Air Pollutants and Precursors During Project Operation	☐	☐	☒	☐
a, d	Impact AQ-3: Exposure of Sensitive Receptors to Substantial Pollutant Concentrations	☐	☐	☒	☐
e	Impact AQ-4: Exposure of Sensitive Receptors to Odor Emissions	☐	☐	☒	☐
a, b, c	Impact AQ-5: Short-Term Emissions of Criteria Air Pollutants and Precursors Below Shasta Dam During Project Construction	☐	☐	☒	☐

Note:

[1] Impact AQ-6 is included under Section 2.2.7 "Greenhouse Gas Emissions" of this chapter.

Key:
CEQA = California Environmental Quality Act
EIS = Environmental Impact Statement
SLWRI = Shasta Lake Water Resources Investigation

2.2.4 Biological Resources

Table 2.2-4a shows preliminary impact determinations for the items in the Environmental Checklist Form related to biological resources. These preliminary impact determinations are based primarily on the analysis in the 2014 SLWRI Final EIS. Refinements to these impact determinations may occur through scoping and the subsequent analysis supporting the CEQA process. Table 2.2-4b shows the impact statements from the 2014 SLWRI Final EIS that are relevant to biological resources. The first column in Table 2.2-4b correlates to the questions for biological resources in the CEQA Guidelines for each impact statement in the 2014 SLWRI Final EIS.

Table 2.2-4a. Biological Resources Section from CEQA Guidelines Appendix G – Environmental Checklist Form

IV. BIOLOGICAL RESOURCES: Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, or National Marine Fisheries Service?	☒	☐	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, or National Marine Fisheries Service?	☒	☐	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☒	☐	☐	☐
d) Interfere substantially with the movement of any native resident or migratory species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☒	☐	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☒	☐	☐

Key:
CEQA = California Environmental Quality Act

Table 2.2-4b. Impacts from 2014 SLWRI Final EIS Corresponding to CEQA Guidelines Questions for Biological Resources

CEQA Guidelines Question	Impact from 2014 SLWRI Final EIS	Impact Determinations in 2014 SLWRI Final EIS			
		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
See EIS Chapter 11, "Fisheries and Aquatic Resources" Section 11.3, "Environmental Consequences and Mitigation Measures"					
a, d	Impact Aqua-1: Effects on Nearshore, Warm-Water Habitat in Shasta Lake from Project Operations	☐	☐	☒	☐
a, d	Impact Aqua-2: Effects on Nearshore, Warm-Water Habitat in Shasta Lake from Project Construction	☐	☐	☒	☐
a, d	Impact Aqua-3: Effects on Cold-Water Habitat in Shasta Lake	☐	☐	☒	☐
a	Impact Aqua-4: Effects on Special-Status Aquatic Mollusks	☐	☒	☐	☐
a, d	Impact Aqua-5: Effects on Special-Status Fish Species	☐	☐	☒	☐
a, d	Impact Aqua-6: Creation or Removal of Barriers to Fish Between Tributaries and Shasta Lake	☐	☐	☒	☐
a, d	Impact Aqua-7: Effects on Spawning and Rearing Habitat of Adfluvial Salmonids in Low-Gradient Tributaries to Shasta Lake	☐	☒	☐	☐
d	Impact Aqua-8: Effects on Aquatic Connectivity in Non-Fish-Bearing Tributaries to Shasta Lake	☐	☐	☒	☐
a	Impact Aqua-9: Effects on Water Quality at Livingston Stone Hatchery	☐	☐	☐	☒
a, d	Impact Aqua-10: Loss or Degradation of Aquatic Habitat in the Upper Sacramento River During Construction Activities	☐	☐	☒	☐
a	Impact Aqua-11: Release and Exposure of Contaminants in the Upper Sacramento River During Construction Activities	☐	☐	☒	☐
a, d	Impact Aqua-12: Changes in Flow and Water Temperature in the Upper Sacramento River Resulting from Project Operation—Chinook Salmon and Steelhead	☐	☐	☒	☐

Table 2.2-4b. Impacts from 2014 SLWRI Final EIS Corresponding to CEQA Guidelines Questions for Biological Resources (contd.)

CEQA Guidelines Question	Impact from 2014 SLWRI Final EIS	Impact Determinations in 2014 SLWRI Final EIS			
		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
See EIS Chapter 11, "Fisheries and Aquatic Resources" Section 11.3, "Environmental Consequences and Mitigation Measures"					
a, d	Impact Aqua-13: Changes in Flow and Water Temperature in the Upper Sacramento River Resulting from Project Operation— Steelhead, Green Sturgeon, Sacramento Splittail, American Shad, and Striped Bass	☐	☐	☒	☐
a, b	Impact Aqua-14: Reduction in Ecologically Important Geomorphic Processes in the Upper Sacramento River Resulting from Reduced Frequency and Magnitude of Intermediate to High Flows	☐	☒	☐	☐
a, d	Impact Aqua-15: Changes in Flow and Water Temperatures in the Lower Sacramento River and Tributaries and Trinity River Resulting from Project Operation – Fish Species of Primary Management Concern	☐	☒	☐	☐
a, b	Impact Aqua-16: Reduction in Ecologically Important Geomorphic Processes in the Lower Sacramento River Resulting from Reduced Frequency and Magnitude of Intermediate to High Flows	☐	☒	☐	☐
a, d	Impact Aqua-17: Effects to Delta Fishery Habitat Resulting from Changes to Delta Outflow	☐	☐	☒	☐
a, d	Impact Aqua-18: Effects to Delta Fisheries Resulting from Changes to Delta Inflow	☐	☐	☒	☐
a, d	Impact Aqua-19: Effects to Delta Fisheries Resulting from Changes in Sacramento River Inflow	☐	☐	☒	☐
a, d	Impact Aqua-20: Effects to Delta Fisheries Resulting from Changes in San Joaquin River Flow at Vernalis	☐	☐	☐	☒
a, d	Impact Aqua-21: Reduction in Low-Salinity Habitat Conditions Resulting from an Upstream Shift in X2 Location	☐	☐	☒	☐
a, d	Impact Aqua-22: Increase in Mortality of Species of Primary Management Concern as a Result of Increased Reverse Flows in Old and Middle Rivers	☐	☐	☒	☐

Table 2.2-4b. Impacts from 2014 SLWRI Final EIS Corresponding to CEQA Guidelines Questions for Biological Resources (contd.)

CEQA Guidelines Question	Impact from 2014 SLWRI Final EIS	Impact Determinations in 2014 SLWRI Final EIS			
		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
See EIS Chapter 11, "Fisheries and Aquatic Resources" Section 11.3, "Environmental Consequences and Mitigation Measures"					
a, d	Impact Aqua-23: Increase in the Risk of Entrainment or Salvage of Species of Primary Management Concern at CVP and SWP Export Facilities Due to Changes in CVP and SWP Exports	☐	☒	☐	☐
a, d	Impact Aqua-24: Impacts on Aquatic Habitats and Fish Populations in the CVP and SWP Service Areas Resulting from Modifications to Existing Flow Regimes	☐	☐	☒	☐
See EIS Chapter 12, "Botanical Resources and Wetlands" Section 12.3, "Environmental Consequences and Mitigation Measures"					
a	Impact Bot-1: Loss of Federally or State Listed Plant Species	☐	☐	☐	☒
N/A	Impact Bot-2: Loss of MSCS Covered Species	☒	☐	☐	☐
a	Impact Bot-3: Loss of USFS Sensitive, BLM Sensitive, or CRPR Species	☒	☐	☐	☐
c	Impact Bot-4: Loss of Jurisdictional Waters	☒	☐	☐	☐
a, b	Impact Bot-5: Loss of General Vegetation Habitats	☒	☐	☐	☐
e	Impact Bot-6: Spread of Noxious and Invasive Weeds	☐	☒	☐	☐
a, b, e, f	Impact Bot-7: Altered Structure and Species Composition and Loss of Sensitive Plant Communities and Special-Status Plant Species Resulting from Altered Flow Regimes	☐	☒	☐	☐
f	Impact Bot-8: Conflict with Approved Local or Regional Plans with Objectives of Riparian Habitat Protection or Watershed Management	☐	☒	☐	☐
a, b	Impact Bot-9: Disturbance or Removal of Designated Critical Habitat for Special-Status Species	☐	☐	☒	☐
a, b	Impact Bot-10: Loss of Sensitive Plant Communities and Special-Status Plant Species Resulting from Induced Growth	☐	☐	☒	☐

Table 2.2-4b. Impacts from 2014 SLWRI Final EIS Corresponding to CEQA Guidelines Questions for Biological Resources (contd.)

