

# Delta-Mendota Canal Subsidence Correction Project Draft Environmental Assessment/ Initial Study

**Public Draft**



**CGB-EA-2023-011**



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RECLAMATION



**February 2023**

## **Mission Statements**

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated Island Communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

The mission of the San Luis & Delta-Mendota Water Authority is to operate the Delta-Mendota Canal and related facilities reliably and cost-effectively, and to support member agencies in restoring and protecting adequate, affordable water supplies for agricultural, municipal and industrial, and environmental uses.

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# Chapter 1 Introduction

This Environmental Assessment (EA) and Initial Study (IS) for the Delta-Mendota Canal (DMC) Subsidence Correction Project (Project) was prepared by U.S. Department of the Interior, Bureau of Reclamation (Reclamation), and San Luis & Delta-Mendota Water Authority (SLDMWA). SLDMWA is a California Joint Powers Authority that is responsible for the operation, maintenance, and replacement (OM&R) of certain Reclamation Central Valley Project (CVP) facilities, including the DMC, pursuant to Transfer Agreement Contract No. 8-07-20-X0354-X with Reclamation.

This joint EA/IS document satisfies the requirements of (1) the National Environmental Policy Act (NEPA) (42 United States Code [U.S.C.] Section 4321 et seq.), the Council on Environmental Quality (CEQ) 2022 NEPA implementing regulations (40 Code of Federal Regulations [C.F.R.] Section 1500–1508), and the Department of the Interior’s NEPA regulations (43 C.F.R. Part 46); and (2) the California Environmental Quality Act (CEQA), and the Governor’s Office of Planning and Research regulations to implement CEQA (Sections 15000–15387 of the California Code of Regulations). The CEQ NEPA implementing regulations define a ‘lead agency’ as the federal agency with primary responsibility for complying with NEPA on a Proposed Action; Reclamation is the NEPA lead agency for the Project, responsible for preparing the EA. State CEQA Guidelines define a ‘lead agency’ as the public agency that has the principal responsibility for carrying out or approving a proposed project; SLDMWA is the CEQA lead agency for the Project, responsible for preparing the IS.

This EA/IS describes the potential direct, indirect, and cumulative effects from constructing the Project. This EA/IS also identifies measures that were incorporated to avoid or substantially reduce Project-related impacts.

## 1.1 Project Background and History

The DMC is a 116-mile-long canal that conveys water from the Sacramento–San Joaquin River Delta (Delta) region near Tracy, California to the Mendota Pool near Mendota, California. This canal is one of the major components of the CVP and is considered critical infrastructure. The DMC was designed by Reclamation in the late 1940s and early 1950s consistent with the then-current design standards and standard industry practices. The upper segment of the DMC is lined with four-inch unreinforced concrete. At Mile Post (MP) 98.64 (Station Number 5201+00), the concrete lining is replaced by earthen lining, which continues for the lower 18 miles of the DMC. During design, Reclamation found that the expansive properties of the clay soil surrounding the lower segment of the canal would be detrimental to a concrete lining. In addition, high groundwater in areas of the lower 18-mile segment would require an elaborate drainage system to be installed underneath any potential concrete lining. Therefore, Reclamation decided to use suitable clay soil from canal excavation to form an earthen lining for the lower segment of the DMC (Reclamation 1959).

The DMC was originally designed to convey a spatially variable flow capacity rate, with a maximum capacity of 4,600 cubic feet per second (cfs) at the upstream end with a reduction to the minimum capacity of 3,210 cfs at the downstream end. Since its original construction, the DMC has been affected by subsidence generated by groundwater pumping within the Central Valley and along the length of the canal. When subsidence occurs directly under a canal, the entire canal prism drops vertically, while the controlled water surface elevation remains the same; this results in a reduction in available freeboard. Reclamation performed construction on the canal to remediate subsidence issues in 1969 and 1977. However, subsidence has continued, and the DMC is no longer able to convey the original design flows while operating in accordance with Reclamation Safety Standards and Guidelines. These limits on conveyance capacity have introduced operational constraints that can affect deliveries to south-of-Delta CVP contractors. To fully optimize CVP storage and support Reclamation’s contract deliveries to south-of-Delta CVP contractors, the capacity of the DMC must be restored. Regional groundwater use is anticipated to allow for an additional two feet of inelastic subsidence until full implementation of the Sustainable Groundwater Management Act (SGMA) in 2040, with residual elastic subsidence forecast to continue through the design life of the canal. The Project is proposed to restore conveyance capacity and avoid constraints on the operation of the CVP, as well as address operational safety concerns generated by subsidence.

## 1.2 Need for Proposal and Project Objectives

### 1.2.1 Project Purpose and Need

As a result of subsidence, the available freeboard for the canal lining and the canal embankment, and clearances between maximum water surface elevations and many structures crossing the DMC, no longer meet Reclamation standards. The combination of reduced freeboard and impacted structures requires that SLDMWA operate the DMC at a lower water surface elevation, which reduces the capacity to convey water supply deliveries to contractors dependent on that supply. The continued, safe, and reliable operation of the DMC is critical to the users it serves, and the economies it supports. The purpose and need of Reclamation's Proposed Action is to restore the originally authorized conveyance capacity of the DMC (the design capacity conveys a variable flow rate decreasing from 4,600 cfs at the upstream end to 3,210 cfs at the downstream end).

In compliance with CEQ's Economic and Environmental Principles, Requirements, and Guidelines for Water- and Land-Related Resources Implementation Studies and Reclamation's Directive and Standards CMP 09-02 Water and Related Resources Feasibility Studies, Reclamation and SLDMWA are evaluating the feasibility of alternatives that would restore the lost conveyance capacity in the DMC caused by regional subsidence. Reclamation is completing a feasibility report to identify, evaluate, and select an alternative that can support the delivery of CVP supplies needed by CVP contractors dependent on the DMC that would otherwise be adversely impacted by limits on its conveyance capacity generated by regional subsidence.

### 1.2.2 CEQA Primary Goals and Objectives

Under CEQA, a lead agency must identify the objectives sought by the proposed project when that project requires an Environmental Impact Report (EIR) (CEQA Guidelines Section 15124(b)). Although a statement of project objectives is not required under CEQA for an IS, the additional information provided in this section is consistent with CEQA Guidelines. The primary goal for the Project is to restore conveyance capacity in the DMC lost to regional subsidence. The objectives of the Project are as follows:

1. To restore the long-term reliability and quantity of CVP supplies delivered to south-of-Delta contractors dependent on the DMC currently affected by reduced deliveries limited by the canal's reduced conveyance capacity.
2. To support the safe long-term operation of the DMC consistent with its design for freeboard and clearances between maximum water surface elevations and structures crossing the canal.

#### 1.2.2.1 Additional Goals and Objectives

The Project is being designed and implemented to achieve the primary goals and objectives listed above. CEQA Guideline 15124(b) states that the goals and objectives may also outline Project benefits. The additional benefits of the Project are as follows:

- Restore capacity of the DMC for the short-term conveyance of transferred water<sup>1</sup> to provide increased water supply reliability and operational flexibility to south-of-Delta CVP contractors and potentially convey surface water supplies for other contractors.
- Design and maintain the restored capacity of the DMC for a service life of at least 50 years to avoid potential future reductions in conveyance capacity resulting from continued subsidence forecast following Project implementation.

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<sup>1</sup> Environmental compliance for the transfer actions including sellers making water available and the conveyance of transferred water to south-of-Delta CVP contractors is analyzed outside this EA/IS in separate environmental compliance documents, including but not limited to the Long-Term Water Transfers environmental document, available here: [https://www.usbr.gov/mp/nepa/nepa\\_project\\_details.php?Project\\_ID=18361](https://www.usbr.gov/mp/nepa/nepa_project_details.php?Project_ID=18361).

## 1.3 Document Structure

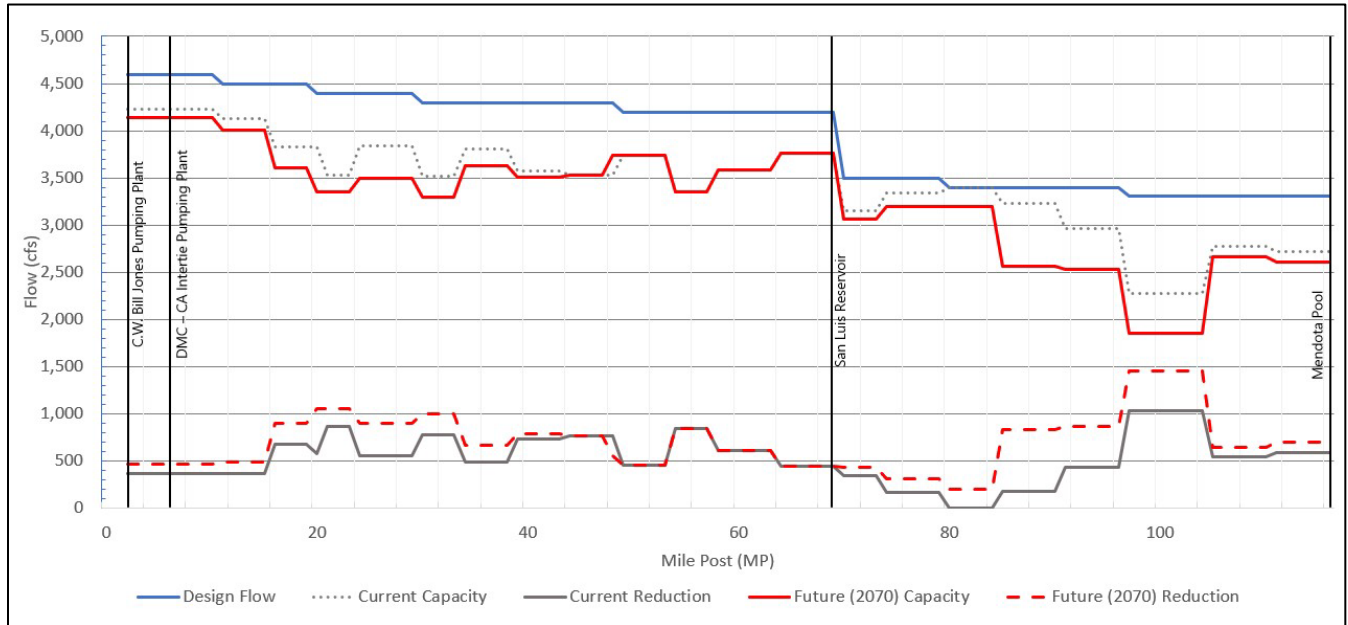
A description of the affected environment/existing conditions in the study area is presented in Chapter 3. To consider environmental impacts of the proposed Project pursuant to both NEPA and CEQA, Chapter 4 includes the analysis of possible impacts to resources using an IS checklist adapted from the CEQA Guidelines, Appendix G. Discussion of potential impacts for the No Action/No Project Alternative and Proposed Action/Proposed Project are addressed in more detail following each checklist section. Chapter 5 provides an analysis of cumulative effects, by resource area, of the Proposed Action/Proposed Project taken together with other past, present, and reasonably foreseeable probable future projects (or actions) as required by the NEPA implementing regulations (40 C.F.R. 1508.1(g)(3)). Chapter 6 includes additional discussions for consideration pursuant to NEPA, Department of the Interior regulations, and Reclamation guidelines. Appendix A provides supplemental information, including a list of preparers, acronyms, and references.

# Chapter 2 Project Description

## 2.1 No Action/No Project Alternative

Under NEPA, the No Action Alternative describes future circumstances without the Proposed Action and includes predictable actions by persons or entities, other than the federal agency involved in a project action, acting in accordance with current management direction or level of management intensity. Under CEQA, an evaluation of the No Project Alternative is not required in an Initial Study (IS)/Mitigated Negative Declaration (MND). If the requirements of an EIR are triggered, the No Project Alternative also describes the future without the project and may include some reasonably foreseeable changes in existing conditions and changes that would reasonably be expected to occur in the foreseeable future if the project were not approved. The purpose of the No Action Alternative and the No Project Alternative is to provide decision-makers a comparison of the potential impacts of approving a project against the potential impacts of not approving the project.

Under the No Action/No Project Alternative (subsequently identified as the No Action Alternative), the existing conditions of the DMC would remain unchanged, and the conveyance capacity would be reduced from original design capacity during operation to meet Reclamation Design Standards No. 3 (Reclamation 2014). Currently, 30 of the existing 115 bridges along the DMC are considered deficient because they do not have one foot of clearance above the Maximum Water Surface Elevation when the canal is operated at design flow (MWSEL). However, the number of deficient bridges is expected to reach 45 when taking future subsidence conditions into consideration. Under the No Action Alternative, deficient bridges would be partially submerged when the canal is operated at the design flow, resulting in safety risks. To operate the canal safely and in accordance with Reclamation safety standards under the No Action Alternative, flow in the canal would need to be restricted further below its current operating flows, with a maximum, permanent flow reduction in the DMC estimated at 1,457 cfs (44-percent reduction) from original design capacity. Figure 2-1 details the current and anticipated reduction of the canal capacity compared to the designed capacity.



**Figure 2-1. Design Flows, Reduction in Flow, and Actual Flow Capacities in the DMC for Current and Future (With Future Subsidence) Conditions**

The No Action Alternative evaluates the reduced capacity of the DMC under (1) current conditions as of 2020, (2) under forecasted 2035 conditions, and (3) under forecasted 2070 conditions in the Project area. The No Action Alternative is analyzed consistent with the 2019 United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) Biological Opinions for the Reinitiation of Consultation on the



Long-Term Operation (ROC on LTO) of CVP and State Water Project (SWP) (USFWS 2019; NMFS 2019), Reclamation's 2020 ROC on LTO Record of Decision (ROD) (Reclamation 2020) and the 2018 Addendum to the Coordinated Operation Agreement CVP/SWP Finding of No Significant Impact (FONSI)/ROD that are assumed to also reasonably represent future anticipated operational conditions. The 2019 USFWS and NMFS Biological Opinions for ROC on LTO, 2020 ROD for ROC on LTO, and the 2018 Addendum to the Coordinated Operation Agreement CVP and SWP FONSI/ROD assume a DMC conveyance capacity reflecting the original design capacity. As noted previously, the No Action Alternative assumes a reduced capacity of the DMC consistent with existing conditions. The No Action Alternative assumes pumping at the Harvey O. Banks Pumping Plant, DMC – California Aqueduct Intertie Pumping Plant (Intertie Pumping Plant), California Aqueduct, and the San Luis (Volta) wasteway would be the same as existing operations.

## **2.2 Raise Deficient Structures Alternative (Proposed Action/Proposed Project)**

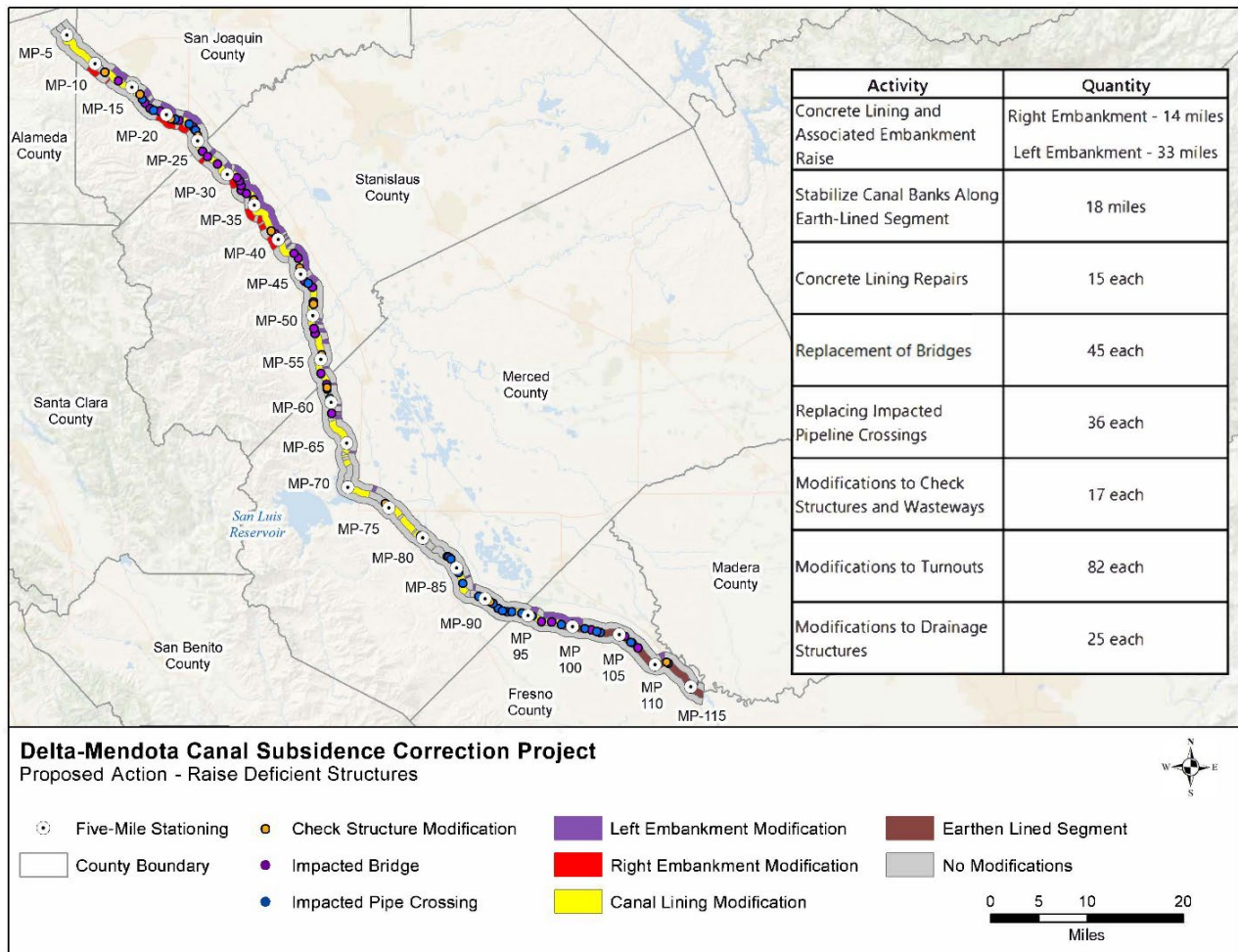
The Raise Deficient Structures Alternative has been selected as the Proposed Action (under NEPA) and the Proposed Project (under CEQA). Appendix B, Plan Formulation Technical Memorandum, details the other action alternatives (including a non-structural alternative) that were considered and explains the Proposed Action/Proposed Project (subsequently identified as the Proposed Action) selection process. Under the Proposed Action, the DMC would be modified to satisfy current Reclamation safety standards, including freeboard requirements for the canal lining and embankment. The deficient lining, embankment, and impacted structures of the canal would be raised to restore the canal to its originally authorized conveyance capacity. The proposed modifications of the canal and related structures would be in accordance with current federal, state, and local design guidelines and standards.<sup>2</sup> The proposed design of the Proposed Action takes into consideration future subsidence (forecasted 2070). Construction requirements under the Proposed Action are described below; more details regarding construction methods and locations of work along the canal can be found in Appendix C.

- Raising deficient canal concrete lining by installing new concrete lining above the existing lining along approximately 80 miles of the DMC. The locations where canal lining raises would occur are presented in Figure 2-2.
- Raising the earthen embankment at deficient bank segments of the canal by adding fill material from existing borrow sites along 50 miles of canal right-of-way (ROW). The locations where embankment raises would occur are presented in Figure 2-2.
- Stabilizing the canal banks along the 18-mile earthen-lined segment of the canal (MP 98.64 to 116.59), which requires lowering the water depth in the earthen-lined segment of the canal by up to six feet during construction.
- Repairing distressed concrete lining above and below the water's surface.
- Replacing 45 impacted vehicle bridges and 36 impacted pipeline crossings. The locations where this work would take place are presented in Figure 2-2.
- Modifying 17 check structures and wasteways and 82 turnouts.
- Modifying drainage structures.

Appendix C provides a detailed description of construction methods for each component proposed under the Proposed Action.

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<sup>2</sup> Relevant guidelines/standards include Reclamation's Design Standards (Reclamation 2012; 2014; 2018), Reclamation's Engineering and Operation and Maintenance (O&M) Guidelines for Crossings (Reclamation 2008), and Reclamation Earth Manual (Reclamation 1998).



**Figure 2-2. Construction Details Under the Proposed Action**

### 2.2.1 Construction Equipment and Schedule

Construction staging and stockpiling would occur within canal ROW, within the immediate vicinity of the construction activity, and would be limited to the duration of the construction activity. In addition to the construction staging area, 54 borrow areas (approximately 227.7 acres total) have been identified within the canal ROW for excavation of embankment material and backfill material. The staging areas would be returned to pre-construction condition and the borrow areas would be smoothed out to the surrounding elevation of the Operation and Maintenance (O&M) service road after the Proposed Action is completed.

Table 2-1 summarizes the construction equipment list by construction activity proposed under the Proposed Action. Construction equipment would access the construction sites and stockpiling areas through existing left and right bank service roads.

**Table 2-1. Construction Equipment Assumptions under the Proposed Action**

Construction Activity	Equipment List
Concrete Lining and Associated Embankment Raise	1 Small Dozer, 2 Loaders, 1 Small Excavator, 1 Compactor, 1 Skid Steer, 7 Water Trucks, and 2 Dump Trucks
Stabilize Canal Banks Along Earthen-Lined Segment	2 Small Dozers, 5 Loaders, 1 Small Excavator, 2 Roller Compactors, 1 Plate Compactor, 1 Grader, 7 Water Trucks, and 2 Dump Trucks
Concrete Lining Repairs	1 Excavator, 2 Dump Trucks, 1 Skid Steer
Replacement of bridges	1 Crane, 1 Sawcut, 1 Dozer, 1 Compactor, 1 Excavator, 1 Drill Rig, 1 Skid Steer, 1 Paver, 1 Tractor, 4 Water Trucks, and 6 Dump Trucks
Replacing Impacted Pipeline Crossings	1 Small Excavator, 1 Skid Steer, 1 Crane, 1 Loader, 2 Dump Trucks
Modifications to Check Structures and Wasteways	2 Cranes and 3 Lifts
Modifications to Turnouts	2 Cranes, 1 Skid Steer, and 2 Dump Trucks
Modifications to Drainage Structures	2 Excavators, 2 Skid Steers, 1 Dump Truck

Note: Construction activities listed above could occur concurrently.

Construction duration for the Proposed Action is assumed to be seven and a half years. Work would be performed seven days per week, 12 months per year. Work during the weekdays (Monday through Friday) would be performed in one 10-hour work shift that would occur between 7:00 a.m. and 7:00 p.m. Work during the weekends (Saturday and Sunday) and federal holidays would be performed in one eight-hour shift that would occur between 9:00 a.m. and 5:00 p.m. It is assumed, for the purpose of this EA/IS, that construction would start in March 2025. The major assumptions for the schedule development of the Proposed Action, as well as the anticipated construction duration of construction activities, are detailed in Table C-7 in Appendix C.

## 2.2.2 Operations

### 2.2.2.1 Operations During Construction

Some drawdowns of the canal water surface would be needed to support the low-flow construction activities; however, no outages would be required, thus providing flexibility in completing construction activities while minimizing impacts to water deliveries.

### 2.2.2.2 Operations After Construction

Operation of the restored capacity after construction would conform to the existing operating rules identified in the 2019 USFWS and NMFS Biological Opinions (USFWS 2019; NMFS 2019) and 2020 ROC on LTO ROD or any future regulatory requirements and the terms and conditions specified in the relevant Biological Opinions. Reclamation and its operating entity (i.e. SLDMWA) would continue to maintain the facilities in compliance with the existing USFWS Biological Opinion titled *Formal Endangered Species Consultation on the Operations and Maintenance Program Occurring on Bureau of Reclamation Lands Within the South-Central California Area Office* that was issued on February 17, 2005 (referred furthermore as the 2005 USFWS Biological Opinion) (USFWS 2005) or any future regulatory requirements and the terms and conditions specified in the relevant Biological Opinions. The canal would be modified to meet its original design standards to convey original design flows. Therefore, no changes to the current maintenance and operations are anticipated.

# Chapter 3 Affected Environment/Environmental Settings

This chapter presents an overview of the physical environment and existing conditions that could be affected by the Proposed Action, as required by 40 C.F.R. Section 1501.5(c)(2) and CEQA Guidelines Section 15063(d)(2) for the EA/IS. Appendix E presents the federal, state, and local laws, regulations, policies, and plans that are relevant and applicable to the affected environment. Appendix F presents supporting information detailing the affected environment/environmental settings related to visual quality; hazards and hazardous materials; recreation; geology, seismicity, and soils; and public utilities in the study area. The study area for this EA/IS includes the DMC and related infrastructure where construction work would occur within the counties of Alameda, San Joaquin, Stanislaus, Merced, and Fresno. For resource areas, such as water supply and water quality, that have potential operational impacts associated with them, the study area is expanded to include San Benito and Santa Clara counties to encompass all of the SLDMWA member agencies.

## 3.1 Delta-Mendota Canal

The DMC is an integral part of Reclamation's CVP and is essential for providing water supply for the land along the west side of the San Joaquin Valley in addition to San Benito and Santa Clara counties. For most of its length, the DMC runs parallel to Interstate 5 (I-5) and the California Aqueduct before branching off in the southeastern direction in south Merced County to terminate at the Mendota Pool in Fresno County (Figure 3-1). The area surrounding the DMC is characterized as flat, rural, agricultural land, although the canal passes through some areas containing industrial, commercial, or residential buildings. Current noise sources existing in the study area include agricultural noise, general stationary noise, and general mobile noise; no major sources of vibration are known to exist in the study area. Although portions of the DMC pass through incorporated cities or towns, the majority of the DMC runs through unincorporated areas<sup>3</sup> of the relevant counties.

