California Aqueduct Bridge Replacement

In Kern County on State Route 166 (Maricopa Highway)
2.6 miles east of Old River Road
06-KERN-166-Post Miles 16.6/18.2
EA 06-0S050, Project ID 0615000047
State Clearinghouse Number 2018071022

Initial Study with Proposed Mitigated Negative Declaration/ Environmental Assessment and Draft Section 4(f) Evaluation

Prepared by the
State of California Department of Transportation

The environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 U.S. Code 327 and the Memorandum of Understanding dated December 23, 2016, and executed by the Federal Highway Administration and Caltrans.

July 2021

General Information About This Document

What's in this document:

The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration, has prepared this Initial Study/Environmental Assessment, which examines the potential environmental impacts of alternatives being considered for the proposed project in Kern County in California. Caltrans is the lead agency under both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The document explains why the project is being proposed, the alternatives being considered for the project, the existing environment that could be affected by the project, potential impacts of each of the alternatives, and proposed avoidance, minimization, and/or mitigation measures.

What you should do:

- Please read the document. Additional copies of the document and the related technical studies are available for review at the Caltrans district office at 1352 West Olive Avenue, Fresno, California 93728; the Taft Library, 27 Cougar Court, Taft, California 93268; and the Beale Memorial Library, 701 Truxtun Avenue, Bakersfield, California 93301. The document can also be downloaded at the following website: https://dot.ca.gov/caltrans-near-me/district-6
- Tell us what you think. If you have any comments regarding the proposed project, please send your written comments to Caltrans by the deadline. Submit comments via U.S. mail to: Juergen Vespermann, Central Region Environmental, California Department of Transportation, 2015 East Shields Avenue, Suite 100, Fresno, California 93726. Submit comments via email to: Juergen.Vespermann@dot.ca.gov.
- Submit comments by the deadline: September 9, 2021.

What happens next:

After comments are received from the public and reviewing agencies, Caltrans, as assigned by the Federal Highway Administration, may 1) give environmental approval to the proposed project, 2) do additional environmental studies, or 3) abandon the project. If the project is given environmental approval and funding is appropriated, Caltrans could design and construct all or part of the project.

Printing this document: To save paper, this document has been set up for two-sided printing (to print the front and back of a page). Blank pages occur where needed throughout the document to maintain proper layout of the chapters and appendices.

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please write to or call Caltrans, Attention: Juergen Vespermann, Central Region Environmental, 2015 East Shields Avenue, Suite 100, Fresno, California 93726; 559-832-0051 (Voice), or use the California Relay Service 1-800-735-2929 (TTY), 1-800-735-2929 (Voice), or 711.

State Clearinghouse Number 2018071022
06-KER-166-PM 16.6/18.2
06-0S050 and Project ID 0615000047

Replacement of the California Aqueduct Bridge Number 50-0323
on State Route 166 from post miles 16.6 to 18.2 in Kern County

INITIAL STUDY with Proposed Mitigated Negative Declaration/ ENVIRONMENTAL ASSESSMENT and Draft Section 4(f) Evaluation

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 U.S. Code 4332(2)(C), and 49 U.S. Code 303

THE STATE OF CALIFORNIA
Department of Transportation
and
Responsible Agencies: California Transportation Commission

Jennifer H. Taylor

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Office Chief
Southern San Joaquin Valley Environmental Office
District 6
California Department of Transportation
CEQA and NEPA Lead Agency

06/29/2021

Date

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DRAFT
Proposed Mitigated Negative Declaration

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Caltrans) proposes to replace California Aqueduct Bridge Number 50-0323 on State Route 166. The project is in Kern County east of Maricopa, 2.6 miles east of Old River Road and 5 miles west of Interstate 5. State Route 166 at the bridge location is a conventional two-lane highway with two 12-foot lanes and 8-foot shoulders. The bridge was built in 1968 and is about 400 feet long.

Determination

This proposed Mitigated Negative Declaration is included to give notice to interested agencies and the public that it is Caltrans' intent to adopt a Mitigated Negative Declaration for this project. This does not mean that Caltrans' decision on the project is final. This Mitigated Negative Declaration is subject to change based on comments received from interested agencies and the public.

Caltrans has prepared an Initial Study for this project and, pending public review, expects to determine from this study that the project would not have a significant effect on the environment for the following reasons.

The project would have no effect on aesthetics, forest resources, air quality, hydrology and floodplain, land use and planning, mineral resources, noise, population and housing, public services, recreation, wildfires, tribal cultural resources, paleontological resources, energy, and geology and soils.

The project would have less than significant effects on farmlands, biological resources, hazards and hazardous waste, water quality, greenhouse gas emissions, transportation and traffic, and utilities and service systems.

The project would have no significant adverse effects on cultural resources because the following mitigation measure would reduce potential effects to less than significant:

- Caltrans will complete a Historic American Buildings Survey and a Historic American Engineering Record that will describe and convey the importance of the bridge as well as the role that it plays in the larger aqueduct system.

_____

Jennifer H. Taylor, Office Chief
Southern San Joaquin Valley Environmental Office
California Department of Transportation, District 6

_____

Date

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Chapter 1 Proposed Project

1.1 Introduction

California participated in the "Surface Transportation Project Delivery Pilot Program" (Pilot Program) pursuant to 23 U.S. Code 327 for more than five years, beginning July 1, 2007, and ending September 30, 2012. MAP-21 (P.L. 112-141), signed by President Barack Obama on July 6, 2012, amended 23 U.S. Code 327 to establish a permanent Surface Transportation Project Delivery Program. As a result, Caltrans entered into a Memorandum of Understanding pursuant to 23 U.S. Code 327 (NEPA Assignment Memorandum of Understanding) with the Federal Highway Administration. The NEPA Assignment Memorandum of Understanding became effective October 1, 2012, and was renewed on December 23, 2016, for a term of five years. Caltrans continues to assume Federal Highway Administration responsibilities under the National Environmental Policy Act (known as NEPA) and other federal environmental laws in the same manner as was assigned under the Pilot Program, with minor changes. With NEPA Assignment, the Federal Highway Administration assigned, and Caltrans assumed all of the U.S. Department of Transportation Secretary's responsibilities under NEPA. This assignment includes projects on the State Highway System and Local Assistance projects off the State Highway System within the State of California, except for certain categorical exclusions that the Federal Highway Administration assigned to Caltrans under the 23 U.S. Code 326 CE Assignment Memorandum of Understanding, projects excluded by definition, and specific project exclusions.

Caltrans, as assigned by the Federal Highway Administration, is the lead agency under NEPA, and Caltrans is the lead agency under the California Environmental Quality Act (known as CEQA).

Caltrans proposes to replace California Aqueduct Bridge Number 50-0323 from post miles 16.6 to 18.2 on State Route 166 in Kern County. The existing bridge is 2.6 miles east of Old River Road and 5 miles west of Interstate 5. The bridge was built in 1968 and is about 400 feet long. State Route 166 at the bridge location is a conventional two-lane highway with two 12-foot lanes and 8-foot shoulders. Figures 1-1 and 1-2 show maps of the project location and project vicinity.

The project is included in the 2018 Regional Transportation Plan/Sustainable Communities Strategy for Kern Council of Governments and in the 2018 Regional Adoption of the 2019 Federal Transportation Improvement Program. The project is also programmed in the 2018 State Highway Operation and Protection Program Bridge Rehabilitation and Replacement (20.XX.201.110)

program with funding in the 2021/2022 fiscal year. The project is scheduled to begin construction in 2023.

1.2 Purpose and Need

1.2.1 Purpose

The purpose of this project is to replace the existing 50-year-old bridge with a new bridge that will meet current Caltrans standards and be structurally sound.

1.2.2 Need

The existing bridge is deficient for the following reasons:

- The bridge piers are settling into the ground, resulting in cracks on the bottom surface of the existing bridge structure.
- The bridge deck is sagging and rotating, indicating that the foundation is unstable, resulting in insufficient structural integrity.
- Because of the bridge's insufficient structural integrity, the bridge may continue to deteriorate and become structurally unsound.

Images of the bridge in its existing condition are shown in Appendix I.

1.2.3 Independent Utility and Logical Termini

Federal Highway Administration regulations (23 Code of Federal Regulations 771.111 [f]) require that (1) projects have logical limits (this is known as logical termini) and be long enough to address environmental matters on a broad scope; (2) projects are usable and a reasonable use of funds even if no additional transportation improvements in the area are made (this is known as independent utility); and (3) approval of a project does not restrict consideration of alternatives for other reasonable foreseeable transportation improvements. As discussed below, the project complies with these requirements.

The project would replace a specific bridge, Bridge Number 50-0323, which crosses the California Aqueduct on State Route 166. The project would begin and end at the points required for the bridge replacement. Therefore, the project has logical limits.

Another important consideration is whether the project is of sufficient length to address matters on a broad scope. The study corridor extends beyond the proposed construction limits to ensure comprehensive environmental analysis for the project.

The new bridge would provide an effective means for crossing the California Aqueduct along State Route 166 even if no additional transportation improvements are made. There are no other projects that are needed or are dependent upon the completion of this project.

The approval of the project does not restrict the consideration of alternatives for reasonably foreseeable transportation improvements. The 2018 Regional Transportation Plan/Sustainable Communities Strategy for Kern Council of Governments identifies several other transportation improvements that are being developed independently of this project. The project would not conflict with or constrain the design of any of these projects.

1.3 Project Description

This section describes the proposed action and the project alternatives developed to meet the purpose and need of the project, while avoiding or minimizing environmental impacts. There are two build alternatives—Alternative 8 and the South Alignment Alternative—and a no-build alternative.

The project is on State Route 166 in Kern County east of Maricopa, 2.6 miles east of Old River Road and 5 miles west of Interstate 5 (see Figures 1-1 and 1-2). Within the project limits, State Route 166 at the bridge location is a conventional two-lane highway with two 12-foot lanes and 8-foot shoulders. The bridge was built in 1968 and is about 400 feet long.

Figure 1-1 Project Vicinity Map

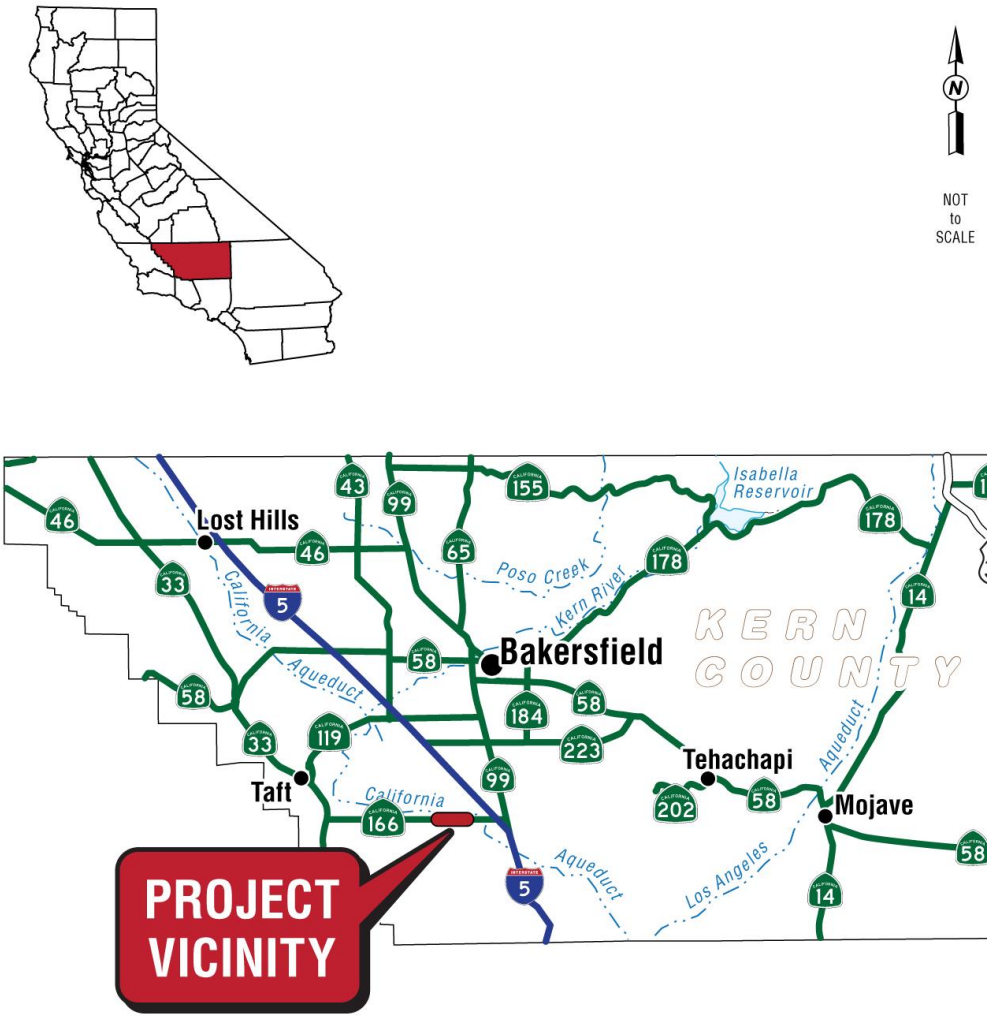


Figure 1-2 Project Location Map

The California Aqueduct (official name “Governor Edmund G. Brown California Aqueduct”) is a system of concrete-lined canals, tunnels, and pipelines conveying water collected from the Sierra Nevada Mountains and valleys of Northern and Central California to Southern California. Over 400 miles long, the aqueduct is the main feature of the California State Water Project. The Department of Water Resources operates and maintains the California Aqueduct.

The purpose of the project is to remove California Aqueduct Bridge Number 50-0323 and replace the structure with a new bridge.

The existing structure would be removed, and 1 foot of pier concrete lining would be left in the aqueduct. The new bridge would be designed and built to current Caltrans standards, including upgrading the approaches to the bridge, the piers, the foundation, and the bridge rails.

1.4 Project Background and Consultative Determinations

1.4.1 Consultation with the Department of Water Resources

Caltrans initiated construction on a project in early 2013 to address deficiencies at several bridges in Fresno County, Madera County, and Tulare County, including California Aqueduct Bridge Number 50-0323. Caltrans initially proposed to retrofit and rehabilitate the existing bridge by installing cast-in-drilled-hole piles (pouring concrete into deep, newly drilled holes) to stabilize the pile caps from movement.

Upon further review, Caltrans determined that it would not be able to address deficiencies on the existing bridge without a complete seismic retrofit of the bridge. As a result, Caltrans decided to suspend construction on the bridge, remove it from the initial project, and instead design a long-term State Highway Operation and Protection Program project that would address all the bridge's deficiencies.

The project was reinitiated on June 9, 2016, and alternatives were designed to address the deficiencies of the existing bridge. Caltrans then began the environmental analysis process to assess the potential environmental impacts associated with the project's proposed alternatives. Due to potential impacts to the aqueduct, Caltrans consulted with the California Department of Water Resources, which owns and operates the aqueduct.

In October 2017, a meeting was held with Caltrans and the California Department of Water Resources in Sacramento. During this meeting, Caltrans presented the proposed alternatives: Alternatives 1, 1A, 6, and 7. However, because the California Department of Water Resources determined that placing piers in the California Aqueduct would not be feasible without disrupting water flow and aqueduct operations, all alternatives that proposed placing piers in the water were eliminated from further discussion and consideration. These alternatives are discussed further in Section 1.6, Alternatives Considered but Eliminated from Further Discussion.

1.4.2 Evaluation of Remaining Alternatives

Upon the elimination of Alternatives 1, 1A, 6, and 7, the project development team evaluated Alternatives 2, 3, 4, 5, and 8 based on the criteria listed below:

1) Does this alternative involve the complete shutdown of flow, significant reduction in hydraulic capacity, or penetrating the aqueduct lining?
2) Does this alternative fail to meet the project's purpose and need?
3) Does this alternative have excessive construction costs?

4) Are there severe operational or safety problems associated with this alternative?
5) Are there unacceptable adverse social, economic, or environmental impacts?
6) Is there a combination of reasons listed previously, that, taken individually, might not be significant but would be significant if taken cumulatively?

If any alternative triggered a “yes” in response to the criteria, the alternative was rejected. See Table A.1 in Appendix A for a comparison between the rejected alternatives and the criteria that triggered the rejection.

After triggering a “yes” in response to the criteria, Alternatives 2, 3, 4, and 5 were eliminated from further consideration and are discussed further in Section 1.6, Alternatives Considered but Eliminated from Further Discussion.

Alternative 8 did not trigger a “yes” in response to the criteria and was further developed as a build alternative. Alternative 8 is described in Section 1.5.1, Build Alternatives.