CEQA Guidelines Question	Impact from 2014 SLWRI Final EIS	Impact Determinations in 2014 SLWRI Final EIS			
		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
See EIS Chapter 12, "Botanical Resources and Wetlands" Section 12.3, "Environmental Consequences and Mitigation Measures"					
a, b, c, f	Impact Bot-11: Loss of Sensitive Natural Communities or Habitats Resulting from Implementing the Gravel Augmentation Program or Restoring Riparian, Floodplain, and Side Channel Habitats	☐	☒	☐	☐
a	Impact Bot-12: Loss of Special-Status Plants Resulting from Implementing the Gravel Augmentation Program, or Restoring Riparian, Floodplain, and Side Channel Habitats	☐	☒	☐	☐
e	Impact Bot-13: Spread of Noxious and Invasive Weeds Resulting from Implementing the Gravel Augmentation Program, Restoring Riparian, Floodplain, and Side Channel Habitats	☐	☒	☐	☐
a, b, e, f	Impact Bot-14: Altered Structure and Species Composition and Loss of Sensitive Plant Communities and Special-Status Plant Species Resulting from Altered Flow Regimes on the Lower Sacramento River	☐	☒	☐	☐
b, e, f	Impact Bot-15: Conflict with Approved Local or Regional Plans with Objectives of Riparian Habitat Protection or Watershed Management Along the Lower Sacramento River	☐	☒	☐	☐
a	Impact Bot-16: Loss of Sensitive Plant Communities and Special-Status Plant Species Resulting from Induced Growth Along the Lower Sacramento River and in the Delta	☐	☐	☒	☐
a, b, e, f	Impact Bot-17: Altered Structure and Species Composition and Loss of Sensitive Plant Communities and Special-Status Plant Species Resulting from Altered Flow Regimes in the CVP/SWP Service Areas	☐	☐	☒	☐
b, e, f	Impact Bot-18: Conflict with Approved Local or Regional Plans with Objectives of Riparian Habitat Protection or Watershed Management in the CVP/SWP Service Areas	☐	☐	☒	☐

Table 2.2-4b. Impacts from 2014 SLWRI Final EIS Corresponding to CEQA Guidelines Questions for Biological Resources (contd.)

CEQA Guidelines Question	Impact from 2014 SLWRI Final EIS	Impact Determinations in 2014 SLWRI Final EIS			
		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
See EIS Chapter 12, "Botanical Resources and Wetlands" Section 12.3, "Environmental Consequences and Mitigation Measures"					
a	Impact Bot-19: Loss of Sensitive Plant Communities and Special-Status Plant Species Resulting from Induced Growth in the CVP/SWP Service Areas	☐	☐	☒	☐
See EIS Chapter 13, "Wildlife Resources" Section 13.3, "Environmental Consequences and Mitigation Measures"					
a, b, d	Impact Wild-1: Take and Loss of Habitat for the Shasta Salamander	☒	☐	☐	☐
a, b, d	Impact Wild-2: Impact on the Foothill Yellow-Legged Frog and Tailed Frog and Their Habitat	☒	☐	☐	☐
a, b, d	Impact Wild-3: Impact on the Northwestern Pond Turtle and Its Habitat	☒	☐	☐	☐
a	Impact Wild-4: Impact on the American Peregrine Falcon	☐	☒	☐	☐
a, b, d	Impact Wild-5: Take and Loss of Habitat for the Bald Eagle	☒	☐	☐	☐
a, b, d	Impact Wild-6: Loss of Dispersal Habitat for the Northern Spotted Owl	☐	☒	☐	☐
a, b, d	Impact Wild-7: Impact on the Purple Martin and Its Habitat	☒	☐	☐	☐
a, b, d	Impact Wild-8: Impacts on the Willow Flycatcher, Vaux's Swift, Yellow Warbler, and Yellow-Breasted Chat and Their Foraging and Nesting Habitat	☒	☐	☐	☐
a, b, d	Impact Wild-9: Impacts on the Long-Eared Owl, Northern Goshawk, Cooper's Hawk, Great Blue Heron, and Osprey and Their Foraging and Nesting Habitat	☒	☐	☐	☐
a, b, d	Impact Wild-10: Take and Loss of Habitat for the Pacific Fisher	☒	☐	☐	☐
a, b, d	Impact Wild-11: Impacts on Special-Status Bats (Pallid Bat, Spotted Bat, Western Red Bat, Western Mastiff Bat, Townsend's Big-Eared Bat, Long-Eared Myotis, and Yuma Myotis), the American Marten, and Ringtails and Their Habitat	☒	☐	☐	☐

Table 2.2-4b. Impacts from 2014 SLWRI Final EIS Corresponding to CEQA Guidelines Questions for Biological Resources (contd.)

CEQA Guidelines Question	Impact from 2014 SLWRI Final EIS	Impact Determinations in 2014 SLWRI Final EIS			
		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
See EIS Chapter 13, "Wildlife Resources" Section 13.3, "Environmental Consequences and Mitigation Measures"					
a, b, d	Impact Wild-12: Impacts on Special-Status Terrestrial Mollusks (Shasta Sideband, Wintu Sideband, Shasta Chaparral, and Shasta Hesperian) and Their Habitat	☒	☐	☐	☐
d	Impact Wild-13: Permanent Loss of General Wildlife Habitat	☒	☐	☐	☐
a, b, d	Impact Wild-14: Impacts on Other Birds of Prey (Red-Tailed Hawk and Red-Shouldered Hawk) and Migratory Bird Species (American Robin, Anna's Hummingbird) and Their Foraging and Nesting Habitat	☒	☐	☐	☐
d	Impact Wild-15: Loss of Critical Deer Winter and Fawning Range	☒	☐	☐	☐
a, b, d	Impact Wild-16: Take and Loss of California Red-Legged Frog	TBD			
a, b, d	Impact Wild-17: Impacts on Riparian-Associated Special-Status Wildlife Resulting from Modifications to the Existing Flow Regime in the Primary Study Area	☐	☒	☐	☐
a, b, d	Impact Wild-18: Impacts on Bank Swallow in the Primary Study Area Resulting from Modifications of Geomorphic Processes	☐	☐	☒	☐
a, b, c	Impact Wild-19: Disturbance or Removal of Vernal Pool Habitat for Special-Status Wildlife from Changes in Flow Regime	☐	☐	☐	☒
b, e	Impact Wild-20: Consistency with Local and Regional Plans with Goals of Promoting Riparian Habitat in the Primary Study Area	☐	☒	☐	☐
a, b, d	Impact Wild-21: Impacts on Riparian-Associated Special-Status Wildlife Resulting from the Gravel Augmentation Program	☐	☒	☐	☐
a, b, d	Impact Wild-22: Impacts on Riparian-Associated Special-Status Wildlife Species Resulting from Restoration Projects	☐	☒	☐	☐
a, b, d	Impact Wild-23: Impacts on Riparian-Associated and Aquatic Special-Status Wildlife Resulting from Modifications to Existing Flow Regimes in the Lower Sacramento River and Delta	☐	☒	☐	☐

Table 2.2-4b. Impacts from 2014 SLWRI Final EIS Corresponding to CEQA Guidelines Questions for Biological Resources (contd.)