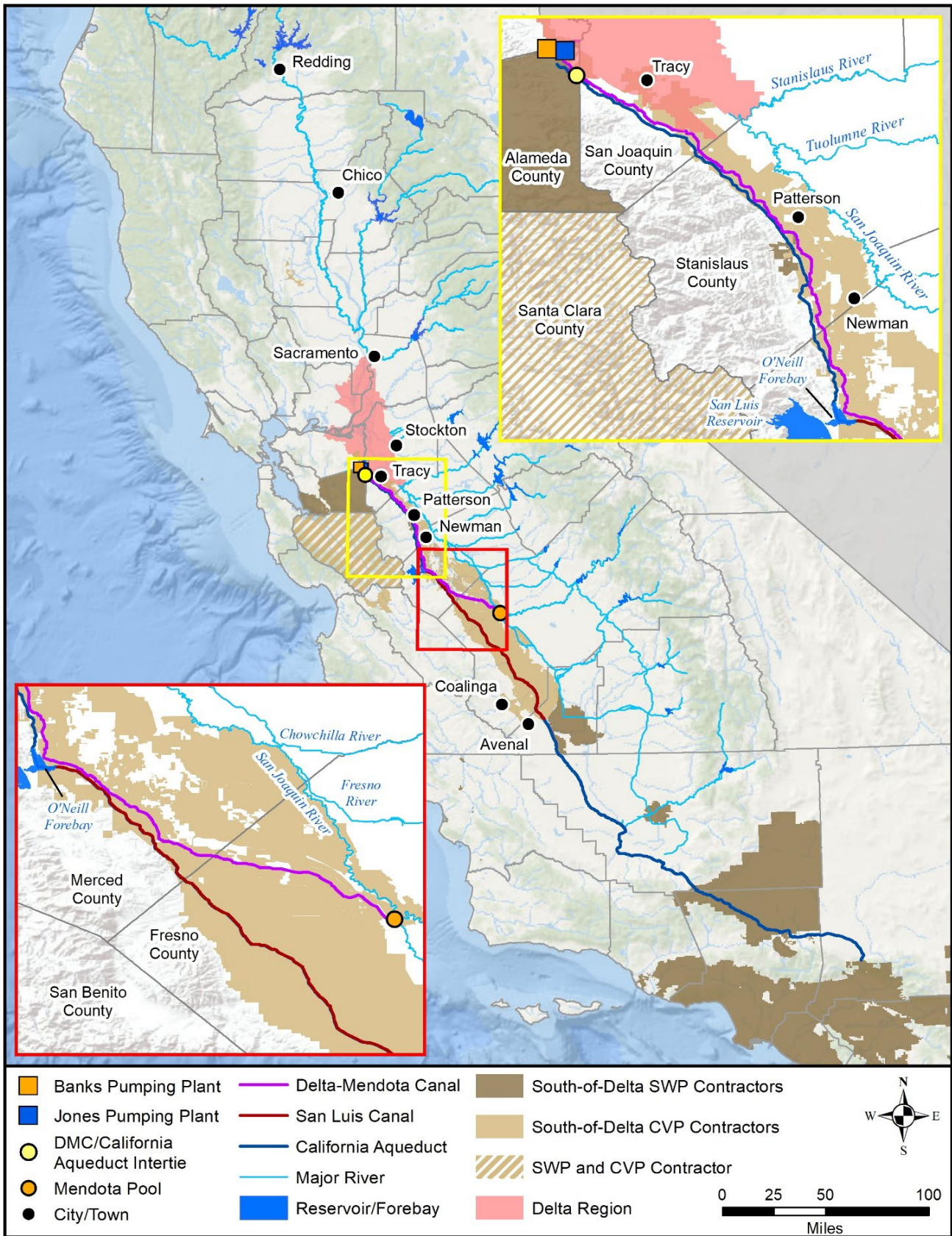
Mendota Pool Park is the only recreational facility located within the canal ROW or in the immediate vicinity of the canal (within 0.25 miles of canal ROW). Mendota Pool Park offers 20.3 acres of trails (Mapcarta n.d.) with picnic areas and fishing opportunities. The canal is directly adjacent to the Tracy Municipal Airport, a public use airport located in San Joaquin County that fields the operation of an average of 161 aircrafts per day. In Stanislaus County, the canal passes within 200 feet of the out-of-service Crows Landing Airport, a private use airport that is planned to be functioning again in the next 20 years. Additionally, there are at least 20 landfills with available capacity located within a 40-mile radius of the DMC.

### 3.1.1 San Joaquin Valley

The San Joaquin Valley is the area of the Central Valley that lies south of the Delta and is drained by the San Joaquin River. The study area is located in the Great Valley geomorphic province, which is approximately 50 miles wide and 400 miles long and bordered on the east by the Sierra Nevada geomorphic province and on the west by the Coast Range geomorphic province. The area is characterized by containing highly expansive soils, meaning that the soils in the region are susceptible to changing shape and volume in response to moisture content. Highly expansive soils are conducive to the occurrence of land subsidence, which has significantly impacted the Project area and the greater San Joaquin Valley (United States Department of Agriculture Natural Resources Conservation Service 2022).

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<sup>3</sup> An unincorporated area refers to the part of a county that is outside any municipality.



Key: CVP-Central Valley Project; DMC-Delta-Mendota Canal; SWP-State Water Project

**Figure 3-1. Study Area**

The study area's location in the San Joaquin Valley makes workers and residents of the area susceptible to Valley Fever, an infection caused by the soil-dwelling fungus *Coccidioides* that when inhaled can cause symptoms such as chest pain, cough, fever, headache, and more (California Department of Public Health 2019). More than 50 active hazardous waste facilities are present within one-half mile of the canal (United States Environmental Protection Agency [USEPA] 2022a). Other potential hazards include the study area's proximity to areas of moderate to high wildfire risk, and the potential for structures in the Project area to contain asbestos and/or lead materials.

## 3.2 Water Supply

The federal and state governments constructed the CVP and SWP in pursuit of the State Water Plan to maximize use of the state's water supplies and provide flood control. Because C.W. 'Bill' Jones Pumping Plant (Jones Pumping Plant) is operated as an integral component of the CVP, changes in pumping at Jones Pumping Plant due to restoration of DMC capacity would affect operations of a majority of CVP and SWP facilities. Therefore, although the construction impacts are confined to the DMC ROW, the water supply study area captures all of the CVP and SWP contractors that may be impacted by changes to the operation of the DMC.

### 3.2.1 CVP Contractors

The CVP has several different types of contracts, including Repayment Contracts, Exchange Contracts, Refuge Contracts, Settlement Contracts, Friant Division Contracts, and Water Service Contracts for delivery of CVP water. Each year, Reclamation determines the amount of water that can be allocated to each CVP contractor based on contractors' water rights and conditions for that year. In most cases, these allocations are expressed as a percentage of CVP contractors' contract total (for contracts that allow use of both agricultural and municipal and industrial [M&I] water) or historical use (for M&I only contracts).

North of the Delta, there are 42 Water Service or Repayment contractors across three CVP divisions that deliver water for agricultural contractors, M&I, or both agricultural and M&I purposes. In the Delta and south-of-Delta areas, there are 31 Water Service or Repayment contractors across three CVP divisions and one unit that deliver water for agricultural, M&I, or both agricultural and M&I purposes. South-of-Delta CVP contractors are located south of the Delta and consist of the Delta Division, Cross Valley Canal Contractors, San Felipe Division, and San Luis Unit. Other CVP contractors located south of the Delta who may be impacted by the Proposed Action include the South-of-Delta Settlement Contractors, San Joaquin River Exchange Contractors Water Authority (Exchange Contractors), and Friant Division Contractors<sup>4</sup>. The SLDMWA, which extends from the City of Tracy in San Joaquin County in the north to Kettleman City in Kings County in the south, contains 25 member agencies that contract with Reclamation for CVP water. More information regarding these contractors and SLDMWA can be found in Appendix G.

### 3.2.2 SWP Contractors

The SWP delivers water to 29 public water agencies in Northern, Central, and Southern California that hold long-term contracts for surface water deliveries. The agencies deliver water for both urban and agricultural use, representing more than 25-million municipal contractors and 750,000 acres of irrigated farmland. Five of the agencies use the SWP water primarily for agricultural uses and the remaining 24 use the SWP water primarily for municipal use. Water supplies for agencies include imported SWP water, groundwater, local surface water, and (for some agencies) other imported supplies. The agencies collectively have received deliveries ranging from approximately 1.4 million acre-feet (MAF) in dry water years to approximately four MAF in wet years.

### 3.2.3 Power Production and Energy Usage Along the Delta-Mendota Canal

Water from CVP reservoirs flows into the Sacramento River, which carries water to the Delta, where water is lifted via six electric motors into the DMC by the Jones Pumping Plant located about 12 miles northwest of Tracy in Byron, California. Between the years 2011 through 2020, Jones Pumping Plant pumped an average of

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<sup>4</sup> CVP Friant Division contractors receive deliveries from Friant Dam through the San Joaquin River, Madera Canal and the Friant Kern Canal. As such, they are separate from the CVP South of Delta Contractors that receive CVP deliveries from the Sacramento River and its tributaries or the Delta.

approximately 1.8 MAF of water from the Delta to the DMC each year (Reclamation 2022a). Once in the DMC, water conveyance is driven by gravitational force from north to south.

The O'Neill Pumping-Generating Plant is located about 12 miles west of Los Banos and lifts water from the DMC into O'Neill Forebay. The plant can also generate power when water is released from the forebay into the DMC. The San Luis/W.R. Gianelli Pumping-Generating Plant is located in the same region and lifts water from O'Neill Forebay to the San Luis Reservoir, generating energy when the water is released from the reservoir into the DMC or the San Luis Canal.

The Intertie Pumping Plant was constructed in May 2012 to move water more effectively from the Delta into the San Luis Reservoir by providing operational flexibility in the federal–state water distribution system when there are system restrictions that may prevent one party from moving water. The Intertie Pumping Plant can pump up to 700 cfs from the DMC to the California Aqueduct via an underground pipeline and can transfer up to 900 cfs from the California Aqueduct to the DMC via gravity flow. The Intertie Pumping Plant is located at DMC MP7.2 and California Aqueduct Mile 9 (Reclamation 2022b).

### 3.3 Air Quality and Greenhouse Gas Emissions

Although construction impacts are confined to the DMC ROW, the study area for air quality is broader. The study area follows the route of the DMC, originating in Contra Costa County and passing through Alameda, San Joaquin, Stanislaus, and Merced counties before terminating in Fresno County. As mentioned above, no construction activities are planned to be undertaken within Contra Costa County under the Proposed Action; thus, Contra Costa County is excluded from the air quality and greenhouse gas (GHG) emissions study area. Alameda County is within the San Francisco Bay Area Air Basin (SFBAAB) where air pollution is regulated by the Bay Area Air Quality Management District (BAAQMD), while San Joaquin, Stanislaus, Merced, and Fresno counties are within the San Joaquin Valley Air Basin (SJVAB), regulated by the San Joaquin Valley Air Pollution Control District (SJVAPCD). Because the study area is located in a valley, it is highly susceptible to air pollutant accumulation.

The federal Clean Air Act requires the classification of all or portions of air basins based on the ambient pollutant concentrations relative to the National Ambient Air Quality Standards (NAAQS). Areas for which the NAAQS have been achieved are designated as attainment. For areas where NAAQS have not been achieved, states must prepare a State Implementation Plan detailing strategies to reduce air pollutant concentrations in the area and achieve NAAQS. California, through the California Clean Air Act has adopted additional California Ambient Air Quality Standards (CAAQS), applicable only to California, for which attainment must be classified in addition to the NAAQS. In the SFBAAB and SJVAB, ozone (O<sub>3</sub>)<sup>5</sup> and fine particulate matter (PM<sub>2.5</sub>)<sup>6</sup> are pollutants of concern because ambient concentrations of these pollutants exceed the NAAQS and CAAQS. Additionally, ambient inhalable particulate matter (PM<sub>10</sub>) concentrations in SFBAAB and SJVAB exceed CAAQS, while PM<sub>10</sub> recently attained the NAAQS and is designated maintenance (California Air Resources Board [CARB] 2022; USEPA 2022b). Table I1-1 in Appendix I1 presents the attainment status of the SFBAAB and SJVAB for all criteria pollutants.

GHGs—carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), sulfur hexafluoride, hydrofluorocarbons, and perfluorocarbons—are emitted from human activities and natural systems into the atmosphere and trap heat that would otherwise be released into space. Thermal radiation absorbed by GHGs is reradiated in all directions, including back toward the Earth's surface. This results in an increase of the Earth's surface temperatures above what they would be without the presence of GHGs, which are persistent and remain in the atmosphere for long periods. GHGs differ from criteria pollutants in that GHG emissions do not cause direct adverse human health effects. Rather, the direct environmental effect of GHG emissions is the increase in global temperatures, which in turn has numerous indirect effects on the environment and humans. Most CO<sub>2</sub> emissions from human activities, known as anthropogenic emissions, are attributed to the burning of fossil fuels for electricity, heat, and

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<sup>5</sup> Marginal nonattainment under NAAQS in SFBAAB; Extreme nonattainment under NAAQS in SJVAB (USEPA 2022).

<sup>6</sup> Moderate nonattainment under NAAQS in SFBAAB; Serious nonattainment under NAAQS in SJVAB (USEPA 2022).

transportation and land use changes, such as deforestation. GHG emissions are managed through thresholds set by the state and federal government described in Appendix E.

### 3.4 Cultural Resources in the Study Area

The cultural resources area of analysis is centered on the area of potential effects (APE) for the Proposed Action, or the area within which cultural resources may be directly or indirectly impacted by Project activities. The Project's APE is approximately 114 miles long. The APE's extent perpendicular to the DMC varies but lies primarily within Reclamation's ROW. Some areas adjacent to the ROW are included in the APE to accommodate for proposed work on bridges along the canal and their approaches. The Project APE amounts to 5,899 acres, although only specific areas will be subject to ground-disturbing activities. All access and staging would occur via existing O&M access roads along the DMC and would be contained within the ROW.

The archaeological record within the Central Valley encompasses the full range of prehistoric hunter-gatherer adaptations. Broad cultural periods identified for the Central Valley include the Paleo-Indian (13,500–10,500 years before present [BP]), Lower Archaic (8,500–7,500 BP), Middle Archaic (7,500–2,500 BP), Upper Archaic (2,500–850 BP), and Emergent (850–150 BP) periods. More localized sequences relevant to the DMC Study Area, which were defined largely through distinctive artifact types and mortuary practices, include the Positas (ca. 5,250–4,550 BP), Pacheco (4,550–1,650 BP), Gonzaga (1,650–950 BP), and Panoche (450–100 BP) complexes. The DMC APE falls within the traditional territory of the Northern Valley Yokuts—one of three ethnographically and linguistically defined groups that occupied the San Joaquin Valley at the time of European contact. The Northern Valley Yokuts were followed by Spanish, Mexican, and American explorers, missionaries, soldiers, and settlers who transformed the landscape.

The aridity of the western San Joaquin Valley began to pose problems for American Period (1850s to present) agriculture during the late-19th century as land was developed further away from water sources. Canal Projects were undertaken to move water from the rivers flowing into the San Joaquin Valley from the Sierra Nevada. The DMC, a key feature of the CVP, was completed in 1952. Friant Dam stored San Joaquin River flow and diverted it into the Madera and Friant-Kern canal systems. The DMC transports water from the Jones Pumping Plant (formerly Tracy Pumping Station) along the western side of the San Joaquin Valley for irrigation and for storage at the San Luis Reservoir. The prehistoric, ethnographic, and historic period cultural history of the region is explored in Appendix N and provides a context for the cultural resources discussed below.

#### 3.4.1 Tribal Cultural Resources

No Native American resources were identified in the Project APE by the Native American Heritage Commission through searches of the Sacred Lands Inventory conducted on behalf of the SLDMWA in April of 2022. However, a list of interested Native American stakeholders was provided for SLDMWA to contact for further information. No tribal cultural resources, as defined under Public Resources Code (PRC) Section 21074, have been reported within the APE.

#### 3.4.2 Paleontological Resources Within the Study Area

As defined in the Paleontological Resources Preservation Act of 2009, the term 'paleontological resource' refers to any fossilized remains, traces, or imprints of organisms, preserved in or on the earth's crust, that are of paleontological interest and that provide information about the history of life on earth. A record search of the University of California Museum of Paleontology databases found that there have been many invertebrate fossils found in Alameda, San Joaquin, Stanislaus, Merced, and Fresno counties at varying distances from the DMC (UCMP 2022). Because there have been fossils discovered in the vicinity of the canal and the canal is located in an area characterized by formations of alluvium deposited during the Pleistocene-Holocene era, the Project area is considered to be in a moderately high paleontologically sensitive area based on sensitivity evaluation techniques described by the Society of Vertebrate Paleontology (Society of Vertebrate Paleontology 2010).



## 3.5 Biological Resources in the Study Area

A biological survey report (BSR) was prepared to identify special-status species and other sensitive biological resources that may occur in or near the Project area (Appendix M, Attachment 1). The BSR presents findings from desktop research and field surveys conducted between March 31 and April 22, 2022 that documents the potential for the occurrence of special-status plant and wildlife species within the Project area and provides landscape-level reconnaissance mapping of vegetation and habitats. The following existing conditions are summarized from the detailed information presented in the BSR.

### 3.5.1 Natural Communities

Natural communities (i.e., habitat types) occurring within the Project area include agriculture (285 acres), annual grassland (742 acres), alkaline emergent wetland (seven acres), freshwater emergent wetland (20 acres), freshwater forested wetland (two acres), intermittent stream channels (eight acres), irrigation canals (six acres), maintained agricultural ditches and drainage features (110 acres), ponds (one acre), riparian woodland (one acre), ruderal/developed (2,663 acres), as well as riverine and emergent wetland within the channel of the DMC itself (identified as ‘DMC – Riverine’ [1,544 acres] and ‘DMC – Freshwater Emergent Wetland’ [55 acres], respectively). Sensitive habitats include riparian corridors, wetlands, habitats for legally protected species, areas of high biological diversity, areas supporting rare or special-status wildlife habitat, and unusual or regionally restricted habitat types. Based on these criteria, seven natural communities within the Project area are classified as sensitive: alkaline emergent wetland, freshwater emergent wetland, freshwater forested wetland, intermittent channel, maintained agriculture ditches and drainage features, pond, and riparian woodland.

The locations and areal extents of natural communities occurring within the Project area and a discussion of each habitat type are depicted in Appendix M, Attachment 1 (Habitat Map Book Appendix).

### 3.5.2 Special-Status Species

Special-status species are defined as those plants and animals that are legally protected under the Endangered Species Act (ESA), the California Endangered Species Act (CESA), or by other regulations; and species that are considered sufficiently rare by the scientific community to qualify for such listing. Based on existing habitat conditions, species-specific habitat requirements, known occurrence records, or direct observations recorded during biological surveys, a total of 53 special-status species—24 plants and 29 wildlife species—were identified as having the potential to occur in the Project area, as summarized in Table M-2 of Appendix M.

#### 3.5.2.1 Special-Status Plants

The following 24 plant species have the potential to occur in the Project area: Alkali milk-vetch (*Astragalus tener* var. *tener*), heartscale (*Atriplex cordulata* var. *cordulata*), Lost Hills crownscale (*Atriplex coronata* var. *vallicola*), brittlescale (*Atriplex depressa*), lesser saltscale (*Atriplex minuscula*), vernal pool smallscale (*Atriplex persistens*), subtle orache (*Atriplex subtilis*), big tarplant (*Blepharizonia plumosa*), Lemmon’s jewel flower (*Caulanthus lemmonii*), Hispid salty bird’s-beak (*Chloropyron molle* ssp. *hispidum*), recurved larkspur (*Delphinium recurvatum*), spiny-sealed button-celery (*Eryngium spinosepalum*), diamond-petaled California poppy (*Eschscholzia rhombipetala*), San Joaquin spearscale (*Extriplex joaquiniana*), woolly rose-mallow (*Hibiscus lasiocarpus* var. *occidentalis*), Munz’s tidy-tips (*Layia munzii*), Panoche pepper-grass (*Lepidium jaredii* ssp. *album*), shining navarretia (*Navarretia nigelliformis* ssp. *radians*), prostrate vernal pool navarretia (*Navarretia prostrata*), California alkali grass (*Puccinellia simplex*), Sanford’s arrowhead (*Sagittaria sanfordii*), long-styled sand-spurrey (*Spergularia macrotheca* var. *longistyla*), Wright’s trichocoronis (*Trichocoronis wrightii* var. *wrightii*), and caper-fruited tropidocarpum (*Tropidocarpum capparideum*). These special-status plant species have the potential to occupy portions of the Project area where suitable habitats, such as annual grassland, alkaline and freshwater wetlands, and ponds, are present. Such habitats occur primarily along the landward edge of the DMC ROW. Further information regarding the current extent of suitable habitat for each special-status plant species within the Project area is provided in Table M-2 of Appendix M.

#### 3.5.2.2 Special-Status Animals

The following 29 animal species have the potential to occur in the Project area: pallid bat (*Antrozous pallidus*), Townsend’s big-eared bat (*Corynorhinus townsendii*), western mastiff bat (*Eumops perotis californicus*), western red bat (*Lasiurus blossevilli*), American badger (*Taxidea taxus*), San Joaquin kit fox (*Vulpes macrotis mutica*), tricolored

blackbird (*Agelaius tricolor*), grasshopper sparrow (*Ammodramus savannarum*), golden eagle (*Aquila chrysaetos*), short-eared owl (*Asio flammeus*), burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), northern harrier (*Circus hudsonius*), white-tailed kite (*Elanus leucurus*), loggerhead shrike (*Lanius ludovicianus*), song sparrow ('Modesto' population) (*Melospiza melodia*), yellow-headed blackbird (*Xanthocephalus xanthocephalus*), California tiger salamander – central California distinct population segment (*Ambystoma californiense*), California red-legged frog (*Rana draytonii*), western spadefoot toad (*Spea hammondi*), western pond turtle (*Emys marmorata*), longhorn fairy shrimp (*Branchinecta longiantenna*), vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardii*), northern California legless lizard (*Anniella pulchra*), California glossy snake (*Arizona elegans occidentalis*), San Joaquin whipsnake (*Masticophis flagellum ruddocki*), coast horned lizard (*Phrynosoma blainvillii*), and giant garter snake (*Thamnophis gigas*). These special-status species have the potential to occur throughout the Project area where suitable habitat is present. Further information regarding the current extent and quality of existing habitat for each special-status animal species within the Project area, and the likelihood of each species to occur in these areas, is provided in Table M-2 of Appendix M.

### 3.6 Regulatory Setting

Appendix E lists the federal, state, regional, and local laws, regulations, policies, and plans that are relevant and applicable to the affected environment, study area, and the evaluation of potential impacts. The Proposed Action would be consistent with the applicable local and regional plans identified in Appendix E.

# Chapter 4 Impact Evaluation

This chapter presents the analysis of potential impacts associated with the implementation of the Proposed Action. Appendix G of the CEQA Guidelines was used to determine the appropriate resources for evaluation in this environmental impact analysis. Each subsection begins with an explanation of the assessment method(s) used to identify and address potential impacts and then presents the basis and criteria for determining whether the potential impacts are significant (under CEQA) and whether mitigation of the impact is warranted. Impacts are determined relative to the baseline of the No Action Alternative (for NEPA) and the existing conditions (for CEQA<sup>7</sup>). For each resource area, significance criteria were developed consistent with the CEQA Guidelines and used to assess the significance level of the impacts under CEQA. A NEPA environmental document must consider the effects<sup>8</sup> that would be caused by, or result from, a project. These factors were considered when developing the significance criteria under which each resource was evaluated to develop impact conclusions. Thus, determinations of significance in the EA/IS are for CEQA purposes only.

The impact discussion is concluded with a CEQA significance determination that indicates if there is no impact to a resource area, or if the impact to a resource area is beneficial, less than significant, or significant. For those impacts that would be significant, the Lead Agencies identified feasible mitigation measures to avoid or substantially reduce the magnitude of the impact to less than significant. Impacts for each resource are summarized in this chapter, with detailed analysis provided in the appendices. Full descriptions of mitigation measures (MMs) are provided in Section 4.14. An effects analysis table containing a summary of the significance criteria, assessment methodology, significance determination, MMs, and the location of the evaluation support is provided in Section 4.15.

## 4.1 Surface Water Supply

### 4.1.1 Assessment Methods

This section estimates the potential water supply effects using the California Simulation Model II (CalSim II). Effects of the Project are determined by comparing CalSim II model scenarios that assume full design capacity to a corresponding no action/no project model scenario, as detailed in Appendix D. Appendix G describes the changes to water supply associated with implementation of the Proposed Action in comparison to existing conditions and future no action conditions. Appendix G also includes the detailed modeling results and interpretation of those results. As noted in Chapter 2, under CEQA, existing conditions serve as the baseline to determine potential impacts of the Proposed Action. The existing condition CalSim II simulation was completed using historic hydrology from 1927 through 2003 and the current DMC capacity for existing conditions. This CEQA approach differs from NEPA, where the No Action Alternative reflects expected future conditions within the Project area if no action is taken. The future no action CalSim II simulation was completed using future-projected 2035 hydrology with climate change and the projected 2035 reduced DMC capacity.