1.4.3 Consultation with the State Historic Preservation Officer

In 2018, Caltrans completed an Initial Study with Proposed Negative Declaration under CEQA, an Environmental Assessment under NEPA, and a De Minimis Section 4(f) Evaluation for the project. The draft environmental document was circulated for public and agency review and comment in June 2018. During the circulation period, Caltrans received a comment from the State Historic Preservation Officer disputing Caltrans’ No Adverse Effect determination under Section 106 for impacts to the California Aqueduct, a historic property eligible for the National Register of Historic Properties, and Bridge Number 50-0323, an eligible contributing feature of the California Aqueduct.

The State Historic Preservation Officer determined that the proposed project was visually obtrusive to the existing environment and that the proposed design took away from the look and feel of the California Aqueduct. The State Historic Preservation Officer argued that the proposed bridge would affect the integrity of materials, design, setting, workmanship, and feeling of the aqueduct.

Caltrans accepted the State Historic Preservation Officer’s comments and the Finding of Effect on January 29, 2019. The acceptance of the Finding of Effect required the document level of the previously completed Section 4(f) Evaluation to be elevated from a De Minimis determination to an Individual Section 4(f) Evaluation.

Since the original submittal of the Finding of Effect, Alternative 8 has been modified to include additional construction work to lessen impacts to utility lines; a new alternative—the South Alignment Alternative—is also being considered. On March 24, 2021, a revised Finding of Adverse Effect under Section 106 was completed for the project and sent to the State Historic Preservation Officer. The State Historic Preservation Officer formally responded on June 9, 2021 stating no objections to the Supplemental Finding of Adverse Effect.

1.4.4 The Value Analysis

Due to the anticipated cost of the project, a value analysis was conducted for the project in October 2019. The value analysis considered additional alternatives that were evaluated based on impacts on performance, cost, time, and risk when compared to Alternative 8. The value analysis team was composed of Caltrans specialists unassociated and unfamiliar with the project at the time. If any new alternatives were recommended by the value analysis team, the project development team further evaluated those alternatives using the criteria listed in Section 1.4.2, Evaluation of Remaining Alternatives.

The value analysis team recommended that Value Analysis Alternatives 2.1, 2.2, 2.3, Alternative 2.4 (also referred to as the North Alignment), and 2.5 should be included in the project scope and evaluated as alternatives for this project. These alternatives were paired with companion alternatives, Value Analysis Alternatives 1.1 and 1.2, as detour options based on the need for a roadway realignment. However, after receiving feedback from the project development team, it was determined that Value Analysis Alternatives 2.1, 2.2, 2.3, and 2.5 would trigger a “yes” when compared to the alternative elimination criteria described in Section 1.4.2, Evaluation of Remaining Alternatives.

The value analysis team concluded that Value Analysis Alternative 2.4 (North Alignment) should be accepted as part of the project scope and further evaluated by the project development team. Value Analysis Alternatives 1.1 and 1.2 were also recommended for further evaluation as detour options for Alternative 8 and Value Analysis Alternative 2.4 (North Alignment), respectively. It was later determined that Value Analysis Alternative 2.4 (North Alignment) would result in severe utility impacts. This alternative was then revised, moved to the south, and renamed the South Alignment Alternative. See Section1.5.1, Build Alternatives, for additional details.

The value analysis team rejected the rest of the value analysis alternatives, as more fully described in Section 1.6, Alternatives Considered but Eliminated from Further Discussion. Section 1.6 also further describes Value Analysis Alternative 2.4 (North Alignment) before it was revised into the South Alignment Alternative.

1.5 Project Alternatives

Three alternatives—two build alternatives and a no-build alternative—are proposed for this project. The alternatives were developed by an interdisciplinary project development team consisting of Caltrans staff from the divisions of Design, Traffic Operations, Environmental Analysis, Maintenance, and Right-of-Way. Caltrans consulted the California Department of Water Resources during the alternative development process. A value analysis was also conducted for the project in October 2019 in which new alternatives were presented and evaluated based on impacts on performance, cost, time, and risk. The proposed alternatives are described in Sections 1.5.1 and 1.5.2 below. See Section 1.6 for alternatives considered and eliminated from further discussion.

This project includes several standardized project measures that are used on most, if not all, Caltrans projects and were not developed in response to any specific environmental impact resulting from the proposed project. These measures are addressed in more detail in the Environmental Consequences sections found in Chapter 2.

1.5.1 Build Alternatives

Alternative 8

Alternative 8 would build a single-span replacement bridge that would not require the placement of piers in the aqueduct. The new bridge would be built on the same alignment as the existing bridge but would additionally impact about 6 acres of farmland. The new bridge would be a 16-foot-deep steel beam bridge about 434 feet long and 43 feet 6 inches wide with 12-foot-wide lanes and 8-foot-wide shoulders. The new bridge would have a vertical height of 21 feet and would require 1,500-foot approaches and fill material. A retaining wall would be located on the northern side of State Route 166, east of the California Aqueduct. The wall type would be a mechanically stabilized embankment, 1,250 feet long, with a maximum height of 24 feet. The top of the wall would include a concrete barrier on a reinforced concrete barrier slab.

This alternative would adopt Value Analysis Alternative 1.1 as the detour alternative. During the value analysis process, the value analysis team presented this alternative as a companion alternative to all recommended alternatives that maintained the existing bridge and roadway alignment. Under this detour alternative, traffic on State Route 166 would be rerouted onto State Route 119 and State Route 33, flowing to Interstate 5 and State Route 99 to maintain the flow of traffic during construction. This detour is included in Figure 1-2 in Section 1.3, Project Description. Details of the detour are provided in Section 2.4 Construction Impacts.

This alternative would acquire land from 4 parcels (agricultural land included) and require utility relocations, both of which are discussed in Section 2.1.1,

Farmland and Section 2.1.2, Utilities and Emergency Services. Construction is expected to last up to 18 months, and the construction cost of this alternative is estimated to be $46,000,000. See Figure 1-3 for a visual simulation of this build alternative and Figure 1-5 for an aerial comparison of both build alternatives.

Figure 1-3 Visual Simulation of Alternative 8

South Alignment Alternative

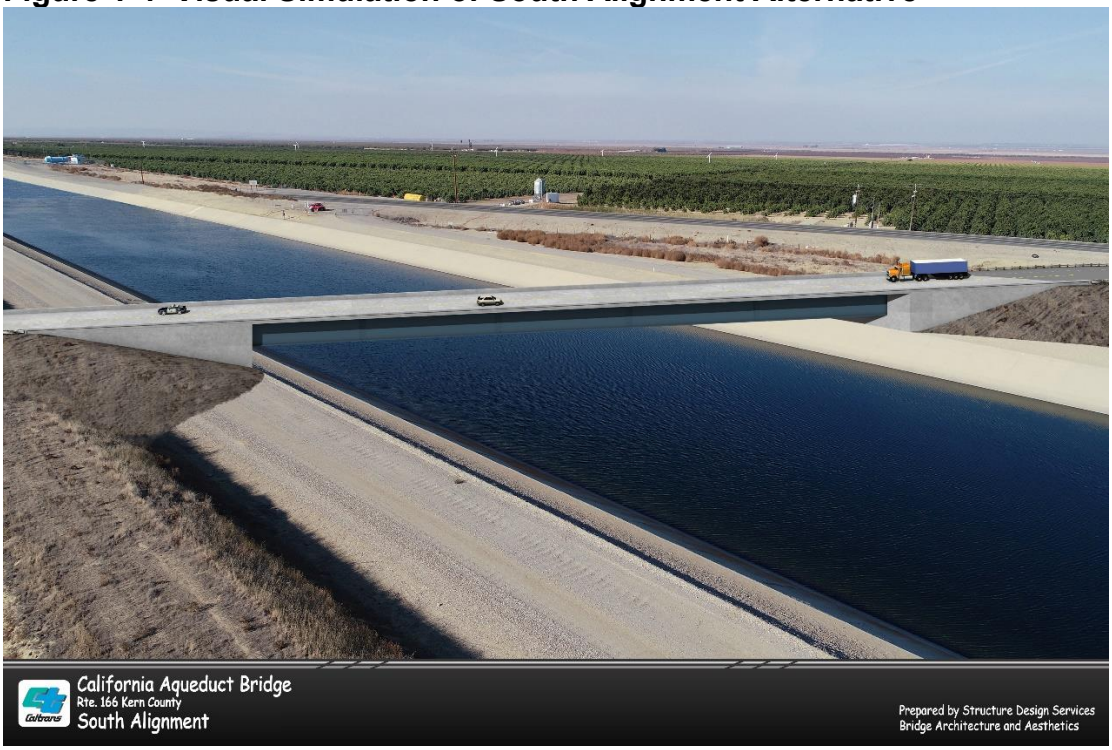
This alternative would build a single-span replacement bridge that would not require the placement of piers in the aqueduct. This alternative would realign the bridge to the south and introduce three horizontal reversing curves. This alternative would reduce the vertical curve of the bridge and allow for conventional bridge construction methods. This alternative would impact about 26 acres of farmland, add 4,752 feet of new pavement and include a 280-foot-long steel-girder bridge. The bridge girder would be about 12.5 feet deep and 43.5 feet wide, while the bridge would have a vertical profile 20 feet above ground.

This alternative would adopt Value Analysis Alternative 1.2 as a detour alternative. During the value analysis process, the value analysis team presented this alternative as a companion alternative to all recommended alternatives that would realign the bridge and roadway. This detour alternative would allow the continued use of the existing bridge during construction, minimizing the need for a new detour under the South Alignment Alternative. However, near the end of construction, a detour would be required while the

realignment is connected to State Route 166. The same detour proposed for Alternative 8 would be used for the South Alignment Alternative.

This alternative would acquire land from 8 parcels (agricultural land included) and require utility relocations, both of which are discussed in Section 2.1.1, Farmland and Section 2.1.2, Utilities and Emergency Services. Construction is expected to last up to 16 months, and the construction cost of the project is estimated to be $32,000,000. See Figure 1-4 for a visual simulation of this build alternative and Figure 1-5 for an aerial comparison of both build alternatives.

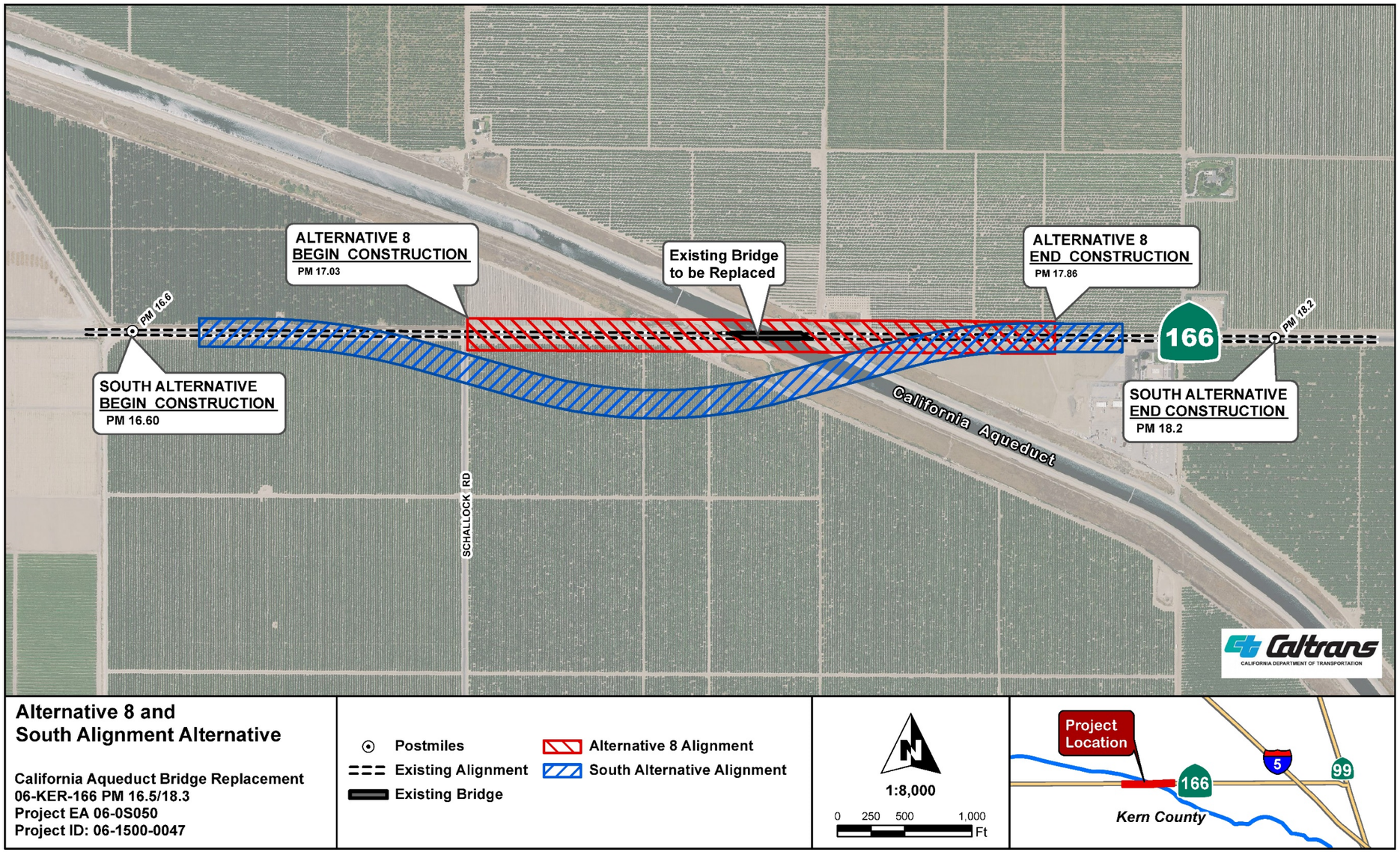
Figure 1-4 Visual Simulation of South Alignment Alternative



1.5.2 No-Build (No-Action) Alternative

Under the No-Build (No-Action) Alternative, California Aqueduct Bridge Number 50-0323 would not meet the purpose and need of the project. The bridge would continue to be out of compliance with current Caltrans standards and continue to worsen. This would lead to decreased structural integrity and could lead to the collapse of the bridge. The potential collapse of the bridge could create a cost to life and property, involve additional construction, and threaten the delivery of water supply to Santa Barbara, Los Angeles, and San Bernardino counties, which would add up to possible impacts of extraordinary magnitude.

Figure 1-5 Aerial Comparison of the Alternative 8 and South Alignment Alternative



1.6 Alternatives Considered but Eliminated from Further Discussion

Alternatives 1, 1A, 6, and 7

Because the California Department of Water Resources determined that placing piers in the California Aqueduct would disrupt the flow of water and would not be feasible with aqueduct operations, the following alternatives were eliminated from further consideration.

Alternative 1

Alternative 1 proposed to seismically retrofit the bridge, which would have required the existing structure at Pier 2 to be elevated until it reached the required deck elevation. Seismically retrofitting the bridge would also have allowed for construction of the bridge columns at Pier 2. Once completed, a steel plate and threaded rods would have been placed through the cored holes on the structure to build the abutment footing for the bridge. The existing bridge rail would have been removed and replaced with Caltrans' standard concrete barrier.

Alternative 1A

Alternative 1A proposed a rehabilitation strategy for the bridge by strengthening Pier 2. The strengthening work at Pier 2 would have involved drilling holes through the aqueduct channel lining to place large pipe pile extensions to help support the bridge.

Alternative 6

Alternative 6 proposed a replacement that would have used the existing bridge as a work platform. Alternative 6 proposed that new single-column piers be built near existing Piers 2 and 3 on the aqueduct lining. The new bridge structure would have been built from the existing bridge. The existing bridge would have been removed after the installation of the new bridge.

Alternative 7

Alternative 7 proposed a two-span replacement that would have used the existing bridge as a work platform. A single large-diameter column would have been built along the aqueduct centerline through the existing bridge structure. The new bridge structure would have been built off the existing bridge, and the existing bridge would have been removed after the installation of the new bridge.

Alternatives 2, 3, 4, and 5

As explained in Section 1.4.2, Evaluation of Remaining Alternatives, Alternatives 2, 3, 4, and 5 were evaluated but rejected based on the criteria listed below:

1) Does this alternative involve the complete shutdown of flow, significant reduction in hydraulic capacity, or penetrating the aqueduct lining?
2) Does this alternative fail to meet the project's purpose and need?
3) Does this alternative have excessive construction costs?
4) Are there severe operational or safety problems associated with this alternative?
5) Are there unacceptable adverse social, economic, or environmental impacts?
6) Is there a combination of reasons listed previously, that, taken individually, might not be significant but would be significant if taken cumulatively?

If any alternative triggered a "yes" in response to the criteria, the alternative was rejected. See Table A.1 in Appendix A for a comparison between the rejected alternatives and the criteria that triggered the rejection.

Alternative 2

Alternative 2 would have replaced the existing bridge with a new one that would have crossed the aqueduct perpendicularly and about 1 mile south of its current location. This alternative would have required adding three horizontal curves and one vertical curve to the roadway. This alternative would have cost $23,315,000 and impacted up to 75 acres of farmland.