CEQA Guidelines Question	Impact from 2014 SLWRI Final EIS	Impact Determinations in 2014 SLWRI Final EIS			
		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
See EIS Chapter 13, "Wildlife Resources" Section 13.3, "Environmental Consequences and Mitigation Measures"					
a, b, d	Impact Wild-24: Impacts on Bank Swallow Along the Lower Sacramento River Resulting from Modifications of Geomorphic Processes	☐	☐	☒	☐
a, b, c	Impact Wild-25: Disturbance or Removal of Vernal Pool Habitat for Special-Status Wildlife Along the Lower Sacramento River and in the Delta from Changes in Flow Regime of the Sacramento River and Affected Tributaries, and Changes in Seasonal Water Availability	☐	☐	☐	☒
b, e	Impact Wild-26: Consistency with Local and Regional Plans with Goals of Promoting Riparian Habitat along the Lower Sacramento River and in the Delta	☐	☒	☐	☐
a, b, d	Impact Wild-27: Impacts on Riparian-Associated or Aquatic Special-Status Wildlife in the CVP/SWP Service Areas Resulting from Modifications to Existing Flow Regimes	☐	☐	☒	☐

Key:
BLM = Bureau of Land Management
CEQA = California Environmental Quality Act
CRPR = California Rare Plant Rank
CVP = Central Valley Project
EIS = Environmental Impact Statement
MSCS = Multi-Species Conservation Strategy
SLWRI = Shasta Lake Water Resources Investigation
SWP = State Water Project
TBD = to be determined
USFS = U.S. Forest Service

2.2.5 Cultural Resources

Table 2.2-5a shows preliminary impact determinations for the items in the Environmental Checklist Form related to cultural resources. These preliminary impact determinations are based primarily on the analysis in the 2014 SLWRI Final EIS. Refinements to these impact determinations may occur through scoping and the subsequent analysis supporting the CEQA process. Table 2.2-5b shows the impact statements from the 2014 SLWRI Final EIS that are relevant to cultural resources. The first column in Table 2.2-5b correlates to the questions for cultural resources in the CEQA Guidelines for each impact statement in the 2014 SLWRI Final EIS.

CEQA Guidelines question c for Cultural Resources (e.g., paleontological resources) was considered in the 2014 SLWRI Final EIS. As described in Section 4.3.3 of Chapter 4, "Geology, Geomorphology, Minerals, and Soils" (Topics Eliminated from Further Discussion) of the SLWRI Final EIS, no unique paleontological resources were identified. A small area of the fossiliferous Cretaceous Chico Formation occurs near Jones Valley Creek, a tributary to the Pit Arm, but this rock unit is not exposed along the shoreline of the lake and is not associated with any relocation area. Some outcrops of McCloud Limestone, especially in the vicinity of the McCloud River Bridge, also contain fossil corals and other microinvertebrates. Some areas underlain by limestone are likely to be disturbed regardless of the action alternative being considered. However, the fossils that compose the McCloud Limestone are well documented in the scientific literature, and it is unlikely that paleontological resources of scientific or cultural significance occur in this formation. Accordingly, the EIR is not anticipated to address CEQA Guidelines Question c for Cultural Resources (see Table 2.2-5a).

Table 2.2-5a. Cultural Resources Section from CEQA Guidelines Appendix G – Environmental Checklist Form

V. CULTURAL RESOURCES: Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Key:
CEQA = California Environmental Quality Act

Table 2.2-5b. Impacts from 2014 SLWRI Final EIS Corresponding to CEQA Guidelines Questions for Cultural Resources

CEQA Guidelines Question	Impact from 2014 SLWRI Final EIS	Impact Determinations in 2014 SLWRI Final EIS			
		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
See EIS Chapter 14, "Cultural Resources" Section 14.3, "Environmental Consequences and Mitigation Measures"					
a, b, d	Impact Culture-1: Disturbance or Destruction of Archaeological and Historical Resources Due to Construction or Inundation	☐	☒	☐	☐
N/A	Impact Culture-2: Inundation of Traditional Cultural Properties	☒	☐	☐	☐
a, b, d	Impact Culture-3: Disturbance or Destruction of Archaeological and Historical Resources near the Upper Sacramento River Due to Construction	☐	☒	☐	☐

Key:
CEQA = California Environmental Quality Act
EIS = Environmental Impact Statement
N/A = Not Applicable
SLWRI = Shasta Lake Water Resources Investigation

2.2.6 Geology and Soils

Table 2.2-6a shows preliminary impact determinations for the items in the Environmental Checklist Form related to geology and soils. These preliminary impact determinations are based primarily on the analysis in the 2014 SLWRI Final EIS. Refinements to these impact determinations may occur through scoping and the subsequent analysis supporting the CEQA process. Table 2.2-6b shows the impact statements from the 2014 SLWRI Final EIS that are relevant to geology and soils. The first column in Table 2.2-6b correlates to the questions for geology and soils in the CEQA Guidelines for each impact statement in the 2014 SLWRI Final EIS.

CEQA Guidelines question d for Geology and Soils (e.g., expansive soils) was considered in the 2014 SLWRI Final EIS. As described in Section 4.3.3 of Chapter 4 of the SLWRI Final EIS, "Geology, Geomorphology, Minerals, and Soils," (Topics Eliminated from Further Discussion), the likelihood that expansive soils occur in the Shasta Lake area and vicinity is low because the weathering products derived from the local bedrock typically contain low concentrations of "active" clays (e.g., montmorillonite). Accordingly, the EIR is not anticipated to address CEQA Guidelines Question d for Geology and Soils (see Table 2.2-6a).

Table 2.2-6a. Geology and Soils Section from CEQA Guidelines Appendix G – Environmental Checklist Form

VI. GEOLOGY AND SOILS: Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death related to:	☐	☐	☒	☐
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☒	☐	☐	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18- 1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☒	☐

Key:
CEQA = California Environmental Quality Act

Table 2.2-6b. Impacts from 2014 SLWRI Final EIS Corresponding to CEQA Guidelines Questions for Geology and Soils

CEQA Guidelines Question	Impact from 2014 SLWRI Final EIS	Impact Determinations in 2014 SLWRI Final EIS			
		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
See EIS Chapter 4, "Geology, Geomorphology, Minerals and Soils" [1,2] Section 4.3, "Environmental Consequences and Mitigation Measures"					
a(i), (ii), (iii), (iv)	Impact Geo-1: Exposure of Structures and People to Geologic Hazards Resulting from Seismic Conditions, Slope Instability, and Volcanic Eruptions	☐	☐	☒	☐
b	Impact Geo-4: Lost or Diminished Soil Biomass Productivity	☒	☐	☐	☐
b	Impact Geo-5: Substantial Soil Erosion or Loss of Topsoil Due to Shoreline Processes	☒	☐	☐	☐
b	Impact Geo-6: Substantial Soil Erosion or Loss of Topsoil Due to Upland Processes	☐	☐	☒	☐
c	Impact Geo-7: Be Located on a Geologic Unit or Soil that Is Unstable, or that Would Become Unstable as a Result of the Project, and Potentially Result in Subsidence	☐	☐	☒	☐
e	Impact Geo-8: Failure of Septic Tanks or Alternative Wastewater Disposal Systems Due to Soils that are Unsuited to Land Application of Waste	☐	☐	☒	☐
b	Impact Geo-10: Substantial Soil Erosion or Loss of Topsoil Due to Construction	☐	☐	☒	☐

Note:

[1] Impacts Geo-2, Geo-9, Geo-11, Geo-12, Geo-13 and Geo-14 are included in Table 2.2-9b in Section 2.2.9 "Hydrology and Water Quality" of this chapter.

[2] Impact Geo-3 is are included in Table 2.2-11b in Section 2.4.11 "Mineral Resources" of this chapter.

Key:
CEQA = California Environmental Quality Act
EIS = Environmental Impact Statement
SLWRI = Shasta Lake Water Resources Investigation

2.2.7 Greenhouse Gas Emissions

Table 2.2-7a shows preliminary impact determinations for the items in the Environmental Checklist Form related to greenhouse gas emissions. These preliminary impact determinations are based primarily on the analysis in the 2014 SLWRI Final EIS. Refinements to these impact determinations may occur through scoping and the subsequent analysis supporting the CEQA process. Table 2.2-7b shows the impact statements from the 2014 SLWRI Final EIS that are relevant to greenhouse gas emissions. The first column in Table 2.2-7b correlates to the questions for greenhouse gas emissions in the CEQA Guidelines for each impact statement in the 2014 SLWRI Final EIS.

Table 2.2-7a. Greenhouse Gas Emissions Section from CEQA Guidelines Appendix G – Environmental Checklist Form

VII. GREENHOUSE GAS EMISSIONS: Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purposed of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Key:
CEQA = California Environmental Quality Act

Table 2.2-7b. Impacts from 2014 SLWRI Final EIS Corresponding to CEQA Guidelines Questions for Greenhouse Gas Emissions

CEQA Guidelines Question	**Impact from 2014 SLWRI Final EIS**	**Impact Determinations in 2014 SLWRI Final EIS**			
		Potentially Significant Impact	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
See EIS Chapter 5, "Air Quality and Climate" Section 5.3, "Environmental Consequences and Mitigation Measures"					
a, b	Impact AQ-6: Generation of Greenhouse Gases	☐	☐	☒	☐

Key:
CEQA = California Environmental Quality Act
EIS = Environmental Impact Statement
SLWRI = Shasta Lake Water Resources Investigation

2.2.8 Hazards and Hazardous Materials

Table 2.2-8a shows preliminary impact determinations for the items in the Environmental Checklist Form related to hazards and hazardous materials. These preliminary impact determinations are based primarily on the analysis in the 2014 SLWRI Final EIS. Refinements to these impact determinations may occur through scoping and the subsequent analysis supporting the CEQA process. Table 2.2-8b shows the impact statements from the 2014 SLWRI Final EIS that are relevant to hazards and hazardous materials. The first column in Table 2.2-8b correlates to the questions for hazards and hazardous materials in the CEQA Guidelines for each impact statement in the 2014 SLWRI Final EIS.