The CalSim II model's monthly simulation of the actual daily (or even hourly) operation of the CVP and SWP results in several limitations in the use of its results. The model's results should be considered in a comparative manner to assess the magnitude of the Proposed Action's effect to the model's simulation of existing conditions rather than comparison to real-time observations. Given the CalSim II model's simulation of the CVP and SWP using a monthly time step and the assumptions it relies on to simulate operations, its output includes minor fluctuations of up to five percent. Therefore, if the quantitative changes identified between the Proposed Action and the No Action Alternative are five percent or less, conditions under the Proposed Action would be considered similar to conditions under the No Action Alternative.

### 4.1.2 Significance Criteria

Impacts on water supply would be considered significant if the Proposed Action would substantially reduce the annual water supply to the CVP, SWP, refuges, or other contractors. As previously discussed, the CalSim II

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<sup>7</sup> California Code of Regulations, Title 14, Division 6, Chapter 3, Article 5, Section 15063(d)(3).

<sup>8</sup> "Effects" are defined by NEPA in C.F.R. Section 1508.1(g).

model output includes minor fluctuations because of model assumptions and approaches. Therefore, if quantitative changes between the Proposed Action and the No Action Alternative are five percent or less, conditions under the Proposed Action would be considered ‘similar’ to conditions under the No Action Alternative and are not identified as an adverse or beneficial water supply effect. If water supply delivery changes are a reduction of five percent or greater, water supply impacts would be considered significant.

#### **4.1.3 Environmental Consequences/Impacts of the No Action Alternative**

Under the No Action Alternative, no actions would be taken to restore, or otherwise offset, conveyance capacity lost in the DMC. Consequently, no drawdown or partial outage of the DMC would be needed to repair the canal. **There would be no construction-generated impacts to CVP or SWP surface water supply under the No Action Alternative.**

Under the No Action Alternative and consistent with the CVP M&I Water Shortage Policy, Reclamation would distribute Delta supplies to both south-of-Delta CVP contractors and north-of-Delta CVP contractors. However, because of the reduced capacity of the DMC, Reclamation would continue to deliver any south-of-Delta CVP supplies that are not able to be delivered via the DMC to north-of-Delta CVP contractors. The reduced capacity of the DMC under the No Action Alternative would also continue to limit the ability of the CVP to export their share of Delta excess, as defined under the 2018 Coordinated Operations Agreement Addendum. The reduced capacity of the DMC could limit the ability of Reclamation to meet CVP Exchange Contractor delivery requirements, which could result in a further reduction in deliveries to other south-of-Delta CVP contractors or require the release of water from Friant Dam to meet these senior water right deliveries. Under the No Action Alternative, future subsidence would further reduce the capacity of the DMC. Under future no action conditions, average annual total south-of-Delta CVP agricultural deliveries are expected to decrease up to 17 percent, or 280 thousand acre-feet (TAF), under certain water-year types (dry and below normal) compared to existing conditions and total average annual south-of-Delta CVP M&I deliveries are expected to decrease up to 10 percent, or 26 TAF, as shown in Tables G-4 and G-5 in Appendix G. Therefore, CVP water supply deliveries under future no action conditions would be further reduced compared to existing conditions. **Reduced capacity in the DMC has the potential to cause significant impacts on CVP water supply deliveries under the No Action Alternative.**

Under the No Action Alternative, SWP contractors could continue to export the CVP’s share of Delta excess beyond the SWP share that is defined under the 2018 Coordinated Operations Agreement Addendum. **As such, there would be a continued beneficial effect on SWP surface water supply deliveries as a result of the decreased capacity of the DMC under the No Action Alternative allowing for ongoing greater export of SWP water supplies.**

Under the No Action Alternative, the reduced capacity of the DMC would continue to limit the short-term conveyance of non-Project water and/or transferred water to south-of-Delta CVP water contractors or other contractors reliant on the DMC for water conveyance. **Reduced capacity in the DMC has the potential to cause significant impacts on water supply deliveries to south-of-Delta CVP water contractors or other contractors reliant on the DMC for water conveyance under the No Action Alternative.**

#### **4.1.4 Environmental Consequences/Impacts of the Proposed Action**

##### **4.1.4.1 Construction of the Proposed Action**

Construction of the Proposed Action is expected to last approximately seven and a half years. Some drawdowns of the canal water surface are needed to support construction activities; however, no partial outages are required, thus providing flexibility in completing construction activities without adversely impacting water supply deliveries. During construction, the Intertie Pumping Plant could be used to maintain CVP deliveries consistent with normal operations, in coordination with California Department of Water Resources (DWR). It is anticipated that because no outages would be needed, impacts to CVP water supply deliveries during construction of the Proposed Action would be minimal. In addition, Reclamation and SLDMWA would coordinate water delivery

schedules during construction times to adjust water delivery as needed. **Therefore, construction of the Proposed Action would have a less than significant impact on CVP deliveries.**

During construction, the Intertie Pumping Plant would continue to be used to maintain CVP deliveries consistent with existing operations. **There would be no impact to SWP surface water supply deliveries from construction of the Proposed Action.**

#### **4.1.4.2 Operation of the Proposed Action**

##### **Deliveries to CVP Contractors**

Restored conveyance capacity under the Proposed Action would allow Reclamation to distribute contract deliveries more evenly to all CVP contractors consistent with the CVP M&I Water Shortage Policy. This would result in an average annual decrease in deliveries to north-of-Delta CVP contractors when compared to existing conditions and the No Action Alternative. Under operation of the Proposed Action, the average change in total annual north-of-Delta CVP deliveries is expected to be minimal, decreasing less than one percent under all water year types compared to existing and future no action conditions. Operation of the Proposed Action would decrease average annual north-of-Delta CVP deliveries up to five TAF under certain water-year types (dry and critical) compared to existing conditions and decrease up to four TAF under certain water-year types (critical) when compared to future no action conditions, as shown in Tables G-6 and G-7 in Appendix G. Overall, average annual north-of-Delta CVP deliveries would be reduced by less than one percent, and, as was noted in Section 4.1.2, projected changes of less than five percent are not identified as an adverse or beneficial water supply effect. **Therefore, operation of the Proposed Action would have a less than significant impact on north-of-Delta CVP contractors compared to existing and future no action conditions.**

Under operation of the Proposed Action, average annual total south-of-Delta CVP agricultural deliveries are expected to be restored up to 74 TAF, a five percent change, under certain water-year types (dry) compared to existing conditions and are expected to be restored up to 138 TAF, an eight percent change, under certain water-year types (below normal) compared to future no action conditions, as shown in Tables G-8 and G-9 in Appendix G. In addition, consistent with the restoration of average annual total south-of-Delta CVP agricultural deliveries, Reclamation would most likely be able to meet CVP Exchange Contractor deliveries without impacting other south-of-Delta CVP contractors or requiring the release of water from Friant Dam. **Therefore, operation of the Proposed Action would have a beneficial effect on south-of-Delta CVP agricultural contractors compared to existing and future no action conditions.**

Under operation of the Proposed Action, average annual south-of-Delta CVP M&I deliveries are expected to be restored up to five TAF, a two percent change, under certain water-year types (above normal) compared to existing conditions and are expected to fluctuate up to three TAF, a one percent change, under certain water-year types (dry) compared to future no action conditions, as shown in Tables G-10 and G-11 in Appendix G. Overall, average annual south-of-Delta CVP M&I deliveries would change by less than one percent, and as was noted in Section 4.1.2; projected changes of less than five percent are not identified as an adverse or beneficial water supply effect. **Therefore, operation of the Proposed Action would have a less than significant impact on south-of-Delta CVP M&I contractors compared to existing and future no action conditions.**

Under operation of the Proposed Action, there would be no change to south-of-Delta CVP Level 2 refuge deliveries. Reclamation would continue to meet its obligation to acquire and deliver this water under the Central Valley Project Improvement Act. **Therefore, operation of the Proposed Action would have no impact on south-of-Delta CVP Level 2 refuge deliveries compared to existing and future no action conditions.**

##### **Deliveries to SWP Contractors**

Restored conveyance capacity under the Proposed Action would allow the CVP to more fully export its share of Delta excess, as defined under the 2018 Coordinated Operations Agreement Addendum, and therefore would reduce the SWP export of unused CVP share when compared to existing conditions and the No Action Alternative. Under operation of the Proposed Action, average annual south-of-Delta SWP Table A deliveries are expected to decrease up to 23 TAF, a one percent change, under certain water-year types (below normal)

compared to existing conditions and are expected to decrease up to 42 TAF, a five percent change, under certain water-year types (critical) compared to future no action conditions, as shown in Tables G-12 and G-13 in Appendix G. As previously mentioned, the Proposed Action would restore CVP export capacity and correct the export imbalance under the No Action Alternative, consistent with the 2018 Coordinated Operations Agreement Addendum. Therefore, the slight decreases in average annual south-of-Delta SWP Table A deliveries are not identified as an adverse water supply effect.

In addition, with south-of-Delta CVP deliveries restored under the Proposed Action, there would be a decrease in potential surplus water supply (Article 21) and carryover water supply (Article 56) deliveries to SWP contractors. The availability of this surplus and carryover water in any particular year is uncertain, and contractors do not base long-term water supply decisions on the availability, or lack thereof, of this water. Both changes in surplus and carryover water supply are presented in the context of total SWP deliveries, including Table A deliveries, because surplus and carryover water is delivered in addition to Table A deliveries. Changes to average annual south-of-Delta SWP Article 21 and Article 56 deliveries compared to existing and future no action conditions are shown in Tables G-14 and G-15 in Appendix G. Under operation of the Proposed Action, average annual south-of-Delta SWP deliveries with surplus and carryover water supply are expected to decrease up to 37 TAF, a one percent change, under certain water-year types (above normal) compared to existing conditions and are expected to decrease up to 42 TAF, a four percent change, under certain water-year types (critical) compared to future no action conditions. All operations affecting Delta exports would be required to meet Delta water quality objectives (e.g., D-1641) and meet the requirements of the then-current USFWS and NMFS Biological Opinions and other current and future regulatory requirements for the long-term coordinated operations of the CVP and SWP. CalSim II modeling and other analyses show there will be no significant adverse effects on the SWP during construction and operation of the Proposed Action. **Therefore, operation of the Proposed Action would have a less than significant impact on south-of-Delta SWP deliveries compared to existing conditions and future no action conditions.**

### **Deliveries of Other Water**

Implementing the Proposed Action could increase the availability of excess capacity in the DMC that would support the delivery of additional non-CVP water in the DMC when compared to the No Action Alternative. **Therefore, operating the Proposed Action would have a beneficial impact on south-of-Delta CVP water contractors or other contractors overall water supplies reliant on the DMC compared to existing and future no action conditions.**

## **4.2 Water Quality**

### **4.2.1 Assessment Methods**

Water quality monitoring data and CalSim II modeling were used to aid in evaluating potential water quality impacts within the Delta, San Luis Reservoir and the DMC. Impacts outside the Delta, San Luis Reservoir and DMC were not considered since CalSim II modeling showed little to no changes in reservoir and stream flow levels. Effects to the DMC are primarily expected to occur during construction. Construction-related water quality impacts were evaluated qualitatively based on anticipated construction practices, materials, locations, and duration of construction and related activities. Effects to the Delta water quality from potential changes to CVP and SWP exports are discussed below. Because water from the Delta is pumped into the DMC, water quality within the Delta is a good indicator of water quality within the DMC. As noted previously, the Proposed Action would restore conveyance capacity in the DMC back to its original design capacity. Operation of the Proposed Action would conform to the existing operating requirements identified in the 2019 USFWS and NMFS Biological Opinions (USFWS 2019; NMFS 2019) and 2020 ROC on LTO ROD (Reclamation 2020). Appendix H contains detailed water quality modeling results.

### **4.2.2 Significance Criteria**

Impacts on water quality would be considered significant if the Proposed Action would (1) violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality; (2) substantially alter the existing drainage pattern of the site or area, including through the alteration of

the course of a stream or river or through the addition of impervious surfaces, in a manner that would: (a) result in substantial erosion or siltation on- or off-site or (b) 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; or (3) conflict with or obstruct implementation of a water quality control plan.

### 4.2.3 Environmental Consequences/Impacts of the No Action Alternative

Under the No Action Alternative, no actions would be taken to restore, or otherwise offset, conveyance capacity lost in the DMC. No physical modifications, or operational or institutional changes, would occur under this alternative that would alter existing drainage patterns, or create or contribute runoff water or degrade existing water quality conditions. Water quality conditions within the area of analysis would remain similar to existing and future no action conditions. **This alternative would have no impact on water quality.**

### 4.2.4 Environmental Consequences/Impacts of the Proposed Action

#### 4.2.4.1 Construction of the Proposed Action

During construction, the exposure of bare soils, soil and material stockpiles, and the presence of fuels, lubricants, and solid and liquid wastes could cause short-term water quality impacts to the DMC and adjacent water bodies if not managed properly. Soil disturbance could also result in localized surface erosion, minor changes in drainage patterns, and changes in erosion rates. Therefore, construction-related activities have the potential to degrade surface water and groundwater quality and create additional sources of polluted runoff. Construction-related activities have the potential to degrade surface water and groundwater quality under the Proposed Action, which could affect the ability to meet objectives in a water quality control plan. **These impacts would be significant.** Implementation of MM WQ-1 would require the preparation of a Stormwater Pollution Prevention Plan (SWPPP). Additionally, the Central Valley Regional Water Quality Control Board (CVRWQCB) would require best management practices (BMPs), as well as monitoring and other construction controls, to protect water quality. **With the implementation of MM WQ-1, this impact would be less than significant.**

#### 4.2.4.2 Operation of the Proposed Action

On average, operation of the Proposed Action would generate negligible changes in Delta water quality and outflows compared to the No Action Alternative. Tables H-3 through H-6 in Appendix H summarize modeled changes in the location of the low salinity zone<sup>9</sup> as measured by X2 as an indicator of the Proposed Action's potential effect on Delta salinity levels. Average annual changes to X2 would be less than one kilometer compared to existing and future no action conditions. Considering X2 moves several kilometers every few hours twice per day (Water Education Foundation 2014), this change would not be significant. South-of-Delta exports are expected to increase, with the DMC operating at design capacity under the Proposed Action, resulting in decreases in Delta outflows. Tables H-7 through H-10 in Appendix H summarize the change in south-of-Delta exports under the Proposed Action compared to existing and future no action conditions. Tables H-11 through H-14 in Appendix H summarize the change in Delta outflows under the Proposed Action compared to existing and future no action conditions. While there would be changes to Delta exports and outflows, the modeling results indicate that those changes under the Proposed Action would not be substantial and would result in a less than a one percent change on average compared to existing and future no action conditions. The DMC is not an impaired water body and Reclamation monitors and evaluates the quality of water in the DMC. The DMC's operations after construction are expected to continue as they were executed following the original construction of the canal and water quality impacts are not expected. San Luis Reservoir is capable of receiving water from the DMC and operation of the Proposed Action would result in minor fluctuations of storage levels within San Luis Reservoir. As shown in Table H-15 through Table H-18, operation of the Proposed Action would result in a less than one percent change on average compared to existing and future no action conditions and is not expected to have a measurable impact on water quality conditions in San Luis Reservoir. In addition, the Proposed Action would be operated consistent with all environmental requirements pertaining to Delta operations, including the 2019 USFWS and NMFS Biological Opinions for CVP and SWP operations and any future Biological Opinions

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<sup>9</sup> The low salinity zone often is referenced by X2, which is the distance upstream (in kilometers) from the Golden Gate Bridge, where tidally averaged salinity is equal to 2 parts per thousand. X2 primarily is determined by Delta outflow (Kimmerer 2004).

or requirements. Therefore, operation of the Proposed Action would not substantially degrade water quality and would not conflict with or obstruct implementation of a water quality control plan. **The Proposed Action would have a less than significant impact on water quality.**

## 4.3 Air Quality

### 4.3.1 Assessment Methods

This section describes the assessment methods used to analyze potential air quality effects of the alternatives, including the No Action Alternative. Emissions from construction-related equipment engine exhaust were estimated using emission factors derived from emissions and activity data from the CARB EMFAC2017 on-road component of the CARB's web-based emissions model and the OFFROAD2021 off-road component of the CARB's web-based emissions model (CARB 2022a, 2022b). Appendix I1 provides a comprehensive description of the existing environment and details the methods, assumption, and results of the air quality modeling conducted. Appendix I2 provides detailed information on the emission calculations for off-road construction equipment exhaust; on-road haul/vendor truck and construction worker commuting exhaust; and fugitive dust emissions from unpaved road material handling, grading, and bulldozing.

### 4.3.2 Significance Criteria

Impacts on air quality would be considered significant if the Proposed Action (1) would result in emissions of air pollutants exceeding the General Conformity *de minimis* emission levels or the quantitative criteria promulgated by the applicable local air pollution control agency; (2) would result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard; (3) would expose sensitive receptors to substantial pollutant concentrations; or (4) would result in other emissions, such as those leading to objectionable odors, adversely affecting a substantial number of people. The quantitative significance criteria developed by the local air districts and the General Conformity *de minimis* thresholds were developed to determine compliance with the first two significance criteria. This Project is subject to the General Conformity regulations because it involves a federal agency (Reclamation) and is in a nonattainment or maintenance area. The second criterion for cumulative impacts is addressed in Chapter 5, "Cumulative Effects," and is not discussed further in this chapter. The third and fourth criterion were evaluated based on the Proposed Action's potential to emit toxic air contaminants (TAC) in the form of construction equipment engine exhaust, including diesel particulate matter (DPM)<sup>10</sup> and the potential to generate near-field odors that certain individuals may find objectionable.

Quantitative significance criteria have been developed by the BAAQMD and SJVAPCD. These criteria were developed such that a project consistent with the criteria would not be expected to exceed the CAAQS or NAAQS and would not conflict with or obstruct implementation of the respective applicable regional air quality plans. Impacts on air quality would be significant if implementing the Proposed Action would cause the thresholds developed by BAAQMD and SJVAPCD to be exceeded; if these thresholds are exceeded, conflicts with applicable air quality plans and contributions to air quality standard violations for applicable pollutants can be assumed.

### 4.3.3 Environmental Consequences/Impacts of the No Action Alternative

Under the No Action Alternative, no actions would be taken to restore, or otherwise offset (e.g., increased pumping at Banks Pumping Plant or increased use of the Intertie Pumping Plant) conveyance capacity lost in the DMC; as such, there would be no short-term dust or odors from construction activities. Operational changes would occur to compensate for the effects of future land subsidence on the capacity of the DMC, but these changes would be minor and would not result in an appreciable change to regional air pollutant emissions, localized concentrations of TAC, or odors or dust associated with operation of the DMC. **The No Action Alternative would have less than significant impacts on air quality.**

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<sup>10</sup> DPM is listed by California Office of Environmental Health Hazard Assessment (OEHHA) as a carcinogen and contributes to noncancer chronic health effects. OEHHA has not established a hazard index attributable to DPM for acute (short term) health effects.



### 4.3.4 Environmental Consequences/Impacts of the Proposed Action

#### 4.3.4.1 Construction of the Proposed Action

Construction-related emissions in the BAAQMD and SJVAPCD were estimated for off-road construction equipment, on-road haul trucks and delivery vehicles, and construction workers commuting under the Proposed Action. As shown in Table I1-5 in Appendix I1, construction activities under the Proposed Action would generate air pollutant emissions that would be less than the USEPA General Conformity *de minimis* levels and would be less than the BAAQMD and SJVAPCD quantitative thresholds (Appendix I2 contains detailed calculations). **Therefore, impacts to air quality relative to air pollutant emissions from the Proposed Action would be less than significant.**

Construction activities along the canal have the potential to emit TAC in the form of construction equipment engine exhaust, including DPM. Construction impacts under the Proposed Action would be temporary and highly mobile, occurring for short periods along various points of the 116-mile DMC. In addition, pollutant concentrations have been shown to drop up to 70 percent at a distance of 500 feet from a vehicle exhaust source and up to 80 percent by 1,000 feet (CARB 2005). **Therefore, the exposure of sensitive receptors to DPM or other potential TAC would be minimal, and impacts to air quality relative to the exposure of sensitive receptors to substantial pollutant concentrations would be less than significant.**

Construction of the canal would result in the emission of diesel engine exhaust, which may generate near-field odors that certain individuals may find objectionable. Earthmoving activities and operation of construction vehicles on paved and unpaved roadways would also result in the generation of fugitive dust; however, construction areas would be watered during earthmoving activities, thereby reducing emissions of fugitive dust up to 61 percent (California Air Pollution Control Officers Association 2022). In addition, owing to the rural, sparsely populated nature of the Project area, relatively few individuals would have the potential to experience construction odors or dust. **Exposure to construction-related odors or dust for individuals in the vicinity of construction would be minimal, and impacts to air quality relative to other emissions adversely affecting a substantial number of people would be less than significant.**

#### 4.3.4.2 Operation of the Proposed Action

Operating the DMC at design capacity under the Proposed Action would not require the addition of new pollutant emitting sources, such as pumps or generators. Once construction activities are completed, the DMC would be operated and maintained using the same facilities and procedures as are currently utilized. Operation and maintenance of the DMC under the Proposed Action would not be expected to result in an appreciable change to regional air pollutant emissions, local TAC concentrations, or odors/dust. **For this reason, the long-term impact on air quality as a result of the operation of the Proposed Action would be less than significant.**

## 4.4 Greenhouse Gas Emissions

### 4.4.1 Assessment Methods

GHG emissions were estimated using the same methods discussed in Section 4.3.1, with any notable differences detailed in Appendix J. Appendix J provides a detailed description of the existing environment and details on the methods, assumption, and results of the GHG emissions modeling conducted. Appendix I2 provides detailed information about the GHG emission calculations for off-road construction equipment exhaust, and on-road haul/vendor truck and construction worker commuting exhaust.

### 4.4.2 Significance Criteria

Impacts relative to GHG would be considered significant if the Proposed Action would (1) generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or (2) conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the GHG emissions.

**4.4.2.1 Quantitative Emissions Threshold**

The Proposed Action would involve construction activities partially within each of the SJVAB and SFBAAB. Neither the SJVAPCD or BAAQMD—the responsible air quality agencies of the SJVAB and SFBAAB, respectively—have promulgated quantitative GHG significance criteria applicable to the Project, which might be expected to have a significant impact on the environment (BAAQMD 2017; SJVAPCD 2015). The South Coast Air Quality Management District (SCAQMD) has adopted a 10,000-metric-ton per year carbon dioxide equivalent (MTCO<sub>2e</sub>) threshold for combined operational emissions and amortized construction emissions below which a project would not be expected to conflict with state GHG reduction goals or result in a significant impact on the environment (SCAQMD 2008).<sup>11</sup> SCAQMD is responsible for air quality in the South Coast Air Basin, a region of similar air quality to the SJVAB. Therefore, the SCAQMD threshold was considered the most applicable quantitative threshold for evaluation of the Proposed Action and was used as a quantitative threshold for evaluation of GHG significance criteria.

**4.4.3 Environmental Consequences/Impacts of the No Action Alternative**

Under the No Action Alternative, there would be no construction or changes to existing operations within the study area. Future changes in operation would likely occur to compensate for the effects of future land subsidence on the capacity of the DMC, but these changes would be minor and would not be anticipated to result in substantial changes to operational GHG emissions. **This alternative would have a less than significant impact with respect to GHG emissions and would not be expected to conflict with an applicable plan, policy, or regulation adopted to reduce GHG emissions.**

**4.4.4 Environmental Consequences/Impacts of the Proposed Action**

**4.4.4.1 Construction of the Proposed Action**

Under the Proposed Action, construction activities related to raising deficient structures along the canal would generate GHG emissions throughout the construction period.

Table 4-1 summarizes the construction-related GHG emissions for the Proposed Action. Because there would be no change in GHG emissions associated with operation under the Proposed Action, amortized construction emissions are compared against the 10,000 MTCO<sub>2e</sub> threshold. Detailed GHG emission summaries and calculations are presented in Appendix I2. As shown, Project-related GHG emissions would not exceed the applicable quantitative threshold. Additionally, a plan consistency analysis was performed for the Proposed Action and is included in Appendix J. The Proposed Action was found to not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the GHG emissions. **Therefore, the Proposed Action would have a less than significant impact on GHG emissions and applicable plan, policy, or regulatory conflicts.**

**Table 4-1. Total Construction Greenhouse Gas Emissions from the Proposed Action**

	Construction GHG Emissions	Significance Criteria	Exceeds Criteria?
Proposed Action	11,991 total MTCO <sub>2e</sub> <sup>1,2</sup>	n/a	n/a
Amortized Over 30 Years	397 MTCO <sub>2e</sub> per year <sup>1</sup>	10,000 MTCO <sub>2e</sub> per year	no

Notes:

<sup>1</sup> CO<sub>2e</sub> emissions are estimated from emissions of CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O using Intergovernmental Panel on Climate Change AR4 GWP of 1, 25, and 298, respectively.

<sup>2</sup> The presented value represents the total GHGs emitted over the construction period including exhaust from equipment used during all elements of Project construction, exhaust from hauling and delivery vehicle trips, and exhaust from worker commute vehicles.

Key: GHG= greenhouse gases; MTCO<sub>2e</sub>= metric tons of carbon dioxide equivalent; n/a= not applicable

<sup>11</sup> Construction-related GHG emissions would be amortized over a presumed project lifetime of 30 years, consistent with SCAQMD guidance.

#### **4.4.4.2 Operation of the Proposed Action**

Construction of new facilities that would result in permanent, operational GHG emissions are not proposed under the Proposed Action. **Therefore, long-term operation of the Proposed Action would be the same as the existing or future no action conditions and would have no impact on GHG emissions.**

### **4.5 Visual Quality**

#### **4.5.1 Assessment Methods**

Assessment of visual resources was accomplished through the use of the United States Department of Agriculture (USDA) Scenery Management System (SMS), outlined in *Landscape Aesthetics: A Handbook for Scenery Management, Agriculture Handbook Number 701* (USDA Forest Service 1995). The USDA SMS categorizes visual resources into three classes of scenic attractiveness: Class A, Distinctive (areas whose features combine to provide unusual, unique, or outstanding scenic quality); Class B, Typical (areas whose features combine to provide ordinary or common scenic quality); and Class C, Indistinctive (areas whose features combine to provide low scenic quality because of missing attributes of variety, unity, vividness, uniqueness, balance, etc.).