While Alternative 2 would have had low costs, it would have impacted the most farmland out of all the alternatives. Alternative 2 would have also introduced sharp horizontal reversing curves in the roadway, which studies have shown would be a potential safety concern for motorists. The introduction of sharp reversing curves warranted concerns from Traffic Operations staff, who requested the crash analysis to compare the new alignment with the existing condition. The September 27, 2018 version of the Crash Prediction Evaluation Report, which compared the existing alignment with the proposed new horizontal reversing curve alignment (Alternative 2), showed that Alternative 2 would have had a potential for a roughly 40 percent higher number of accidents.

Alternative 3

Alternative 3 would have replaced the existing three-span 394-foot-long bridge with a 1,320-foot-long segmentally built bridge on a parallel alignment. The structure would have been 49 feet tall. The total length of the bridge was dictated by the amount of space the California Department of Water Resources needed to maintain the aqueduct. Alternative 3 proposed to "clear span" the bridge, which would have left an open area within the structure for the California Department of Water Resources to access the aqueduct. This bridge design would have required large end-span lengths to balance the structure. Alternative 3 would have cost $58,745,000 and impacted about 20 acres of farmland. Due to the high cost of Alternative 3 in combination with

the impacts to farmland, this alternative was eliminated from further consideration.

Alternative 4

Alternative 4 would have replaced the existing three-span 394-foot-long bridge with a 1,370-foot-long bridge that would have been supported and stabilized by long cables. The structure would have been 36 feet tall and built on a parallel alignment. The total length of the bridge was dictated by the amount of space the California Department of Water Resources needed to maintain the aqueduct. Alternative 4 proposed to “clear span” the bridge, which would have left an open area within the structure to allow the California Department of Water Resources to access the aqueduct. This bridge design would have required large end-span lengths to balance the structure. Alternative 4 would have cost $63,135,000 and impacted about 20 acres of farmland. Due to the high cost of Alternative 4 in combination with the impacts to farmland, this alternative was eliminated from further consideration.

Alternative 5

Alternative 5 would have replaced the existing bridge with a 1,320-foot-long segmental box girder bridge along existing State Route 166. The structure would have been 49 feet tall. The total length of the bridge was dictated by the amount of space the California Department of Water Resources needed to maintain the aqueduct. Alternative 5 proposed to “clear span” the bridge, which would have left an open area within the structure to allow the California Department of Water Resources to access the aqueduct. This bridge design would have required large end-span lengths to balance the structure. Alternative 5 would have cost $58,745,000 and impacted about 16 acres of farmland. Due to the high cost of Alternative 5 in combination with the impacts to farmland, this alternative was eliminated from further consideration.

Value Analysis Alternatives

The value analysis introduced new alternatives that were evaluated based on impacts on performance, cost, time, and risk when compared to Alternative 8. Key performance attributes identified for the project include mainline operations, temporary construction impacts, maintainability, and permanent environmental impacts. These attributes, along with an alternative’s cost savings, time savings, and assumed risks, were then quantified by the value analysis team using a Value Metrics algorithm. An increase in performance rating indicates the new alternative improves mainline operations, reduces temporary construction impacts, increases maintainability, or reduces permanent environmental impacts when compared to Alternative 8.

If any new alternatives were recommended by the value analysis team, the project development team further evaluated those alternatives using the criteria listed in Section 1.4.2, Evaluation of Remaining Alternatives. The

following alternatives from the value analysis were considered and rejected, as explained below:

Value Analysis Alternative 2.1

This alternative would have improved Old River Road and Copus Road to current standards to serve as the new alignment for State Route 166. The aqueduct crossing on Old River Road would have also likely needed to be upgraded. The existing bridge would have been demolished.

The initial cost savings for this alternative, when compared to Alternative 8, would have been $14,510,000, with a 205-day reduction in the construction schedule and a 1 percent decrease in performance. The performance rating is based on the impact the alternative would have had on the project's expected mainline operations, temporary construction impacts, maintainability, and permanent environmental impacts.

Accepting this proposed alternative would have failed to meet the project's purpose and need, as the purpose of this project is to replace California Aqueduct Bridge Number 50-0323 with a new bridge, and this alternative would demolish the bridge without replacing it. For these reasons, Value Analysis Alternative 2.1 was eliminated from further consideration.

Value Analysis Alternative 2.2

This alternative would have developed a southern alignment for the new bridge. This bridge would have also used precast concrete girders.

The initial cost savings for this alternative, when compared to Alternative 8, would have been $9,520,000, with a 55-day reduction in the construction schedule and an 8 percent decrease in performance. However, a Wheeler Ridge-Maricopa Water Storage District facility exists just south of State Route 166 and east of the California Aqueduct. This alternative would have reduced the skewed angle (the angle at which the bridge crosses the California Aqueduct) and avoided the Wheeler Ridge-Maricopa Water Storage District facility by creating a significant deviation from the existing roadway alignment. This would have resulted in a large impact on farmlands, like in Alternative 2. For these reasons, Value Analysis Alternative 2.2 was eliminated from further consideration.

Value Analysis Alternative 2.3

This alternative would have built box culverts similar to the crossing on Old River Road. The initial cost savings for this alternative, when compared to Alternative 8, would have been $19,500,000, with a 55-day reduction in the construction schedule and a 7 percent increase in performance.

Based on the meeting with the California Department of Water Resources on October 19, 2017, Caltrans found that the California Department of Water Resources would not approve any alternative involving a complete shutdown

of flow, significant reduction in hydraulic capacity, or penetration of the aqueduct lining. For this reason, Value Analysis Alternative 2.3 was eliminated from further consideration.

Value Analysis Alternative 2.4

This alternative would have realigned the bridge to the north and introduced three horizontal reversing curves. This alternative would have reduced the overall size of the bridge, reduced the vertical curve of the bridge, and reduced the span length of the bridge, allowing for more conventional bridge construction methods when compared to Alternative 8. Rather than hauling and assembling oversized steel beams to create a structure onsite, this alternative would allow for the less challenging transportation of preassembled bridge parts. This alternative would also require up to 13 acres of farmland and add 3,578 feet of new roadway due to the route realignment involving reversing curves.

The initial cost savings for this alternative, when compared to Alternative 8, would be $18,900,000, with a 55-day reduction in the construction schedule and a 20 percent increase in performance. The project team accepted this alternative as a result of the value analysis.

After further evaluation, however, it was discovered that this alternative would result in severe utility impacts to an existing oil line. The oil line would need to be relocated farther to the north for this alignment, which would have added $5,000,000 to the project cost and require an additional 2 years to complete the project. For this reason, Value Analysis Alternative 2.4 as described in this section was eliminated from further consideration. However, this alternative was then revised, moved to the south, and renamed the South Alignment Alternative. See Section1.5.1, Build Alternatives, for additional details.

Value Analysis Alternative 2.5

This alternative would have created a platform bridge by installing concrete girders at 90 degrees to the aqueduct centerline. This platform bridge would have been roughly 490 feet long by 160 feet wide, and the travel way would have been delineated on this platform. This platform would likely have created public attention to the unused non-delineated portions of the bridge, which would likely result in the public occupying the excess space for fishing or recreation, which is often seen in similar bridge designs. Installing the piles to support the concrete girders would have also impacted the utilities on the north side and south side of the bridge, including an oil line, which would increase cost and lengthen the project schedule.

The initial cost savings for this alternative, when compared to Alternative 8, would have been $7,410,000, with a 25-day reduction in the construction schedule and a 5 percent increase in performance. The cost and time required for utility relocations were not initially factored into this estimate by

the value analysis team due to limited familiarity with the project area. Based on the visual and utility impacts noted by the project development team during the value analysis process, this alternative was removed from consideration.

1.7 Permits and Approvals Needed

The following permits, licenses, agreements, and certifications are required for project construction:

Agency	Permit/Approval	Status
U.S. Fish and Wildlife Service	Section 7 consultation for Threatened and Endangered Species	A Letter of Concurrence for the San Joaquin kit fox, giant kangaroo rat, Tipton kangaroo rat, and blunt-nosed leopard lizard was received from the U.S. Fish and Wildlife Service on September 17, 2018. A second Letter of Concurrence for the San Joaquin kit fox, giant kangaroo rat, Tipton kangaroo rat, and blunt-nosed leopard lizard will be obtained once a preferred alternative is selected.
Office of State Historic Preservation	Concurrence with Findings of Effect	The Finding of Adverse Effect was submitted to the State Historic Preservation Officer on March 24, 2021. The State Historic Preservation Officer formally responded on June 9, 2021 stating no objections to the Supplemental Finding of Adverse Effect.

Chapter 2 Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

As part of the scoping and environmental analysis done for the project, the following environmental issues were considered, but no adverse impacts were identified. As a result, there is no further discussion of these issues in this document.

- Land Use—The project is consistent with the existing land use identified in the Kern County General Plan (2004). The area surrounding the project location is zoned for agriculture. For additional information regarding the surrounding farmland, see Section 2.1.1 Farmland.
- Coastal Zone—The project is not located in a coastal zone. The project is in western Kern County, which is more than 50 miles away from the nearest coastal zone. Therefore, there would be no impact to coastal zone resources.
- Wild and Scenic Rivers—There are no wild and scenic rivers in or next to the project area. Therefore, no impacts to wild and scenic rivers would occur. (Field visit June 9, 2017)
- Parks and Recreation—Based on field surveys and research into the local, county, and state park recreation systems, no parks or recreation facilities were identified in the project area. (Field visit June 9, 2017)
- Timberland—There are no timberlands within the study area. Therefore, the project would have no effect on timberlands. (Field visit June 9, 2017)
- Fisheries—The project is located outside of the National Marine Fisheries Service jurisdiction; therefore, a species list was not needed.
- Hydrology and Floodplain—This project does not encroach on or impact a 100-year floodplain. (Preliminary Location Hydraulic/Floodplain Study, April 2018)
- Geology, Soils, Seismicity and Topography—No project impacts related to geology, soils, seismicity or topography are expected. There are no major topographic or geologic features within the project area. Based on the Caltrans 2009 Seismic Design Procedure, the nearest active fault to the site is the White Wolf fault (Caltrans Fault ID Number 103) with a maximum magnitude of 7.3. The fault lies about 15 miles north-northeast of the bridge site. The rupture distance to the fault plane from the bridge site is estimated to be about 1.7 miles. A liquefaction analysis indicated minimum potential for liquefaction at the site during an earthquake and

during construction activities. Furthermore, no surface faults are present at the project site and the potential for surface fault rupture at the site is considered absent for this location. However, because White Wolf fault lies 15 miles away from the project site, the potential for naturally occurring seismic activity exists. The project would be designed to meet current seismic standards for roadway and bridge construction. (Foundation Report, March 2011 and District Preliminary Geotechnical Report for the California Aqueduct Bridge Replacement, 2021)

- Paleontology—The extent and intensity of the proposed ground disturbance is expected to be localized and limited to shallow soils. Soils underlying the existing road and associated structure elements were previously excavated or greatly disturbed during construction. As a result, scientifically significant fossils are unlikely to be encountered. (Updated Paleontological Identification Report, March 2021)
- Growth—The project would not alter existing roadway capacity and is limited to replacing the existing bridge. The project would not change existing accessibility, so the project would not result in direct or indirect impacts to growth in the area.
- Community Impacts—There are no existing communities within the project vicinity. The project would neither increase nor decrease public access. Therefore, the project would not result in any direct or indirect community impacts. The nearest community is the town of Mettler, about 7 miles east of the project location. (Field visit June 9, 2017)
- Relocations and Real Property Acquisition—The project area does not have any housing or businesses within the project post miles and would not displace people, businesses, or housing. The project would require the acquisition of farmland. For additional information regarding farmland acquisition, see Section 2.1.1 Farmland (Field visit June 9, 2017)
- Visual/Aesthetics—The project would replace an existing bridge with a new structure of similar design and would not alter the existing visual quality. The visual character of the surrounding setting would not be reduced by the proposed changes. The project location is not classified as an Officially Designated State Scenic Highway. Also, the project would not add any new lighting or new sources of glare, and landscaping would restore areas disturbed by the project. Therefore, no visual impacts are expected for this project. (Revised Scenic Resource Evaluation/Visual Impact Assessment, May 2018)
- Air Quality—According to the Transportation Conformity Rule (40 Code of Federal Regulations Section 93.126, Table 2), this project is exempt from all emissions analysis. Temporary impacts generated by construction are discussed in Section 2.4 Construction Impacts. (Revised Air and Noise Studies, February 2021)

- Noise—No sensitive receptors for noise impacts are present in or next to the project area. Temporary impacts generated by construction are discussed in Section 2.4 Construction Impacts. (Revised Air and Noise Studies, February 2021)
- Natural Communities—No natural communities are present in the project area because the area has been greatly transformed for agricultural purposes and water conveyance. The project will not impact any natural communities. (Revised Natural Environment Study, March 2021)
- Plant Species—No special-status plant species were identified within or near the project area. The project will not impact any special-status plant species. (Revised Natural Environment Study, March 2021)
- Invasive Species—The Caltrans invasive species policy guidelines, Standard Special Provisions, and best management practices would minimize the potential that this project would introduce, transport, or spread invasive species to and/or from the project site. (Revised Natural Environment Study, March 2021)
- Traffic and Transportation—The new bridge would not alter existing traffic or transportation patterns in the region. Therefore, no permanent impacts would occur. However, temporary impacts during the construction period could occur, as discussed in Section 2.4 Construction Impacts.
- Vehicle Miles Traveled—This project is in accordance with the Caltrans Policy Memo (September 2020) regarding analysis of transportation impacts under the California Environmental Quality Act for projects on the State Highway System, as well as the department's Transportation Analysis Framework and Transportation Analysis under CEQA guide to implementation of Senate Bill 743 (Steinberg, 2013) codified at Public Resources Code Section 21099. This project meets criteria set forth in the policy memo that the project is considered a project type that is "unaffected by the use of Vehicle Miles Traveled as a measure of transportation impacts because they are assumed to not lead to a measurable and substantial increase in vehicle travel." There will be no impact to vehicle miles traveled. (Caltrans Policy Memo, September 2020)
- Energy—The proposed actions associated with the project would not result in the wasteful, inefficient, or unnecessary consumption of energy resources. There would be no impact. (Energy Memorandum, 2021)
- Pedestrian and Bicycle Facilities—There are no pedestrian or bicycle facilities on the existing bridge. In addition, there are no existing pedestrian or bicycle facilities within the project area. Therefore, the project is not expected to impact pedestrian and bicycle facilities. (Field visit June 9, 2017)
- Environmental Justice—No minority or low-income populations that would be adversely affected by the project have been identified as determined

above. Therefore, this project is not subject to the provisions of Executive Order 12898. (Field visit June 9, 2017)

2.1 Human Environment

2.1.1 Farmland

Regulatory Setting

The National Environmental Policy Act and the Farmland Protection Policy Act (7 U.S. Code 4201-4209; and its regulations, 7 Code of Federal Regulations Part 658) require federal agencies, such as the Federal Highway Administration, to coordinate with the Natural Resources Conservation Service if their activities may irreversibly convert farmland (directly or indirectly) to nonagricultural use. For purposes of the Farmland Protection Policy Act, farmland includes prime farmland, unique farmland, and land of statewide or local importance.

The California Environmental Quality Act requires the review of projects that would convert Williamson Act contract land to non-agricultural uses. The main purposes of the Williamson Act are to preserve agricultural land and to encourage open space preservation and efficient urban growth. The Williamson Act provides incentives to landowners through reduced property taxes to discourage the early conversion of agricultural and open space lands to other uses.

Affected Environment

A Custom Soil Resource Report was completed on February 13, 2018 by the Natural Resources Conservation Service for Kern County, California, Southwest Part: California Aqueduct Bridge Replacement. The land within the project area is designated by the Natural Resources Conservation Service as prime farmland if it is irrigated. This land is currently used to grow mostly fruit and nut crops, such as pistachios, almonds, and citrus. A Natural Resources Conservation Service farmland impact rating was calculated for the proposed project (see Appendix D). Some parcels proposed for right-of-way acquisition are protected under the Williamson Act.

Environmental Consequences

On March 2, 2021, Caltrans initiated consultation with the Natural Resources Conservation Service by completing a Natural Resources Conservation Service-CPA-106 Farmland Conversion Impact Rating form for the proposed project. The form was sent to the Bakersfield Service Center office of the Natural Resources Conservation Service for Kern County. The Farmland Conversion Impact Rating was completed by the field office and returned to Caltrans on March 9, 2021.

The Farmland Conversion Impact Rating determines the relative value of the farmland to be converted by using a formula that weighs farmland classification, soil characteristics, irrigation, acreage, creation of non-farmable land, availability of farm services, and other factors. The Natural Resources Conservation Service uses only prime/unique- and statewide/local importance-classified land on the Farmland Conversion Impact Rating form. According to the U.S. Department of Agriculture, for farmland and other agricultural lands protected or potentially protected under the Farmland Protection Policy Act, if the rating exceeds 160 points, additional alternatives should be considered that would lessen the adverse effects to farmlands. The Farmland Conversion Impact Ratings for Alternative 8 and the South Alignment Alternative are 148 and 157, respectively.