CEQA Guidelines question c for Hazards and Hazardous Materials (e.g., emit hazardous emissions with one-quarter mile of a school) was considered in the 2014 SLWRI Final EIS. As described in Section 9.3.4 of Chapter 9 of the SLWRI Final EIS, “Hazards and Hazardous Materials and Waste” (Direct and Indirect Effects) there is one school located about 4 miles from Shasta Dam. Project activity would occur while school is in session. Although Reclamation would implement measures to lessen the risk of hazardous materials exposure to sensitive receptors at schools and other locations, this impact would be potentially significant. The EIR will provide additional information for CEQA Guidelines question c for Hazards and Hazardous Materials.

CEQA Guidelines question f for Hazards and Hazardous Materials (e.g., project located within an airport land use plan) was also considered in the 2014 SLWRI Final EIS. As described in Section 20.3.3 of Chapter 20 of the SLWRI Final EIS, “Transportation and Traffic” (Topics Eliminated from Further Discussion), none of the airports (Redding Municipal, Benton Airpark, Shingletown, and Fall River Mills) in the primary study area are located near the project site. In addition, no private airstrips are located in the reservoir area. Accordingly, the EIR is not anticipated to address CEQA Guidelines question f for Hazards and Hazardous Materials (see Table 2.2-8a).

CEQA Guidelines question g for Hazards and Hazardous Materials (e.g., impair or interfere with an adopted emergency response plan) was considered in the 2014 SLWRI Final EIS. Potential impacts to implementation of emergency response plans are described in Section 9.3.4 of Chapter 9 of the SLWRI Final EIS, “Hazards and Hazardous Materials and Waste” (Direct and Indirect Effects) and Section 22.3.4 of Chapter 22, “Public Services” (Direct and Indirect Effects). Project construction could result in short-term disruption of emergency services response. Short-term traffic delays and access restrictions would require traffic controls and coordination with public services agencies. Although Reclamation would implement measures to lessen short-term disruption of public services, this impact would be potentially significant. Construction activities associated with enlarging Shasta Dam and related infrastructure (e.g., road relocations, bridge replacements) near the dam and near relocation sites for utilities, roads, and structures could temporarily disrupt transportation and circulation patterns in the vicinity, which could affect emergency services response. Emergency preparedness, emergency communications, and emergency supplies, including food and shelter for emergency crews and public services staff, could also be affected by project implementation because of temporary increases in the work force. The EIR will provide additional information for CEQA Guidelines question g for Hazards and Hazardous Materials.

Table 2.2-8a. Hazards and Hazardous Materials Section from CEQA Guidelines Appendix G – Environmental Checklist Form

VIII: HAZARDS AND HAZARDOUS MATERIALS: Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Create a significant hazard to the public or the environment through the routine transport, use, storage or disposal of hazardous materials?	☐	☒	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one- quarter mile of an existing or proposed school?	☐	☒	☐	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☒	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a substantial safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☒	☐	☐
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☒	☐	☐

Key:
CEQA = California Environmental Quality Act

Table 2.2-8b. Impacts from 2014 SLWRI Final EIS Corresponding to CEQA Guidelines Questions for Hazards and Hazardous Materials

CEQA Guidelines Question	Impact from 2014 SLWRI Final EIS	Impact Determinations in 2014 SLWRI Final EIS			
		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
See EIS Chapter 9, "Hazards and Hazardous Materials and Waste" Section 9.3, "Environmental Consequences and Mitigation Measures"					
h	Impact Haz-1: Wildland Fire Risk (Shasta Lake and Vicinity and Upper Sacramento River)	☐	☒	☐	☐
a, b	Impact Haz-2: Release of Potentially Hazardous Materials or Hazardous Waste (Shasta Lake and Vicinity and Upper Sacramento River)	☐	☒	☐	☐
a, b, d	Impact Haz-3: Exposure of Workers to Hazardous Materials (Shasta Lake and Vicinity and Upper Sacramento River)	☐	☐	☒	☐
a, b, c, d	Impact Haz-4: Exposure of Sensitive Receptors to Hazardous Materials (Shasta Lake and Vicinity and Upper Sacramento River)	☐	☒	☐	☐
h	Impact Haz-5: Wildland Fire Risk (Lower Sacramento River, Delta, CVP/SWP Service Areas)	☐	☐	☒	☐
a, b	Impact Haz-6: Release of Potentially Hazardous Materials or Hazardous Waste (Lower Sacramento River, Delta, CVP/SWP Service Areas)	☐	☐	☒	☐
a, b, d	Impact Haz-7: Exposure of Workers to Hazardous Materials (Lower Sacramento River, Delta, CVP/SWP Service Areas)	☐	☐	☒	☐
a, b, d	Impact Haz-8: Exposure of Sensitive Receptors to Hazardous Materials (Lower Sacramento River, Delta, CVP/SWP Service Areas)	☐	☐	☒	☐

Key:
CEQA = California Environmental Quality Act
CVP = Central Valley Project
EIS = Environmental Impact Statement
SLWRI = Shasta Lake Water Resources Investigation
SWP = State Water Project

2.2.9 Hydrology and Water Quality

Table 2.2-9a shows preliminary impact determinations for the items in the Environmental Checklist Form related to hydrology and water quality. These preliminary impact determinations are based primarily on the analysis in the 2014 SLWRI Final EIS. Refinements to these impact determinations may occur through scoping and the subsequent analysis supporting the CEQA process. Table 2.2-9b shows the impact statements from the 2014 SLWRI Final EIS that are relevant to hydrology and water quality. The first column in Table 2.2-9b correlates to the questions for hydrology and water quality in the CEQA Guidelines for each impact statement in the 2014 SLWRI Final EIS.

Table 2.2-9a. Hydrology and Water Quality Section from CEQA Guidelines Appendix G – Environmental Checklist Form

IX. HYDROLOGY and WATER QUALITY: Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Violate any water quality standards or waste discharge requirements?		☒	☐	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local ground water table level (for example, the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage patterns of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☒	☐	☐
d) Substantially alter the existing drainage patterns of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☒	☐	☐
e) Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☒	☐	☐
g) Place housing within a 100-year flood-hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒

Table 2.2-9a. Hydrology and Water Quality Section from CEQA Guidelines Appendix G – Environmental Checklist Form (contd.)

IX. HYDROLOGY and WATER QUALITY: Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
h) Place within a 100-year flood-hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☒	☐

Key:
CEQA = California Environmental Quality Act

Table 2.2-9b. Impacts from 2014 SLWRI Final EIS Corresponding to CEQA Guidelines Questions for Hydrology and Water Quality

CEQA Guidelines Question	**Impact from 2014 SLWRI Final EIS**	**Impact Determinations in 2014 SLWRI Final EIS**			
		Potentially Significant Impact	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
See EIS Chapter 6, "Hydrology, Hydraulics, and Water Management" Section 6.3, "Environmental Consequences and Mitigation Measures"					
d, e, h, i	Impact H&H-1: Change in Frequency of Flows Above 100,000 cfs on the Sacramento River Below Bend Bridge	☐	☐	☒	☐
g, h	Impact H&H-2: Place Housing or Other Structures Within a 100-Year Flood Hazard Area as Mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or Other Flood Hazard Delineation Map	☐	☐	☐	☒
g, h	Impact H&H-3: Place Within a 100-Year Flood Hazard Area Structures That Would Impede or Redirect Flood Flows	☐	☐	☐	☒
N/A	Impact H&H-4: Change in Water Levels in the Old River near Tracy Road Bridge	☐	☐	☒	☐
N/A	H&H-5: Change in Water Levels in the Grant Line Canal near the Grant Line Canal Barrier	☐	☐	☒	☐
N/A	Impact H&H-6: Change in Water Levels in the Middle River near the Howard Road Bridge	☐	☐	☒	☐
a, f	Impact H&H-7: Change in X2 Position	☐	☐	☒	☐

Table 2.2-9b. Impacts from 2014 SLWRI Final EIS Corresponding to CEQA Guidelines Questions for Hydrology and Water Quality (contd.)