In addition to scenic attractiveness, the USDA SMS uses landscape visibility to develop a meaningful measurement of the relative importance and sensitivity or what is seen and perceived within the landscape. The USDA SMS uses concern levels to measure the degree of public importance placed on landscapes viewed from travelways (linear concentrations of public-viewing, including highways, trails, commercial flight paths, and waterways) and use areas (spots that receive concentrated public-viewing use) (USDA Forest Service 1995). Concern levels are divided into three categories that rank interest in scenery: Level 1 (high), Level 2 (moderate), and Level 3 (low). The level of concern assigned to a visual resource is further influenced by whether the travelway and use area are defined as primary (national and/or regionally important locations largely associated with recreation and tourism use) or secondary (locally important locations associated with all types of use, including recreation and tourism).

#### **4.5.2 California State Scenic Highways Program**

There are four State Scenic Highways (SSHs), as designated by the 1963 California State Scenic Highway Program, that connect to one another (collectively referred to as a single SSH) and run parallel to the DMC for approximately 58.8 miles. The SSH (includes sections of Interstate 580 [I-580] and Interstate 5 [I-5]) located in Alameda, San Joaquin, Stanislaus, and Merced counties (California Department of Transportation [Caltrans] 2018). A desktop survey was conducted using Microsoft Bing maps to determine the distance of the SSH to the DMC and whether the DMC is an integral part of the conserved viewshed associated with the SSH. The survey found that, of the 31 sites surveyed along the SSH, the DMC is on average 0.74 mile away from the SSH and is not visible from any of these sites. Although not captured in the sites surveyed, there are two locations along the SSH at which the DMC is clearly visible; these locations are the sites at which the DMC crosses under the SSH. However, these two locations of visibility combined span approximately 0.24-mile total, which is approximately 0.01 percent of the total SSH length. More details regarding this survey are available in Appendix F.

#### **4.5.3 Significance Criteria**

Impacts on visual resources would be considered significant if the Proposed Action would: (1) have a substantial permanent or temporary adverse effect on a scenic vista (areas with Scenic Attractiveness Class A or Class B classifications); (2) substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings, within a state scenic highway corridor; (3) substantially degrade the existing visual character or quality of public views of the site and its surroundings; or (4) create a new source of substantial light or glare, which would adversely affect day or nighttime views of the area.

#### **4.5.4 Environmental Consequences/Impacts of the No Action Alternative**

Under the No Action Alternative, there would be no construction or changes to existing operations within the study area. Future changes in operation would likely occur to compensate for the effects of future land subsidence on the capacity of the DMC, but the effect of these changes on visual resources would be minor and largely imperceptible from the main vantage points and highways (I-580 and I-5). Therefore, there would be no

short- or long-term impacts to visual resources under this alternative. **This alternative would have less than significant impacts to visual resources.**

#### **4.5.5 Environmental Consequences/Environmental Impacts of the Proposed Action**

##### **4.5.5.1 Construction of the Proposed Action**

Under the Proposed Action, construction activities related to raising deficient structures of the canal would affect the area around the canal and facilities associated with it. There are no scenic vistas (Class A or B resources) present within the Project area; the DMC and surrounding agricultural land are considered Class C. The DMC is largely not visible from the nearby SSH, but at the few locations at which it is visible, the panoramic nature of the background views of agricultural fields and the speed of motorists passing the site make the DMC an area of low scenic concern, reducing the overall impact generated by construction activities. No nighttime construction would occur under this alternative; therefore, the use of temporary lighting during construction would not be required. **Therefore, the impact of the Proposed Action on the visual character of the study area would be less than significant.**

##### **4.5.5.2 Operation of the Proposed Action**

Implementation of the Proposed Action would result in some lengths of the canal having slightly raised lining and embankments (between one and three feet higher), allowing the canal to convey more water than it currently is capable of, thus improving its utility as a Class C Resource. The restoration of the DMC back to its design capacity is unlikely to result in visual changes to the canal that would be drastic enough to be noticed from the designated SSHs or other common vantage points. **Thus, the long-term impact on visual resources as a result of the operation of the Proposed Action would be less than significant.**

## **4.6 Noise**

### **4.6.1 Assessment Methods**

Activities with the potential for generating short-term, temporary increases in noise levels include construction activities and construction-related traffic. Long-term noise impacts could occur from operation of new facilities. The noise level at nearby sensitive receptors during the construction of the Proposed Action was calculated by (1) attenuating the construction sound level for distance to the receptor and (2) logarithmically adding the attenuated construction noise source level to the ambient noise level.

### **4.6.2 Significance Criteria**

Impacts on noise would be considered significant if the Proposed Action would result in (1) generation of noise levels in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies;<sup>12</sup> (2) generation of excessive ground-borne vibration or ground-borne noise levels (significance threshold of 0.3 inch per second [in./sec] of peak particle velocity [PPV]);<sup>13</sup> or (3) generation of a substantial permanent increase in ambient noise levels above levels existing without the Proposed Action. For the purpose of this analysis, the sound-level limitations set by Fresno and Alameda counties (Appendix E) state that no sound source should exceed the background sound level of 50 A-weighted decibels (dBA) during daytime and 45 dBA during nighttime, has been applied. However, all five county ordinances exempt construction activities during varying daytime hours. For this noise analysis, the most conservative daytime hours limitations set by the counties were applied. As such, construction noise between 7:00 a.m. and 7:00 p.m. on weekdays and 9:00 a.m. and 5:00 p.m. on weekends would be exempt from specific sound-level limitations. If nighttime construction were to exceed the 45 dBA threshold (a 15 dBA increase from the 30 dBA existing nighttime ambient noise level), impacts would be considered significant.

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<sup>12</sup> The applicable local standards are detailed in Appendix E.

<sup>13</sup> To assess the potential for structural damage associated with vibration, the vibratory ground motion near the affected structure is measured in terms of PPV in the vertical and horizontal directions, typically in units of inches per second (in/sec). The PPV is defined as the maximum instantaneous peak of vibration signal. Caltrans estimates the frequent generation of vibration at levels exceeding 0.3 in/sec can damage older residential structures and cause annoyance to humans (Caltrans 2020).

Construction-related traffic noise sources would include construction worker vehicles, material delivery trucks, and material off-hauling trucks. Because of the logarithmic nature of noise, a doubling of traffic would result in a 3 dBA increase in noise levels, which would be barely perceptible to the human ear (FHWA 2011). Traffic would need to be increased at least three times for increased noise to be readily perceived (5 dBA) and at least nine times to double the noise levels (10 dBA) and result in a significant impact.

### **4.6.3 Environmental Consequences/Impacts of the No Action Alternative**

Ambient noise and vibration levels under the No Action Alternative would be the same as existing conditions. Neither construction-related activities nor increased operational activities would occur. **This alternative would have no impact on noise.**

### **4.6.4 Environmental Consequences/Impacts of the Proposed Action**

#### ***4.6.4.1 Construction of the Proposed Action***

Under the Proposed Action, all construction activities would occur in Alameda, San Joaquin, Stanislaus, Merced, and Fresno counties. Each of these counties specifically exempt construction activities from specific sound-level limitations during daytime hours. Construction noise under the Proposed Action would occur within the county-designated construction noise exempt hours between 7:00 a.m. and 7:00 p.m. on weekdays and 9:00 a.m. and 5:00 p.m. on weekends. The maximum increase in traffic volume under the Proposed Action would occur on SR-33, where the traffic volume would increase from 2,700 cars per day under the No Action Alternative (2026) to 4,012 cars per day under the Proposed Action. The traffic volume increase ratio on SR-33 would be 1.49, which is well below the increase ratio threshold of nine (Table 1 in Appendix K). The PPV for the Proposed Action's construction activities would not exceed the significance criteria of 0.3 in./sec (Table 4 in Appendix K). **The short-term impact on ambient noise and vibration levels as a result of the construction of the Proposed Action would be less than significant.**

#### ***4.6.4.2 Operation of the Proposed Action***

Operating the DMC at design capacity under the Proposed Action would not require the addition of new noise and vibration generating sources, such as pumps or generators. Once construction activities are completed, the DMC would be operated using the same facilities as are currently utilized, and ambient noise and vibration levels would return to existing conditions. **For this reason, the long-term impact on ambient noise and vibration levels as a result of the operation of the Proposed Action would be less than significant.**

## **4.7 Traffic and Transportation**

### **4.7.1 Assessment Methods**

For the Proposed Action, anticipated short-term construction-related and long-term operations-related trip generation were identified. These additional trips were assigned to regional roadways in the vicinity of the Project area (DMC across Fresno, Merced, Stanislaus, San Joaquin, and Alameda Counties in the San Joaquin Valley) to determine traffic operations and level of service (LOS) under the Proposed Action. Because this is not a demand-inducing land use development or roadway capacity improvement Project, and construction-related trips are expected to be within the construction period only, the vehicle miles traveled (VMT) at the regional level is not expected to change in the long run. Therefore, LOS analysis is used to assess the impacts of the construction-related trips, instead of VMT analysis for this Project.

Year 2026 was selected as the analysis year because all the construction activities are expected to occur simultaneously, representing the worst-case scenario in which construction trips would occur on roadways within the Project area. Appendix L provides detailed information about traffic flow assessment methods, trip generation, and roadway operations under the Proposed Action. In this analysis, all study roadway segments are either freeways or state highways, so the LOS standard from Caltrans provided in Appendix L was used to identify traffic impacts. LOS thresholds shown in Appendix L were used to identify corresponding daily-level LOS. For a.m. and p.m. peak hours, the Highway Capacity Software, Version 7.9.6, was used to assess peak hour LOS.

Traffic safety effects were analyzed by reviewing potentially hazardous areas or roads/intersections not designed to handle the proposed construction traffic. Construction and operations effects were also analyzed to identify conditions that could result in impact to public transit or emergency access.

#### **4.7.2 Significance Criteria**

Impacts related to traffic and transportation would be considered significant if they result in one or more of the following conditions or situations: (1) conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities; (2) increase traffic substantially in relation to the existing traffic load and capacity of the street system; (3) substantially increase hazards due to a geometric design feature or incompatible uses; or (4) result in inadequate emergency access. The significance criteria apply to all transportation systems that could be affected by the Project.

#### **4.7.3 Environmental Consequences/Impacts of the No Action Alternative**

Under the No Action Alternative, there would be no construction or changes to existing operations within the study area. Hence, there would be no short- or long-term impacts to traffic operations under this alternative. **This alternative would have no impacts on traffic and transportation.**

#### **4.7.4 Environmental Consequences/Impacts of the Proposed Action**

##### **4.7.4.1 Construction of the Proposed Action**

Under the Proposed Action, construction activities related to raising deficient structures of the canal would affect the area around the canal and facilities associated with it. To accommodate the increased DMC water level due to restoring it to its design capacity, 45 vehicular bridges across the Project corridor would have to be reconstructed. However, most of these are small bridges on low-volume rural roadways, and only three bridges would be reconstructed concurrently. Therefore, existing traffic crossing the DMC can be diverted to nearby roadways.

Construction-related traffic under the Proposed Action would not conflict with the goals and objectives of any applicable programs, plans, ordinances, or policies in relevant jurisdictions that establish roadway performance standards and would not result in a substantial increase in traffic in relation to the existing traffic load and roadway capacity.

Trip generation and roadway operations during construction of the Proposed Action and bridge modifications are presented in Appendix L. For daily operations, the added construction-related trips would not change the LOS at any of the study roadway segments, except for I-5 at SR 130 in Stanislaus County. Even though LOS degrades at this location, it does not exceed Caltrans' threshold of significance (LOS D). For peak hour operations, the added construction-related trips would not change the LOS at any of the study roadway segments, except at the following locations: SR 33 north of DMC northbound and southbound in Fresno County. Even though LOS degrades at these locations, it does not exceed Caltrans' threshold of significance.

Construction equipment and construction worker vehicle trips would increase traffic hazards at key roadway segments and intersections close to the DMC crossings, including SR 33 in Fresno County, SR 165, SR 152, and SR 33 in Merced County, and SR 132 in San Joaquin County. Construction traffic has the potential to limit or slow this emergency access. Therefore, construction of the Proposed Action would increase the potential for traffic hazards at roadway segments and intersections and potentially conflict with emergency vehicles. **This impact would be significant.** Developing a site-specific health and safety plan, installing caution signs, implementing dust-control measures, and implementing construction traffic management actions, such as temporary traffic control plans included in MM TR-1, described in Section 4.14, would reduce the severity these traffic safety impacts. **With the implementation of MM TR-1, this impact would be less than significant.**

#### **4.7.4.2 Operation of the Proposed Action**

Implementation of the Proposed Action would result in some lengths of the canal having slightly raised lining and embankments (between one and three feet higher), allowing the canal to convey more water than it currently is capable of. Roadway operations would remain similar to those under No Action Alternative conditions. No long-term additional trips would be associated with the operations of the Proposed Action. **Thus, the long-term impact on traffic flow as a result of the operation of the Proposed Action would be less than significant.**

## **4.8 Hazardous Materials**

### **4.8.1 Assessment Methods**

Analysis of potential hazards and hazardous materials impacts of the Proposed Action is generally qualitative, focusing on three types of impacts associated with hazards and hazardous materials: (1) the potential to encounter hazardous materials, including contaminated soil and/or groundwater at existing active hazardous materials sites near proposed construction; (2) accidental release of hazardous materials (e.g., fuels, oils) during transportation to and from sites related to construction and operations; and (3) physical hazards within the Project area. Evaluation of the potential short- and long-term impacts of the Proposed Action on the potential to affect or be affected by hazards was based on the results of technical maps, reports, and other documents to describe the hazardous conditions within the study area, and on professional judgment. Appendix F presents a detailed description of existing conditions regarding hazards and hazardous materials.

### **4.8.2 Significance Criteria**

The criteria were developed in accordance with CEQA Guidelines to determine the significance of potential impacts in relation to hazards and hazardous materials. Impacts would be considered significant if the Proposed Action would: (1) create significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials; (2) impair or physically interfere with an adopted emergency response plan or emergency evacuation plan; (3) expose people or structures to a significant risk of loss, injury, or death involving wildland fires; (4) create a significant hazard to the public or the environment through reasonable foreseeable upset and accident conditions involving the release of hazardous materials into the environment; or (5) be located in the vicinity of a private airstrip or within two miles of a public use airport, which could result in a safety hazard for people residing or working within the Project area. Because no schools are located within 0.25 mile of the study area, the CEQA Guidelines pertaining to release of hazardous materials in the vicinity of a school is not applicable and not discussed further.

### **4.8.3 Environmental Consequences/Impacts of the No Action Alternative**

Under the No Action Alternative, no actions would occur in the study area, including the regions in the vicinity of the Tracy Municipal Airport, and therefore no hazardous substances would be used, transported, or disposed of. No road closures or other impacts that could impair adopted emergency response/evacuation plans would occur. Ground-disturbing activities that could increase the likelihood of accidental release of hazardous materials into the environment would not be required under this alternative. Spark-generating mechanical equipment would not be required. **Therefore, there would be no impact of this alternative on hazards and hazardous materials in the short term.**

### **4.8.4 Environmental Consequences/Impacts of the Proposed Action**

#### **4.8.4.1 Construction of the Proposed Action**

Under the Proposed Action, construction and demolition activities would involve removing deficient vehicle bridges, pipe crossings, and other structures that may contain asbestos or lead products, creating the potential for a hazard to be posed through the transport and disposal of these materials. Additionally, vehicles and mechanical equipment required for construction could have the potential to cause leaks or spills within or around the Project area. **These impacts would be significant.** MMs WQ-1, HAZ-1, and HAZ-2 would require the preparation of an SWPPP, a Spill Prevention and Response Plan, and a health and safety awareness training. **With the**

**implementation of MMs WQ-1, HAZ-1, and HAZ-2, the impacts related to the transport, use, or disposal of hazardous materials would be less than significant.**

Some construction activities, such as vehicle bridge replacements, would require road closures. **Road closures would have a significant impact on emergency evacuation or response plans in the study area.** However, MM TR-1 would require the creation of a traffic control plan to ensure that emergency access routes in and through construction areas would be kept clear. **With implementation of TR-1, the impact on emergency response or evacuation plans would be less than significant.**

Construction of the Proposed Action would introduce construction equipment and vehicles that could increase wildfire risk. **This impact could be significant.** Implementation of MM HAZ-3 would require fire prevention controls to ensure fire hazard risks are reduced. **With the implementation of HAZ-3, the impact on wildland fire risk would be less than significant.**

Ground-disturbing work required by the Proposed Action has the potential to accidentally expose workers or residents within the Project area to infection by Valley fever, or accidentally release hazardous materials stored in nearby hazardous waste sites to the public and environment. **This impact would be significant.** MMs HAZ-2 and HAZ-4 would require health and safety awareness training and development of a contaminated soil/groundwater remediation plan. **With the implementation of MMs HAZ-2 and HAZ-4, the impact on accidental release of hazardous substances would be less than significant.**

The Project area's proximity to the Tracy Municipal Airport poses physical risks, associated with airplane takeoffs and landings, to the people working in the area. **These impacts would be significant.** Airport safety coordination, as required by MM HAZ-5, would reduce this impact. **With the implementation of MM HAZ-5, the impact associated with airport hazards would be less than significant.**

#### **4.8.4.2 Operation of the Proposed Action**

Operation of the restored conveyance capacity in the DMC would not require the introduction of new hazards or hazardous materials into the Project area or require actions that have the potential to exacerbate hazards and hazardous materials that already exist within the Project area in a way that could expose the public or environment to them. In addition, maintenance activities under the Proposed Action would continue to be implemented as currently done and would not require the introduction of new hazards or hazardous materials. **Implementation of the Proposed Action would have no long-term impacts on hazards or hazardous materials within the Project area.**

## **4.9 Biological Resources**

### **4.9.1 Assessment Methods**

The impact analysis for biological resources was conducted by evaluating the potential for construction and/or operation of the Proposed Action to result in adverse effects on special-status species or sensitive habitats that would meet or exceed any of the significance criteria described below.

### **4.9.2 Significance Criteria**

The significance criteria described were developed in accordance with the CEQA Guidelines to determine the significance of potential impacts related to biological resources. Impacts would be significant if implementing the Proposed Action would: (1) 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 California Department of Fish and Wildlife (CDFW), USFWS, or NMFS; (2) have a substantial adverse effect on any riparian habitat or other sensitive natural community or critical habitat identified in local or regional plans, policies, or regulations or by the CDFW, USFWS, or NMFS; (3) have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means; (4) interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites; or (5) conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.



### 4.9.3 Environmental Consequences/Impacts of the No Action Alternative

Under the No Action Alternative, no actions would be taken to restore, or otherwise offset, conveyance capacity lost in the DMC, and impacts on biological resources would remain similar to those experienced under existing conditions. OM&R activities would be similar to or would slightly increase over existing conditions as a result of increased effort required to address issues that may arise owing to aging infrastructure. Reclamation would continue to maintain the facilities in compliance with the 2005 USFWS Biological Opinion (USFWS 2005). OM&R of the DMC would occur within the existing canal footprint and canal ROW and would not result in significant impacts on biological resources.

Under the No Action Alternative, deficient bridges would be partially submerged when the canal is operated at the design flow. These deficient bridges provide potential roosting habitat for the three special-status bat species with the potential to occur within the Project area—pallid bat, Townsend’s big-eared bat, and western mastiff bat. Reduction in roosting habitat would be localized and temporary, and any resultant adverse effects on these species would likely be short-term and minor. Therefore, such **impacts would be less than significant.**

### 4.9.4 Environmental Consequences/Impacts of the Proposed Action

#### 4.9.4.1 Construction of the Proposed Action

The Proposed Action would have direct and indirect impacts on 53 special-status species, as described in Appendix M. These impacts include the potential for direct injury, mortality, stress, or behavioral effects from construction noise and activity. Impacts also include indirect impacts such as increased risk of predation, increased competition, and reproductive failure from disturbance or loss of habitat. Estimated temporary and permanent impacts on existing habitat types within the Project area are presented in Table M-7 in Appendix M. Per CEQA, **these impacts would be significant.** MMs BIO-1 through BIO-15 include the following requirements to avoid or minimize impacts to the extent practicable: pre-construction surveys for special-status plants and animals to determine the presence of these species, implementation of a biological resources monitoring and management plan, environmental awareness training for construction personnel, implementation of general (e.g., litter control, marking construction areas, and appropriate erosion control materials), and species-specific measures (e.g., avoidance buffers, modifying timing of construction activities, biological monitoring, and preservation of habitats). **With implementation of MMs BIO-1 through BIO-15, impacts on special-status species would be less than significant.**

The Proposed Action would have impacts on sensitive natural communities, as described in Appendix M. **These impacts would be significant.** However, with the implementation of MM BIO-16, sensitive natural communities will be protected in place to the greatest extent practicable to avoid or minimize impacts on sensitive natural communities to the extent feasible. **With the implementation of MM BIO-16, impacts on sensitive natural communities would be less than significant.**

The Proposed Action could impact approximately 0.6 acre of designated critical habitat for the California red-legged frog, as further described in Appendix M. **This impact would be significant.** However, with the implementation of MMs BIO-10 and BIO-16 work with the potential to impact critical habitat would not be initiated until appropriate consultation with USFWS was completed. **With the implementation of MMs BIO-10 and BIO-16, impacts on critical habitat for the California red-legged frog would be less than significant.**

Although the northern extent of the Project area overlaps a small portion of the geographic area designated as critical habitat for Delta smelt, the Project area does not support any of the biological or physical habitat attributes that are essential to the Delta smelt’s conservation (i.e., primary constituent elements). Furthermore, the portion of Delta smelt critical habitat that overlaps the Project area does not maintain factors constituting habitat for the species in surrounding areas. Additionally, because the portions of the Project area where in-water and near-water construction activities would occur are well downstream of all surrounding Delta smelt critical habitat, construction activities would not have the potential to degrade water quality in areas that do support primary constituent elements of critical habitat for Delta smelt through the introduction of sedimentation or pollutants. **Therefore, there would be no impact on critical habitat for Delta smelt.**

Numerous wetlands and other waters potentially under the jurisdiction of U.S. Army Corps of Engineers (USACE) or Regional Water Quality Control Board (RWQCB) occur along the length of the Project area, as described in Appendix M. **Potential construction impacts to these wetlands would be significant.** A formal wetland delineation to determine the extent of jurisdictional waters within the Project area will be conducted and any applicable permits/authorizations from USACE and RWQCB will be obtained prior to any construction activities within state or federally protected wetlands. All terms and conditions of any applicable state and federal permits/authorizations will be implemented under the Proposed Action, as described in MM BIO-17. Additionally, where impacts on jurisdictional wetlands and other waters cannot be avoided, restoration and compensatory mitigation will be required to offset temporary and permanent impacts, as described in MM BIO-17. **With the implementation of MM BIO-17, impacts on state or federally protected wetlands would be less than significant.**

Although construction of the Proposed Action would last for approximately seven and a half years, work crews would be highly mobile, and the construction period at any one location along the 116-mile DMC canal would be relatively brief. As such, implementation of the Proposed Action would have short-term, temporary impacts on habitats that may be used by wildlife as migratory corridors—this could impact the movement of native or resident migratory species. **These impacts would be significant.** However, with the implementation of MMs BIO-16 and BIO-17, protections for these habitats would be required. **With the implementation of MMs BIO-16 and BIO-17, impacts would be less than significant.**

Each county within which the Project area is located has adopted a general plan that guides decisions on future growth, development, and the conservation of resources based on goals related to the preservation and protection of biological resources, as described in Appendix M. The potential impacts on biological resources identified with the implementation of the Proposed Action could conflict with these goals. **These impacts would be significant.** However, with implementation of MM BIO-1 through BIO-17 to avoid or minimize impacts on biological resources, the Proposed Action would not conflict with the goals of these regional plans. **With the implementation of MM BIO-1 through BIO-17, these impacts would be less than significant.**

#### **4.9.4.2 Operation of the Proposed Action**

Under the Proposed Action, south-of-Delta exports are expected to increase, which may impact biological resources through resultant changes to hydrodynamic conditions impacting water quality conditions (e.g., salinity, temperature, total dissolved solids levels) in the central and southern Delta. However, south-of-Delta exports rates under Proposed Action are within the range considered in the 2019 USFWS and NMFS Biological Opinions (USFWS 2019; NMFS 2019), and thus, any potential resultant impacts on federally listed species are already addressed by the terms and conditions specified in these documents. Furthermore, operation and maintenance of the Proposed Action would be conducted in accordance with all relevant existing or future regulatory requirements and the terms and conditions specified in all applicable current or future Biological Opinions. Additionally, operation of the Proposed Action could change the water elevation at Oroville Reservoir, Folsom Lake, Shasta Lake, and San Luis Reservoir, which could impact biological resources at these locations. However, expected changes in water elevation at these reservoirs would be less than five percent, as summarized in Table M-3 through Table M-6 in Appendix M, which is within the range attributable to the assumptions associated with the model outputs. **As such, the Proposed Action would have less than significant operational impacts on biological resources.**

## **4.10 Recreation**

### **4.10.1 Assessment Methods**

Desktop research was conducted to identify recreational facilities located in the vicinity of the Project area. A map of relevant recreational facilities is presented in Appendix F. This analysis assesses impacts to recreation by evaluating closures or access restriction to sites at or near the DMC. The only local, state, or federal recreational or public facility within 0.25 mile of the canal ROW is Mendota Pool Park. In addition to the Mendota Pool Park, there are several reservoirs offering recreational activities that may be impacted by changes to operations under the Proposed Action: Oroville Reservoir, Folsom Lake, Shasta Lake, and San Luis Reservoir.