Table 2.1 provides the proposed farmland conversion. Williamson Act properties will be acquired by both build alternatives.

Table 2.1 Farmland Conversion

Alternative	Land Converted (acres)	Prime and Unique Farmland (acres)	Williamson Act Farmland (acres)	Percentage of Farmland in County	Percentage of Farmland in State	Farmland Conversion Impact Rating
Alternative 8	6.15	6.15	2.78	0.0003	Less than 0.000001	148
South Alignment Alternative	26.39	26.39	19.91	0.0012	Less than 0.000001	157

Source: Natural Resources Conservation Service-CPA-106 Farmland Conversion Impact Rating form, March 2021.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation measures are required.

Remnant parcels of farmland would be avoided by acquiring right-of-way in slivers or linear strips of property next to the existing parcels. Maps showing the proposed right-of-way acquisitions for each alternative are shown in Appendix C. When possible, Caltrans would allow farmland to be kept in production (after purchase) until it is needed for construction.

Caltrans would provide relocation advisory assistance to any person, business, farm, or non-profit organization that would be displaced, or have onsite investments, such as wells and irrigation systems, displaced because of acquisition of real property for public use (see Appendix B for the Caltrans Title VI Policy Statement and Appendix E for the Nonresidential Relocation Assistance Program). In addition, any right-of-way acquisition would be purchased at fair market value.

2.1.2 Utilities and Emergency Services

Affected Environment

Utilities

Within the project area, the California Department of Water Resources conveys water through the California Aqueduct, Pacific Gas and Electric Company provides electricity service through aerial electrical lines, Qwest Communications and Pacific Telephone operate fiber optic lines, the Wheeler Ridge-Maricopa Water Storage District manages agriculture irrigation water deliveries, and Shell Pipeline Company operates a high-pressure petroleum line (April 11, 2018, Right of Way Data Sheet).

Currently, utility poles carry cables along and across State Route 166. There is a buried petroleum pipeline in the area. Also, Qwest telecommunication cables are attached to the south side of the State Route 166 California Aqueduct bridge.

Emergency Services

The Kern County Fire Department provides fire protection and emergency medical and rescue service to the area from Station 22 in the City of Maricopa. The Kern County Sheriff's Department provides law enforcement to the area and uses State Route 166 to access its rural areas of jurisdiction in southern Kern County. The California Highway Patrol is responsible for traffic enforcement on State Route 166. Hall Ambulance Service provides ambulance services in the project area.

Environmental Consequences

Utilities

The utilities that may be affected or relocated by the project convey electricity, petroleum, communications, and water. Alternative 8 would likely relocate 16 Pacific Gas and Electricity utility poles. The South Alignment Alternative would likely relocate 9 Pacific Gas and Electricity utility poles. The existing utility poles and power lines are located on the north side of State Route 166 throughout the length of the project, and on the south side of State Route 166 east of the California Aqueduct. The lines also cross State Route 166 and the California Aqueduct from the northeast quadrant to the southwest quadrant. No utility impacts to the California Aqueduct are anticipated.

A Shell Pipeline Company high pressure petroleum line, a Pacific Telephone fiber optic line, and a Qwest fiber optic line exist near the project and may require relocation within the project location. Precise utility relocations would be determined in the design phase of project development.

Emergency Services

The project would replace a bridge along State Route 166 and would not have permanent impacts to emergency services.

The construction of Alternative 8 would reroute traffic on State Route 166 onto State Route 119 and State Route 33 to Interstate 5 and State Route 99. However, the detour would cause only minor delays for emergency services because local county roads would still be available for use throughout the area. Table 2.2 in Section 2.4 Construction Impacts lists the expected distance and duration of different detour route(s).

Construction of the South Alignment Alternative would use the existing bridge for traffic. This would minimize the need for a new detour under the South Alignment Alternative. However, near the end of construction, a detour would be required while the new roadway is connected to State Route 166. The same detour proposed for Alternative 8 would be used for the South Alignment Alternative. The use of this detour would last two months and cause only minor delays for emergency services because local county roads would still be available for use throughout the area. Table 2.2 in Section 2.4 Construction Impacts lists the expected distance and duration of different detour route(s).

Avoidance, Minimization, and/or Mitigation Measures

The following avoidance and minimization measures would minimize temporary impacts to utilities and emergency services:

- All utility relocation work would be handled by the affected utility companies and in a manner to limit service disruptions to customers.
- A traffic management plan would be developed to inform emergency services and the local population about detour routes and road closures. The traffic management plan may include an advance commuter alert sent out to media, California Highway Patrol, and other local partners, as well as the placement of notices for the closure on social media.
- Surrounding county roads would remain available for emergency services.

2.1.3 Cultural Resources

Regulatory Setting

The term “cultural resources” as used in this document refers to the “built environment” (structures, bridges, railroads, water conveyance systems, etc.), places of traditional or cultural importance, and archaeological sites (both prehistoric and historic), regardless of significance. Under federal and state laws, cultural resources that meet certain criteria of significance are referred to by various terms including “historic properties,” “historic sites,” “historical resources,” and “tribal cultural resources.” Laws and regulations dealing with cultural resources include the following:

The National Historic Preservation Act of 1966, as amended, sets forth national policy and procedures for historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for listing in the

National Register of Historic Places. Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effects of their undertakings on historic properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation (36 Code of Federal Regulations 800). On January 1, 2014, the First Amended Section 106 Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and Caltrans went into effect for Caltrans projects, both state and local, with Federal Highway Administration involvement. The Programmatic Agreement implements the Advisory Council on Historic Preservation's regulations, 36 Code of Federal Regulations 800, streamlining the Section 106 process and delegating certain responsibilities to Caltrans. The Federal Highway Administration's responsibilities under the Programmatic Agreement have been assigned to Caltrans as part of the Surface Transportation Project Delivery Program (23 U.S. Code 327).

The California Environmental Quality Act requires the consideration of cultural resources that are historical resources and tribal cultural resources, as well as "unique" archaeological resources. California Public Resources Code Section 5024.1 established the California Register of Historical Resources and outlined the necessary criteria for a cultural resource to be considered eligible for listing in the California Register of Historical Resources and, therefore, a historical resource. Historical resources are defined in California Public Resources Code Section 5020.1(j). In 2014, Assembly Bill 52 (AB 52) added the term "tribal cultural resources" to the California Environmental Quality Act, and Assembly Bill 52 is commonly referenced instead of the California Environmental Quality Act when discussing the process to identify tribal cultural resources (as well as identifying measures to avoid, preserve, or mitigate effects to them). Defined in California Public Resources Code Section 21074(a), a tribal cultural resource is a California Register of Historical Resources or local register eligible site, feature, place, cultural landscape, or object which has a cultural value to a California Native American tribe. Tribal cultural resources must also meet the definition of a historical resource. Unique archaeological resources are referenced in California Public Resources Code Section 21083.2.

California Public Resources Code Section 5024 requires state agencies to identify and protect state-owned historical resources that meet the National Register of Historic Places listing criteria. It further requires Caltrans to inventory state-owned structures in its rights-of-way. Sections 5024(f) and 5024.5 require state agencies to provide notice to and consult with the State Historic Preservation Officer before altering, transferring, relocating, or demolishing state-owned historical resources that are listed on or are eligible for inclusion in the National Register of Historic Places or are registered or eligible for registration as California Historical Landmarks. Procedures for compliance with California Public Resources Code Section 5024 are outlined

in a Memorandum of Understanding between Caltrans and the State Historic Preservation Officer, effective January 1, 2015. For most federal-aid projects on the State Highway System, compliance with the Section 106 Programmatic Agreement will satisfy the requirements of California Public Resources Code Section 5024.

Affected Environment

A Historic Property Survey Report was completed in March 2018, summarizing the cultural resource identification efforts carried out for the project. An Area of Potential Effects was established to account for both direct and indirect effects from construction activities that may potentially impact cultural resources should any be present. Both archaeological and built environment resources were considered within the Area of Potential Effects for this undertaking. A supplemental compliance memorandum was completed in April 2020 summarizing additional cultural resource identification efforts carried out for the project detour. A supplemental Historic Property Survey Report was completed in March 2021 to capture changes to Alternative 8 and address the addition of the South Alignment Alternative.

An Archaeological Survey Report investigation was completed to identify any archaeological sites within the project Area of Potential Effects. The scope of investigation for this project included a literature and records search, pedestrian (walking the area) field surveys and consultation with Native American groups. An Extended Phase 1 Geoarchaeological exploration was also performed.

A records search at the Southern San Joaquin Valley Information Center, a background literature search, a topographic and historical map review, and a California Cultural Resource Database search identified no previously recorded prehistoric Native American or historic archaeological resources within the archaeological study area or within 1 mile of the project area. Consultation with Native American tribes was initiated by Caltrans on May 23, 2017 and on July 15, 2020 and is detailed in Chapter 4 Comments and Coordination.

The pedestrian archaeological survey was negative for presence of archaeological resources on the surface within the archaeological study area.

Due to the high cultural sensitivity of the area, an Extended Phase 1 Geoarchaeological exploration was performed for this project on February 27 and 28, 2018 to determine if buried soils could potentially include archaeological resources. Results were negative for the presence of buried cultural material.

One known architectural resource—the California Aqueduct (CA-FRE-3645H)—crosses the project area at State Route 166 at post mile 17.45. The California Aqueduct was determined eligible for the National Register of

Historic Places in July 2012 via a consensus determination with the State Historic Preservation Officer (see Appendix F). The California Aqueduct was determined eligible for the National Register of Historic Places as the largest and most significant water conveyance system developed as part of the State Water Project. The aqueduct is also eligible for its complex design necessary to redistribute water throughout the state of California on such a massive level. The period of significance for the resource is 1960-1974, the years of construction. As part of the 2012 evaluation, 17 bridges over the California Aqueduct were determined to be contributing elements for the aqueduct's eligibility. Caltrans, as part of its cultural resource identification efforts, and in accordance with stipulation 8.C.4 of the Section 106 Programmatic Agreement, assumed the California Aqueduct Bridge Number 50-0323 was also eligible for inclusion in the National Register of Historic Places for this project only as a contributing feature of the California Aqueduct, and applied the criteria of adverse effect.

Environmental Consequences

The California Aqueduct Bridge Number 50-0323, built in 1968, is a contributing element of the California Aqueduct. A Finding of No Adverse Effect without Standard Conditions for the bridge was prepared by a Caltrans architectural historian in April 2018 and was submitted to the State Historic Preservation Officer for concurrence. On August 28, 2018, the State Historic Preservation Officer formally responded to Caltrans stating that, after review, the State Historic Preservation Officer was rejecting Caltrans' Finding of No Adverse Effect for Section 106 for this project. Caltrans accepted the State Historic Preservation Officer's comments and a Finding of Adverse Effect under Section 106 was completed for the project on January 29, 2019. A Caltrans Principal Architectural Historian will prepare a Memorandum of Agreement between the Office of Historic Preservation and Caltrans in response to the Finding of Adverse Effect. A Supplemental Finding of Adverse Effect was completed and sent to the Office of Historic Preservation on March 24, 2021 to address adjustments to Alternative 8 and the addition of the South Alignment Alternative to the project. The State Historic Preservation Officer formally responded on June 9, 2021 stating no objections to the Supplemental Finding of Adverse Effect.

Caltrans, pursuant to Section 106 Programmatic Agreement Stipulation 9.B, has determined that there are historic properties within the revised project area that may be affected by the project. These properties include the California Aqueduct (CA-FRE-3645H) and California Aqueduct Bridge Number 50-0323, a contributing element to the California Aqueduct. Effects are still undetermined, so in accordance with Section 106 Programmatic Agreement Stipulation 10, the project delivery team will continue consultation with the Caltrans Division of Environmental Analysis Cultural Studies Office and/or the State Historic Preservation Officer in the future on the assessment of effects.

Caltrans has prepared an analysis pursuant to Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 U.S. Code 303, for use of the California Aqueduct (CA-FRE-3645H), and the California Aqueduct Bridge Number 50-0323 built in 1968 as a contributing element of the California Aqueduct. See Appendix A for the Individual Section 4(f) discussion and analysis.

Both alternatives would have cumulative impacts to the California Aqueduct because it is anticipated that the current proposed design of the replacement bridge would be replicated along the California Aqueduct in the foreseeable future as additional bridges are replaced. The repair and replacement of bridges identical to the original design are not anticipated because the California Department of Water Resources will not allow the placement of piers in the California Aqueduct or allow construction to occur in the channel itself. This is to ensure the continuous operation of the aqueduct to provide water resources to several counties throughout California. Therefore, the design of this project will be included in the programmatic agreement to be completed between Caltrans, the California Department of Water Resources, the Bureau of Reclamation, and the Office of Historic Preservation to set a standard of reference and concurrence for any future bridge replacements that may be required along the California Aqueduct.

If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.

If human remains are discovered, California Health and Safety Code Section 7050.5 states that further disturbances and activities must stop in any area or nearby area suspected to overlie remains, and the County Coroner contacted. If the remains are thought by the coroner to be Native American, the coroner will notify the Native American Heritage Commission, which, pursuant to Public Resources Code Section 5097.98, will then notify the Most Likely Descendent. At that time, the person who discovered the remains will contact Sylvère Valentin, the Caltrans District 6 archaeologist, so that he may work with the Most Likely Descendent on the respectful treatment and disposition of the remains. Further provisions of Public Resources Code 5097.98 are to be followed as applicable.

Avoidance, Minimization, and/or Mitigation Measures

To ensure that the history of the bridge is adequately captured before construction, Caltrans would implement mitigation measures to help ensure that the bridge maintains its historical importance through documentation. To do this, Caltrans would complete a Historic American Buildings Survey and a Historic American Engineering Record. The Historic American Buildings Survey/Historic American Engineering Record documentation combines drawings, history, and photographs to produce a comprehensive, multidisciplinary record of a building or engineering feature. Historic American

Buildings Survey/Historic American Engineering Record documentation becomes a part of the collection at the Library of Congress. The Historic American Buildings Survey/Historic American Engineering Record for the bridge will describe and convey the importance of the bridge as well as the role that it plays in the larger aqueduct system.

Final mitigation measures will be developed and documented in the subsequent Memorandum of Agreement, which will be finalized before the approval of the final environmental document. The following additional measures are also proposed:

- Develop a programmatic agreement with the California Department of Water Resources, Bureau of Reclamation, Office of Historic Preservation, and Caltrans.
- Develop and make available California Aqueduct interpretive displays for museums, city halls, visitor centers, and other indoor interpretive centers. Displays may also extend to locations near the California Aqueduct in Kings County, Fresno County, and Merced County.
- Develop and install California Aqueduct interpretive panels or kiosks at highway rest stops or parks near the California Aqueduct.

2.2 Physical Environment

2.2.1 Water Quality and Storm Water Runoff

Regulatory Setting

Federal Requirements: Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the U.S. from any point source unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System permit. This act and its amendments are known today as the Clean Water Act. Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the National Pollutant Discharge Elimination System permit scheme. The following are important Clean Water Act sections:

- Sections 303 and 304 require states to issue water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the U.S. to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).

- Section 402 establishes the National Pollutant Discharge Elimination System, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. Regional Water Quality Control Boards administer this permitting program in California. Section 402(p) requires permits for discharges of storm water from industrial/construction and municipal separate storm sewer systems.
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S. This permit program is administered by the U.S. Army Corps of Engineers.

The goal of the Clean Water Act is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

The U.S. Army Corps of Engineers issues two types of 404 permits: General and Individual. There are two types of General permits: Regional and Nationwide. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Regional or Nationwide Permit may be permitted under one of the U.S. Army Corps of Engineers' Individual permits. There are two types of Individual permits: Standard permits and Letters of Permission. For Individual permits, the U.S. Army Corps of Engineers' decision to approve is based on compliance with U.S. Environmental Protection Agency's Section 404 (b)(1) Guidelines (40 Code of Federal Regulations Part 230), and whether the permit approval is in the public interest. The Section 404(b)(1) Guidelines were developed by the U.S. Environmental Protection Agency in conjunction with the U.S. Army Corps of Engineers and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative that would have less adverse effects. The guidelines state that the U.S. Army Corps of Engineers may not issue a permit if there is a least environmentally damaging practicable alternative to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences.

According to the guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The guidelines also restrict permitting activities that violate water quality or toxic waste standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the U.S. In addition, every permit from the U.S. Army Corps of Engineers, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 Code of Federal Regulations 320.4. A discussion of the least environmentally damaging

practicable alternative determination, if any, for the document is included in the Wetlands and Other Waters section.