CEQA Guidelines Question	Impact from 2014 SLWRI Final EIS	Impact Determinations in 2014 SLWRI Final EIS			
		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
See EIS Chapter 6, "Hydrology, Hydraulics, and Water Management" Section 6.3, "Environmental Consequences and Mitigation Measures"					
N/A	Impact H&H-8: Change in Recurrence of Delta Excess Conditions	☐	☐	☒	☐
N/A	Impact H&H-9: Change in Deliveries to North-of-Delta CVP Water Service Contractors and Refuges	☐	☐	☒	☐
N/A	Impact H&H-10: Change in Deliveries to South-of-Delta CVP Water Service Contractors and Refuges	☐	☐	☒	☐
N/A	Impact H&H-11: Change in Deliveries to SWP Table A, Contractors	☐	☐	☒	☐
b	Impact H&H-12: Change in Groundwater	☐	☐	☒	☐
a	Impact H&H-13: Change in Groundwater Quality	☐	☐	☒	☐
See EIS Chapter 7, "Water Quality" Section 7.3, "Environmental Consequences and Mitigation Measures"					
a, c	Impact WQ-1: Temporary Construction-Related Sediment Effects on Shasta Lake and Its Tributaries that Would Cause Violations of Water Quality Standards or Adversely Affect Beneficial Uses	☐	☒	☐	☐
a, f	Impact WQ-2: Temporary Construction-Related Temperature Effects on Shasta Lake and Its Tributaries that Would Cause Violations of Water Quality Standards or Adversely Affect Beneficial Uses	☐	☐	☒	☐
a, c	Impact WQ-3: Temporary Construction-Related Metal Effects on Shasta Lake and Its Tributaries that Would Cause Violations of Water Quality Standards or Adversely Affect Beneficial Uses	☐	☐	☒	☐
a, c	Impact WQ-4: Long-Term Sediment Effects that Would Cause Violations of Water Quality Standards or Adversely Affect Beneficial Uses in Shasta Lake or Its Tributaries	☐	☒	☐	☐

Table 2.2-9b. Impacts from 2014 SLWRI Final EIS Corresponding to CEQA Guidelines Questions for Hydrology and Water Quality (contd.)

CEQA Guidelines Question	Impact from 2014 SLWRI Final EIS	Impact Determinations in 2014 SLWRI Final EIS			
		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
See EIS Chapter 7, "Water Quality" Section 7.3, "Environmental Consequences and Mitigation Measures"					
a, f	Impact WQ-5: Long-Term Temperature Effects that Would Cause Violations of Water Quality Standards or Adversely Affect Beneficial Uses in Shasta Lake or Its Tributaries	☐	☐	☒	☐
a, c	WQ-6: Long-Term Metals Effects that Would Cause Violations of Water Quality Standards or Adversely Affect Beneficial Uses in Shasta Lake or Its Tributaries	☐	☒	☐	☐
a, c	Impact WQ-7: Temporary Construction-Related Sediment Effects on the Upper Sacramento River that Would Cause Violations of Water Quality Standards or Adversely Affect Beneficial Uses	☐	☒	☐	☐
a, f	Impact WQ-8: Temporary Construction-Related Temperature Effects on the Upper Sacramento River that Would Cause Violations of Water Quality Standards or Adversely Affect Beneficial Uses	☐	☐	☒	☐
a, c	Impact WQ-9: Temporary Construction-Related Metal Effects on the Upper Sacramento River that Would Cause Violations of Water Quality Standards or Adversely Affect Beneficial Uses	☐	☐	☒	☐
a, c	Impact WQ-10: Long-Term Sediment Effects that Would Cause Violations of Water Quality Standards or Adversely Affect Beneficial Uses in the Upper Sacramento River	☐	☐	☒	☐
a, f	Impact WQ-11: Long-Term Temperature Effects that Would Cause Violations of Water Quality Standards or Adversely Affect Beneficial Uses in the Upper Sacramento River	☐	☐	☒	☐
a, c	Impact WQ-12: Long-Term Metals Effects that Would Cause Violations of Water Quality Standards or Adversely Affect Beneficial Uses in the Upper Sacramento River	☐	☒	☐	☐

Table 2.2-9b. Impacts from 2014 SLWRI Final EIS Corresponding to CEQA Guidelines Questions for Hydrology and Water Quality (contd.)

CEQA Guidelines Question	Impact from 2014 SLWRI Final EIS	Impact Determinations in 2014 SLWRI Final EIS			
		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
See EIS Chapter 7, "Water Quality" Section 7.3, "Environmental Consequences and Mitigation Measures"					
a	Impact WQ-13: Temporary Construction-Related Sediment Effects on the Extended Study Area that Would Cause Violations of Water Quality Standards or Adversely Affect Beneficial Uses	☐	☐	☒	☐
a, f	Impact WQ-14: Temporary Construction-Related Temperature Effects on the Extended Study Area that Cause Violations of Water Quality Standards or Adversely Affect Beneficial Uses	☐	☐	☒	☐
a, f	Impact WQ-15: Temporary Construction-Related Metal Effects on the Extended Study Area that Would Cause Violations of Water Quality Standards or Adversely Affect Beneficial Uses	☐	☐	☒	☐
a, f	Impact WQ-16: Long-Term Sediment Effects that Would Cause Violations of Water Quality Standards or Adversely Affect Beneficial Uses in the Extended Study Area	☐	☐	☒	☐
a, f	Impact WQ-17: Long-Term Temperature Effects that Would Cause Violations of Water Quality Standards or Adversely Affect Beneficial Uses in the Extended Study Area	☐	☐	☒	☐
a, f	Impact WQ-18: Long-Term Metals Effects that Would Cause Violations of Water Quality Standards or Adversely Affect Beneficial Uses in the Extended Study Area	☐	☒	☐	☐
a, f	Impact WQ-19a: Delta Salinity on the Sacramento River at Collinsville	☐	☐	☒	☐
a, f	Impact WQ-19b: Delta Salinity on the San Joaquin River at Jersey Point	☐	☐	☒	☐
a, f	Impact WQ-19c: Delta Salinity on the Sacramento River at Emmaton	☐	☐	☒	☐
a, f	Impact WQ-19d: Delta Salinity on the Old River at Rock Slough	☐	☐	☒	☐
a, f	Impact WQ-19e: Delta Water Quality on the Delta-Mendota Canal at Jones Pumping Plant	☐	☐	☒	☐

Table 2.2-9b. Impacts from 2014 SLWRI Final EIS Corresponding to CEQA Guidelines Questions for Hydrology and Water Quality (contd.)

CEQA Guidelines Question	Impact from 2014 SLWRI Final EIS	Impact Determinations in 2014 SLWRI Final EIS			
		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
See EIS Chapter 7, "Water Quality" Section 7.3, "Environmental Consequences and Mitigation Measures"					
a, f	Impact WQ-19f: Delta Water Quality on the West Canal at the Mouth of the Clifton Court Forebay	☐	☐	☒	☐
a, f	Impact WQ-19g: Delta Salinity on the San Joaquin River at Vernalis	☐	☐	☒	☐
a, f	Impact WQ-19h: Delta Salinity on the San Joaquin River at Brandt Bridge	☐	☐	☒	☐
a, f	Impact WQ-19i: Delta Salinity on the Old River near the Middle River	☐	☐	☒	☐
a, f	Impact WQ-19j: Delta Salinity on the Old River at Tracy Road Bridge	☐	☐	☒	☐
a, f	Impact WQ-20: X2 Position	☐	☐	☒	☐
See EIS Chapter 4, "Geology, Geomorphology, Minerals and Soils" Section 4.3, "Environmental Consequences and Mitigation Measures"					
j	Impact Geo-1: Exposure of Structures and People to Geologic Hazards Resulting from Seismic Conditions, Slope Instability, and Volcanic Eruptions	☐	☐	☒	☐
c, d	Impact Geo-2: Alteration of Fluvial Geomorphology and Hydrology of Aquatic Habitats	☐	☒	☐	☐
c, d	Impact Geo-9: Substantial Increase in Channel Erosion and Meander Migration	☐	☐	☒	☐
c, d	Impact Geo-11: Alteration of Fluvial Geomorphology	☐	☐	☒	☐
c, d	Impact Geo-12: Alteration of Downstream Tributary Fluvial Geomorphology Due to Shasta Dam Operations	☐	☐	☒	☐
c, d	Impact Geo-13: Substantial Increase in Channel Erosion and Meander Migration (Lower Sacramento River and Delta)	☐	☐	☒	☐
c, d	Impact Geo-14: Substantial Increase in Channel Erosion and Meander Migration (CVP/SWP Service Areas)	☐	☐	☒	☐