## 4.10.2 Significance Criteria

Impacts on recreation would be considered potentially significant if the Proposed Action would: (1) substantially reduce access to or close recreation areas; (2) increase the use of the existing recreation facility or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated due to overcrowding; or (3) reduce water levels in recreational water bodies to an extent that recreational uses would be substantially affected.

## 4.10.3 Environmental Consequences/Impacts of the No Action Alternative

Under the No Action Alternative, no actions would be taken to restore, or otherwise offset, conveyance capacity lost in the DMC. Therefore, this alternative would not result in change to recreation facilities or activities that occur. **This alternative would have no impact on recreational facilities within the Project area.**

## 4.10.4 Environmental Consequences/Impacts of the Proposed Action

### 4.10.4.1 Construction of the Proposed Action

Under the Proposed Action, construction actions near the lower end of the DMC could temporarily impact access to and recreational utility of the Mendota Pool Park. However, this impact would be short-term and would not significantly impact recreation, as visitors would still be able to utilize recreational opportunities at the nearby Mendota Wildlife Area (five miles south of Mendota Pool Park). **The impact on recreation as a result of the construction of the Proposed Action would be less than significant.**

### 4.10.4.2 Operation of the Proposed Action

The operation of the Proposed Action could change the water elevation at the following recreation sites: Oroville Reservoir, Folsom Lake, Shasta Lake, and San Luis Reservoir. A comparison of the baseline water elevation and the predicted water elevations under the Proposed action using CalSim modeling showed monthly fluctuations of zero to two feet for all water year types. Oroville Reservoir and Folsom Lake could decrease zero to one foot, Shasta Lake could decrease one to two feet, and San Luis Reservoir could increase two feet in winter months and decrease two feet in summer months. The changes in water elevation are not likely to impact water-based recreation at these locations, which includes boating, fishing, and swimming. The proposed operation of the Proposed Action is consistent with and has already been evaluated in the ROC on LTO Environmental Impact Statement (Reclamation 2019). **Therefore, the long-term impact on recreation facilities as a result of the operation of the Proposed Action would be less than significant.**

## 4.11 Cultural Resources

### 4.11.1 Assessment Methods

A cultural resources assessment was accomplished by completing an archival and records search of the California Historical Resources Information System (CHRIS) for the Project APE and a surrounding 0.25-mile radius, background research, an intensive pedestrian archaeological survey of the APE, an architectural survey of the APE built environment, and National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR) evaluations for cultural resources that were previously identified and relocated, or newly recorded within the APE. The records search was conducted at the Central California Information Center (CCIC), Northwest Information Center (NWIC), and the Southern San Joaquin Valley Information Center (SSJVIC) of the CHRIS. No previously recorded archaeological sites were documented within the APE. Two Native American archaeological sites and a single historic period (glass) isolate were identified within the 0.25-mile records search area around the APE. Historic period built environment resources identified during the record review include the DMC and several features associated with the canal. The DMC is a component of the CVP and has been determined eligible for the NRHP by consensus. Since 2005, it has been treated as eligible for listing in the NRHP under Criteria A and C. The CHRIS search results identified three linear historic properties that cross under or over the DMC that have been previously determined eligible for listing in the NRHP, as well

as nine additional linear built environment resources that cross under or over the DMC that have been previously determined not eligible for listing in the NRHP.

The APE for archaeology and built environment encompasses the horizontal and vertical limits of proposed Project activities. The APE for this Project was developed by Reclamation and JRP Historical Consulting, LLC (JRP) and includes the DMC ROW from MP 2.5 to MP 116.6. and encompasses the entire length of the canal. The APE is approximately 114.1 miles long. The APE encompasses the area where the Project may directly or indirectly affect historic properties, if any are present.

Pacific Legacy has prepared a Draft Archaeological Survey and Evaluation Report that presents the results of the archaeological inventory survey and evaluations for resources recorded within the APE (Appendix N). Geoarchaeological sampling is planned but has not been completed. Two newly identified archaeological sites were recorded and evaluated during the archaeological inventory, both of which date to the historic period. DMC-CRP-001 is a ditch complex that was partially obliterated by the construction of the DMC and I-5. It is composed of an earthen ditch that has portions carved into rock, an earthen linear berm, the ruins of a flood gate, and a patch of green grass. CRP-002 is a historic period debris scatter comprising 15 glass bottle fragments dating to the 1950s. DMC-CRP-001 and DMC-CRP-002 were evaluated for eligibility for the NRHP and the CRHR and were recommended ineligible for inclusion in either list.

JRP prepared a Draft Historic Resources Inventory and Effects Analysis Report that addresses the built environment. The JRP report identified three linear historic properties that cross over or under DMC and were previously determined eligible for listing in the NRHP: the San Joaquin Pipelines/Hetch Hetchy Aqueduct, the Santa Fe Grade, and the Outside Canal. Resources recorded in the JRP report are the DMC, San Luis Drain, a drainage canal that is part of the Firebaugh Canal Water District in Fresno County, and two rural residential properties on Lammers Road (APNs 251-050-120 and 240-140-260) in San Joaquin County. The DMC was previously determined eligible for the NRHP and CRHR, and Reclamation received concurrence from the California State Historic Preservation Office (SHPO) for that determination. The JRP report provides a full inventory of the DMC, which had not been previously recorded in its entirety. JRP (2022: Appendix F in Appendix N) concluded the San Luis Drain is eligible for listing in the NRHP and CRHR, significant under NRHP Criterion A and CRHR Criterion 1. JRP concluded that the three other built resources evaluated for this Project are not eligible for the NRHP or CRHR. Furthermore, JRP concluded that the Project will cause an adverse effect to the DMC because the Project proposes demolition of portions of the canal, as well as other alterations to the canal. JRP (JRP 2022; Appendix F in Appendix N) concluded that the Project does not cause an adverse effect to the other built environment historic properties within the APE.

#### **4.11.2 Significance Criteria**

‘Cultural resources’ is a broad term that includes prehistoric, historic, architectural, and traditional cultural properties. For the purposes of this undertaking, impacts would be significant if they would (1) result in adverse effects to historic properties listed or eligible for listing in the NRHP; (2) result in substantial adverse changes to historical resources, unique archaeological resources, or tribal cultural resources listed or eligible for listing in the CRHR; or (3) disturb human remains, including those interred outside of formal cemeteries. These criteria, associated significance determinations, MMs, and references to the location of supporting evaluations for these determinations are detailed in Appendix N.

#### **4.11.3 Environmental Consequences/Impacts of the No Action Alternative**

Under the No Action Alternative, there would be no construction or changes to existing operations within the study area. Future changes in operation would likely occur to compensate for the effects of impending land subsidence on the capacity of the DMC. The conveyance capacity would be reduced from design capacity during operation to meet Reclamation Design Standards No. 3 (Reclamation 2014). Deficient bridges would be partially submerged when the canal is operated at the design flow, resulting in safety risks. Hence, there would be no adverse impacts to cultural resources under this alternative. No historic properties would be adversely affected.

**This alternative would result in no significant impacts to archaeological and built environment resources.**

## 4.11.4 Environmental Consequences/Impacts of the Proposed Action

### 4.11.4.1 Construction of the Proposed Action

Five historic properties have been identified within the construction footprint for the Proposed Action. Under the Proposed Action, construction activities related to raising deficient structures of the canal would impact historic properties. Identified historic properties include the DMC, the San Luis Drain, the San Joaquin Pipelines/Hetch Hetchy Aqueduct, the Santa Fe Grade, and the Outside Canal. The Proposed Action would adversely affect the DMC but would not adversely affect the other historic properties in the APE. The Proposed Action would impact the following character-defining features of DMC: the canal prism, lining, embankments, maintenance roads, turnouts, and wasteway gates. The Proposed Action does not propose any actions that have potential to impact the San Luis Drain, the San Joaquin Pipelines-Hetch Hetchy Aqueduct, the Santa Fe Grade, or the Outside Canal.

Under the Proposed Action, there would be direct and indirect impacts to known historic properties, historical resources, and other cultural resources when compared to existing conditions. **Implementation of the MM CR-1 would reduce the severity of these impacts to a level that is less than significant. This alternative would result in less than significant impacts to known historic properties.**

### 4.11.4.2 Operation of the Proposed Action

Implementation of the Proposed Action would result in some lengths of the canal having slightly raised lining and embankments (between one and three feet higher), allowing the canal to convey more water than it currently is capable of, thus improving its utility. Operation and maintenance of the DMC infrastructure could alter the character-defining features of this historic property. Under the Proposed Action, there would be direct and indirect impacts to known historic properties, historical resources, and other cultural resources when compared to existing conditions. **Implementation of the MM CR-1 would reduce the severity of these impacts to a level that is less than significant.** The Proposed Action would result in **less than significant impacts to known historic properties.**

## 4.12 Geology, Seismicity, and Soils

### 4.12.1 Assessment Methods

The evaluation of impacts on geology, seismicity, and soils relies on a qualitative review of a geotechnical investigation conducted by Reclamation in 2021, technical maps, reports, and other documents that describe the geologic, seismic, and soil conditions in the Project area. The analysis assumes that execution of the Proposed Action would adhere to relevant local, state, and federal regulations.

### 4.12.2 Significance Criteria

Impacts would be considered significant if the Proposed Action would: (1) result in substantial soil erosion or the loss of topsoil; (2) result in strong seismic ground shaking or seismic-related ground failure (including liquefaction); (3) be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Proposed Action, and potentially result in on- or off-site landslides, lateral spreading, subsidence, liquefaction, or collapse; (4) be located on expansive soil, creating substantial direct or indirect risks to life or property; or (5) directly or indirectly destroy a unique paleontological resource or site, or unique geologic feature.

### 4.12.3 Environmental Consequences/Impacts of the No Action Alternative

Under the No Action Alternative, no changes to the canal infrastructure would occur and the canal would continue to operate under existing conditions. No ground-disturbing activities would occur under this alternative, thus there would be no potential for erosion/loss of topsoil or paleontological resources to be destroyed. Additionally, the No Action Alternative would not increase the risk of seismic-related ground failure, risk of unstable geology or soils that could result in seismic hazards, or risks associated with the DMC's location on expansive soil. However, under this alternative, the DMC would continue to undergo a reduction in capacity as a result of ongoing and future subsidence. This reduced capacity of the DMC could lead to changes in agricultural production, including land fallowing or conversion of agricultural resources to other uses, which

could result in increased erosion or loss of topsoil. **The No Action Alternative has the potential to cause less than significant impacts on geology and soils.**

#### **4.12.4 Environmental Consequences/Impacts of the Proposed Action**

##### **4.12.4.1 Construction of the Proposed Action**

Activities associated with construction of the Proposed Action, such as grading and paving, earthwork, demolition of old structures, construction of new foundations, stripping, topsoil moving, excavation, and more, have the potential to cause soil erosion and/or loss of topsoil. **These impacts would be significant.** Implementation of MMs WQ-1 and GEO-1 would require the preparation of a SWPPP and emergency erosion control measures for unexpected failures of planned measures, respectively. **With the implementation of MMs WQ-1 and GEO-1, impacts on soil erosion and loss of topsoil would be less than significant.**

Because ground-disturbing construction activities would occur within the DMC ROW that was previously disturbed during the original construction of the DMC, the potential to encounter previously undetected but potentially significant paleontological resources is very low. Although the Project area is located in a relatively seismically active area, the construction activities proposed by the Proposed Action are not expected to significantly increase the risk or frequency of seismic ground shaking, landslides, lateral spreading, land subsidence, or any other seismic hazards in the vicinity of the Project area. **Therefore, impacts on seismic hazards and paleontological resources would be less than significant.**

##### **4.12.4.2 Operation of the Proposed Action**

Implementation of the Proposed Action would result in the DMC being restored to its design capacity; therefore, the only changes in operation compared to current conditions are associated with the amount of water that the DMC would be able to safely convey throughout the Project area. **Because these changes in operation do not involve ground-disturbing activities or changes to the geology, soils, or risks of seismic hazards in the Project area, impacts associated with the Proposed Action would be less than significant.**

### **4.13 Utilities and Power**

#### **4.13.1 Assessment Methods**

Impacts to public services, utilities, and power resources could occur during construction of the Proposed Action. The significance of these impacts is assessed qualitatively. Potential long-term impacts to energy use and power in the area of analysis could result from changes in water supply sources and the operation of water supply facilities. These changes are analyzed based on the energy impact guidance in Appendix F of the CEQA Guidelines (Association of Environmental Professionals 2016).

#### **4.13.2 Significance Criteria**

Impacts on utilities, public services, and power would be considered significant if operation or construction of the Proposed Action would: (1) generate solid waste in excess of state or local standards, or otherwise impair the attainment of solid waste reduction goals; (2) result in adverse effects related to the depletion of local or regional energy supplies; (3) require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects; or (4) require expanded entitlements or resources of water supplies to serve the Proposed Action.

#### **4.13.3 Environmental Consequences/Impacts of the No Action Alternative**

No actions would be taken to restore, or otherwise offset, conveyance capacity lost in the DMC. Because no construction would occur, no water trucks or other water supplies would be required, no equipment requiring energetic resources would be used, no solid waste would be generated, and no stormwater drainage facilities would be constructed or expanded. In the long term, the anticipated reduction in canal capacity could reduce pumping or require differential use of pumping or pumping-generating plants south-of-Delta. In addition, the reduction in canal capacity could also possibly alter the amount of available water delivered to the Project area. However, differential use of these facilities would have less than significant impacts on the general availability of

energy resources in the Project area. No long-term impacts on solid waste generation, water supplies, or stormwater drainage facilities would occur as a result of this alternative. **The No Action Alternative would have less than significant impacts on public utilities and power usage in the Project area.**

#### **4.13.4 Environmental Consequences/Impacts of the Proposed Action**

##### **4.13.4.1 Construction of the Proposed Action**

The Proposed Action is expected to produce approximately 37,800 cubic yards (CY) of waste per year of construction through activities such as excavation and removal of deficient structures, which would be well within the permitted disposal limitations and would not exceed available landfill space in the Project vicinity (Appendix F contains a complete list of relevant landfills). Additionally, construction equipment would be fueled by diesel or gasoline fuel, resulting in no significant usage of local or regional energy or power supplies. Although stormwater drainage infrastructure would be altered under the Proposed Action, the construction related to this work would not cause significant environmental impacts. Approximately three AF of water would be required each year to perform construction activities; however, this amount is negligible in the context of the amount of water that is currently available for use in the Project area. **Construction of the Proposed Action would generate less than significant impacts on public utilities and power usage in the Project area.**

##### **4.13.4.2 Operation of the Proposed Action**

Long-term operation of the Proposed Action would not have any impact on solid waste generation in the Project area. Alterations to stormwater drainage infrastructure, such as culverts and drain inlets, would result in less than significant beneficial impacts, as it would reduce the amount of ponding that occurs in four areas along the DMC. Additionally, differential use of pumping-generating plants as a result of the DMC's capacity being restored to design capacity would have less than significant impacts on power availability in the Project area, and water supply in the Project area may increase slightly as a result of the capacity restoration but would be within existing contracted supplies. **The long-term operation of the Proposed Action would generate less than significant impacts on public utilities and power usage in the Project area.**

#### **4.14 Mitigation Measures**

##### **4.14.1 Water Quality**

###### **4.14.1.1 WQ-1: Prepare Site-Specific Stormwater Pollution Prevention Plan (SWPPP)**

The objectives of the SWPPP would be to: (1) identify pollutant sources that may affect the quality of stormwater associated with construction activity; and (2) identify, construct, and implement stormwater pollution prevention measures to reduce pollutants in stormwater discharges during and after construction. The SWPPP would also include details of how the sediment and erosion control practices, referred to as BMPs would be implemented. The implementation of the SWPPP would comply with state and federal water quality regulations.

##### **4.14.2 Traffic and Transportation**

###### **4.14.2.1 TR-1: Develop a Temporary Traffic Control Plan**

The following construction management actions will be documented in a temporary traffic control plan developed by the contractor as a requirement that will be included in its construction contract. The temporary traffic control plan will be submitted for Caltrans' review and approval during the Encroachment Permit process.

Construction contractors will install signage at roadways and intersections identified as dangerous in accordance with the California Manual on Uniform Traffic Control Devices guidelines warning motorists of slow-moving construction traffic and lane closures. Signage shall also be posted at these locations one month in advance to allow motorists time to plan for delays or alternate routes.

Construction contractors shall implement dust abatement and perform proper construction traffic management actions, including signage warning motorists of construction activity and traffic controls like flaggers or temporary traffic lights where construction equipment will be entering roadways, to reduce conflicts during

periods of high traffic volume in and around each construction site and to avoid conflicts with emergency responders entering and existing the area during an emergency.

In addition to the temporary traffic control plan, before the initiation of any construction actions, construction contractors shall develop and adhere to a health and safety plan outlining all applicable Occupational Safety and Health Administration requirements, and important traffic safety plans, including identification of emergency access routes in and through construction areas that would still need to be kept clear at all times during construction. The health and safety plan shall include coordination with emergency service personnel to ensure adequate mitigation for all impacts.

### **4.14.3 Hazardous Materials**

#### **4.14.3.1 HAZ-1: Activity Containment and Spills Management**

During construction and operations, all associated activities, equipment, and machinery shall be restricted to the canal ROW. To ensure containment, construction contractors should place boundaries and noticeable signs of entry and exit, restricting access to within the ROW. All construction equipment and vehicles used shall be maintained properly according to manufacturer specifications and should be inspected to identify and fix any excessive fluid leakages prior to arriving to the construction site. Additionally, the construction contractor shall also prepare a Spill Prevention and Response Plan for preventing spills and responding to chemical or hazardous substance spills. This plan will include spill prevention management, including employee training, hazardous substance inventory, and spill response equipment. The plan will also include a spill response plan, including evacuation procedures, spill containment and cleanup, and reporting a release.

#### **4.14.3.2 HAZ-2: Risk Reduction – Airborne Hazardous Materials**

To reduce risks of hazards involving release of airborne hazardous materials, the construction contractor shall implement the United States Occupational Safety and Health Administration's (OSHA's) regulations for asbestos and lead (29 C.F.R. 1910.1001, 1926.1101, and 1926.62) prior to demolition of any structures that could contain asbestos or lead paint. Demolition of structures suspected to contain lead paint (structures built prior to 1978) should be wetted prior to demolition to reduce the likelihood of inhaling lead dust particles. Construction workers should be outfitted in the proper personal protective equipment, including an appropriate respirator, before completing demolition work.

Under AB 203, the construction contractor shall implement health and safety awareness training before excavation of any topsoil to reduce infection of by Valley fever. Safety and MMs that should be included in the training include wetting down soil before digging to reduce aggravation of dust and dirt, wearing a N95 mask or respirator, and halting work in the presence of a dust storm or windy conditions and staying indoors or in an enclosed area away from dust.

#### **4.14.3.3 HAZ-3: Fire Prevention Controls**

Construction contracts should be required to provide (1) fire prevention controls such as spark arrestors and (2) fire safety training to avoid risk of wildfire. Since work is year-round, all temporary heaters should be used in accordance with manufacturer instructions and monitored by employees in compliance with fire safety training. In addition, the construction contractor shall prepare a Fire Prevention Plan to prevent a fire from occurring, compliant with OSHA regulations. The plan shall include:

- List of all major fire hazards, proper handling and storage procedures for hazardous materials, potential ignition sources and their control, and the type of fire protection equipment necessary to control each major hazard
- Procedures to control accumulations of flammable and combustible waste materials
- Procedures for regular maintenance of safeguards installed on heat-producing equipment to prevent the accidental ignition of combustible materials



- Name or job title of employees responsible for maintaining equipment to prevent or control sources of ignition or fires; and
- Name or job title of employees responsible for the control of fuel source hazards

#### **4.14.3.4 HAZ-4: Contaminated Soil/Groundwater Remediation Plan**

The construction contractor in coordination with the Lead Agencies shall work with the California Department of Parks and Recreation (CDPR) and the Central Valley RWQCB to review existing monitoring data of the hazardous materials/waste sites within the study area to evaluate the potential for interacting with hazardous soil contamination during construction. If the construction contractor and the Lead Agencies (as the responsible party for this potential disturbance) determine that interaction with contaminated soil cannot be avoided and these construction actions could generate a release of this soil to nearby water bodies or elsewhere off-site, the construction contractor shall prepare a Contaminated Soil/ Groundwater Remediation Plan. This remediation plan shall detail the nature of the contaminants on-site, measures required to avoid interaction with these contaminants including (if necessary) a pre-construction cleanup of the site, and a response action plan in the event of an inadvertent release of contaminated soils from the construction site. This plan shall be submitted to the CDPR and the Central Valley RWQCB for review and approval prior to the initiation of any construction.

#### **4.14.3.5 HAZ-5: Airport Safety**

Construction contracts shall include requirements for the contractor to prepare a construction safety plan prior to any construction activities in collaboration with the City of Tracy Department of Parks and Recreation (owners of the Tracy Municipal Airport) to coordinate construction activities, including a schedule, coordination of personnel with aviation radios, and notice requirements. The contractor shall also coordinate with emergency service personnel to ensure adequate mitigation for all impacts.

### **4.14.4 Biological Resources**

#### **4.14.4.1 BIO-1: Measures to Minimize Impacts on Special-Status Plants**

A botanical survey shall be conducted prior to construction activities to determine the presence or absence of special-status plant species within the Project area. The surveys shall be conducted in general accordance with the *Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Natural Communities* (CDFW 2021) and shall be timed to appropriately coincide with the blooming period of special-status plant species with the potential to occur in the Project disturbance areas.

If more than five years lapse after the botanical survey is conducted prior to ground disturbance, two botanical surveys (early and late season) shall be conducted in all suitable habitat located within the Project disturbance areas to determine the presence or absence of special-status plants.

If special-status plant species are found during the botanical surveys, the locations of the special-status plants and a 50-foot buffer will be marked as avoidance areas both in the field using flagging, staking, fencing, or similar devices and on construction plans.

If non-listed, special-status plants are identified during botanical surveys and complete avoidance is not practicable, and the Project would directly or indirectly affect more than 25 percent of a local occurrence by either number of plants or square footage of occupied habitat, then a qualified biologist will determine whether implementation of a conservation plan is recommended. If federal- or state-listed plants are identified during botanical surveys and complete avoidance is not practicable, coordination with CDFW and/or USFWS will be conducted as appropriate to develop the conservation plan. No take of state-listed or federally listed species will occur without an Incidental Take Permit (ITP) from either CDFW or USFWS.

The special-status plant conservation plan may consist of, but would not necessarily be limited to, purchase of mitigation credits at a regional conservation bank; plant salvage and relocation; collection and subsequent planting of seed or incorporating seed from native nursery into seed mix used for revegetation efforts; stockpiling, storing, and replacing topsoil containing the local seed bank; or other measures determined practicable based on the species and site conditions. If on-site conservation measures are implemented, the

objective is to restore the impacted special-status plant species community to pre-existing conditions by providing for the restoration of a self-sustaining population of special-status plants in the general area where the impact occurred at a minimum of a 1:1 ratio (e.g., number of plants, square footage occupied). For on-site conservation measures, the conservation plan will identify success criteria and provide for annual or other regular monitoring to evaluate whether the conservation effort has met the success criteria. The conservation plan will also include measures for remedial actions (e.g., additional plantings, supplemental irrigation, increased monitoring) if monitoring efforts indicate that success criteria are not being met.

For some species and site conditions, the biologist may determine that a conservation plan is not recommended. Some of these circumstances may include but are not limited to the following: (1) there are other nearby populations that will not be disturbed; (2) plant relocation, seeding, or revegetation would not have a reasonable probability of success; (3) implementation of measures could result in detrimental effects on existing special-status plant populations; or (4) incompatibility with required operations and maintenance activities. If the biologist determines, in coordination with CDFW and/or USFWS, that a conservation plan is not warranted, then no additional measures are required.

#### **4.14.4.2 BIO-2: General Measures to Minimize Impacts on Special-Status Animal Species**

A Biological Resources Management and Monitoring Plan (BRMMP) shall be developed and implemented for the Project. The BRMMP shall provide for the following:

- 1) Overall implementation and monitoring of the MMs for biological resources and the terms and conditions of any agency permits/authorizations throughout the duration of Project construction and restoration/revegetation of riparian habitat, per BIO-2c.
- 2) Designation of an overall Project biologist and the roles and responsibilities of the Project biologist and other monitoring biologists and the roles of Reclamation, SLDMWA, and construction personnel in coordinating and implementing the BRMMP.
- 3) Adaptive management in scheduling worker environmental awareness training (WEAT) and conducting pre-construction surveys for special-status species. In some cases, additional biological surveys beyond those identified in the MMs may be warranted to proactively avoid biological constraints or conflicts with protective measures. For example, early monitoring for nesting birds or occupied mammal burrows may be needed to preserve opportunities for vegetation removal, removal of nesting starts before egg laying, and burrow monitoring and closure prior to the initiation of breeding or nesting activities.
- 4) Procedure and authorizations required to modify the MMs, if needed, to resolve conflicts with constructability requirements or other measures required by agency permits/authorizations or to provide for equivalent avoidance/minimization of adverse effects on sensitive biological resources under changing conditions over the life of Project construction. For example, nesting birds or other special-status species may initiate nesting or denning activities in proximity to construction areas while active construction activities are ongoing, including those within the 'no-disturbance buffers.' In these cases, it may be that the animals are acclimated to the level of construction disturbance, and continuance of construction activities would not be expected to adversely affect the animals or their nesting/breeding activities (assuming that increased levels of disturbance or closer proximity of construction activities is not planned). The BRMMP will include provisions for how these and similar circumstances will be addressed and how determinations regarding additional biological monitoring or agency coordination will be addressed.
- 5) Procedure to record and document implementation of the MMs and other measures including any pre-construction survey reports, WEAT sign-in forms, routine biological monitoring forms, photographs, and other materials related to implementation of the BRMMP.
- 6) Procedure to comply with the terms and conditions and notification and reporting requirements of any agency permits/authorizations required for the Project, and the procedure for coordination/consultation with resource or permitting agencies, as necessary.