State Requirements: Porter-Cologne Water Quality Control Act

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. It predates the Clean Water Act and regulates discharges to waters of the state. Waters of the state include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Also, it prohibits discharges of "waste" as defined, and this definition is broader than the Clean Water Act definition of "pollutant." Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements and may be required even when the discharge is already permitted or exempt under the Clean Water Act.

The State Water Resources Control Board and Regional Water Quality Control Boards are responsible for establishing the water quality standards (objectives and beneficial uses) required by the Clean Water Act and regulating discharges to ensure compliance with the water quality standards. Details about water quality standards in a project area are included in the applicable Regional Water Quality Control Board's Basin Plan. In California, Regional Water Quality Control Boards designate beneficial uses for all water body segments in their jurisdictions and then set criteria necessary to protect those uses. As a result, the water quality standards developed for particular water segments are based on the designated use and vary depending on that use.

In addition, the State Water Resources Control Board identifies waters failing to meet standards for specific pollutants. These waters are then state-listed in accordance with Clean Water Act Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (National Pollutant Discharge Elimination System permits or Waste Discharge Requirements), the Clean Water Act requires the establishment of Total Maximum Daily Loads. Total Maximum Daily Loads specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The State Water Resources Control Board administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application. It also oversees water quality functions throughout the state by approving Basin Plans, Total Maximum Daily Loads, and National Pollutant Discharge Elimination System permits. Regional Water Quality

Control Boards are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

National Pollutant Discharge Elimination System Program

Municipal Separate Storm Sewer Systems

Section 402(p) of the Clean Water Act requires the issuance of National Pollutant Discharge Elimination System permits for five categories of storm water discharges, including municipal separate storm sewer systems. A municipal separate storm sewer system is defined as "any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that is designed or used for collecting or conveying storm water."

The State Water Resources Control Board has identified Caltrans as an owner/operator of a municipal separate storm sewer system under federal regulations. Caltrans' municipal separate storm sewer system permit covers all Caltrans rights-of-way, properties, facilities, and activities in the state. The State Water Resources Control Board or the Regional Water Quality Control Board issues National Pollutant Discharge Elimination System permits for five years, and permit requirements remain active until a new permit has been adopted.

Caltrans' municipal separate storm sewer system permit Order Number 2012-0011-DWQ (adopted on September 19, 2012 and effective on July 1, 2013), as amended by Order Number 2014-0006-EXEC (effective January 17, 2014), Order Number 2014-0077-DWQ (effective May 20, 2014) and Order Number 2015-0036-EXEC (conformed and effective April 7, 2015) has three basic requirements:

1. Caltrans must comply with the requirements of the Construction General Permit;
2. Caltrans must implement a year-round program in all parts of the state to effectively control storm water and non-storm water discharges; and
3. Caltrans storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) best management practices, to the maximum extent practicable, and other measures as the State Water Resources Control Board determines to be necessary to meet the water quality standards.

To comply with the permit, Caltrans developed the Statewide Storm Water Management Plan to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The Statewide Storm Water Management Plan assigns

responsibilities within Caltrans for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The Statewide Storm Water Management Plan describes the minimum procedures and practices Caltrans uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of best management practices. The proposed project will be programmed to follow the guidelines and procedures outlined in the latest Statewide Storm Water Management Plan to address storm water runoff.

Construction General Permit

Construction General Permit—Order Number 2009-0009-DWQ (adopted on September 2, 2009 and effective on July 1, 2010), as amended by Order Number 2010-0014-DWQ (effective February 14, 2011) and Order Number 2012-0006-DWQ (effective on July 17, 2012): The permit regulates storm water discharges from construction sites that result in a Disturbed Soil Area of 1 acre or greater, and/or smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least 1 acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than 1 acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the Regional Water Quality Control Board. Operators of regulated construction sites are required to develop Storm Water Pollution Prevention Plans; implement sediment, erosion, and pollution prevention control measures; and obtain coverage under the Construction General Permit.

The Construction General Permit separates projects into Risk Levels 1, 2, and 3. Risk levels are determined during the planning and design phases and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and murkiness monitoring, and before-construction and after-construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective Storm Water Pollution Prevention Plan. In accordance with Caltrans' Statewide Storm Water Management Plan and Standard Specifications, a Water Pollution Control Program is necessary for projects with a Disturbed Soil Area less than 1 acre.

Section 401 Permitting

Under Section 401 of the Clean Water Act, any project requiring a federal license or permit that may result in a discharge to a water of the U.S. must obtain a 401 Certification, which certifies that the project will comply with state

water quality standards. The most common federal permits triggering 401 Certification are Clean Water Act Section 404 permits issued by the U.S. Army Corps of Engineers. The 401 permit certifications are obtained from the appropriate Regional Water Quality Control Board, dependent on the project location, and are required before the U.S. Army Corps of Engineers issues a 404 permit.

In some cases, the Regional Water Quality Control Board may have specific concerns with discharges associated with a project. As a result, the Regional Water Quality Control Board may issue a set of requirements known as Waste Discharge Requirements under the State Water Code (Porter-Cologne Act) that defines activities, such as the inclusion of specific features, waste limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. Waste Discharge Requirements can be issued to address both permanent and temporary discharges of a project.

Affected Environment

A Water Quality Assessment Report was completed in January 2021.

The California Aqueduct is a system of concrete-lined canals, tunnels, and pipelines conveying water collected from the Sierra Nevada Mountains and valleys of Northern and Central California to Southern California. Over 400 miles long, the aqueduct is the main feature of the California State Water Project. The Department of Water Resources owns and maintains the California Aqueduct.

The aqueduct begins at the Clifton Court Forebay at the southwestern corner of the Sacramento-San Joaquin River Delta. The aqueduct then heads south, eventually splitting into three branches: the Coastal Branch, ending at Lake Cachuma in Santa Barbara County; the West Branch, conveying water to Castaic Lake in Los Angeles County; and the East Branch, connecting to Silverwood Lake in San Bernardino County.

The Arvin-Wheeler Ridge Hydrologic Area is the designated area for surface water beneficial uses for valley floor waters, including agricultural supply, municipal supply, industrial supply, contact and non-contact recreational water uses; warm freshwater habitat; wildlife habitat for rare, threatened, or endangered species; and groundwater recharge.

Environmental Consequences

The project would create 24.76 acres and 27.70 acres of Disturbed Soil Area for Alternative 8 and the South Alignment Alternative, respectively. The Disturbed Soil Area includes areas where bridge abutments would be modified and where the roadway would be removed, replaced, and added, including all shoulder work up to the side ditches next to the roadway. The Disturbed Soil Area also includes contractor staging areas.

The potential effects (erosion, accidental spills of hazardous material, and disruption of natural drainage patterns) on water quality during construction would be addressed in both the design and construction phases. In the design phase, Caltrans would ensure there would be no direct discharge into any bodies of water. In the construction phase, the contractor is responsible for taking the necessary steps to eliminate potential negative effects during construction work activity.

All stormwater runoff would be collected, conveyed and discharged into existing side storage ditches within the State's right-of-way. The side ditches have enough capacity to contain two 10-year/24-hour storm events.

In-water work would remove two existing piers within the aqueduct. After the superstructure is removed, the contractor would support the pier sections with a crane, cut the pier wall sections off below the water near the concrete channel lining and then remove the pier sections via the crane after cutting is complete. A short-term increase in suspended particulates in the water is likely to occur during the construction phase of the project.

This project would not adversely affect water quality in the project area because adequate measures and precautions will be implemented in accordance with the Caltrans statewide National Pollutant Discharge Elimination System and Statewide Storm Water Management Plan. The project Storm Water Pollution Prevention Plan would be continuously updated to adapt to changing site conditions during the construction phase.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation is proposed. Temporary construction site best management practices would be followed to avoid and minimize impacts to water quality and storm water runoff.

Before any ground-disturbing activities, the contractor would prepare a Storm Water Pollution Prevention Plan (per the Construction General Permit Order 2009-0009-DWQ) that includes erosion-control measures and construction waste containment measures so that waters of the State are protected during and after project construction.

The Storm Water Pollution Prevention Plan would identify the sources of pollutants that may affect the quality of stormwater, as well as include construction site best management practices to control erosion and sedimentation, and spills of chemical pollutants; provide for construction materials management; and include a schedule of routine inspections and monitoring. All construction site best management practices would follow the latest edition of the Storm Water Quality Handbooks: Construction Site Best Management Practices Manual (Caltrans 2003a) to control and minimize the impacts of construction-related activities, materials, and pollutants on the watershed.

The project would incorporate pollution prevention and design measures consistent with the 2003 Caltrans Storm Water Management Plan (Caltrans 2003b) to meet water quality objectives. This plan has been revised to comply with the requirements of the Caltrans Statewide National Pollutant Discharge Elimination System Permit (Order 2012-0011-DWQ).

2.2.2 Hazardous Waste and Materials

Regulatory Setting

Hazardous materials, including hazardous substances and wastes, are regulated by many state and federal laws. Statutes govern the generation, treatment, storage and disposal of hazardous materials, substances, and waste, plus the investigation and mitigation of waste releases, air and water quality, human health, and land use.

The main federal laws regulating hazardous wastes/materials are the Comprehensive Environmental Response, Compensation and Liability Act of 1980 and the Resource Conservation and Recovery Act of 1976. The purpose of the Comprehensive Environmental Response, Compensation and Liability Act, often referred to as "Superfund," is to identify and clean up abandoned contaminated sites so that public health and welfare are not compromised. The Resource Conservation and Recovery Act provides for "cradle to grave" regulation of hazardous waste generated by operating entities. Other federal laws include the following:

- Community Environmental Response Facilitation Act of 1992
- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety and Health Act
- Atomic Energy Act
- Toxic Substances Control Act
- Federal Insecticide, Fungicide, and Rodenticide Act

In addition to the acts listed above, Executive Order 12088, Federal Compliance with Pollution Control Standards, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

California regulates hazardous materials, waste, and substances under the authority of the California Health and Safety Code and is also authorized by the federal government to implement the Resource Conservation and Recovery Act in the state. California law also addresses specific handling, storage, transportation, disposal, treatment, reduction, cleanup, and

emergency planning of hazardous waste. The Porter-Cologne Water Quality Control Act also restricts disposal of wastes and requires cleanup of wastes that are below hazardous waste concentrations but could impact groundwater and surface water quality. California regulations that address waste management and prevention and cleanup of contamination include Title 22 Division 4.5 Environmental Health Standards for the Management of Hazardous Waste, Title 23 Waters, and Title 27 Environmental Protection.

Worker and public health and safety are key issues when addressing hazardous materials that may affect human health and the environment. Proper management and disposal of hazardous material are vital if such material is found, disturbed, or generated during project construction.

Affected Environment

An Initial Site Assessment/Hazardous Waste Compliance Memo, completed in February 2021, consisted of a Phase I Environmental Site Assessment, a site visit, and a database records search. The following five Cal/EPA Data Resources, commonly referred to as the "Cortese List," were searched for this review:

- Envirostor database, List of Hazardous Waste and Substances sites, Department of Toxic Substances Control
- Geotracker database, List of Leaking Underground Storage Tank sites, State Water Resources Control Board
- Sites identified with waste constituents above hazardous waste levels outside the waste management unit, State Water Resources Control Board
- List of active Cease and Desist Orders and Cleanup and Abatement Orders, State Water Resources Control Board
- Department of Toxic Substances Control list of hazardous waste facilities subject to corrective action.

Also, the Solid Waste Information System database from the Department of Resources Recycling and Recovery was reviewed. The records and review did not identify any hazardous waste sites near the project limits.

An Asbestos, Aerially Deposited Lead, and Lead-Containing Paint Survey Report was completed for the project in January 2018. The purpose of the survey was to determine the presence and quantity of aerially deposited lead, asbestos and lead-containing paint on the existing bridge prior to bridge replacement.

Environmental Site Assessment

A Phase I Environmental Site Assessment was conducted in August 2020 to identify potential Recognized Environmental Conditions associated with Taft-

Kern Auxiliary Field number 2, next to the project area to the north. Based on a review of historical documentation, it was determined that the area was occupied by an active U.S. Army airfield from 1941 to 1942. No permanent structures were constructed during that time, and no evidence of the use or storage of live ordnances or other hazardous materials was found. The runways were demolished in the 1950s, and the area has been used for agricultural purposes since that time. The Department of Toxic Substances Control reviewed historical information related to the airfield and concluded that no significant environmental issues are anticipated.

Asbestos

Chrysotile asbestos at a concentration of 30 percent was detected in samples representing about 10 square feet of nonfriable sheet packing used as barrier rail shims on the bridges. No additional asbestos was detected in samples of other suspect materials collected during the survey.

Lead Paint

A sample representing intact beige/gray graffiti abatement paint exhibited a representative total lead concentration of 10,000 milligrams per kilogram. A lead paint sample representing about 75 square feet of deteriorated white paint applied to metal conduit exhibited a representative total lead concentration of 230 milligrams per kilogram. These results are within acceptable regulatory limits.

Aerially Deposited Lead

An Aerially Deposited Lead Site Investigation Report was completed in February 2018. The survey detected lead in the soil to a depth of 2.5 feet in unpaved areas of the highway. The lead concentration found in the soil ranged from 7.5 to 26 milligrams per kilogram total lead with an average concentration of 23.9 milligrams per kilogram total lead as analyzed by Environmental Protection Agency test method 6010 or Environmental Protection Agency test method 7000 series and based on a 95 percent upper confidence limit. The soil is considered to be nonhazardous.

Treated Wood Waste

Wood to be removed from the guardrails is treated wood waste. Treated wood waste would be disposed of in a landfill permitted to accept it.

Environmental Consequences

Environmental Site Assessment

The Phase I Environmental Site Assessment identified one location-specific regional environmental consideration and several de minimis conditions associated with the properties north of the project area.

Pesticide use associated with the current and historical uses of the nearby properties has been identified as a regional environmental consideration. Any

pumps, tubing/hoses, lubricants, fuel, or agricultural waste located on right-of-way acquisitions would be removed and properly disposed of. In addition, water wells located on these properties must be abandoned in accordance with state and local guidelines.

Asbestos

Sheet packing is a tightly bound material with no potential to release asbestos fibers and therefore is not a health and safety issue. Sheet packing is not considered to be a hazardous waste and can be stored or sent to a landfill that can accept the material. However, if the packing is cut, sawed or ground, there's the potential for fine asbestos fibers to be produced. At that point, it becomes a potential hazardous waste. If disturbed (cutting, abrading, sanding, grinding, etc.), the sheet packing material would have to be handled in compliance with the California Occupational Safety and Health Act asbestos standard, and sent to a landfill.

National Emissions Standards for Hazardous Air Pollutants notification would occur before bridge demolition.

Lead Paint

Intact beige/gray graffiti abatement paint represented by samples collected would be classified as California hazardous waste based on lead content if stripped, blasted, or otherwise separated from the substrate.

Deteriorated white paint applied to metal conduit would be classified as California hazardous waste based on lead content; the deteriorated lead-based paint must be removed and disposed of prior to activities that would disturb the barriers.

If white- and yellow-painted striping is removed separately from the pavement, or if the paint on the bridge deck is ground separately from the pavement, then the project would require the use of Caltrans Standard Special Provision for removal of yellow traffic stripe and pavement marking with hazardous waste residue. A lead compliance plan is required for this project.

Aerially Deposited Lead

Aerially deposited lead from the historical use of leaded gasoline exists along roadways throughout California. If encountered, soil with elevated concentrations of lead will be managed under the July 1, 2016 Aerially Deposited Lead Agreement between Caltrans and the California Department of Toxic Substances Control. The Aerially Deposited Lead Agreement allows such soils to be safely reused within the project limits as long as all requirements of the Aerially Deposited Lead Agreement are met.

Treated Wood Waste

Wood removed from guardrails will be disposed of at a facility equipped to recycle the debris.

Avoidance, Minimization, and/or Mitigation Measures

With the avoidance and minimization measures mentioned above, no further measures are needed. No mitigation is required.

2.3 Biological Environment

2.3.1 Wetlands and Other Waters

Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Federal Water Pollution Control Act, more commonly known as the Clean Water Act (33 U.S. Code 1344), is the main law regulating wetlands and surface waters. One purpose of the Clean Water Act is to regulate the discharge of dredged or fill material into waters of the U.S., including wetlands. Waters of the U.S. include navigable waters, interstate waters, territorial seas, and other waters that may be used in interstate or foreign commerce. The lateral limits of jurisdiction over non-tidal water bodies extend to the Ordinary High Water Mark, in the absence of adjacent wetlands. When adjacent wetlands are present, Clean Water Act jurisdiction extends beyond the Ordinary High Water Mark to the limits of the adjacent wetlands.

To classify wetlands for the purposes of the Clean Water Act, a three-parameter approach is used that includes the presence of: hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils formed during saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the Clean Water Act.

Section 404 of the Clean Water Act establishes a regulatory program that provides that discharge of dredged or fill material cannot be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation’s waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army Corps of Engineers with oversight by the U.S. Environmental Protection Agency.