Key:
CEQA = California Environmental Quality Act
cfs = cubic feet per second
CRPR = California Rare Plant Rank
CVP = Central Valley Project
EIS = Environmental Impact Statement
N/A = not applicable
SLWRI = Shasta Lake Water Resources Investigation
SWP = State Water Project

2.2.10 Land Use and Planning

Table 2.2-10a shows preliminary impact determinations for the items in the Environmental Checklist Form related to land use and planning. These preliminary impact determinations are based primarily on the analysis in the 2014 SLWRI Final EIS. Refinements to these impact determinations may occur through scoping and the subsequent analysis supporting the CEQA process. Table 2.2-10b shows the impact statements from the 2014 SLWRI Final EIS that are relevant to land use and planning. The first column in Table 2.2-10b correlates to the questions for land use and planning in the CEQA Guidelines for each impact statement in the 2014 SLWRI Final EIS.

The EIR will provide additional information for CEQA Guidelines question a for Land Use and Planning (e.g., physically divide and established community).

Table 2.2-10a. Land Use and Planning Section from CEQA Guidelines Appendix G – Environmental Checklist Form

X. LAND USE AND PLANNING: Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☒	☐	☐	☐
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

Key:
CEQA = California Environmental Quality Act

Table 2.2-10b. Impacts from 2014 SLWRI Final EIS Corresponding to CEQA Guidelines Questions for Land Use Planning

CEQA Guidelines Question	Impact from 2014 SLWRI Final EIS	Impact Determinations in 2014 SLWRI Final EIS			
		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
See EIS Chapter 17, "Land Use and Planning" Section 17.3, "Environmental Consequences and Mitigation Measures"					
b	Impact LU-1: Disruption of Existing Land Uses (Shasta Lake and Vicinity and Upper Sacramento River)	☒	☐	☐	☐
b	Impact LU-2: Conflict with Existing Land Use Goals and Policies of Affected Jurisdictions (Shasta Lake and Vicinity and Upper Sacramento River)	☒	☐	☐	☐
b	Impact LU-3: Disruption of Existing Land Uses (Lower Sacramento River, Delta, CVP/SWP Service Areas)	☐	☐	☐	☒
b	Impact LU-4: Conflict with Existing Land Use Goals and Policies of Affected Jurisdictions (Lower Sacramento River, Delta, CVP/SWP Service Areas)	☐	☐	☐	☒
b	Impact WASR-1: McCloud River's Eligibility for Listing as a Federal Wild and Scenic River	☒	☐	☐	☐
b	Impact WASR-2: Conflict with Shasta-Trinity National Forest, Land and Resource Management Plan	☐	☐	☐	☒
b	Impact WASR-3: Effects to McCloud River Wild Trout Fishery, as Identified in the California Public Resources Code, Section 5093.542	TBD			
b	Impact WASR-4: Effects to McCloud River Free-Flowing Conditions, as Identified in the California Public Resources Code, Section 5093.542	TBD			
See EIS Chapter 19, "Aesthetics and Visual Resources" Section 19.3, "Environmental Consequences and Mitigation Measures"					
b	Impact Vis-1: Consistency with Guidelines for Visual Resources in the STNF LRMP (Shasta Lake and Vicinity and Upper Sacramento River)	☒	☐	☐	☐

Key:
CEQA = California Environmental Quality Act
CRPR = California Rare Plant Rank
CVP = Central Valley Project
EIS = Environmental Impact Statement
LRMP = Land and Resource Management Plan
SLWRI = Shasta Lake Water Resources Investigation
STNF = Shasta-Trinity National Forest
SWP = State Water Project
TBD = to be determined

2.2.11 Mineral Resources

Table 2.2-11a shows preliminary impact determinations for the items in the Environmental Checklist Form related to mineral resources. These preliminary impact determinations are based primarily on the analysis in the 2014 SLWRI Final EIS. Refinements to these impact determinations may occur through scoping and the subsequent analysis supporting the CEQA process. Table 2.2-11b shows the impact statements from the 2014 SLWRI Final EIS that are relevant to mineral resources. The first column in Table 2.2-11b correlates to the questions for mineral resources in the CEQA Guidelines for each impact statement in the 2014 SLWRI Final EIS.

Table 2.2-11a. Mineral Resources Section from CEQA Guidelines Appendix G – Environmental Checklist Form

XI. MINERAL RESOURCES: Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☒	☐	☐	☐
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☒	☐	☐	☐

Key:
CEQA = California Environmental Quality Act

Table 2.2-11b. Impacts from 2014 SLWRI Final EIS Corresponding to CEQA Guidelines Questions for Mineral Resources

CEQA Guidelines Question	**Impact from 2014 SLWRI Final EIS**	**Impact Determinations in 2014 SLWRI Final EIS**			
		Potentially Significant Impact	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
See EIS Chapter 4, "Geology, Geomorphology, Minerals and Soils" Section 4.3, "Environmental Consequences and Mitigation Measures"					
a, b	Impact Geo-3: Loss or Diminished Availability of Known Mineral Resources That Would Be of Future Value to the Region	☒	☐	☐	☐

Key:
CEQA = California Environmental Quality Act
EIS = Environmental Impact Statement
SLWRI = Shasta Lake Water Resources Investigation

2.2.12 Noise

Table 2.2-12a shows preliminary impact determinations for the items in the Environmental Checklist Form related to noise. These preliminary impact determinations are based primarily on the analysis in the 2014 SLWRI Final EIS. Refinements to these impact determinations may occur through scoping and the subsequent analysis supporting the CEQA process. Table 2.2-12b shows the impact statements from the 2014 SLWRI Final EIS that are relevant to noise. The first column in Table 2.2-12b correlates to the questions for noise in the CEQA Guidelines for each impact statement in the 2014 SLWRI Final EIS.

CEQA Guidelines questions e and f for Noise (e.g., project located near an airport or within an airport land use plan) was considered in the 2014 SLWRI Final EIS. As described in Section 8.3.3 of Chapter 8, "Noise and Vibration," (Topics Eliminated from Further Discussion), none of the project alternatives would expose people residing or working in the project area to excessive aircraft-generated noise levels because of the distance of existing airports to the project area. In addition, none of the alternatives would place new sensitive receptors near any aircraft-related facilities. Accordingly, the EIR is not anticipated to address CEQA Guidelines questions e and f for Noise (see Table 2.2-12a).

Table 2.2-12a. Noise Section from CEQA Guidelines Appendix G – Environmental Checklist Form

XII. NOISE: Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☒	☐	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above existing levels without the project?	☐	☒	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Key:
CEQA = California Environmental Quality Act

Table 2.2-12b. Impacts from 2014 SLWRI Final EIS Corresponding to CEQA Guidelines Questions for Noise

CEQA Guidelines Question	Impact from 2014 SLWRI Final EIS	Impact Determinations in 2014 SLWRI Final EIS			
		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
See EIS Chapter 8, "Noise and Vibration" Section 8.3, "Environmental Consequences and Mitigation Measures"					
a, b, d	Impact Noise-1: Exposure of Sensitive Receptors in the Primary Study Area to Project-Generated Construction Noise	☐	☒	☐	☐
a, b, d	Impact Noise-2: Exposure of Sensitive Receptors in the Primary Study Area to Project-Generated Vibration During Construction	☐	☐	☒	☐
a, c	Impact Noise-3: Exposure of Sensitive Receptors in the Primary Study Area to Project-Generated Mobile Source Noise During Operations	☐	☐	☒	☐

Key:
CEQA = California Environmental Quality Act
EIS = Environmental Impact Statement
SLWRI = Shasta Lake Water Resources Investigation

2.2.13 Population and Housing

Table 2.2-13a shows the questions in Section XIII – Population and Housing of Appendix G (Environmental Checklist Form) of the CEQA Guidelines. The EIR will provide additional information for CEQA Guidelines questions a, b and c for Population and Housing.