- 7) Procedure to inform, document, and monitor restoration and revegetation activities associated with restoring temporary impacts on terrestrial and aquatic habitats and vegetation communities. This includes any post-construction monitoring/reporting and remedial measures that may be required.

Prior to the initiation of ground disturbance, a qualified biologist(s) will conduct a WEAT for all construction personnel. Training sessions will be repeated for all new personnel before they access the Project site. Sign-in sheets identifying attendees and the contractor/company they represent will be prepared for each training session, and records of attendance will be maintained by the Project. At minimum, the WEAT will include a description of the protected species and biological resources that may occur in the Project area and their physical description, habitats, and natural history, as well as the measures that are being implemented to avoid or minimize Project-related impacts, penalties for noncompliance, and the boundaries of the work area. As appropriate, training will be conducted in languages other than English to ensure that employees and contractors understand their roles and responsibilities. A written summary of the training will be provided to all attendees, and an electronic copy will be provided so that the Project can make and distribute future copies. The WEAT will be conducted annually, at minimum, for all construction personnel.

A litter control program will be instituted at each Project site. All workers will place their food scraps, paper wrappers, food containers, cans, bottles, and other trash in covered or closed trash containers. The trash containers should be removed from the Project area at the end of each working day.

No firearms (except as possessed by federal, state, or local law enforcement officers) or pets will be permitted on construction sites.

To prevent inadvertent entrapment of wildlife during construction, all excavated steep-walled holes or trenches greater than two-feet deep should be covered or filled at the end of each working day or provided with one or more escape ramps no greater than 200 feet apart. Before such trenches or holes are filled, they shall be thoroughly inspected for trapped animals. If protected species are found in any of the holes or trenches, work shall cease until an escape ramp is provided and the animal leaves on its own volition, or until the animal has been relocated by a USFWS-approved biologist, and/or in coordination with USFWS, as appropriate.

All construction activity will be confined within the Project site, which may include temporary access roads, haul roads, and staging areas specifically designated and marked for these purposes.

Restoration and revegetation work associated with temporary impacts shall be done using California native plant material from on-site or local sources (i.e., local ecotype). Plant materials from non-local sources shall be allowed only with written authorization from USFWS. To the maximum extent practical (i.e., presence of natural lands), topsoil shall be removed, cached, and returned to the site according to successful restoration protocols. Loss of soil from runoff or erosion shall be prevented with straw bales, straw wattles, or similar means provided they do not entangle, block escape, or dispersal routes of listed animal species.

The Project construction area shall be delineated with high visibility temporary fencing, flagging, or other barrier to prevent encroachment of construction personnel and equipment onto any sensitive areas during Project work activities. Such fencing shall be inspected and maintained daily until completion of the Project. The fencing will be removed only when all construction equipment is removed from the site. No Project activities will occur outside the delineated Project construction area.

Only USFWS-approved personnel holding valid permits issued pursuant to Section 10(a)(1)(A) of the Act will be allowed to trap or capture listed species. Any relocation plan will be approved by USFWS prior to release of any listed species.

Tightly woven fiber netting or similar material (no monofilament material) will be used for erosion control or other purposes at the Project site to ensure that animals do not become trapped.

#### **4.14.4.3 BIO-3: Measures to Minimize Impacts on Bats**

To the extent practicable, the removal of large trees with cavities or the modification of canal infrastructure with the potential to provide bat roosts will occur before maternity colonies form (i.e., prior to March 1) or after young are volant (able to fly) (i.e., after August 15).

If construction (including the removal of large trees and/or the modification of canal infrastructure) occurs during the non-volant season (March 1 to August 15), a qualified biologist will conduct a pre-construction survey of the Project area for maternity colonies. The pre-construction survey will be performed no more than 14 days prior to the implementation of construction activities (including staging and equipment access). If a lapse in construction activities for 14 days or more occurs between those dates, another pre-construction survey will be performed. If any maternity colonies are detected, appropriate conservation measures (as determined by a qualified biologist) will be implemented. These measures may include, but are not limited to, establishing a construction-free buffer zone around the maternity colony site, biological monitoring of the maternity colony, and delaying construction activities within the vicinity of the maternity site.

#### **4.14.4.4 BIO-4: Measures to Minimize Impacts on the American Badger**

Any American badger detected within the Project area during Project-related activities will be allowed to move out of the work area of its own volition.

Concurrent with other required surveys, during winter and spring months before new Project activities, and concurrent with other pre-construction surveys (e.g., San Joaquin kit fox [SJKF] and burrowing owl), a qualified biologist will perform a survey to identify the presence of active or inactive American badger dens. If this species is not found, no further mitigation will be required. If badger dens are identified within the construction footprint during the surveys or afterward, they will be inspected and closed using the following methodology:

- When unoccupied dens are encountered outside of work areas but within 100 feet of proposed activities, vacated dens will be inspected to ensure they are empty and temporarily covered using plywood sheets or similar materials.
- If badger occupancy is determined at a given site within the work area, work activities at that site should be halted. Depending on the den type, reasonable and prudent measures to avoid harming badgers will be implemented and will include seasonal limitations on Project construction near the site (e.g., restricting the construction period to avoid spring–summer pupping season) or establishing a construction exclusion zone around the identified site or resurveying the den at a later time to determine the species' presence or absence.
- Badgers will be passively relocated using burrow exclusion (e.g., installing one-way doors on burrows) or similar CDFW-approved exclusion methods. In unique situations, it may be necessary to actively relocate badgers (using live traps) to protect individuals from potentially harmful situations. Such relocation would be performed with advance CDFW coordination and concurrence.

#### **4.14.4.5 BIO-5: Measures to Minimize Impacts on San Joaquin Kit Fox**

Determine the presence of SJKF dens:

- a) Pre-construction monitoring will be performed no less than 14 days and no more than 30 days prior to construction to identify kit fox habitat features within the Project Area.
- b) Areas within which pre-construction monitoring have been completed more than 30 days prior to construction will be re-inventoried not more than 30 days prior to construction.
- c) Pre-construction monitoring for dens will be conducted by qualified biologists familiar with SJKF biology, natural history, and potential dens.
- d) Pipes and culverts will be searched for SJKF immediately prior to being moved or sealed to ensure that an animal has not been trapped. If SJKF is observed, a USFWS-approved biologist will gently encourage it to leave the area (i.e., without using loud noise, physical force, or physical movement of the pipe or culvert such that the animal could be injured or startled while it is leaving the area).

Identify and document locations of potential or occupied dens (natal or non-natal) and their status (occupied or unoccupied). Definitions:

- a) Known den: any existing natural den or manmade structure that is used or has been used at any time in the past by SJKF. Evidence of use may include historical records, past or current radiotelemetry or spotlighting data, kit fox sign such as tracks, scat, and/or prey remains, or other reasonable proof that a given den is being or has been used by a kit fox. USFWS discourages use of the terms “active” and “inactive” when referring to any kit fox den because a great percentage of occupied dens show no evidence of use, and because kit foxes change dens often, with the result that the status of a given den may change frequently and abruptly.
- b) Potential den: any subterranean hole within the species’ range that has entrances of appropriate dimensions (five to eight inches in diameter) for which available evidence is insufficient to conclude that it is being used or has been used by a kit fox. Potential dens shall include the following: (1) any suitable subterranean hole five to eight inches in diameter within the species’ range; or (2) any den or burrow of another species (e.g., coyote, badger, red fox, or ground squirrel) that otherwise has appropriate characteristics for kit fox use.
- c) Natal/pupping den: any den used by kit foxes to whelp and/or rear their pups. Natal/pupping dens may be larger with more numerous entrances than dens occupied exclusively by adults. These dens typically have more kit fox tracks, scat, and prey remains in the vicinity of the den, and may have a broader apron of matted dirt and/or vegetation at one or more entrances. A natal den, defined as a den in which kit fox pups are actually whelped but not necessarily reared, is a more restrictive version of the pupping den. In practice, however, it is difficult to distinguish between the two, therefore, for purposes of this definition either term applies.
- d) Atypical den: any manmade structure which has been or is being occupied by SJKF. Atypical dens may include pipes, culverts, and diggings beneath concrete slabs and buildings.

Identify and execute appropriate action(s) regarding notification, buffers, excavation and fill, or seal off:

- a) Occupied natal den: if an occupied natal den is visible or encountered within the Project limits or on publicly accessible land sufficiently close to the Project construction area such that it would be disturbed (based on qualified biologist opinion and monitoring), USFWS and CDFW will be contacted immediately and before any Project action occurs to determine permissible actions to permit resumption of work.
- b) Unless determined necessary for safety or constructability by Reclamation, SLDMWA, or the Project contractor, the Project site will not be lighted between sunset and sunrise.
- c) Pipes or culverts with a diameter greater than four inches will be capped or taped closed when it is ascertained that no SJKF are present. Any SJKF found in a pipe or culvert will be allowed to escape unimpeded.

If a natural den or burrow is determined to meet size criteria (i.e., greater than four inches in diameter) and cannot be avoided per the no-disturbance buffers recommended in the USFWS *Standardized Recommendations for Protection of the SJKF Prior to or During Ground Disturbance* (USFWS 2011) or shall be destroyed, the following guidelines will be followed:

- a) Prior to den destruction, areas scheduled for construction within the vicinity of potential SJKF dens shall be monitored by a qualified biologist to determine their status. Monitoring will begin with pedestrian surveys to identify locations of potential SJKF dens and observe for suitable surrounding habitat. Because it is logistically impractical to monitor all dens using remote cameras and tracking medium (or to hand excavate to confirm vacancy), baited camera traps may be used to assess presence or absence of SJKF activity. Prior to ground-disturbing activities in Project segments that require excavation, baited camera traps will be deployed in approximate 0.25-mile increments for four consecutive nights. Baited camera traps may be placed farther than 0.25 mile apart, depending on the suitability of surrounding habitat and land uses that are observed during pedestrian surveys and in areas with lower densities of potential SJKF dens. If no SJKFs are detected by the camera traps during this time period, it can be assumed that SJKFs are not currently using the area, and ground-disturbing activities may commence in

that area. If a SJKF is detected by a camera trap, then further investigation will be required, as described below.

- b) If a SJKF is detected by a baited camera trap or otherwise observed in an area, further pre-construction monitoring will be conducted to determine which den(s) are being used. Baited camera traps will be deployed in the area, and tracking medium will be placed at the entrances of suspected dens to monitor the area for four consecutive nights. If no SJKF activity is observed during this period, the den will be deemed unoccupied and destroyed immediately under the supervision of a USFWS-approved biologist to preclude subsequent use. If SJKF activity is observed at the den during this period, then the den will be monitored for at least five consecutive days from the time of observation to allow any resident animal to move to another den during its normal activities. Use of the den can be discouraged during this period by partially plugging the entrance(s) with soil in such a manner that any resident animal can escape easily. Destruction of the den may begin when, in the judgment of a USFWS-approved biologist, the animal has vacated. The biologist will be trained and familiar with SJKF biology. If the animal is still present after five or more consecutive days of plugging and monitoring, the den may be excavated when, in the judgment of a USFWS-approved biologist, it is temporarily vacant (e.g., during the animal's normal foraging activities). All den destruction shall be conducted under the supervision of a USFWS-approved biologist.
- c) All dens requiring excavation will be excavated under the supervision of a USFWS-approved biologist. In no event will an excavation that meets the definition of a confined space (i.e., a space large enough and so configured that a person can bodily enter but has limited or restricted means for entry or exit) be initiated. In this circumstance, discouragement (as described above) would be used.
- d) The den will be fully excavated and then filled with dirt and compacted so that SJKF cannot reenter or use the den during the construction period. If, at any point during excavation, an SJKF is discovered inside the den, the excavation activity will cease immediately, and monitoring of the den will be resumed. Destruction of the den may be resumed when, in the judgment of a USFWS-approved biologist, the animal has escaped from the partially destroyed den.

Before and during construction:

- Project-related vehicles should observe a daytime speed limit of 20 mph throughout the site in all Project areas, except on county roads and state and federal highways; this is particularly important at night when SJKFs are most active. Nighttime construction should be minimized to the extent possible. However, if it does occur, then the speed limit should be reduced to 10 mph. Off-road traffic outside of designated Project areas should be prohibited.
- Kit foxes are attracted to den-like structures, such as pipes, and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of four inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for SJKFs before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a SJKF is discovered inside a pipe, that section of pipe should not be moved until USFWS has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.
- A representative shall be appointed by the Project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a SJKF or who finds a dead, injured or entrapped SJKF. The representative will be identified during the employee education program and their name and telephone number shall be provided to USFWS.
- In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or USFWS should be contacted for guidance. If at any time a trapped or injured kit fox is discovered, USFWS and CDFW shall be contacted as noted below.

- Any contractor, employee, or military or agency personnel who are responsible for inadvertently killing or injuring a SJKF shall immediately report the incident to their representative. This representative shall contact USFWS immediately in the case of a dead, injured, or entrapped SJKF.
- The Sacramento Fish and Wildlife Office and CDFW shall be notified in writing within three working days of the accidental death or injury to a SJKF during Project-related activities. Notification shall include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information.
- New sightings of SJKF shall be reported to the CNDDDB. A copy of the reporting form and a topographic map clearly marked with the location of where the SJKF was observed should also be provided to USFWS.
- Because this species most actively forages during dusk and dawn, to the extent practicable, all construction activities will cease one-half hour before sunset and will not begin prior to one-half hour before sunrise. Except when necessary for driver or pedestrian safety, lighting of a Project site by artificial lighting during nighttime hours is prohibited.

#### **4.14.4.6 BIO-6: Measures to Minimize Impacts on the Tricolored Blackbird and the Yellow-Headed Blackbird**

Prior to construction, appropriately timed surveys for tricolored blackbirds and yellow-headed blackbirds will be conducted in areas supporting potentially suitable habitat within 0.25 mile of construction areas. Habitat within 0.25 mile of tricolored blackbird or yellow-headed blackbird colonies will be avoided during nesting season, which can begin as early as mid-March and extend through August. If colonies cannot be avoided, CDFW will be consulted to potentially reduce buffer distances with active monitoring during construction by a qualified biologist.

#### **4.14.4.7 BIO-7: Measures to Minimize Impacts on the Burrowing Owl**

A minimum of one pre-construction survey for burrowing owls within a minimum of 500 feet of the Project area (where accessible) will be conducted by a qualified biologist within 15 days prior to the initiation of construction activities in a given area, regardless of the timing of construction. Pre-construction surveys each year of construction during the nonbreeding season (September 1 to January 31) will take place in order to determine the presence of burrowing owls before breeding activities begin. If any occupied burrows are identified, appropriate conservation measures (as determined by a qualified biologist) will be implemented. No disturbance will occur within 150 feet of occupied burrows during the nonbreeding season (September 1 to January 31) or within 250 feet during the breeding season (February 1 to August 31). These measures may also include establishing a construction-free buffer zone around the active nest site in coordination with the CDFW, biological monitoring of the active nest site, and delaying construction activities in the vicinity of the active nest site until the young have fledged.

If burrowing owls are detected within the Project area during the nonbreeding season and maintaining a 150-foot, no-disturbance buffer is not practicable, a qualified biologist will submit an exclusion and passive relocation plan to CDFW. The exclusion and passive relocation plan will generally follow the guidelines outlined in Appendix E of the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). The exclusion and passive relocation plan will consist of installing one-way doors in potential burrows, daily monitoring, and collapsing burrows once it is determined that the burrows are unoccupied. Exclusion may only take place during the nonbreeding season (September 1 to January 31) and may be an ongoing effort during this time period. This will allow the owls to exit burrows if they are present, but not return. The exclusion and passive relocation plan will also detail plans to replace collapsed burrows with artificial burrows at a minimum 1:1 ratio or describe why artificial burrows are not needed (e.g., numerous available natural burrows are available in nearby areas that will not be disturbed). Monitoring of collapsed burrows will be conducted as needed so that burrowing owls do not recolonize the area prior to construction disturbance.

If occupied burrows are detected during the breeding season and maintaining a 250-foot no-disturbance buffer is not practicable, CDFW will be consulted to determine alternative measures to minimize the potential for disturbance to occupied burrows and nesting activities. Measures may include but are not limited to continuous biological monitoring by a qualified biologist until it has been determined that the young have fledged and are no longer reliant on the nest or parental care for survival or construction is complete. No direct disturbance of burrows with eggs or young can be conducted without written authorization from the CDFW and USFWS.

**4.14.4.8 BIO-8: Measures to Minimize Impacts on the Golden Eagle, Swainson's Hawk, Northern Harrier, or White-Tailed Kite**

For construction activities that occur between February 1 and August 31, a qualified biologist will conduct pre-construction surveys for golden eagles, Swainson's hawks, northern harriers, and white-tailed kites. The pre-construction surveys will include the Project footprint and a minimum of a 0.50-mile radius where access is permitted around the construction area in suitable nesting habitat (i.e., large trees for Swainson's hawk and white-tailed kite, cliff faces for golden eagle, and grasslands for northern harrier). The pre-construction surveys will be conducted no more than 10 days before ground disturbance in a given area and will be phased based on the construction schedule.

If nesting golden eagles, Swainson's hawks, northern harriers, or white-tailed kites are detected, an appropriate no-disturbance buffer (minimum of 500 feet for northern harrier, 0.50 mile for golden eagle, Swainson's hawk, and white-tailed kite) will be established and monitored daily by a qualified biologist. Buffers will be maintained until a qualified biologist has determined that the young have fledged and are no longer reliant on the nest or parental care for survival. A 0.50-mile no-disturbance buffer will also be maintained from any overwintering eagles if they are detected in the Project area or surrounding areas; the buffer will be maintained for the duration that the bird(s) are present. If any bald eagles or golden eagles are detected, Reclamation will coordinate with USFWS, as necessary, to comply with the Bald and Golden Eagle Protection Act.

If maintaining the minimum no-disturbance buffer around an active golden eagle, Swainson's hawk, northern harrier, or white-tailed kite nest (or any overwintering eagles) is not practicable, CDFW will be consulted to determine whether reduced minimum no-disturbance buffers are appropriate based on site-specific circumstances (e.g., visual barriers between nest and construction area, existing level of disturbance) or to identify alternative measures to minimize the potential for Project-related disturbance to the nest site that could result in nest abandonment or other forms of take. Measures may include, but are not limited to, continuous biological monitoring by a qualified biologist until it has been determined that the young have fledged and are no longer reliant on the nest or parental care for survival or construction is complete. If the nesting pair shows signs of distress (i.e., adults leaving the nest when eggs or young chicks are present) as a result of Project-related activities, the monitoring biologist will have authority to stop work until it is determined that the adults have returned and are no longer showing signs of distress.

If trees suitable for nesting by Swainson's hawk are scheduled to be removed during the non-nesting season, a qualified biologist will conduct a pre-construction survey during the nesting season prior to tree removal to determine whether Swainson's hawks are using the trees for nesting. If the trees proposed for removal are being used by nesting Swainson's hawk, consultation with CDFW will take place per BIO-8. prior to tree removal.

If CESA compliance is required, and consultation with CDFW results in a determination that take of an active Swainson's hawk nest cannot be avoided, then take authorization pursuant to CESA will be obtained from CDFW prior to initiation of any activities that are likely to result in such take.

If an active golden eagle or white-tailed kite nest may not be avoidable, then all activities that are likely to result in take will be delayed until a qualified biologist has determined that the young have fledged and are no longer reliant on the nest or parental care for survival.

**4.14.4.9 BIO-9: Measures to Minimize Impacts on Nesting Migratory Birds**

To the extent practicable, vegetation removal will be scheduled to avoid the breeding season for nesting raptors and other special-status birds (generally February 1 through August 31, depending on the species). Removal of



vegetation outside of the nesting season is intended to minimize the potential for delays in vegetation removal because of active nests.

Regardless of when vegetation removal is scheduled, a qualified biologist will conduct a minimum of one pre-construction survey for nesting migratory birds and raptors within the Project area and a buffer (250 feet for migratory birds, 500 feet for raptors) around the Project area (where accessible) for all construction-related activities that will occur during the nesting season. The pre-construction survey will be conducted no more than 15 days prior to the initiation of construction in a given area and will be phased based on the construction schedule. Because of the ongoing, phased approach to construction, multiple pre-construction surveys per year may be required. If an active nest is found, a construction-free buffer zone (250 feet for migratory birds, 500 feet for raptors) will be established around the active nest site. If establishment of the construction-free buffer zone is not practicable, appropriate conservation measures (as determined by a qualified biologist) will be implemented. These measures may include, but are not limited to, consultation with CDFW to establish a different construction-free buffer zone around the active nest site, daily biological monitoring of the active nest site, and delaying construction activities in the vicinity of the active nest site until the young have fledged.

If removal of bridges or other bridge work is scheduled to occur during the swallow nesting season, exclusionary devices (e.g., netting) will be installed around the bridges prior to the initiation of the avian breeding season (before February 15) during the same year as the bridges are scheduled for removal and after a qualified biologist has determined no active nests (i.e., nests with eggs or young) are present. The exclusionary devices will remain in place until August 15 or until the bridge removal or other bridge work is completed. The exclusionary devices will be anchored such that swallows cannot attach their nests to the structure through gaps. Exclusionary devices will be regularly inspected as necessary to confirm that they are adequately preventing initiation of nest building. If swallows have breached the exclusionary devices and began building nests on the structure, nesting material (i.e., partially built nests) can be removed only if a qualified biologist has determined that eggs or young are not present. No removal of nests with eggs or young can be conducted without written authorization from CDFW and USFWS, or until a qualified biologist has determined that the nest is no longer active (e.g., the nest has failed, the young have fledged and are no longer dependent on the nest).

#### **4.14.4.10 BIO-10: Measures to Minimize Impacts on the California Tiger Salamander (CTS) and the California Red-legged Frog (CRLF)**

Before and during construction:

- Protocol presence/absence surveys shall be conducted by a USFWS-approved biologist in suitable habitat prior to construction with a negative finding. As the Project is multi-year, protocol presence/absence surveys can be conducted in portions of the Project area that have work scheduled the following year. Alternatively, presence can be assumed in suitable habitat and the measures below can be implemented.
- To the maximum extent practicable, the Project design and construction implementation will avoid impacts to suitable breeding habitat. Areas of avoidance shall be indicated on Project plan sets and shall be clearly delineated in the field. Signage indicating “Environmentally Sensitive Area: Keep Out” shall be posted.
- Protocol aquatic surveys shall be conducted by a USFWS-approved biologist in suitable breeding habitat within areas that will be disturbed by construction in the following year, and within 1.3 miles of those areas to detect occupied breeding resources (one survey in March, April, and May each). Any occupied breeding resources will be prioritized for avoidance.
- Resources documented to support breeding populations of CTS/CRLF shall be avoided during construction with a buffer sufficient to ensure the continued functioning of that breeding resource. If adherence to this buffer is not feasible, USFWS shall be contacted to determine whether moving individuals prior to construction is authorized.

- A USFWS-approved biologist shall survey the work sites where suitable habitat has been identified no more than 30 days before the onset of construction. Adult individuals detected during the surveys shall be relocated out of the area of disturbance by a USFWS-approved biologist.
- Work in occupied habitat shall only occur during the dry season.
- Areas beneath construction equipment and vehicles shall be inspected daily, prior to operation, for presence of CTS/CRLF under tracks/tires and within machinery by a USFWS-approved biologist until the biologist determines a designated contractor is sufficiently trained to monitor. A USFWS-approved biologist will ensure that this individual receives training consistent with USFWS requirements. A USFWS-approved biologist will be on-call to come to the site if CTS/CRLF are found.
- CTS/CRLF one-way, exclusion fencing shall be installed between construction areas and occupied habitat. This fencing shall extend 1.3 miles from the boundary of the occupied habitat along the alignment of the Project area.
- Overnight staging of vehicles or equipment shall be prohibited within 100 feet of occupied or assumed-occupied breeding resources.
- Work in occupied breeding habitat shall only occur during the dry season.

After construction:

- Temporary disturbance of occupied habitat shall be mitigated by restoring the area to pre-Project contours and revegetation.

#### **4.14.4.11 BIO-11: Measures to Minimize Impacts on the Western Spadefoot Toad**

If a western spadefoot toad is encountered during construction activities, it will be allowed to move out of harm's way of its own volition, or a qualified biologist will relocate it to the nearest suitable habitat that is at least 100 feet outside of the construction impact area.

Prior to moving equipment or materials each day, construction personnel will inspect for western spadefoot toads underneath and around equipment and other Project materials (e.g., stored pipes greater than two inches in diameter) that are located within 200 feet of aquatic habitat. If western spadefoot toads are found, they will be allowed to move out of the construction area under their own volition, or a qualified biologist will relocate individuals to the nearest suitable habitat that is at least 100 feet outside of the construction impact area.