The U.S. Army Corps of Engineers issues two types of 404 permits: General and Individual. There are two types of General permits: Regional and Nationwide. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect.

Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Regional or Nationwide Permit may be permitted under one of the U.S. Army Corps of Engineers' Individual permits. There are two types of Individual permits: Standard permits and Letters of Permission. For Individual permits, the U.S. Army Corps of Engineers' decision to approve is based on compliance with U.S. Environmental Protection Agency's Section 404(b)(1) Guidelines (40 Code of Federal Regulations 230), and whether permit approval is in the public interest. The Section 404 (b)(1) Guidelines were developed by the U.S. Environmental Protection Agency in conjunction with the U.S. Army Corps of Engineers and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative that would have less adverse effects. The guidelines state that the U.S. Army Corps of Engineers may not issue a permit if there is a least environmentally damaging practicable alternative to the proposed discharge that would have lesser effects on waters of the U.S., and not have any other significant adverse environmental consequences.

The Executive Order for the Protection of Wetlands (Executive Order 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, Executive Order 11990 states that a federal agency, such as the Federal Highway Administration and/or Caltrans, as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: (1) that there is no practicable alternative to the construction and (2) the proposed project includes all practicable measures to minimize harm. A Wetlands Only Practicable Alternative Finding must be made.

At the state level, wetlands and waters are regulated mainly by the State Water Resources Control Board, the Regional Water Quality Control Boards and the California Department of Fish and Wildlife. In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission or the Tahoe Regional Planning Agency) may also be involved. Sections 1600-1607 of the California Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify the California Department of Fish and Wildlife before beginning construction. If the California Department of Fish and Wildlife determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. California Department of Fish and Wildlife jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the U.S. Army Corps of Engineers may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the California Department of Fish and Wildlife.

The Regional Water Quality Control Boards were established under the Porter-Cologne Water Quality Control Act to oversee water quality. Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements and may be required even when the discharge is already permitted or exempt under the Clean Water Act. In compliance with Section 401 of the Clean Water Act, the Regional Water Quality Control Boards also issue water quality certifications for activities that may result in a discharge to waters of the U.S. This is most frequently required in tandem with a Section 404 permit request. See the Water Quality section for more details.

Affected Environment

A revised Natural Environment Study for the project was completed in March 2021. A biology field review on August 24, 2016 and database searches (U.S. Fish and Wildlife Service National Wetlands Inventory) were used to search for potential wetlands in the project area. No wetlands are present in the project area. A small drainage basin onsite receives water from the adjacent agricultural runoff.

The California Aqueduct and a small drainage basin are the only aquatic resources within the project area. Based on preliminary correspondence with the U.S. Army Corps of Engineers and the Regional Water Quality Control Board, the onsite drainage basin is not anticipated to fall under the jurisdiction of these entities. Under 40 Code of Federal Regulations 230.3(3), the U.S. Army Corps of Engineers considers the California Aqueduct “Waters of the United States,” as defined below from the regulations:

“All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

a. Which are or could be used by interstate or foreign travelers for recreational or other purposes; or

b. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

c. Which are used or could be used for industrial purposes by industries in interstate commerce.”

Environmental Consequences

No adjacent wetlands were found in the project area. The California Aqueduct conveys water downstream to traditionally navigable waterways and therefore falls under the jurisdiction of the U.S. Army Corps of Engineers. Some work would occur in the channel when the old bridge is removed. Bridge support piers would be removed inside the aqueduct by cutting the piers within 1 foot

of the concrete channel lining. However, nothing would be constructed in the channel, and no new permanent impacts to the aqueduct are anticipated.

Based on preliminary correspondence with the U.S. Army Corps of Engineers and the Regional Water Quality Control Board, the onsite drainage basin is not anticipated to fall under the jurisdiction of these entities. Also, no permits are anticipated for the removal of the existing bridge.

Avoidance, Minimization, and/or Mitigation Measures

Coordination with regulatory agencies will take place during the permit application phase of the project planning process. Best management practices will be in place to minimize any construction-related runoff. No compensatory mitigation is proposed.

2.3.2 Animal Species

Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service, the National Oceanic and Atmospheric Administration's National Marine Fisheries Service, and the California Department of Fish and Wildlife are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with animals not listed or proposed for listing under the federal or state Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in Section 2.3.3 Threatened and Endangered Species. All other special-status animal species are discussed here, including California Department of Fish and Wildlife fully protected species and species of special concern, and U.S. Fish and Wildlife Service or National Oceanic and Atmospheric Administration's National Marine Fisheries Service candidate species.

Federal laws and regulations relevant to wildlife include the following:

- National Environmental Policy Act
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act

State laws and regulations relevant to wildlife include the following:

- California Environmental Quality Act
- Sections 1600—1603 of the California Fish and Game Code
- Sections 4150 and 4152 of the California Fish and Game Code

Affected Environment

A revised Natural Environment Study was completed for the project in March 2021. See the Natural Environment Study for the official species lists for state and federal species potentially in the project area.

Migratory Birds

One migratory bird species—the cliff swallow (*Petrochelidon pyrrhonota*)—was seen in the biological study area. This bird has short legs, relatively long pointed wings, and a small bill. Its average body length is 5.1 inches.

Cliff swallows are social songbirds that nest in large colonies and migrate in large flocks. They build gourd-shaped nests made from mud; the nests have small entrance holes. They build their nests tightly together, on top of one another, under bridges or alongside mountain cliffs. Cliff swallow nests can be found in large numbers on highway bridges during the nesting season (February 1 to September 30). Swallows were found nesting on the bridge in the project area.

American Badger

The American badger (*Taxidea taxus*) is a California Department of Fish and Wildlife species of special concern. Like other badgers, this badger has a stocky, low-slung body with short, powerful legs. American badgers are noted for their huge foreclaws and distinctive head markings. They measure 23 to 30 inches long and weigh 14 to 19 pounds. Except for the head, the American badger is covered with a grizzled, brown, black and white coat of coarse fur. The badger's triangular face shows a distinctive black and white pattern, with brown or blackish "badges" marking the cheeks and a white stripe extending from the nose to the base of the head. Its coat aids in camouflage in grassland habitat.

The American badger preys mostly on pocket gophers, ground squirrels, moles, marmots, woodrats, kangaroo rats, deer mice, and voles, often digging to pursue prey into their dens, and sometimes plugging tunnel entrances with objects. They prefer grasslands and open areas with grasslands, including parklands, farms, and treeless areas with friable soil and a supply of rodent prey.

An American badger was seen during surveys 0.8 mile south of the project area, along the California Aqueduct, outside of the project footprint.

Western Pond Turtle

The western pond turtle (*Emys marmorata*) is a California State Species of special concern. Its presence is variable, ranging from uncommon to common in suitable aquatic habitat throughout California, west of the Sierra-Cascade crest. The western pond turtle is absent from desert regions, except in the Mojave Desert along the Mojave River and its tributaries. Pond turtles require

basking sites such as partially submerged logs, rocks, mats of floating vegetation, or open mud banks. They slip from basking sites to underwater retreats at the approach of humans or potential predators. Hibernation in colder areas is passed underwater in bottom mud. Individuals normally associate with permanent ponds, lakes, streams, irrigation ditches or permanent pools along intermittent streams. This species is considered omnivorous. Aquatic plant material, including pond lilies, beetles and a variety of aquatic invertebrates as well as fishes, frogs, and even carrion have been reported among its food.

Protocol-level surveys were not performed for this species in the survey area, nor was the species seen during other biological surveys. There are no nearby California Natural Diversity Database (2018) records of the species in the project vicinity. Although the California Aqueduct provides marginal aquatic habitat for western pond turtles, the general condition of the adjacent habitat is not suitable for western pond turtle occupation; the walls of the aqueduct are rather steep for basking, and aquatic vegetation is minimal or non-existent.

Environmental Consequences

Migratory Birds

Under the Migratory Bird Treaty Act, completed nests cannot be disturbed during the nesting season until the young have fledged (flown from the nest). Cliff swallows were seen at the existing bridge. Nesting activities for cliff swallows may be disrupted by construction-related noise and vibrations. Nests may also be destroyed during the removal of the existing bridge. Exclusionary netting would be attached to the bridge prior to construction to prevent swallows from nesting on the bridge. The exclusionary netting eliminates potential nesting habitat for swallows. Special provisions for bird protection would be included in the construction contract.

American Badger

Alternative 8 contains 9.89 acres of potential habitat for the American badger. The South Alignment Alternative contains 8.21 acres of potential habitat for the American badger. However, the potential for an American badger to occur within the project footprint is low due to the quality of the habitat and disturbance in the area. No potential badger dens were found onsite. Although an American badger could use the California Aqueduct bridge as a corridor to travel through the project area, with avoidance and minimization efforts in place, no impacts to this species are expected.

Western Pond Turtle

There is a low potential for the western pond turtle to use the California Aqueduct. A weir about 2.5 miles upstream and a pumping plant 20 miles upstream from the project would prevent any potential western pond turtles from traveling through the aqueduct in this area. Therefore, it is unlikely pond

turtles would be able to use the aqueduct as aquatic habitat or a migration corridor. The western pond turtle is not expected to occur within the project area, so no impacts are expected.

Avoidance, Minimization, and/or Mitigation Measures

The following avoidance and minimization measures will be incorporated into the project. No compensatory mitigation is required for migratory birds or the American badger.

Migratory Birds

- Caltrans Standard Special Provision 14-6.03 “Bird Protection” will be included in the construction contract. This provision includes the appropriate exclusionary measures and monitoring that will be required for cliff swallows.

American Badger

- If occupied suitable habitat is observed during pre-construction surveys, avoidance measures, such as environmentally sensitive area fencing, would be implemented where feasible.
- A qualified biological monitor would be present at the construction site during initial ground-disturbing activities. If American badgers are found within the project footprint, Caltrans will coordinate with the California Department of Fish and Wildlife on what additional measures can be implemented.
- Pre-construction surveys would be conducted to avoid potential impacts to this species.

Western Pond Turtle

- Pre-construction surveys would be conducted to avoid potential impacts to this species.

2.3.3 Threatened and Endangered Species

Regulatory Setting

The main federal law protecting threatened and endangered species is the Federal Endangered Species Act: 16 U.S. Code Section 1531, et seq. See also 50 Code of Federal Regulations Part 402. This act and later amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as the Federal Highway Administration (and Caltrans, as assigned), are required to consult with the U.S. Fish and Wildlife Service and the National Oceanic and Atmospheric Administration’s National Marine Fisheries Service to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat.

Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 may include a Biological Opinion with an Incidental Take Statement or a Letter of Concurrence. Section 3 of the Federal Endangered Species Act defines take as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct."

California has enacted a similar law at the state level, the California Endangered Species Act, California Fish and Game Code Section 2050, et seq. The California Endangered Species Act emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species populations and their essential habitats. The California Department of Fish and Wildlife is the agency responsible for implementing the California Endangered Species Act.

Section 2080 of the California Fish and Game Code prohibits "take" of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the California Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." The California Endangered Species Act allows for take incidental to otherwise lawful development projects; for these actions, an incidental take permit is issued by the California Department of Fish and Wildlife. For species listed under both the Federal Endangered Species Act and California Endangered Species Act requiring a Biological Opinion under Section 7 of Federal Endangered Species Act, the California Department of Fish and Wildlife may also authorize impacts to California Endangered Species Act species by issuing a Consistency Determination under Section 2080.1 of the California Fish and Game Code.

Another federal law, the Magnuson-Stevens Fishery Conservation and Management Act of 1976, was established to conserve and manage fishery resources found off the coast, as well as anadromous species and Continental Shelf fishery resources of the United States, by exercising (A) sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone established by Presidential Proclamation 5030, dated March 10, 1983, and (B) exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources, and fishery resources in special areas.

Affected Environment

A revised Natural Environment Study for the project was completed in March 2021.

An official species list of federally endangered or threatened species that may be affected by the project was requested from the U.S. Fish and Wildlife

Service on January 30, 2015 and updated on April 1, 2020. An updated species list was also obtained on March 2, 2021 using the Information for Planning and Conservation website. The latest species list is included in the revised Natural Environmental Study, which can be found in Volume 2 of this document. Consultation between the U.S. Fish and Wildlife Service and Caltrans began on June 6, 2018. Caltrans submitted a Biological Assessment for the project impacts on the federally endangered San Joaquin kit fox, Tipton kangaroo rat, giant kangaroo rat, and blunt-nosed leopard lizard. A Letter of Concurrence from the U.S. Fish and Wildlife Service for the federally endangered San Joaquin kit fox, Tipton kangaroo rat, giant kangaroo rat, and blunt-nosed leopard lizard was received on September 17, 2018.

A California Natural Diversity Database search for state listed species was performed on April 1, 2020.

Once a preferred alternative has been selected, a revised Biological Assessment will be sent to the U.S. Fish and Wildlife Service and a second Letter of Concurrence will be included in the final environmental document.

San Joaquin Kit Fox

The San Joaquin kit fox is a federal endangered and state threatened species. Before 1930, the historical range of the San Joaquin kit fox extended from Contra Costa and San Joaquin counties in the north to Kern County in the south. By the 1930s, the range had been reduced to the southern and western portions of the Central Valley. San Joaquin kit fox habitat is in annual grassland or mixed shrub/grassland throughout low, rolling hills and in valleys. The San Joaquin kit fox uses grazed grassland and lives next to, and forages in, tilled and fallow fields and some irrigated crops. However, most agricultural land is not suitable for long-term San Joaquin kit fox occupation.

The San Joaquin kit fox is mostly nocturnal and active throughout the year. Its diet varies geographically, seasonally, and annually but, throughout most of its range, consists mostly of rodents, rabbits, ground-nesting birds, and insects. Young San Joaquin kit foxes are generally born in January in California, with juveniles moving out on their own in summer.

The species was not seen during biological surveys conducted for the project in 2016. Additional pedestrian surveys were conducted in 2020 to look for any potential dens in areas that had not been previously surveyed and to ensure that no San Joaquin kit foxes had moved into the area since the 2016 surveys. It was found that the survey area contains only marginal-quality habitat for most small mammal species that represent prey for San Joaquin kit foxes. State Route 166 is an impediment to San Joaquin kit fox movement and is likely an existing source of mortality for dispersing and transient individuals. There are numerous California Natural Diversity Database (2016) records of this species in the project vicinity, but there are no occurrences within the last 10 years.

Because of the recent negative survey results, lack of recent documented sightings in the vicinity, and marginal habitat quality in and near the project area, this species is considered unlikely to be present in the project area. Only transient or dispersing individuals would be expected to occur in the project area.

Tipton Kangaroo Rat

The Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*) is one of three geographically separated subspecies of the San Joaquin kangaroo rat (*Dipodomys nitratoides*) and is a federal and state endangered species.

Tipton kangaroo rats once occupied contiguous geographic ranges within the Tulare Basin and the southeastern half of the San Joaquin Basin in the San Joaquin Valley. The present distribution of the subspecies includes scattered, isolated populations in Tulare and Kern counties. The main diet of the Tipton kangaroo rat includes seeds of annual and perennial grasses, annual forbs (herbaceous broad-leafed flowering plants), woody shrubs, and insects.

Existing habitat around the project area is not suitable for the Tipton kangaroo rat. Much of the land immediately surrounding the right-of-way is farmland. These areas are actively managed to discourage rodents and are only marginally suitable for the Tipton kangaroo rat. Also, most of the right-of-way does not provide suitable habitat for this subspecies due to regular disturbance caused by activities associated with the route's use and maintenance. State Route 166 likely acts as a barrier to wildlife and could be a source of mortality for the Tipton kangaroo rat.

Initial protocol small mammal trapping surveys were conducted in 2016. Additional pedestrian surveys were conducted in 2020 to evaluate the additional habitat that was not surveyed during the 2016 efforts. Habitat onsite was found to be consistent to what was present in 2016. No Tipton kangaroo rats were captured during trapping surveys, and there was no detection of this subspecies during other biological surveys conducted for the project. There are multiple California Natural Diversity Database records near the project vicinity, but due to negative protocol-level surveys, lack of recent documented sightings, and marginal habitat quality, the Tipton kangaroo rat is considered unlikely to occur in the project area.

Giant Kangaroo Rat

The giant kangaroo rat (*Dipodomys ingens*) is the largest kangaroo rat species in California and is a listed federal and state endangered species. Permanent residents occur as scattered colonies along the western side of the San Joaquin Valley. Giant kangaroo rats feed mostly on seeds from peppergrass and flowering plants. These kangaroo rats are active at night, all year, and breed from January to May. Predators of the giant kangaroo rat include raptors, owls, badgers, kit foxes, coyotes, and rattlesnakes.

Existing habitat around the project area is not suitable for the giant kangaroo rat. Much of the land surrounding the right-of-way is farmland. These areas are actively managed to discourage rodents and are only marginally suitable for the giant kangaroo rat. Also, most of the right-of-way does not provide suitable habitat for this subspecies due to regular disturbance caused by activities associated with the route's use and maintenance. State Route 166 likely acts as a barrier to wildlife and could be a source of mortality for the giant kangaroo rat.