Table 2.2-13a. Population and Housing Section from CEQA Guidelines Appendix G – Environmental Checklist Form

XIII. POPULATION AND HOUSING: Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Induce substantial growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	TBD			
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	TBD			
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	TBD			

Key:
CEQA = California Environmental Quality Act
TBD = to be determined

2.2.14 Public Services

Table 2.2-14a shows preliminary impact determinations for the items in the Environmental Checklist Form related to public services. These preliminary impact determinations are based primarily on the analysis in the 2014 SLWRI Final EIS. Refinements to these impact determinations may occur through scoping and the subsequent analysis supporting the CEQA process. Table 2.2-14b shows the impact statements from the 2014 SLWRI Final EIS that are relevant to public services. The first column in Table 2.2-14b correlates to the questions for public services in the CEQA Guidelines for each impact statement in the 2014 SLWRI Final EIS.

Table 2.2-14a. Public Services Section from CEQA Guidelines Appendix G – Environmental Checklist Form

XIV. PUBLIC SERVICES: Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Fire protection?	☐	☒	☐	☐
b) Police protection?	☐	☒	☐	☐
c) Schools?	☐	☐	☒	☐
d) Parks?	☐	☒	☐	☐
e) Other public facilities?	☐	☐	☒	☐

Key:
CEQA = California Environmental Quality Act

Table 2.2-14b. Impacts from 2014 SLWRI Final EIS Corresponding to CEQA Guidelines Questions for Public Services

CEQA Guidelines Question	Impact from 2014 SLWRI Final EIS	Impact Determinations in 2014 SLWRI Final EIS			
		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
See EIS Chapter 22, "Public Services" Section 22.3, "Environmental Consequences and Mitigation Measures"					
a, b, c, d, e	Impact PS-1: Disruption of Public Services (Shasta Lake and Vicinity and Upper Sacramento River	☐	☒	☐	☐
a, b, c, d, e	Impact PS-2: Degraded Level of Public Services (Shasta Lake and Vicinity and Upper Sacramento River)	☐	☒	☐	☐
a, d, e	Impact PS-3: Relocation of Public Service Facilities (Shasta Lake and Vicinity and Upper Sacramento River)	☐	☐	☒	☐
a, b, c, d, e	Impact PS-4: Short-Term Disruption of Public Services (Lower Sacramento River, Delta, CVP/SWP Service Areas)	☐	☐	☐	☒
a, b, c, d, e	Impact PS-5: Degraded Levels of Public Services (Lower Sacramento River, Delta, CVP/SWP Service Areas)	☐	☐	☒	☐
a, b, c, d, e	Impact PS-6: Relocation of Public Services Facilities (Lower Sacramento River, Delta, CVP/SWP Service Areas)	☐	☐	☐	☒

Key:
CEQA = California Environmental Quality Act
CVP = Central Valley Project
EIS = Environmental Impact Statement
SLWRI = Shasta Lake Water Resources Investigation
SWP = State Water Project

2.2.15 Recreation

Table 2.2-15a shows preliminary impact determinations for the items in the Environmental Checklist Form related to recreation. These preliminary impact determinations are based primarily on the analysis in the 2014 SLWRI Final EIS. Refinements to these impact determinations may occur through scoping and the subsequent analysis supporting the CEQA process. Table 2.2-15b shows the impact statements from the 2014 SLWRI Final EIS that are relevant to recreation. The first column in Table 2.2-15b correlates to the questions for recreation in the CEQA Guidelines for each impact statement in the 2014 SLWRI Final EIS.

Table 2.2-15a. Recreation Section from CEQA Guidelines Appendix G – Environmental Checklist Form

XV. RECREATION: Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☒	☐	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☒	☐	☐

Key:
CEQA = California Environmental Quality Act

Table 2.2-15b. Impacts from 2014 SLWRI Final EIS Corresponding to CEQA Guidelines Questions for Recreation

CEQA Guidelines Question	Impact from 2014 SLWRI Final EIS	Impact Determinations in 2014 SLWRI Final EIS			
		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
See EIS Chapter 18, "Recreation and Public Access" Section 18.3, "Environmental Consequences and Mitigation Measures"					
a, b	Impact Rec-1: Seasonal Inundation of Shasta Lake Recreation Facilities or Portions of Recreation Facilities and Public Access at Pool Elevations Above the Current Full Pool Elevation	☐	☐	☒	☐
a, b	Impact Rec-2: Temporary Construction-Related Disruption of Recreation Access and Activities at and near Shasta Dam	☐	☒	☐	☐
a	Impact Rec-3: Effects on Boating and Other Recreation Use and Enjoyment of Shasta Lake as a Result of Changes in the Annual Drawdown of the Reservoir	☐	☐	☒	☐
a, b	Impact Rec-4: Increased Hazards to Boaters and Other Recreationists at Shasta Lake from Standing Timber and Stumps Remaining in Untreated Areas of the Inundation Zone	☐	☒	☐	☐
a	Impact Rec-5: Seasonal Inundation of Portions of Recreation Facilities or Informal River Access Sites as a Result of Increased River Flows	☐	☐	☒	☐
a	Impact Rec-6: Increased Difficulty for Boaters in Using the Sacramento River as a Result of Increased River Flows	☐	☐	☒	☐
a	Impact Rec-7: Increased Difficulty for Swimmers and Waders in Using the Sacramento River as a Result of Increased River Flows	☐	☐	☒	☐
a	Impact Rec-8: Increased Usability of the Sacramento River for Boating and Water-Contact Recreation as a Result of Decreased River Flows	☐	☐	☒	☐
a	Impact Rec-9: Enhanced Angling Opportunities in the Upper Sacramento River as a Result of Improved Flows and Reduced Water Temperatures	☐	☐	☒	☐

Table 2.2-15b. Impacts from 2014 SLWRI Final EIS Corresponding to CEQA Guidelines Questions for Recreation (contd.)

CEQA Guidelines Question	Impact from 2014 SLWRI Final EIS	Impact Determinations in 2014 SLWRI Final EIS			
		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
See EIS Chapter 18, "Recreation and Public Access" Section 18.3, "Environmental Consequences and Mitigation Measures"					
a	Impact Rec-10: Disruption of Sacramento River Boating and Access Resulting from the Gravel Augmentation Program	☐	☐	☒	☐
a	Impact Rec-11: Changes in Usability of Reading Island Fishing Access Boat Ramp and Enhanced Recreation at Upper Sacramento River Restoration Sites	☐	☐	☒	☐
a	Impact Rec-12: Seasonal Inundation of Portions of River Recreation Facilities or Informal River Access Sites on the Lower Sacramento River and Rivers Below CVP and SWP Reservoirs as a Result of Increased River Flows	☐	☐	☒	☐
a	Impact Rec-13: Increased Difficulty for Boaters in Using the Lower Sacramento River and Rivers Below CVP and SWP Reservoirs as a Result of Increased River Flows	☐	☐	☒	☐
a	Impact Rec-14: Increased Difficulty for Swimmers and Waders in Using the Sacramento River and Rivers Below CVP and SWP Reservoirs as a Result of Increased River Flows	☐	☐	☒	☐
a	Impact Rec-15: Increased Difficulty for Boaters and Anglers in Using the Sacramento River and Rivers Below CVP and SWP Reservoirs as a Result of Decreased River Flows	☐	☒	☐	☐

Key:
CEQA = California Environmental Quality Act
CVP = Central Valley Project
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SLWRI = Shasta Lake Water Resources Investigation
SWP = State Water Project

2.2.16 Transportation and Traffic

Table 2.2-16a shows preliminary impact determinations for the items in the Environmental Checklist Form related to transportation/traffic. These preliminary impact determinations are based primarily on the analysis in the 2014 SLWRI Final EIS. Refinements to these impact determinations may occur through scoping and the subsequent analysis supporting the CEQA process. Table 2.2-16b shows the impact statements from the 2014 SLWRI Final EIS that are relevant to transportation/traffic. The first column in Table 2.2-16b correlates to the questions for transportation/traffic in the CEQA Guidelines for each impact statement in the 2014 SLWRI Final EIS.

CEQA Guidelines question c for Transportation and Traffic (e.g., airport related) was considered in the 2014 SLWRI Final EIS. As described in Section 20.3.3 of Chapter 20 of the SLWRI Final EIS, "Transportation and Traffic," (Topics Eliminated from Further Discussion), none of the airports (Redding Municipal, Benton Airpark, Shingletown, and Fall River Mills) in the primary study area are located near the project site; therefore, project construction and operation would not affect air traffic patterns. In addition, the project would not affect the ability of seaplanes to land at Bridge Bay Resort Seaplane Base. Accordingly, the EIR is not anticipated to address CEQA Guidelines Question c for Transportation and Traffic (see Table 2.2-16a).