#### **4.14.4.12 BIO-12: Measures to Minimize Impacts on the Northern California Legless Lizard, California Glossy Snake, San Joaquin Coachwhip, and Coast Horned Lizard**

Prior to moving equipment or materials each day, construction personnel will inspect underneath and around equipment for northern California legless lizard, California glossy snake, San Joaquin coachwhip, and coast horned lizard. If these species are encountered during construction activities, they will be allowed to move out of harm's way of their own volition, or a qualified biologist will relocate the organism(s) to the nearest suitable habitat that is at least 100 feet outside of the construction impact area.

#### **4.14.4.13 BIO-13: Measures to Minimize Impacts on the Giant Garter Snake**

Before and during construction:

- Protocol presence/absence surveys shall be conducted by a USFWS approved biologist in suitable habitat prior to construction. As the project is multi-year, protocol presence/absence surveys can be conducted in portions of the Project Area that have work scheduled the following year. Alternatively, presence can be assumed in suitable habitat and the measures below implemented.
- Avoid construction activities within 200 feet from the banks of occupied giant garter snake aquatic habitat. Confine movement of heavy equipment to existing roadways to minimize habitat disturbance.

- Construction activity within suitable habitat should be conducted between May 1 and October 1. This is the active period for giant garter snakes and direct mortality is lessened, because snakes are expected to actively move and avoid danger. Impacts to winter hibernacula should be avoided during the period of October 2 and April 30.
- The Project area shall be surveyed for giant garter snakes 24 hours prior to construction activities. Survey of the Project area should be repeated if a lapse in construction activity of two weeks or more has occurred. If a snake is encountered during construction, activities shall cease until appropriate corrective measures have been completed or it has been determined that the snake will not be harmed.
- Any dewatered habitat should remain dry for at least 15 consecutive days after April 15 and prior to excavating or filling of the dewatered habitat.

#### **4.14.4.14 BIO-14: Measures to Minimize Impacts on the Western Pond Turtle**

Before construction activities begin, a qualified biologist will conduct western pond turtle surveys within creeks and in other ponded areas affected by the Project. Adjacent upland areas will be examined for evidence of nests and individual turtles. The Project biologist will be responsible for the survey and for the relocation of pond turtles, if found. Construction will not proceed until reasonable effort has been made to capture and relocate as many western pond turtles as possible to minimize take. However, some individuals may remain undetected or enter sites after surveys and could be subject to injury or mortality. If a nest is observed, a biologist with the appropriate permits and prior approval from CDFW will move eggs to a suitable location or facility for incubation and release hatchlings into the creek system the following autumn.

#### **4.14.4.15 BIO-15: Measures to Minimize Impacts on the Longhorn Fairy Shrimp, Vernal Pool Fairy Shrimp, and Vernal Pool Tadpole Shrimp**

Before and during construction:

- Protocol presence/absence surveys shall be conducted by a USFWS-approved biologist in suitable habitat prior to construction with a negative finding. As the Project is multi-year, protocol presence/absence surveys can be conducted in portions of the Project area that have work scheduled the following year. Alternatively, presence can be assumed in suitable habitat.
- Work in occupied listed vernal pool branchiopod habitat shall only occur during the dry season.
- The authorized limits of branchiopod habitat (i.e., 250 feet from the pool edge) will be clearly staked in the field to prevent construction personnel from causing impacts to areas outside of work limits.
- Where temporary impacts will occur to occupied or assumed-occupied listed vernal pool branchiopod habitat, the top one to three inches of soil shall be salvaged to preserve the cyst bank. Saved topsoil shall be covered to avoid erosion. Topsoil shall be replaced as soon as possible upon completion of work in the impacted habitat.
- Overnight staging of vehicles or equipment shall be prohibited within 100 feet of occupied or assumed-occupied fairy shrimp.

After construction:

- Temporary impacts to listed branchiopod habitat shall be mitigated for by restoring the affected area to pre-Project contours, compaction levels, and revegetation.

#### **4.14.4.16 BIO-16: Measures to Minimize Impacts on Sensitive Natural Communities**

Temporary and permanent impacts on sensitive natural communities known to occur within the Project area will be minimized to the greatest extent practicable. Trees and other vegetation will not be removed if it can otherwise be reasonably avoided. In determining areas where vegetation shall be removed to provide adequate access for construction or staging, consideration will be given to selecting areas that require the least amount of removal of mature trees and canopy cover in coordination with a qualified biologist.

Prior to the initiation of construction activities, exclusionary fencing will be installed along the boundaries of all environmentally sensitive areas to be avoided, which will include sensitive natural communities and aquatic resources adjacent to the areas of Project-related impacts, so that impacts on environmentally sensitive areas outside of the construction area are minimized. Locations of environmentally sensitive areas and exclusionary fencing will be identified on construction plans. The exclusionary fencing will be inspected and maintained on a regular basis throughout Project construction in the areas where the fencing is needed to avoid unintended disturbance.

A Post-Construction Revegetation and Monitoring Plan will be developed and implemented to provide for the restoration of temporarily impacted riparian habitats to pre-existing conditions. The plan will include provisions for the planting of native woody vegetation and native seed mix or otherwise provide for the reestablishment of self-sustaining native riparian vegetation similar to the existing native riparian vegetation community. Planting of native riparian vegetation will include, but is not limited to, replacement of any trees removed by the Project at a 3:1 ratio (replaced to removed) with appropriate native tree species. For the purposes of this requirement, a tree is defined as a native woody plant (i.e., tree or mature shrub) with at least one stem measuring two inches or greater diameter at breast height. The plan will also identify success criteria and provide for annual or other regular monitoring to evaluate whether the revegetation effort has met the success criteria. The plan will include measures for remedial actions (e.g., additional plantings, supplemental irrigation, increased monitoring) if monitoring efforts indicate that success criteria are not being met.

#### **4.14.4.17 BIO-17: Measures to Minimize Impacts on Wetlands**

Prior to any temporary or permanent impacts on aquatic resources, any required permits/authorizations from RWQCB and USACE will be obtained. All terms and conditions of the required permits/authorizations will be implemented.

Where jurisdictional wetlands and other waters cannot be avoided, to offset temporary and permanent impacts that would occur as a result of the Project, restoration and compensatory mitigation to ensure no net loss will be provided as described below.

A wetland mitigation and monitoring plan will be developed in coordination with CDFW, USACE, or RWQCB to detail mitigation and monitoring obligations for temporary and permanent impacts to wetlands and other waters owing to construction activities and for other CDFW jurisdictional areas. The plan will quantify the total acreage affected; provide for mitigation, as described below, to wetland or riparian habitat; specify annual success criteria for mitigation sites; specify monitoring and reporting requirements; and prescribe site-specific plans to compensate for wetland losses resulting from the Project consistent with USACE's no net loss policy.

Prior to construction, the aquatic structure of wetland and riparian areas to be disturbed will be photo-documented and measurements of width, length, and depth will be recorded. Recontouring and revegetation of the disturbed portions of jurisdictional areas in areas temporarily affected by construction prior to demobilization by the construction contractor will be completed at the end of Project construction. Creek banks will be recontoured to a more stable condition, if necessary.

Revegetation will include a palette of species native to the watershed area according to a revegetation plan to be developed by Reclamation and submitted to USACE, CDFW, and RWQCB for approval. Following removal, woody trees habitat acreage would be replanted at a minimum 1:1 ratio, or as determined and agreed upon by the permitting agencies. Interim vegetation or other measures will be implemented, as necessary, to control erosion in disturbed areas prior to final revegetation.

Wetland and other waters impact in the construction and inundation area will be compensated at a ratio of 2:1 or at a ratio agreed upon by the wetland permitting agencies. Compensatory mitigation will be conducted by creating or restoring wetland and aquatic habitat at an agency-approved location on nearby lands or through purchasing mitigation credits at a USACE- or CDFW-approved mitigation bank (depending on the resource). If mitigation is conducted on- or off-site, a five-year wetland mitigation and monitoring program for on- and off-site mitigation will be developed. Appropriate performance standards may include a 75-percent survival rate of restoration plantings; absence of invasive plant species; and a viable, self-sustaining creek or wetland system at the end of five years.

A weed control plan for the Project to limit the spread of noxious or invasive weeds will be developed. This plan would be consistent with current integrated pest management plans already in practice on lands surrounding the reservoir. Noxious or invasive weeds include those rated as ‘high’ in invasiveness by the California Invasive Plant Council. The plan will include a baseline survey to identify the location and extent of invasive weeds in the Project area prior to ground-disturbing activity, a plan to destroy existing invasive weeds in the construction area prior to initiation of ground-disturbing activity, weed-containment measures while the Project is in progress, and monitoring and control of weeds following completion of construction.

#### **4.14.5 Cultural Resources**

##### **4.14.5.1 CR-1: Implement a Formal Agreement Document to National Historic Preservation Act (NHPA) Section 106 Compliance and Resolve any Adverse Effects/Significant Impacts to Cultural Resources**

The resolution of adverse effects to historic properties occurs through the implementation of measures agreed on through consultation with the SHPO, Advisory Council on Historic Preservation (ACHP), and other Section 106 consulting parties. These measures are discussed in the draft *Programmatic Agreement Between the Bureau of Reclamation, Interior Region 10 California-Great Basin; and the California State Historic Preservation Officer Regarding Compliance with Section 106 of the National Historic Preservation Act Pertaining to the Implementation of the Delta-Mendota Canal Subsidence Correction Project, Alameda, Contra Costa, San Joaquin, Stanislaus, Merced, and Fresno counties*, which remains in review. In general, significant impacts to cultural resources under NEPA would be mitigated through the measures agreed to through the Section 106 process. Cultural resources that are formally determined not eligible for inclusion in the NRHP or the CRHR would require no further management prior to Project implementation. If cultural resources determined ‘not eligible for listing in the NRHP but eligible for listing in the CRHR’ are identified as part of the Project, such resources will be managed per CEQA requirements.

#### **4.14.6 Geology, Seismicity, and Soils**

##### **4.14.6.1 GEO-1: Prepare for Unexpected Failures of Erosion Control Measures**

To prepare for unexpected failures of erosion control measures, a supply of erosion control materials will be maintained on-site during the construction period to facilitate a quick response to unanticipated storm events or emergencies.

### **4.15 Impact Summary**

Table 4-2 summarizes the environmental impacts of the No Action Alternative and the Proposed Action, MMs, contributions to cumulative conditions, and where to find evaluation support for each resource discussed.

**Table 4-2. Impact Summary**

Potential Impact	Alternative	Significance Determination (W/O Mitigation, W Mitigation) <sup>1</sup>	Mitigation	Evaluation Support	Contribution to Cumulative Condition	Mitigation	Cumulative Evaluation Support
<b>4.1 Water Supply</b>							
Alter CVP deliveries to CVP contractors as a result of construction	No Action	NI	--	Section 4.1.3	Not a considerable contribution.	--	Section 5.1.1
	Proposed Action	LTS	None	Section 4.1.4	Not a considerable contribution.	None	Section 5.1.1
Alter CVP deliveries to CVP contractors as a result of operation	No Action	S	--	Section 4.1.3	Not a considerable contribution.	--	Section 5.1.1
	Proposed Action	North-of-Delta CVP: LTS South-of-Delta CVP (Agricultural): B South-of Delta CVP (M&I): LTS South-of-Delta CVP Refuges: NI	None	Section 4.1.4	Not a considerable contribution.	None	Section 5.1.1
Alter SWP deliveries to SWP contractors as a result of construction	No Action	NI	--	Section 4.1.3	Not a considerable contribution.	--	Section 5.1.1
	Proposed Action	LTS	None	Section 4.1.4	Not a considerable contribution.	None	Section 5.1.1
Alter SWP deliveries to SWP contractors as a result of operation	No Action	B	--	Section 4.1.3	Not a considerable contribution.	--	Section 5.1.1
	Proposed Action	LTS	None	Section 4.1.4	Not a considerable contribution.	None	Section 5.1.1
Alter deliveries of other water as a result of construction	No Action	S	--	Section 4.1.3	Not a considerable contribution.	--	Section 5.1.1
	Proposed Action	B	None	Section 4.1.4	Not a considerable contribution.	None	Section 5.1.1
<b>4.2 Water Quality</b>							
Cause a violation of existing water quality standards or waste discharge requirements.	No Action	NI	--	Section 4.2.3	Not cumulatively considerable.	--	Section 5.1.2
	Proposed Action	S, LTS	WQ-1	Section 4.2.4	Not cumulatively considerable.	WQ-1	Section 5.1.2
Substantially alter the existing drainage pattern of the site or area, including through the	No Action	NI	--	Section 4.2.3	Not cumulatively considerable.	--	Section 5.1.2

Potential Impact	Alternative	Significance Determination (W/O Mitigation, W Mitigation) <sup>1</sup>	Mitigation	Evaluation Support	Contribution to Cumulative Condition	Mitigation	Cumulative Evaluation Support
alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site or provide substantial additional sources of polluted runoff.	Proposed Action	S, LTS	WQ-1	Section 4.2.4	Not cumulatively considerable.	WQ-1	Section 5.1.2
Conflict with or obstruct implementation of a water quality control plan.	No Action	NI	--	Section 4.2.3	Not cumulatively considerable.	--	Section 5.1.2
	Proposed Action	S, LTS	WQ-1	Section 4.2.4	Not cumulatively considerable.	WQ-1	Section 5.1.2
<b>4.3 Air Quality</b>							
Result in emissions of air pollutants exceeding the General Conformity <i>de minimis</i> emission levels or the quantitative criteria promulgated by the applicable local air pollution control agency	No Action	LTS	--	Section 4.3.3	Not a considerable contribution.	--	Section 5.1.3
	Proposed Action	LTS	None	Section 4.3.4	Not a considerable contribution.	None	Section 5.1.3
Expose sensitive receptors to substantial pollutant concentrations	No Action	LTS	--	Section 4.3.3	Not a considerable contribution.	--	Section 5.1.3
	Proposed Action	LTS	None	Section 4.3.4	Not a considerable contribution.	None	Section 5.1.3
Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people	No Action	LTS	--	Section 4.3.3	Not a considerable contribution.	--	Section 5.1.3
	Proposed Action	LTS	None	Section 4.3.4	Not a considerable contribution.	None	Section 5.1.3
<b>4.4 Greenhouse Gas Emissions</b>							
Generate GHG emissions that may have a significant impact on the environment	No Action	NI	--	Section 4.4.3	Not a considerable contribution.	--	Section 5.1.4
	Proposed Action	LTS	None	Section 4.4.4	Not a considerable contribution.	None	Section 5.1.4
Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the GHG emissions	No Action	NI	--	Section 4.4.3	Not a considerable contribution.	--	Section 5.1.4
	Proposed Action	LTS	None	Section 4.4.4	Not a considerable contribution.	None	Section 5.1.4
<b>4.5 Visual Resources</b>							
Substantially damage scenic resources within a state scenic highway corridor	No Action	LTS	--	Section 4.5.4	Not a considerable contribution.	--	Section 5.1.5
	Proposed Action	LTS	None	Section 4.5.5	Not a considerable contribution.	None	Section 5.1.5

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Potential Impact	Alternative	Significance Determination (W/O Mitigation, W Mitigation) <sup>1</sup>	Mitigation	Evaluation Support	Contribution to Cumulative Condition	Mitigation	Cumulative Evaluation Support
Substantially degrade the existing visual character or quality of public views of the site and its surroundings or conflict with applicable regulations governing scenic quality	No Action	LTS	--	Section 4.5.4	Not a considerable contribution.	--	Section 5.1.5
	Proposed Action	LTS	None	Section 4.5.5	Not a considerable contribution.	None	Section 5.1.5
Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area	No Action	LTS	--	Section 4.5.4	Not a considerable contribution.	--	Section 5.1.5
	Proposed Action	LTS	None	Section 4.5.5	Not a considerable contribution after mitigation.	None	Section 5.1.5
<b>4.6 Noise and Vibration</b>							
Expose sensitive receptors to a generation of noise levels in excess of standards	No Action	NI	--	Section 4.6.3	Not a considerable contribution.	--	Section 5.1.6
	Proposed Action	LTS	None	Section 4.6.4	Not a considerable contribution.	None	Section 5.1.6
Expose sensitive receptors to or generate excess ground-borne vibration	No Action	NI	--	Section 4.6.3	Not a considerable contribution.	--	Section 5.1.6
	Proposed Action	LTS	None	Section 4.6.4	Not a considerable contribution.	None	Section 5.1.6
Create a substantial permanent increase in ambient noise levels	No Action	NI	--	Section 4.6.3	Not a considerable contribution.	--	Section 5.1.6
	Proposed Action	NI	None	Section 4.6.4	Not a considerable contribution.	None	Section 5.1.6
<b>4.7 Traffic and Transportation</b>							
Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities	No Action	NI	--	Section 4.7.3	Not a considerable contribution.	--	Section 5.1.7
	Proposed Action	NI	None	Section 4.7.4	Not a considerable contribution.	None	Section 5.1.7
Cause a substantial increase in traffic in relation to the existing traffic load and capacity of the street system	No Action	NI	--	Section 4.7.3	Not a considerable contribution.	--	Section 5.1.7
	Proposed Action	LTS	None	Section 4.7.4	Not a considerable contribution.	None	Section 5.1.7
Substantially increase traffic hazards due to a geometric design feature or incompatible uses	No Action	NI	--	Section 4.7.3	Not a considerable contribution.	--	Section 5.1.7
	Proposed Action	S, LTS	TR-1	Section 4.7.4	Not a considerable contribution after mitigation.	TR-1	Section 5.1.7



Potential Impact	Alternative	Significance Determination (W/O Mitigation, W Mitigation) <sup>1</sup>	Mitigation	Evaluation Support	Contribution to Cumulative Condition	Mitigation	Cumulative Evaluation Support
Result in inadequate emergency access	No Action	NI	--	Section 4.7.3	Not a considerable contribution.	--	Section 5.1.7
	Proposed Action	S, LTS	TR-1	Section 4.7.4	Not a considerable contribution.	TR-1	Section 5.1.7
<b>4.8 Hazards and Hazardous Materials</b>							
Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials	No Action	NI	--	Section 4.8.3	Not a considerable contribution.	--	Section 5.1.8
	Proposed Action	S, LTS	HAZ-1, HAZ-2, WQ-1	Section 4.8.4	Not a considerable contribution after mitigation.	HAZ-1, HAZ-2, WQ-1	Section 5.1.8
Impair or physically interfere with an adopted emergency response plan or emergency evacuation plan	No Action	NI	--	Section 4.8.3	Not a considerable contribution.	--	Section 5.1.8
	Proposed Action	S, LTS	TR-1	Section 4.8.4	Not a considerable contribution after mitigation.	TR-1	Section 5.1.8
Expose people or structures to a significant risk of loss, injury, or death involving wildland fires	No Action	LTS	--	Section 4.8.3	Not a considerable contribution.	--	Section 5.1.8
	Proposed Action	S, LTS	HAZ-3	Section 4.8.4	Not a considerable contribution after mitigation.	HAZ-3	Section 5.1.8
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	No Action	NI	--	Section 4.8.3	Not a considerable contribution.	--	Section 5.1.8
	Proposed Action	S, LTS	HAZ-2, HAZ-4	Section 4.8.4	Not a considerable contribution after mitigation.	HAZ-2, HAZ-4	Section 5.1.8
Be located in the vicinity of a private airstrip or within two miles of a public airport or public use airport which could result in a safety hazard for people residing or working in the Project area	No Action	NI	--	Section 4.8.3	Not a considerable contribution.	--	Section 5.1.8
	Proposed Action	S, LTS	HAZ-5	Section 4.8.4	Not a considerable contribution after mitigation.	HAZ-5	Section 5.1.8
<b>4.9 Biological Resources</b>							
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 CDFW, USFWS, or NMFS	No Action	LTS	--	Section 4.9.3	Not a considerable contribution.	--	Section 5.1.9
	Proposed Action	S, LTS	BIO-1 through BIO-15	Section 4.9.4	Not a considerable contribution after mitigation.	BIO-1 through BIO-15	Section 5.1.9

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Potential Impact	Alternative	Significance Determination (W/O Mitigation, W Mitigation) <sup>1</sup>	Mitigation	Evaluation Support	Contribution to Cumulative Condition	Mitigation	Cumulative Evaluation Support
Have a substantial adverse effect on any riparian habitat or other sensitive natural community or critical habitat identified in local or regional plans, policies, or regulations or by the CDFW, USFWS, or NMFS	No Action	NI	--	Section 4.9.3	Not a considerable contribution.	--	Section 5.1.9
	Proposed Action	S, LTS	BIO-16	Section 4.9.4	Not a considerable contribution after mitigation.	BIO-16	Section 5.1.9
Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal) through direct removal, filling, hydrological interruption, or other means	No Action	NI	--	Section 4.9.3	Not a considerable contribution.	--	Section 5.1.9
	Proposed Action	S, LTS	BIO-17	Section 4.9.4	Not a considerable contribution after mitigation.	BIO-17	Section 5.1.9
Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites	No Action	NI	--	Section 4.9.3	Not a considerable contribution.	--	Section 5.1.9
	Proposed Action	S, LTS	BIO-16 and BIO-17	Section 4.9.4	Not a considerable contribution after mitigation.	BIO-16 and BIO-17	Section 5.1.9
Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance	No Action	NI	--	Section 4.9.3	Not a considerable contribution.	--	Section 5.1.9
	Proposed Action	S, LTS	BIO-1 through BIO-17	Section 4.9.4	Not a considerable contribution after mitigation.	BIO-1 through BIO-17	Section 5.1.9
<b>4.10 Recreation</b>							
Substantially reduce, physically alter, or close recreation facilities or impact public facilities such as fire protection, police protection, schools, parks, or other public facilities	No Action	NI	--	Section 4.10.3	Not a considerable contribution.	--	Section 5.1.10
	Proposed Action	LTS	None	Section 4.10.4	Not a considerable contribution.	None	Section 5.1.10
Increase the use of existing local and regional recreational facilities such that overcrowding or over capacity would occur at these facilities	No Action	NI	--	Section 4.10.3	Not a considerable contribution.	--	Section 5.1.10
	Proposed Action	LTS	None	Section 4.10.4	Not a considerable contribution.	None	Section 5.1.10
<b>4.11 Cultural Resources</b>							
Result in substantial adverse effects to historic properties listed or eligible for listing in the NRHP	No Action	NI	--	Section 4.11.3	Not a considerable contribution.	--	Section 5.1.11
	Proposed Action	S, LTS	CR-1	Section 4.12.3	Not a considerable contribution after mitigation.	CR-1	Section 5.1.11

Potential Impact	Alternative	Significance Determination (W/O Mitigation, W Mitigation) <sup>1</sup>	Mitigation	Evaluation Support	Contribution to Cumulative Condition	Mitigation	Cumulative Evaluation Support
Result in substantial adverse changes to historic resources, unique archaeological resources, or tribal cultural resources listed or eligible for listing in the CRHR	No Action	NI	--	Section 4.11.3	Not a considerable contribution.	--	Section 5.1.11
	Proposed Action	S, LTS	CR_1	Section 4.12.3	Not a considerable contribution after mitigation.	CR-1	Section 5.1.11
Disturb human remains, including those interred outside of formal cemeteries	No Action	NI	--	Section 4.11.3	Not a considerable contribution.	--	Section 5.1.11
	Proposed Action	S, LTS	CR-1	Section 4.12.3	Not a considerable contribution after mitigation.	CR-1	Section 5.1.11
<b>4.12 Geology and Soils</b>							
Result in substantial soil erosion or loss of topsoil	No Action	LTS	--	Section 4.12.3	Not a considerable contribution.	--	Section 5.1.12
	Proposed Action	S, LTS	GEO-1, WQ-1	Section 4.12.4	Not a considerable contribution after mitigation.	GEO-1, WQ-1	Section 5.1.12
Result in strong seismic ground shaking or seismic-related ground failure, including liquefaction	No Action	NI	--	Section 4.12.3	Not a considerable contribution.	--	Section 5.1.12
	Proposed Action	LTS	--	Section 4.12.4	Not a considerable contribution after mitigation.	--	Section 5.1.12
Be located on a geologic unit or soil that is unstable, or would become unstable as a result of the Project, and potentially result in on- or off-site landslides, lateral spreading, subsidence, liquefaction, or collapse	No Action	NI	--	Section 4.12.3	Not a considerable contribution.	--	Section 5.1.12
	Proposed Action	LTS	--	Section 4.12.4	Not a considerable contribution after mitigation.	--	Section 5.1.12
Be located on expansive soil, creating substantial direct or indirect risks to life or property	No Action	NI	--	Section 4.12.3	Not a considerable contribution.	--	Section 5.1.12
	Proposed Action	LTS	None	Section 4.12.4	Not a considerable contribution after mitigation.	None	Section 5.1.12
Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature	No Action	NI	--	Section 4.12.3	Not a considerable contribution.	--	Section 5.1.12
	Proposed Action	S, LTS	--	Section 4.12.4	Not a considerable contribution after mitigation.	--	Section 5.1.12

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<b>4.13 Public Utilities and Power</b>							
Generate solid waste in excess of state or local standards, or otherwise impair the attainment of solid waste reduction goals	No Action	NI	--	Section 4.13.3	Not a considerable contribution.	--	Section 5.1.13
	Proposed Action	LTS	None	Section 4.13.4	Not a considerable contribution.	None	Section 5.1.13
Result in adverse effects related to the depletion of local or regional energy supplies	No Action	LTS	--	Section 4.13.3	Not a considerable contribution.	--	Section 5.1.13
	Proposed Action	LTS	None	Section 4.13.4	Not a considerable contribution.	None	Section 5.1.13
Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects	No Action	NI	--	Section 4.13.3	Not a considerable contribution.	--	Section 5.1.13
	Proposed Action	LTS	None	Section 4.13.4	Not a considerable contribution.	None	Section 5.1.13
Require expanded entitlements or resources of water supplies to serve the Project	No Action	NI	--	Section 4.13.3	Not a considerable contribution.	--	Section 5.1.13
	Proposed Action	LTS	None	Section 4.13.4	Not a considerable contribution.	None	Section 5.1.13

Notes:

<sup>1</sup> Column 3 presents significance determinations without implementation of proposed Mitigation Measure and significance determination with implementation of proposed Mitigation Measure.