Initial protocol small mammal trapping surveys were conducted in 2016. Additional pedestrian surveys were done in 2020 to evaluate the additional habitat that was not surveyed during the 2016 efforts. Habitat onsite was found to be consistent to what was present in 2016. No giant kangaroo rats were captured during the trapping survey conducted for the project. Because of the recent negative survey results, lack of recent documented sightings in the vicinity, and marginal habitat quality in and near the project area, this species is not expected to occur in the project area.

Blunt-Nosed Leopard Lizard

The blunt-nosed leopard lizard (*Gambelia sila*) is a large lizard of the family Iguanidae. The blunt-nosed leopard lizard is a federal and state endangered species. This lizard is native to the San Joaquin Valley. Its current range is mostly the foothills of the western San Joaquin Valley and a small portion of the foothills of the eastern San Joaquin Valley within Kern County. The blunt-nosed leopard lizard inhabits open, sparsely vegetated areas within native and nonnative grassland, scrub, and dry lake communities on the floor of the San Joaquin Valley. The diet of the blunt-nosed leopard lizard consists mostly of insects (grasshoppers, crickets, and moths) and other lizards.

Although there are some small rodent burrows (which provide potential refuge) in the project area, the general condition of the habitat is not suitable for blunt-nosed leopard lizard occupation. This area is managed to discourage rodents, lacks shrubs, and is disturbed regularly by activities associated with highway use and maintenance.

Protocol-level surveys were not performed for this species in the survey area, nor was the species seen incidentally during other biological surveys. There are numerous California Natural Diversity Database (2016) records of the species in the project vicinity, but the last confirmed observation was in 2010. Therefore, based on the lack of available habitat onsite, recent surveys in the area and lack of connectivity to suitable habitat for dispersing blunt-nosed leopard lizards, this species is unlikely to occur in the project area.

Tricolored Blackbird

The tricolored blackbird (*Agelaius tricolor*) was previously considered a Species of Concern by the California Department of Fish and Wildlife. In April

2018, it was voted by the California Fish and Game Commission to list as threatened under the California Endangered Species Act.

Mostly a resident in California and common locally throughout the Central Valley and in coastal districts from Sonoma County south, this blackbird breeds near freshwater, preferably in emergent wetland with tall, dense cattails or tules, but also in thickets of willow, blackberry, wild rose, and tall herbs. The tricolored blackbird diet consists of insects, spiders, seeds and cultivated grains, such as rice and oats. The bird forages on the ground in croplands, grassy fields, flooded land, and along edges of ponds. Tricolored blackbirds seek cover in emergent wetland vegetation, especially cattails and tules, but also in trees and shrubs. Most tricolored blackbirds spend summertime in northeastern California, with sightings in the central San Joaquin Valley occurring regularly only at Tule Lake.

Tricolored blackbirds were seen at the project site during 2016 biological surveys. They were seen perched, singing, and hunting in the surrounding habitat of the aqueduct bridge. So, their presence within the project area is assumed. It is not known if any tricolored blackbird nests are in the project area. There is a small basin area that may provide potential suitable nesting habitat for tricolored blackbirds within the action area.

Environmental Consequences

Federal listed species that have the potential to occur on or near the project site include the San Joaquin kit fox, Tipton kangaroo rat, giant kangaroo rat, and blunt-nosed leopard lizard. State listed species that have the potential to occur on or near the project site include the San Joaquin kit fox, Tipton kangaroo rat, blunt-nosed leopard lizard, and tricolored blackbird.

San Joaquin Kit Fox

Caltrans estimates that 12.70 acres of ruderal annual grassland and agricultural land would be permanently impacted due to Alternative 8 and that 25.96 acres of ruderal annual grassland and agricultural land would be permanently impacted due to the South Alignment Alternative. Mapping of these impacts are provided in the Natural Environment Study, which is included in Volume 2 of this document. This habitat is low quality for the San Joaquin kit fox, and there is a low potential for this species to be in the area.

Disturbance impacts may result if kit foxes are occupying culverts or burrows next to work areas or traveling or foraging near active work areas. The risk of disturbance to transient or dispersing kit foxes would be higher during night work because kit foxes are generally nocturnal. All effects are temporary and expected to be minimal since there are no current sightings or evidence of use by kit foxes within the project area.

The build alternatives may affect, but are not likely to adversely affect, this species.

Tipton Kangaroo Rat

Although a small portion of potentially suitable ruderal habitat is present within the project limits—9.89 acres under Alternative 8 and 8.21 acres under the South Alignment Alternative—no Tipton kangaroo rats were found onsite, and the potential for Tipton kangaroo rats to disperse into the area is low due to the surrounding agriculture.

Tipton kangaroo rats are not expected to occur in the project area, therefore no direct impacts on the Tipton kangaroo rat are expected to occur from this project. A qualified biological monitor with a current Tipton kangaroo rat handling permit would be present during initial ground-disturbing activity. The monitor would have the authority to relocate Tipton kangaroo rats onsite if necessary.

The build alternatives may affect, but are not likely to adversely affect, this species.

Giant Kangaroo Rat

Although a small portion of potentially suitable ruderal habitat is present within the project limits—9.89 acres under Alternative 8 and 8.21 acres under the South Alignment Alternative—giant kangaroo rats were not found onsite or captured during the trapping survey. The trapping results support the assessment of low-quality habitat within the right-of-way. The potential for giant kangaroo rats to disperse into the area is low due to the surrounding agriculture.

Giant kangaroo rats are not expected to occur in the project area, therefore no direct impacts on the species are expected to occur. A qualified biological monitor with a current giant kangaroo rat handling permit would be present during initial ground-disturbing activity. The monitor would have the authority to relocate giant kangaroo rats onsite if necessary.

The build alternatives may affect, but are not likely to adversely affect, this species.

Blunt-Nosed Leopard Lizard

Although a small portion of potentially suitable ruderal habitat is present within the project limits—9.89 acres under Alternative 8 and 8.21 acres under the South Alignment Alternative—no blunt-nosed leopard lizards were found onsite and this species was not detected during surveys. The potential for blunt-nosed leopard lizards to disperse into the area is low due to the surrounding agriculture. No blunt-nosed leopard lizards were found during site visits or when surveys were conducted.

Based on the recent survey results, lack of recent documented sightings in the last 10 years, and marginal habitat quality, the blunt-nosed leopard lizard is unlikely to occur in the project area. Because blunt-nosed leopard lizards

are unlikely to occur in the project area, no direct, indirect, or future impacts to the species are expected to occur from the project.

The build alternatives may affect, but are not likely to adversely affect, this species.

Tricolored Blackbird

A small drainage basin in the adjacent agricultural land may be suitable for tricolored blackbirds to nest. If tricolored blackbirds are found to be nesting in this area during construction, there would be potential for the adjacent construction activities to disturb the nesting birds. Due to the potential for vegetation removal, direct impacts on nesting tricolored blackbirds may occur, and compensatory mitigation as part of a 2081 Incidental Take Permit from the California Department of Fish and Wildlife may be required.

Construction activities that would disturb small prey species may enhance hunting opportunities for the tricolored blackbird as the prey species flee the area and become exposed.

The build alternatives may affect, but are not likely to adversely affect, this species.

Avoidance, Minimization, and/or Mitigation Measures

No compensatory mitigation is proposed for the San Joaquin kit fox, Tipton kangaroo rat, giant kangaroo rat, blunt-nosed leopard lizard, and tricolored blackbird. The following avoidance, minimization, and best management practices would be used for the project:

San Joaquin Kit Fox

- A Worker Environmental Education Program will be conducted before ground-disturbing activities begin. Persons knowledgeable in San Joaquin kit fox biology and regulatory requirements will present the program to all construction personnel involved in constructing the proposed action. The program will include a description of the San Joaquin kit fox and its habitat needs; a report on the occurrence of the kit fox in the project vicinity; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce effects on the San Joaquin kit fox during project construction and implementation, including information about the ban on rodenticides and pest rodent traps and contact information for a designated biological representative. A fact sheet conveying this information will be prepared for distribution to all those who enter the project site, and it will be posted in the office trailer or other worker meeting place on the project site.
- Project-related vehicles should observe a daytime speed limit of 20 miles per hour and a nighttime speed limit of 10 miles per hour throughout

project areas, except on county roads and state and federal highways; this is particularly important at night when kit foxes are most active.

- To minimize the adverse effects of lighting, it will be confined to areas within the construction footprint.
- A litter control program will be instituted on the project site. All food-related trash items, such as wrappers, cans, bottles, and food scraps, will be disposed of in a closed and secured container and removed from the project site at the end of each workday. No deliberate feeding of wildlife will be allowed.
- No firearms will be allowed on the project site (with the exception of federal, state or local law enforcement personnel or security personnel).
- No pets will be allowed on the project site.
- Chemicals, fuels, lubricants, and biocides will be used only in compliance with all local, state, and federal regulations. Users of such compounds will observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and state and federal legislation.
- Use of rodenticides and herbicides on the project site during construction will be prohibited.
- Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, etc. will be recontoured if necessary and revegetated using California endemic plant material from a local source (for example, local ecotype). Loss of soil from runoff or erosion will be prevented with straw bales, straw wattles or other similar means provided they do not entangle or block movement of the San Joaquin kit fox. An area subject to “temporary” disturbance means any area that is disturbed during the project, but after project completion will not be subject to further disturbance and has the potential to be revegetated.
- Pre-construction surveys for the San Joaquin kit fox and dens within the project area will be conducted no more than 30 days before the beginning of ground disturbance or construction activities. Surveys will be conducted by qualified biologists with demonstrated experience in identifying the San Joaquin kit fox and its dens.
- Staging will occur in previously disturbed and/or paved areas and, where possible, burrows will be avoided.

Tipton Kangaroo Rat and Giant Kangaroo Rat

- Additional trapping surveys will be conducted prior to construction following the *Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats U.S. Fish and Wildlife Service Sacramento Field Office*

March 2013 to ensure that listed species are not present in the project area.

- Worker Environmental Awareness Training will be required for construction staff who will be working in the action area.
- A qualified monitor will be present during initial ground-disturbing activities.

Blunt-Nosed Leopard Lizard

- A biological monitor would be onsite during initial ground-disturbing activities.
- Requiring low speed limits within the construction site will lessen the probability that blunt-nosed leopard lizards could be run over by vehicles and equipment.

Tricolored Blackbird

- Nesting surveys would be conducted during the season prior to the start of construction to determine if any tricolored blackbirds are nesting in proximity to the project area.
- A qualified biologist would monitor active nests during construction activities.
- A special provision for migratory birds would be included to ensure that no potential nesting migratory birds are affected during construction.
- If tricolored blackbirds are found onsite, a 2081 compensatory mitigation may be required. Since there are no approved mitigation banks in Kern County for tricolored blackbirds, Caltrans may need to secure permittee-responsible mitigation such as the purchase of land.

2.4 Construction Impacts

Affected Environment

Construction activities for the project would cause temporary impacts for access and traffic circulation, air quality, utilities, noise, and emergency services. These impacts would not be substantial.

Environmental Consequences

Traffic and Emergency Services

The project would temporarily interfere with local traffic, causing minor delays. During construction, temporary road closures would be necessary under Alternative 8. Traffic on State Route 166 would be rerouted onto State Route 119 and State Route 33 and then to Interstate 5 and State Route 99 to maintain the flow of traffic during construction. This detour is included in Figure 1-2 in Section 1.3, Project Description. Delay durations created by the detour are estimated in Table 2.2. Each column and row in Table 2.2 depict a

city or intersection near the project location. The values in the table show the additional travel time the detour would add to a route between two cities or intersections. For example, the travel time between the Wheeler-Ridge Water District and Maricopa would increase by about 29 minutes because of the detour. Delays for most commuters along the corridor would be minimal. The greatest impact would be on truck traffic that regularly travels on State Route 166 between Maricopa and the Wheeler Ridge Water District to conduct business. However, surrounding county roads would remain open during construction and could be used by local motorists and emergency services. The detour would be used for the entirety of construction, which is estimated to last up to 18 months.

A two-month temporary road closure is expected under the South Alignment Alternative. The detour would be required near the end of construction while the realignment is connected to the existing roadway. The same detour proposed for Alternative 8 would be used for the South Alignment Alternative. Traffic management would minimize the need for road closures as new pavement is connected to the existing roadway.

A traffic management plan would be developed to inform emergency services and the local population about detour routes and road closures. The traffic management plan may include an advance commuter alert sent out to media, the California Highway Patrol, and other local partners, as well as the placement of notices for the closure on social media.

Table 2.2 Traffic Delay in Minutes Caused by Alternative 8 Detour

City or Intersection	Maricopa	Wheeler Ridge Water District	Bakersfield	Taft	I-5/Laval Road
Maricopa	0	29	0	0	18
Wheeler Ridge Water District	29	0	0	19	0
Bakersfield	0	0	0	0	0
Taft	0	19	0	0	0
I-5/Laval Road	18	0	0	0	0

Source: Google Maps.

A traffic management plan would be developed to inform emergency services and the local population about detour routes and road closures. The traffic management plan may include an advance commuter alert sent out to media, the California Highway Patrol, and other local partners, as well as placement of notices for the closure on social media.

Surrounding county roads would remain available for emergency services.

Air Quality

During construction, short-term degradation of air quality may occur due to the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other construction-related activities. Emissions from construction equipment also are expected and would include carbon monoxide, nitrogen oxides, volatile organic compounds, directly emitted particulate matter, sulfur dioxide, and toxic air contaminants such as diesel exhaust particulate matter. Ozone is a regional pollutant that comes from nitrogen oxides and volatile organic compounds in the presence of sunlight and heat.

Site preparation and roadway construction typically involves clearing, cut-and-fill activities, grading, removing or improving existing roadways, building bridges, and paving roadway surfaces. Construction-related effects on air quality from most highway projects would be greatest during the site preparation phase because most engine emissions are associated with the excavation, handling, and transport of soils to and from the site.

During construction, the project would generate air pollutants. The impacts of these activities would vary each day as construction progresses. Dust and odors during construction could cause occasional annoyance and complaints from residents along the state right-of-way.

Carbon dioxide emissions generated from construction equipment were estimated using the Caltrans Construction Emissions Tool. The estimated carbon dioxide construction emissions are 1,118 tons per year over a 16- to 18-month construction period. Operational carbon dioxide emissions generated from passenger vehicles were not estimated because the project is not capacity increasing. However, the proposed detour for Alternative 8 would add 22 miles of travel for vehicles traveling in the eastbound and westbound directions between Maricopa and Mettler. The South Alignment Alternative would use the same detour as Alternative 8 for two months near the end of construction. Operational carbon dioxide emissions generated from passenger vehicles as a result of the detour would be about 20,844 tons of carbon dioxide over an 18-month construction period under Alternative 8 and 2,316 tons of carbon dioxide over a 2-month detour period under the South Alignment Alternative.

Noise

During construction of the project, noise from construction activities may intermittently dominate the noise environment in the immediate area.

Table 2.3 summarizes noise levels produced by construction equipment that are commonly used on roadway construction projects. Construction equipment is expected to generate noise levels ranging from 80 to 89 decibels at a distance of 50 feet, and noise produced by construction

equipment would be reduced over distance at a rate of about 6 decibels per the doubling of distance.

Table 2.3 Construction Equipment Noise

Equipment	Maximum Noise Level (decibels at 50 feet)
Scrapers	89
Bulldozers	85
Heavy Trucks	88
Backhoe	80
Pneumatic Tools	85
Concrete Pump	82

Source: Federal Transit Administration, 1995.

Construction would be conducted in accordance with Caltrans Standard Specifications, which will effectively reduce and control emission impacts during construction. The provisions of Caltrans Standard Specifications, Section 14-9.02 “Air Pollution Control” and Section 10-5 “Dust Control,” require the contractor to comply with the air pollution control rules, ordinances, and regulations and statutes that apply to work performed under the contract.

Construction would be conducted in accordance with Caltrans Standard Specifications Section 14-8.02 “Noise Control,” which states construction noise resulting from work activities should not exceed 86 decibels at 50 feet from the job site from 9:00 p.m. to 6:00 a.m.

All equipment will have sound-control devices that are no less effective than those provided on the original equipment.

Avoidance, Minimization, and/or Mitigation Measures

With the implementation of the previously mentioned standardized measures, no additional measures are required for temporary impacts to air quality, noise, or traffic and emergency services resulting from construction activities.

Chapter 3 CEQA Evaluation

3.1 Determining Significance Under CEQA

The proposed project is a joint project by Caltrans and the Federal Highway Administration and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (known as CEQA) and the National Environmental Policy Act (known as NEPA). The Federal Highway Administration's responsibilities for environmental review, consultation, and any other actions required by applicable federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 U.S. Code Section 327 and the Memorandum of Understanding dated December 23, 2016 and executed by the Federal Highway Administration and Caltrans. Caltrans is the lead agency under NEPA and CEQA.