CEQA Guidelines question f for Transportation and Traffic (e.g., public transit, bicycle/pedestrian facilities) was considered in the 2014 SLWRI Final EIS. As described in Section 20.3.3 of Chapter 20 of the SLWRI Final EIS, "Transportation and Traffic," (Topics Eliminated from Further Discussion), none of the alternatives propose any facility that is in conflict with adopted policies, plans, or programs supporting alternative transportation. Accordingly, the EIR is not anticipated to address CEQA Guidelines Question f for Transportation and Traffic (see Table 2.2-16a).

Table 2.2-16a. Transportation and Traffic Section from CEQA Guidelines Appendix G – Environmental Checklist Form

XVI. TRANSPORTATION/TRAFFIC: Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☒	☐	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☒	☐	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☒	☐	☐
e) Result in inadequate emergency access?	☐	☒	☐	☐
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒

Key:
CEQA = California Environmental Quality Act

Table 2.2-16b. Impacts from 2014 SLWRI Final EIS Corresponding to CEQA Guidelines Questions for Transportation and Traffic

CEQA Guidelines Question	Impact from 2014 SLWRI Final EIS	Impact Determinations in 2014 SLWRI Final EIS			
		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
See EIS Chapter 20, "Transportation and Traffic" Section 20.3, "Environmental Consequences and Mitigation Measures"					
a, b, d, e	Impact Trans-1: Short-Term and Long-Term Increases in Traffic in the Primary Study Area in Relation to the Existing Traffic Load and Capacity of the Street System	☐	☒	☐	☐
a, b, d, e	Impact Trans-2: Adverse Effects on Access to Local Streets or Adjacent Uses in the Primary Study Area	☐	☒	☐	☐
d	Impact Trans-3: Hazards in the Primary Study Area Caused by a Design Feature	☐	☐	☒	☐
e	Impact Trans-4: Adverse Effects on Emergency Access in the Primary Study Area	☐	☒	☐	☐
b	Impact Trans-5: Accelerated Degradation of Surface Transportation Facilities in the Primary Study Area	☐	☒	☐	☐
a, b, d, e	Impact Trans-6: Temporary Increase in Traffic in the Extended Study Area in Relation to the Existing Traffic Load and Capacity of the Street System	☐	☐	☐	☒
a, b, d, e	Impact Trans-7: Adverse Effects on Access to Local Streets or Adjacent Uses in the Extended Study Area	☐	☐	☐	☒
d	Impact Trans-8: Hazards in the Extended Study Area Caused by a Design Feature	☐	☐	☐	☒
e	Impact Trans-9: Adverse Effects on Emergency Access in the Extended Study Area	☐	☐	☐	☒
b	Impact Trans-10: Accelerated Degradation of Surface Transportation Facilities in the Extended Study Area	☐	☐	☐	☒

Key:
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SLWRI = Shasta Lake Water Resources Investigation

2.2.17 Tribal Cultural Resources

Assembly Bill 52 (AB 52) was enacted in September 2014 and formally established a category of resources in the CEQA Environmental Checklist called "tribal cultural resources." As the 2014 SLWRI Final EIS was undergoing final processing and review when AB 52 was enacted, it did not address impacts to tribal cultural resources as a separate resource category. Consistent with AB 52, the EIR will provide additional information for CEQA Guidelines questions a, b and c for tribal cultural resources.

Table 2.2.17a. Tribal Cultural Resources Section from CEQA Guidelines Appendix G – Environmental Checklist Form

XVII. TRIBAL CULTURAL RESOURCES: Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	TBD			
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)? or	TBD			
ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	TBD			

Key:
CEQA = California Environmental Quality Act
TBD = to be determined

2.2.18 Utilities and Service Systems

Table 2.2-18a shows preliminary impact determinations for the items in the Environmental Checklist Form related to utilities and service systems. These preliminary impact determinations are based primarily on the analysis in the 2014 SLWRI Final EIS. Refinements to these impact determinations may occur through scoping and the subsequent analysis supporting the CEQA process. Table 2.2-18b shows the impact statements from the 2014 SLWRI Final EIS that are relevant to utilities and service systems. The first column in Table 2.2-18b correlates to the questions for utilities and service systems in the CEQA Guidelines for each impact statement in the 2014 SLWRI Final EIS.

Table 2.2-18a. Utilities and Service Systems Section from CEQA Guidelines Appendix G – Environmental Checklist Form

XVIII. UTILITES AND SERVICE SYSTEMS: Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☒	☐	☐
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☒	☐	☐
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☒	☐	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☒	☐	☐
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☒	☐	☐
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	

Key:
CEQA = California Environmental Quality Act

Table 2.2-18b. Impacts from 2014 SLWRI Final EIS Corresponding to CEQA Guidelines Questions for Utilities and Service Systems

CEQA Guidelines Question	Impact from 2014 SLWRI Final EIS	Impact Determinations in 2014 SLWRI Final EIS			
		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
See EIS Chapter 21, "Utilities and Service Systems" Section 21.3, "Environmental Consequences and Mitigation Measures"					
a, b, c, d, e	Impact Util-1: Damage to or Disruption of Public Utility and Service Systems Infrastructure (Shasta Lake and Vicinity and Upper Sacramento River)	☐	☒	☐	☐
a, b, c, d, e	Impact Util-2: Utility Infrastructure Relocation or Modification (Shasta Lake and Vicinity and Upper Sacramento River)	☐	☒	☐	☐
f, g	Impact Util-3: Short-Term Increase in Solid Waste Generation (Shasta Lake and Vicinity and Upper Sacramento River)	☐	☐	☒	☐
f, g	Impact Util-4: Increases in Solid Waste Generation from Increased Recreational Opportunities (Shasta Lake and Vicinity and Upper Sacramento River)	☐	☐	☒	☐
b, d	Impact Util-5: Increased Demand for Water Treatment and Distribution Facilities Resulting from Increases in Water Supply (Shasta Lake and Vicinity and Upper Sacramento River)	☐	☐	☐	☐
a, b, c, d, e	Impact Util-6: Damage to or Disruption of Public Utility and Service Systems Infrastructure (Lower Sacramento River, Delta, CVP/SWP Service Areas)	☐	☐	☐	☒
a, b, c, d, e	Impact Util-7: Utility Infrastructure Relocation or Modification (Lower Sacramento River, Delta, CVP/SWP Service Areas)	☐	☐	☐	☒
f, g	Impact Util-8: Short-Term Increase in Solid Waste Generation (Lower Sacramento River, Delta, CVP/SWP Service Areas)	☐	☐	☒	☐
f, g	Impact Util-9: Increases in Solid Waste Generation from Increased Recreational Opportunities (Lower Sacramento River, Delta, CVP/SWP Service Areas)	☐	☐	☐	☒

Table 2.2-18b. Impacts from 2014 SLWRI Final EIS Corresponding to CEQA Guidelines Questions for Utilities and Service Systems (contd.)

CEQA Guidelines Question	Impact from 2014 SLWRI Final EIS	Impact Determinations in 2014 SLWRI Final EIS			
		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
See EIS Chapter 21, "Utilities and Service Systems" Section 21.3, "Environmental Consequences and Mitigation Measures"					
b, d	Impact Util-10: Increased Demand for Water Treatment and Distribution Facilities Resulting from Increases in Water Supply (Lower Sacramento River, Delta, CVP/SWP Service Areas)	TBD			
See EIS Chapter 23, "Power and Energy" Section 23.3, "Environmental Consequences and Mitigation Measures"					
	Impact Hydro-1: Decrease in Shasta Powerplant Energy Generation	☐	☐	☐	☐
	Impact Hydro-2: Decrease in CVP System Energy Generation	☐	☐	☒	☐
	Impact Hydro-3: Decrease in SWP System Energy Generation	☐	☐	☒	☐
	Impact Hydro-4: Increase in CVP System Pumping Energy Use	☐	☐	☒	☐
	Impact Hydro-5: Increase in SWP System Pumping Energy Use	☐	☐	☒	☐
	Impact Hydro-6: Decrease in Pit 7 Powerplant Energy Generation	☐	☐	☒	☐

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CHAPTER 3
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