For example, "Cause a violation of existing water quality standards or waste discharge requirements" is presented as S, LS under the Proposed Action. Therefore, the Proposed Action would cause significant impacts that would be mitigated with the implementation of WQ-1 to less than significant levels.

Key: B – Beneficial; CDFW – California Department of Fish and Wildlife; CRHR – California Register of Historical Resources; CVP – Central Valley Project; LTS – Less than Significant; M&I – Municipal and Industrial; NI – No Impact; NMFS – National Marine Fisheries Service; NRHP – National Register of Historic Places; S – Significant; SWP – State Water Project; USFWS – United States Fish and Wildlife Service; W – with; W/O – without

# Chapter 5 Cumulative Effects

This chapter provides an analysis of cumulative effects of the Proposed Action taken together with other past, present, and reasonably foreseeable probable future projects (or actions) as required by NEPA implementing regulations (40 C.F.R. 1508.1(g)(3)). Resource-specific cumulative effects analyses are presented below. Descriptions of the cumulative project are provided in Appendix O.

## 5.1 Cumulative Effects Analysis

### 5.1.1 Surface Water Supply

Cumulative impacts on water supply resulting from concurrent projects would be associated with the short-term impacts of water supply delivery interruptions as a result of any required construction drawdown. The Proposed Action requires some drawdowns of the canal; however, CVP and SWP operations are closely coordinated by Reclamation and DWR and reductions in deliveries would be avoided to the maximum extent practical. This would include construction of the Proposed Action and the California Aqueduct – San Luis Canal Embankment and Liner Raise Project, which would be timed to ensure adequate capacity is maintained to prevent water supply delivery interruptions. **Therefore, the construction of the Proposed Action in combination with concurrent projects would not result in significant cumulative impacts on surface water supply.**

Implementation of the California Aqueduct – San Luis Canal Embankment and Liner Raise Project, Delta Conveyance Project, B.F. Sisk Dam Raise and Reservoir Expansion Project, Los Vaqueros Reservoir Expansion Phase 2 Project, San Luis Low Point Improvement Project, Del Puerto Canyon Reservoir Project, Friant-Kern Canal Middle Reach Capacity Correction Project, and the Pacheco Reservoir Expansion Project would expand or improve water management and storage and, therefore, improve water supply reliability within the CVP and SWP service area. Operation of the Proposed Action would produce long-term beneficial impacts on water supply reliability within the CVP service area. **The long-term incremental contribution of the Proposed Action to significant cumulative water supply impacts would be beneficial for CVP contractors. The Proposed Action would also restore the capacity of the DMC, which provides benefits for operational flexibility for flow adjustment.**

### 5.1.2 Water Quality

Construction activities associated with the Mendota Pool Bypass and Reach 2B Improvements Project and the various infrastructure projects in San Joaquin and Stanislaus counties (described in Appendix O) would involve earthmoving and construction activities near the DMC. Construction of the Proposed Action would also involve earthmoving activities that could introduce pollutants into the water and compromise water quality. If construction of these cumulative projects was completed concurrently or over time alongside the Proposed Action, there could be significant cumulative short-term effects from construction contaminants causing water quality degradation in nearby water bodies. However, similar to the Proposed Action, the cumulative projects would be required to implement BMPs and MMs to reduce impacts. **The Proposed Action would implement BMPs and MM WQ-1 to reduce their impacts to water quality, and their incremental contribution to any significant cumulative water quality impacts would not be cumulatively considerable.**

Implementation of the Delta Conveyance Project could result in long-term changes to Delta region operations and habitat health with the implementation of conservation and restoration measures designed to improve the health of the Delta ecosystem while also improving water supply and water quality conditions. Future improved conditions in the Delta region could result in increased south-of-Delta exports but they would be within existing water right allowances. Changes in Delta water quality, south-of-Delta export of CVP and SWP water, and Delta outflow would be similar to existing and future no action conditions under the Proposed Action and impacts would be minimal. **Therefore, the operation of the Proposed Action in combination with this concurrent project would not result in significant cumulative impacts on water quality.**

### 5.1.3 Air Quality

Air pollution is largely a cumulative impact, as a region's nonattainment of the CAAQS or NAAQS is the product of past and present development within the region. Cumulative projects with the highest potential to contribute to cumulative regional air quality impacts would be those that would be under construction at the same time and in the same general area as the Proposed Action. Tables I1-6 and I1-7 in Appendix I1 summarize the cumulative maximum annual construction emissions (after implementation of applicable mitigations outlined in the respective environmental documents) anticipated to result from the identified cumulative projects within the SFBAAB and SJVAB. Cumulative projects in the SFBAAB and SJVAB would result in combined construction emissions which would exceed BAAQMD and SJVAPCD's emissions criteria for individual projects.

As described in Section 4.3.4, construction of the Proposed Action would not result in emissions that would exceed the BAAQMD and SJVAPCD's air emissions criteria for any criteria pollutant or the General Conformity *de minimis* levels. BAAQMD air quality guidance explains that the criteria were developed with specific consideration to the levels at which a project's individual emissions would be cumulatively considerable (BAAQMD 2017). SJVAPCD air quality guidance states that an individual project that is compliant with an approved air quality attainment or maintenance plan would have an incremental contribution to a cumulative effect that is not cumulatively considerable (SJVAPCD 2015). As discussed in Appendix I1, the quantitative air emissions criteria from SJVAPCD and the General Conformity *de minimis* levels from USEPA were developed such that a project consistent with the criteria would not be expected to exceed the CAAQS or NAAQS and would not conflict with or obstruct implementation of the respective applicable regional air quality plans. **Thus, the incremental contribution of the construction of the Proposed Action to cumulative air quality impacts in the region would not be cumulatively considerable.**

Operation of the DMC under the Proposed Action would not result in a change to regional emissions relative to the existing, or future no action, conditions. **Therefore, the operation of the Proposed Action would have no long-term cumulative impact on air quality.**

### 5.1.4 Greenhouse Gas Emissions

Impacts from GHG emissions are inherently cumulative, with global emissions of GHG contributing to global and regional climate impacts. Implementation of the cumulative projects presented in Appendix O would emit GHGs during construction and operations that would contribute to cumulative GHG emissions in the region. No single project can noticeably change the global climate temperature; therefore, when considered in relationship to all past, present, and future development, implementation of the Proposed Action could result in a significant cumulative impact. The significance criterion used to assess the Proposed Action's individual significance is sufficient to determine whether a project would conflict with an applicable plan, policy, or regulation adopted for reducing GHG emissions for which project-specific thresholds have been set. Therefore, if the Proposed Action would produce GHG emission impacts that are individually significant, then the Proposed Action's impact would be cumulatively considerable. GHG emissions under the Proposed Action would be below the identified criteria and would not produce significant GHG emission impacts. **Therefore, the incremental contribution of the Proposed Action would not be cumulatively considerable to global and regional climate impacts.**

### 5.1.5 Visual Resources

Most of the construction activities associated with the cumulative projects described in Appendix O would not be located in areas at which activities related to the Proposed Action would be visible concurrently. However, if construction of the B.F. Sisk Dam Raise Reservoir Expansion Project, Reach 2B and Mendota Pool Bypass Project, and/or the various infrastructure development projects in San Joaquin and Stanislaus counties overlap with the construction work on nearby segments of the DMC under the Proposed Action, construction activities would likely be visible at the same time as activities associated with the Proposed Action. This impact would be localized and short-term. The short timeframe combined with the low number of viewers in affected area would yield less than significant cumulative impacts on visual resources. **As such, the Proposed Action's incremental contribution to any significant cumulative visual resource impacts would not be cumulatively considerable.**

### 5.1.6 Noise and Vibration

Most of the construction activities associated with the cumulative projects presented in Appendix O would occur several miles from the DMC, where construction actions under the Proposed Action would occur. Construction of the B.F. Sisk Reservoir Dam Raise and Expansion Project, Reach 2B and Mendota Pool Bypass Project, and/or the various infrastructure developments in San Joaquin and Stanislaus counties could overlap with the work on the DMC, as prescribed by the Proposed Action, and likely generate construction noise and vibration concurrently. However, all construction activities performed under the Proposed Action would take place within the county-exempted daytime hours. **Therefore, the Proposed Action's incremental contribution to any significant cumulative noise and vibration impacts would not be cumulatively considerable.**

Cumulative projects and population growth in the study area could result in cumulative long-term impacts to noise and vibration. Although construction is projected to occur in all the study area counties as a result of projected population growth, it is not expected to be along the DMC. **As such, the long-term effect of the Proposed Action, when combined with population growth, would have a cumulatively less than significant impact on noise and vibration.**

### 5.1.7 Traffic and Transportation

Most of the construction activities associated with the cumulative projects described in Appendix O would not occur near construction activities related to the Proposed Action. However, if construction of the B.F. Sisk Dam Raise and Reservoir Expansion Project, Reach 2B and Mendota Pool Bypass Project, California Aqueduct – San Luis Canal Embankment and Liner Raise, and/or the various housing infrastructure developments in San Joaquin and Stanislaus counties occur concurrently with the work on nearby segments of the DMC, there could be a cumulative short-term impact on traffic and transportation on shared primary access roads as a result of construction-related traffic. **The Proposed Action would implement MM TR-1 to reduce its impacts on traffic and transportation, and its incremental contribution to any significant cumulative traffic and transportation impacts would not be cumulatively considerable.**

### 5.1.8 Hazards and Hazardous Materials

There is potential for construction activities related to the B.F. Sisk Dam Raise and Reservoir Expansion Project, Reach 2B and Mendota Pool Bypass Project, and/or the various infrastructure developments in San Joaquin and Stanislaus counties to occur in the same vicinity and at the same time as construction of the Proposed Action. Construction activities under these cumulative projects would use equipment that could require the use of motor oil, gasoline, diesel fuel, solvents, and degreasers. However, a SWPPP for all projects would be required by the RWQCB for approval of a General Construction Permit under the National Pollutant Discharge Elimination System (NPDES) Program. The SWPPP would describe safety measures and BMPs to be implemented when transporting, storing, or using hazardous materials.

Additionally, the use of mechanical, spark-generating equipment would be required by cumulative projects, which could significantly increase the risk of wildland fire occurrence owing to the moderate to high wildfire risk within the area.

The same primary access roads for trucks and other equipment used under the Proposed Action may be used concurrently by the cumulative projects described in Section 5.1.7, which could conflict with emergency response and evacuation plans within State Responsibility Areas (SRAs). Although this could be a potentially significant cumulative effect, performing construction on the portion of the canal within the SRA near these cumulative projects at a different time than the construction of other projects' elements and implementing MM TR-1 would eliminate the significance of this effect.

Overall, construction of the Proposed Action in combination with cumulative projects mentioned above could result in cumulative impacts on hazards and hazardous materials. The implementation of MMs HAZ-1 through HAZ-5 and TR-1 would reduce the effects of the Proposed Action to a less than significant level. **Therefore, although the Proposed Action may combine with other projects to create a cumulatively considerable contribution to significant cumulative hazards and hazardous materials impacts pre-mitigation, this impact would not be cumulatively considerable post-mitigation.**

### 5.1.9 Biological Resources

Cumulative impacts on biological resources from concurrent projects would occur when the extents of potential effects from such projects overlap with areas impacted by the Proposed Action. As such, implementation of the Proposed Action, combined with construction of the B.F. Sisk Reservoir Expansion Project, Reach 2B and Mendota Pool Bypass Project, and various infrastructure developments in San Joaquin and Stanislaus counties could result in cumulative impacts on biological resources. However, concurrent impacts would be short-term in nature, and it is expected that each contemporaneous project would be required to comply with a suite of laws and regulations protecting and mitigating impacts on biological resources, similar to those listed in Appendix E. In addition, all construction actions performed under the Proposed Action would be conducted in accordance with MMs BIO-1 through BIO-17. **Therefore, although the Proposed Action may combine with other projects to create a cumulatively considerable contribution to significant cumulative biological resources impacts pre-mitigation, this impact would not be cumulatively considerable post-mitigation.**

The ongoing operations and maintenance of the DMC would adhere to the terms and conditions stipulated in the 2005 USFWS Biological Opinion (USFWS 2005) and the 2019 USFWS and NMFS Biological Opinions (USFWS 2019; NMFS 2019), the 2020 ROC on LTO ROD (Reclamation 2020), or any future regulatory requirements and the terms and conditions specified in relevant future Biological Opinions. **Therefore, the operation of the Proposed Action in combination with the concurrent projects would not result in significant cumulative impacts on biological resources.**

### 5.1.10 Recreation

There is potential for construction of the Mendota Pool Bypass and Reach 2B Improvements Project to overlap with work on the earthen-lined segment of the DMC, as required by the Proposed Action. However, Mendota Pool Park would only be closed for the duration of construction associated with the Proposed Action and not the Mendota Pool Bypass and Reach 2B Improvements Project. Implementation of the Proposed Action would result in only a short-term closure of Mendota Pool Park and no additional closures resulting from concurring projects. **Therefore, the construction of the Proposed Action in combination with concurrent projects would not result in significant cumulative impacts on recreation.**

### 5.1.11 Cultural Resources

The B.F. Sisk Dam Raise and Reservoir Expansion Project, Delta Conveyance Project, Los Vaqueros Reservoir Expansion Project, San Luis Low Point Project, Del Puerto Canyon Reservoir Project, and the Pacheco Reservoir Expansion Project have all been identified as cumulative actions that could result in significant impacts to cultural resources. Archival and records search information, geoarchaeological sensitivity studies, and pedestrian inventory surveys were used to assess potential impacts to cultural resources within the project area of analysis. The cumulative projects listed above could have a cumulatively significant effect on cultural resources, though impacts would be reduced through the implementation of MMs associated with each project. Impacts to cultural resources from construction activities and operations under the Proposed Action also would be reduced through implementation of Mitigation Measure CR-1. **For this reason, the impacts of the Proposed Action, when combined with the concurrent projects on cultural resources, would remain less than significant.**

### 5.1.12 Geology, Seismicity, and Soils

Construction activities associated the Reach 2B and Mendota Pool Bypass Project and the various infrastructure projects in San Joaquin and Stanislaus counties (described in Appendix O) would involve earthmoving and construction projects near the DMC, which could result in impacts such as erosion and/or loss of topsoil. Construction of the Proposed Action would result in significant impacts on geology, seismicity, and soils primarily localized to the DMC ROW due to the potential for erosion and loss of topsoil. These impacts would be mitigated to the less than significant level by implementing MMs WQ-1 and GEO-1. Similar to the Proposed Action, the cumulative projects would be required to implement BMPs and MMs to reduce impacts. **Therefore, although the Proposed Action may have a significant impact on geology, seismicity, and soils impacts pre-mitigation, this impact would not be cumulatively considerable post-mitigation.**



### 5.1.13 Public Utilities and Power

Over time, construction debris from other construction projects, such as the Reach 2B and Mendota Pool Bypass Project and the various infrastructure developments in San Joaquin and Stanislaus counties, and from future growth and development could cause some landfills in the area to reach capacity. However, there are numerous landfills with available capacity surrounding the DMC, and the Proposed Action's contributions to the landfills would be insubstantial relative to their unused capacity. Cumulative projects and the Proposed Action are expected to use standard construction equipment fueled by gasoline or diesel, the demand for which could be met by regional supplies. The various infrastructure developments in San Joaquin and Stanislaus counties (described in Appendix O) may impact energy consumption, stormwater management, wastewater management, solid waste disposal, or emergency services over the long term through the creation of new business developments. The Proposed Action would not require long-term expanded water entitlements and would have less than significant impacts on stormwater drainage structures and wastewater facilities. Overall, the Proposed Action would have less than significant impacts on public utilities and power. **Therefore, the construction of the Proposed Action in combination with concurrent projects would not result in significant cumulative impacts on public utilities and power.**

# Chapter 6 Other Compliance Requirements

In addition to resources analyzed in Chapter 4, Department of the Interior Regulations, Executive Orders, and Reclamation guidelines require a discussion of the following additional items when preparing environmental documentation.

## 6.1 Indian Trust Assets

Indian Trust Assets (ITAs) are defined as legal interests in property held in trust by the U.S. government for Indian tribes or individuals, or property protected under U.S. law for federally recognized Indian tribes or individuals. ITAs can include land, minerals, federally reserved hunting and fishing rights, federally reserved water rights, and in-stream flows associated with a Reservation or Rancheria. By definition, ITAs cannot be sold, leased, or otherwise encumbered without approval of the United States.

The nearest ITA is a public domain allotment approximately 43 miles to the south of the study area. Based on the nature of the Project, the ITA would not be impacted by the Project nor would the Project occur on Indian lands. Therefore, it is reasonable to assume that the Project would not have any impacts on ITAs.

## 6.2 Indian Sacred Sites

As defined by federal Executive Order 13007 *Indian Sacred Sites*, a sacred site refers to “any specific, discrete, narrowly delineated location on federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site.” An archaeological survey of the APE was performed by qualified archaeologists, the results of which are detailed and evaluated in Appendix N. Additionally, the results of the Sacred Lands Inventory and CHRIS searches are presented in Section 4.11 and discussed in more detail in Appendix N. Reclamation is consulting with Tribes regarding the Project and will address any Sacred Sites should they be identified as part of that consultation.

## 6.3 Environmental Justice

Executive Order 12898 directs federal agencies to address disproportionately high and adverse human health and environmental effects on minority and low-income populations. Minority populations are American Indian or Alaskan Native, Asian or Pacific Islander, Black, or Hispanic individuals in the affected environment that either: (a) exceed 50 percent, or (b) these populations are meaningfully greater<sup>14</sup> than the minority population percentage in the state (Federal Interagency Working Group on Environmental Justice and NEPA Committee 2016). Low-income populations in an affected area are identified based on the poverty thresholds from the Bureau of the Census Current Population Reports, Series P-60 on Income and Poverty.

California is a diverse state and Table 6-1 shows the minority population in the environmental justice study area (Alameda, San Benito, Santa Clara, San Joaquin, Stanislaus, Merced, and Fresno counties) is similar to that of the State of California as a whole. During the 2016–2020 study period, the racial category with the highest percentage of population in the Project study area is White alone (48.1 percent). The ethnic category in the table of Hispanic or Latino represents those who self-identify themselves as “other Spanish, Hispanic, or Latino” on the census questionnaire. Merced County had the highest percentage of its population that self-identified as Hispanic or Latino (60.2 percent) of those counties included in the Project study area. Table 6-1 also shows that the percentage of low-income persons or families present in the Project study is not meaningfully greater than that of the rest of California. Fresno County had the highest percentage of families living below the poverty threshold (16.7 percent) of those counties included in the Project study area.

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<sup>14</sup> ‘Meaningfully Greater’ is a term used in “Appendix A, Text of Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, Annotated with Proposed Guidance on Terms,” which is attached to CEQ’s Environmental Justice Guidance under the National Environmental Policy Act (CEQ 1997). A minority or low-income population in the study area that is over 10 percent higher than that of the state would be considered ‘meaningfully greater.’

**Table 6-1. Demographic Characteristics of the Project Study Area, 2016–2020\***

	Counties** Population Numbers	Counties** Percentage of Total	California Population Numbers	California Percentage of Total
Total Population	6,209,225	-	39,346,023	-
White alone	2,986,486	48.1	22,053,721	56.1
Black or African American alone	344,273	5.5	2,250,962	5.7
American Indian alone	45,476	0.7	311,629	0.8
Asian alone	1,015,269	16.4	5,834,312	14.8
Native Hawaii & Pacific Islander alone	30,785	0.5	149,636	0.4
Some other race alone	741,980	11.9	5,623,747	14.3
Two or more races	536,744	8.6	3,122,016	7.9
Hispanic or Latino (of any race)	2,151,600	34.7	15,380,929	39.1
Poverty Prevalence	-	-	-	-
People below Poverty	719,721	11.59	4,853,434	12.3
Families below Poverty	121,836	8.5	808,800	9.0

Source: U.S. Census Bureau 2020.

Notes: \*American Community Survey Five-Year Estimates.

\*\* "Counties" refers to combined demographic characteristics of Alameda, San Benito, Santa Clara, San Joaquin, Stanislaus, Merced, and Fresno counties in California.

Based on the data in Table 6-1 and a 'meaningfully greater' analysis of percentages compared to the State of California, no minority or low-income populations are present in the study area that would be adversely affected disproportionately by the Proposed Action described in this EA/IS. In addition, the ability of the DMC to convey designed flows as originally authorized would further support ongoing agricultural activities through greater water supply reliability having a beneficial impact on jobs associated with agriculture. Further, the Proposed Action would not cause dislocation or changes in employment, or increase flood, drought, or disease, nor would it disproportionately adversely impact economically disadvantaged or minority populations.

## 6.4 Consultation and Coordination

Reclamation and SLDMWA have or will consult with the following regarding the Proposed Action:

### 6.4.1 Bay Area Air Quality Management District/ San Joaquin Valley Air Pollution Control District

The Proposed Action involves construction activities in Alameda County (within the SFBAAB), for which air quality is under the jurisdiction of BAAQMD. The Proposed Action involves construction activities in San Joaquin, Stanislaus, Merced, and Fresno counties, which lie within the SJVAB, for which air quality is under the jurisdiction of SJVAPCD. If necessary, Reclamation and SLDMWA will coordinate with BAAQMD and SJVAPCD regarding air quality impacts within their jurisdiction. BAAQMD and SJVAPCD will receive a copy of this Draft EA/IS for review.

### 6.4.2 California Department of Fish and Wildlife

If it is determined that the Project or components of the Project would be subject to compliance with the CESA, then SLDMWA will consult with CDFW regarding CESA permitting requirements.

### 6.4.3 Central Valley Regional Water Quality Control Board

The Proposed Action would include construction activities that could require permits from CVRWQCB, including a dewatering permit and coverage under a NPDES permit for General Construction. The construction contractor will obtain these permits prior to construction. RWQCB will receive a copy of this Draft EA/IS for review.

#### **6.4.4 Fresno County Department of Parks and Recreation**

Fresno County Department of Parks and Recreation (DPR) manages the Mendota Pool Recreation Area. SLDMWA will coordinate with Fresno County DPR regarding potential impacts to recreation from the implementation of the Proposed Action. Fresno County DPR will receive a copy of this Draft EA/IS.

#### **6.4.5 Friant Water Authority**

SLDMWA will consult with Friant Water Authority regarding the Proposed Action. Friant Water Authority will receive a copy of this Draft EA/IS.

#### **6.4.6 Local Governments**

The Proposed Action involves construction activities in Alameda, San Joaquin, Stanislaus, Merced, and Fresno counties. These counties will receive a copy of the Draft EA/IS for review. If necessary, SLDMWA will coordinate with these counties. In addition, all SLDMWA member agencies were consulted during the development of this Draft EA/IS.

#### **6.4.7 Native American Heritage Commission**

SLDMWA is pursuing formal consultation with Native American Tribes consistent with Assembly Bill (AB) 52 (Chapter 532, Statutes of 2014). Letters requesting consultation with SLDMWA were sent out on June 14, 2022. SLDMWA received four positive responses and follow-up letters were sent on August 18, 2022. Pursuant to PRC Section 21074 and consistent with AB 52 (Chapter 532, Statutes of 2014), SLDMWA has initiated consultation with Native American Tribes and interested Native American stakeholders.

#### **6.4.8 State Historic Preservation Officer**

Implementation of the Proposed Action would require compliance with 54 U.S.C. Section 306108, commonly known as Section 106 of the NHPA. To complete the Section 106 process, as outlined at 36 C.F.R. Part 800, Reclamation is required to consult with the SHPO and afford the ACHP an opportunity to comment regarding the effects of the proposed undertaking on historic properties. Historic properties are cultural resources that are listed, or eligible for listing, on the NRHP. Reclamation must fully comply with NHPA Section 106 compliance requirements prior to completing NEPA on the Project.

Reclamation has conducted consultations with several Native American Tribes and stakeholders regarding geotechnical work for the Project. In June 2020, the Native American Heritage Commission (NAHC) responded to Reclamation with a list of 34 Native American Tribes or stakeholders who may possess information regarding Indigenous resources within the Project area. Regarding the geotechnical study for the Project, Reclamation initiated consultation with several individuals and tribal organizations in March 2021.

Reclamation is negotiating a Programmatic Agreement (PA), pursuant to 36 C.F.R. Section 800.2(c)(2) and (c)(5) and 36 C.F.R. Section 800.14(b)(2)(1), with the SHPO and other consulting parties, which will be in place before completing the NEPA process. Reclamation has identified potential consulting parties to the PA they are preparing for this undertaking, by contacting the NAHC, historical societies, county agencies, and other public stakeholders (Appendix C of Draft Programmatic Agreement). Reclamation contacted Indian tribes and Native American organizations and individuals that were identified on the NAHC list and invited these groups to be Concurring Parties to the PA. Reclamation is continuing to consult with them throughout the development and implementation of the PA. A draft PA is currently being circulated and is under review by the California State Office of Historic Preservation (OHP).

#### **6.4.9 United States Army Corps of Engineers**

Reclamation and SLDMWA will coordinate with the USACE Regulatory Division should permits pursuant to Clean Water Act Section 401 and Section 404 be needed.

#### **6.4.10 United States Fish and Wildlife Service**

Reclamation will consult with the USFWS to ensure its actions do not jeopardize the continued existence of any listed species or destroy/adversely modify critical habitat pursuant to the ESA.