One of the main differences between NEPA and CEQA is the way significance is determined. Under NEPA, significance is used to determine whether an Environmental Impact Statement, or a lower level of documentation, will be required. NEPA requires that an Environmental Impact Statement be prepared when the proposed federal action (the project) as a whole has the potential to "significantly affect the quality of the human environment." The determination of significance is based on context and intensity. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. Under NEPA, once a decision is made regarding the need for an Environmental Impact Statement, it is the magnitude of the impact that is evaluated and no judgment of its individual significance is deemed important for the text. NEPA does not require that a determination of significant impacts be stated in the environmental document.

CEQA, on the other hand, does require Caltrans to identify each "significant effect on the environment" resulting from the project and ways to mitigate each significant effect. If the project may have a significant effect on any environmental resource, then an Environmental Impact Report must be prepared. Every significant effect on the environment must be disclosed in the Environmental Impact Report and mitigated if feasible. In addition, the CEQA Guidelines list a number of "mandatory findings of significance," which also require the preparation of an Environmental Impact Report. There are no types of actions under NEPA that parallel the findings of mandatory significance of CEQA. This chapter discusses the effects of this project and CEQA significance.

3.2 CEQA Environmental Checklist

This checklist identifies physical, biological, social, and economic factors that might be affected by the proposed project. Potential impact determinations include Significant and Unavoidable Impact, Less Than Significant With Mitigation Incorporated, Less Than Significant Impact, and No Impact. In many cases, background studies performed in connection with a project will indicate that there are no impacts to a particular resource. A “No Impact” answer reflects this determination. The questions in this checklist are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

Project features, which can include both design elements of the project and standardized measures that are applied to all or most Caltrans projects such as best management practices and measures included in the Standard Plans and Specifications or as Standard Special Provisions, are considered to be an integral part of the project and have been considered prior to any significance determinations documented below; see Chapters 1 and 2 for a detailed discussion of these features. The annotations to this checklist are summaries of information contained in Chapter 2 and provide the reader with the rationale for significance determinations; for a more detailed discussion of the nature and extent of impacts, please see Chapter 2. This checklist incorporates by reference the information contained in Chapters 1 and 2.

“No Impact” determinations in each section are based on the scope, description, and location of the project as well as the appropriate technical report (bound separately in Volume 2), and no further discussion is included in this document.

3.2.1 Aesthetics

CEQA Significance Determinations for Aesthetics

Except as provided in Public Resources Code Section 21099, would the project:

a) Have a substantial adverse effect on a scenic vista?

No Impact—There are no scenic vistas within 2 miles of the project site. There would be no impact.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact—The project would not be completed on a state scenic highway. There would be no impact.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

No Impact—The new proposed bridge would be 20 to 21 feet tall and 280 to 434 feet long under the South Alignment Alternative and Alternative 8, respectively. The bridge would not substantially degrade the existing visual character or quality of public views of the project site. There would be no impact.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

No Impact—The new proposed bridge would not require lighting. There would not be a new source of substantial light or glare that would affect daytime or nighttime views in the area. There would be no impact.

3.2.2 Agriculture and Forest Resources

CEQA Significance Determinations for Agriculture and Forest Resources

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

Would the project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

Less Than Significant Impact—The project would require the conversion of 6.15 and 26.39 acres of farmland to non-agriculture use under Alternative 8 and the South Alignment Alternative, respectively. The Farmland Conversion Impact Ratings of 148 for Alternative 8 and 157 for the South Alignment

Alternative are less than the threshold rating of 160 set by the Farmland Protection Policy Act and are therefore considered less than significant.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

Less Than Significant Impact—The project would convert unique farmland to non-agricultural land. Three parcels under Williamson Act contracts, or agricultural preserve lands, were identified within the proposed project limits. The project would convert 2.78 and 19.91 acres of farmland protected under Williamson Act contract to non-agricultural use under Alternative 8 and the South Alignment Alternative, respectively. These impacts are considered less than significant.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

No Impact—The project would not conflict with existing zoning or cause rezoning of forest land or timberland zoned as Timberland Production. There would be no impact.

d) Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact—The project site is located on an existing state route and does not contain any designated forest land or timberland. There would be no impact.

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland, to non-agricultural use or conversion of forest land to non-forest use?

No Impact—The bridge replacement would not result in any changes in the environment that would result in the conversion of farmland to non-agricultural use. There would be no impact.

3.2.3 Air Quality

CEQA Significance Determinations for Air Quality

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?

No Impact—The project involves temporary earthmoving and excavation to remove the existing bridge and to construct the proposed bridge. The air quality impacts of the project would be mostly construction-related emissions that are temporary and short term in nature (see Section 3.4 Climate Change). Because construction and operations of the project would not substantially increase air pollutant emissions within the San Joaquin Valley Air Basin, the project would not interfere with the San Joaquin Air Pollution Control District's plan to achieve or maintain attainment for various air quality pollutants. The project would not conflict with or obstruct the implementation of any applicable components of the State Implementation Plan to meet federal and state air quality standards or conflict with air district or county air quality plans. There would be no impact.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

No Impact—No long-term operational emissions would occur as a result of the project. The project would not result in a cumulatively considerable net increase of any criteria pollutants. There would be no impact.

c) Expose sensitive receptors to substantial pollutant concentrations?

No Impact—There are no sensitive receptors within a 2-mile radius of the project site. There would be no impact.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

No Impact—No generation of noticeable offensive odors is associated with the proposed actions. There would be no impact.

3.2.4 Biological Resources

CEQA Significance Determinations for Biological Resources

Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less Than Significant Impact—The project would result in the modification of up to 107.6 acres of potential habitat for species identified as a candidate, sensitive, or special-status species in local or regional plans, policies or regulations by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. These species include the San Joaquin kit fox, Tipton

kangaroo rat, giant kangaroo rat, blunt-nosed leopard lizard, and tricolored blackbird. The project may affect, but is not likely to adversely affect, these species. A Letter of Concurrence from the U.S. Fish and Wildlife Service regarding project impacts on these species was received on September 17, 2018. Once a preferred alternative has been selected, a revised Biological Assessment will be sent to the U.S. Fish and Wildlife Service and a second Letter of Concurrence will be included in the final environmental document. With avoidance and minimization efforts in place, less than significant impacts are expected.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

No Impact—The project site does not have any riparian habitat or other sensitive natural communities within the project post miles. There would be no impact.

c) 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?

No Impact—The California Aqueduct and a small drainage basin are the only aquatic resources within the project area. Based on preliminary correspondence with the U.S. Army Corps of Engineers and the Regional Water Quality Control Board, the onsite drainage basin is not anticipated to fall under the jurisdiction of these entities. Also, no permits are anticipated for the removal of the existing bridge. There would be no impact.

d) 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 Impact—The project area is not within any identified corridor or core population area for any native resident or migratory fish or wildlife species. The project would not impede the use of native wildlife nursery sites. There would be no impact.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact—The project site would not conflict with any local policies or ordinances protecting biological resources. There would be no impact.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact—The project will not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. There would be no impact.

3.2.5 Cultural Resources

CEQA Significance Determinations for Cultural Resources

Would the project:

a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?

Less Than Significant With Mitigation Incorporated—One known architectural resource crosses through the project area. The California Aqueduct (CA-FRE-3645H) crosses the project area at State Route 166 at post mile 17.45. The California Aqueduct was determined eligible for the National Register of Historic Places in July 2012 via a consensus determination with the State Historic Preservation Officer (see Appendix F).

The project would replace the California Aqueduct Bridge Number 50-0323, built in 1968, which is a contributing element of the California Aqueduct. A Finding of Adverse Effect under Section 106 was completed for the project on January 29, 2019, with a subsequent Finding of Adverse Effect completed in March 2021 to capture the effect of the South Alignment Alternative. The State Historic Preservation Officer formally responded on June 9, 2021 stating no objections to the Supplemental Finding of Adverse Effect. A Caltrans Principal Architectural Historian will prepare a Memorandum of Agreement between the Office of Historic Preservation and Caltrans in response to the Finding of Adverse Effect.

Caltrans has prepared an analysis pursuant to Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 U.S. Code Section 303, for use of the California Aqueduct (CA-FRE-3645H), and the California Aqueduct Bridge Number 50-0323 built in 1968 as a contributing element of the California Aqueduct. The Individual Section 4(f) discussion can be found in Appendix A.

To ensure that the history of the bridge is adequately captured prior to construction, Caltrans will be implementing mitigation measures to ensure that the bridge's historical importance is documented. To do this, Caltrans will complete a Historic American Buildings Survey and a Historic American Engineering Record. The Historic American Buildings Survey/Historic American Engineering Record documentation combines drawings, history and photographs to produce a comprehensive, multidisciplinary record of a building or engineering feature. Historic American Buildings Survey/Historic American Engineering Record documentation becomes a part of the

collection at the Library of Congress. The Historic American Buildings Survey/Historic American Engineering Record for the bridge will describe and convey the importance of the bridge as well as the role that the bridge plays in the larger aqueduct system.

Final mitigation measures will be developed and documented in the subsequent Memorandum of Agreement. The following additional measures are also proposed:

- Develop a programmatic agreement with the Department of Water Resources, Bureau of Reclamation, Office of Historic Preservation, and Caltrans.
- Develop and make available California Aqueduct interpretive displays for museums, city halls, visitor centers, and other indoor interpretive centers throughout Kern County. Displays may also extend to locations near the California Aqueduct in Kings County, Fresno County, and Merced County.
- Develop and install California Aqueduct interpretive panels or kiosks at highway rest stops or parks near the California Aqueduct.

With these mitigation measures incorporated, the project would result in a less than significant impact to the historical resource.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

No Impact—No archaeological resources were uncovered inside the project's area of potential effect. There would be no impact.

c) Disturb any human remains, including those interred outside of dedicated cemeteries?

No Impact—No formal cemeteries or other places of human internment are known to exist at the site. In the event human remains are encountered during construction activities, all work within the vicinity of the remains would halt in accordance with Health and Safety Code Section 7050.5, California Public Resources Code Section 5097.5, and Section 15064.5 of the CEQA Guidelines, and the San Joaquin County Coroner's office would be contacted.

However, if during construction human remains are discovered, work will be halted until the Kern County coroner is contacted to determine that no investigation of the cause of death is required. If the coroner determines the remains to be Native American, the coroner will contact the Native American Heritage Commission within 24 hours. The Native American Heritage Commission will identify the person or persons it believes to be the most likely descendent of the deceased Native American. The most likely descendent may then make recommendations to Caltrans for means of treating or disposing of, with appropriate dignity, the human remains and associated

grave goods as provided in California Public Resources Code Section 5097.98.

The project would occur on previously disturbed land. The project would remove and replace an existing bridge on an existing alignment. Potential impacts to human remains would not be very likely to occur as a result of the project. There would be no impact.

3.2.6 Energy

CEQA Significance Determinations for Energy

Would the project:

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

No Impact—The proposed actions associated with the project would not result in the wasteful, inefficient, or unnecessary consumption of energy resources. There would be no impact.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact—The proposed actions associated with the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. There would be no impact.

3.2.7 Geology and Soils

CEQA Significance Determinations for Geology and Soils

Would the project:

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

No Impact—According to the State of California Department of Conservation's Alquist-Priolo Earthquake Fault Zoning Map, there are no faults located on the project site. There would be no impact.

ii) Strong seismic ground shaking?

No Impact—According to the State of California Department of Conservation's Alquist-Priolo Earthquake Fault Zoning Map, there are no faults located on the project site. The nearest active fault to the site is the White Wolf fault (Caltrans Fault ID Number 103) with a maximum magnitude of 7.3. The fault lies about 15 miles northeast of the bridge site. There would be no impact.

iii) Seismic-related ground failure, including liquefaction?

No Impact—According to the State of California Department of Conservation's Alquist-Priolo Earthquake Fault Zoning Map, there are no faults located within the project site. The nearest active fault to the site is the White Wolf fault (Caltrans Fault ID Number 103) with a maximum magnitude of 7.3. The fault lies north-northeast of the bridge site. The rupture distance to the fault plane from the bridge site is estimated to be about 1.7 miles. A liquefaction analysis indicated minimum potential for liquefaction at the site during an earthquake. There would be no impact.

iv) Landslides?

No Impact—Areas with fractured and steep slopes, where less consolidated or weathered soils overlie bedrock, have a higher risk of landslides. Because the project site sits in a flat community, these risks are non-existent. There would be no impact.

b) Result in substantial soil erosion or the loss of topsoil?

No Impact—A project soil erosion risk level determination identified this project as having a Risk Level 1. There would be no impact.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction or collapse?

No Impact—The project is not located on a geologic unit or soil that is unstable or that would become unstable as a result of project activities. There would be no impact.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

No Impact—The project is not located on expansive soil. There would be no impact.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No Impact—The project would not build septic tanks or alternative waste water disposal systems. There would be no impact.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

No Impact—The project would not directly or indirectly destroy a unique paleontological resource or site or unique geologic features because construction activities would not likely affect paleontological resources. There would be no impact.

3.2.8 Greenhouse Gas Emissions

CEQA Significance Determinations for Greenhouse Gas Emissions

Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less Than Significant Impact—The project would require earthmoving and excavation. Project construction activities would directly generate trace amounts of greenhouse gas emissions. Given the temporary nature of the construction activities, the impacts from the generation of greenhouse gases would be less than significant. See Section 2.4 Construction Impacts, Air Quality, for further information on this topic.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less Than Significant Impact—Due to the removal of farmland and ruderal grassland under both alternatives, the project conflicts with both Senate Bill 1386 for the protection and management of working lands to remove CO_2 from the atmosphere and the recent executive order N-82-20 to combat the climate change and biodiversity crises. The combined removal of 12 acres and 27 acres of working farmland and ruderal grassland for Alternative 8 and the South Alignment Alternative, respectively, would conflict with applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of greenhouse gases. The impacts would be less than significant. See Section 3.3, Climate Change, for further information on this topic.

3.2.9 Hazards and Hazardous Materials

CEQA Significance Determinations for Hazards and Hazardous Materials

Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less Than Significant Impact—Caltrans' Standard Specifications and Provisions would be enforced to safely dispose of and/or transport hazardous materials without causing risk to the public, workers, or the environment. Please refer to Section 2.2.2 Hazardous Waste and Materials for information concerning the transport, use, and disposal of hazardous materials.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

No Impact—The records and review of the project area did not identify any hazardous waste sites or issues in the project vicinity. The project would not 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. There would be no impact.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact—The records and review of the project area did not identify any hazardous waste sites or issues in the project vicinity. There are no schools within one-quarter mile of the project area. There would be no impact.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact—The records and review of the project area did not identify any hazardous waste sites or issues in the project vicinity. There would be no impact.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

No Impact—The project area is not located within an airport land use plan and would not result in a safety hazard. There would be no impact.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact—The project would not permanently impair adopted emergency response plans or emergency evacuation plans. During construction, traffic may be temporarily diverted to an alternate access route (detour) that may result in a maximum delay of up to 29 minutes. This would

result in a less than significant impact. See Section 2.4 Construction Impacts for more information on this topic.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

No Impact—The project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. There would be no impact.

3.2.10 Hydrology and Water Quality

CEQA Significance Determinations for Hydrology and Water Quality

Would the project:

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water or groundwater quality?

Less Than Significant Impact—Because the project would remove and replace a bridge over the California Aqueduct, there may be activities during construction that could result in potential changes to water quality. Caltrans would implement best management practices to help eliminate potential negative effects during construction. With the best management practices implemented, this project would not adversely affect water quality in the project area.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

No Impact—The project would not impact groundwater supplies or recharge functions in the project area. There would be no impact.

c) 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 which would:

i) Result in substantial erosion or siltation onsite or offsite;

No Impact—The project would not result in substantial erosion or siltation onsite or offsite. There would be no impact.

ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite;

No Impact—The project and construction-related activities would not create or contribute to surface runoff water. There would be no impact.

iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

No Impact—The project and construction-related activities would not create or contribute to runoff water. There would be no impact.

iv) Impede or redirect flood flows?

No Impact—The project and construction-related activities would not impede or redirect flood flows. There would be no impact.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No Impact—The project site is not in a flood hazard, tsunami, or seiche zone. There would be no impact.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

No Impact—The project and construction-related activities would not conflict with or obstruct the implementation of a water quality control plan or sustainable groundwater management plan. There would be no impact.

3.2.11 Land Use and Planning

CEQA Significance Determinations for Land Use and Planning

Would the project:

a) Physically divide an established community?

No Impact—There are no communities within 2 miles of the project site. The project would not physically divide an established community. There would be no impact.

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact—The project is consistent with the zoning and general plan for the project site, and other plans adopted for the purpose of avoiding or mitigating an environmental effect. There would be no impact.

3.2.12 Mineral Resources

CEQA Significance Determinations for Mineral Resources

Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No Impact—The project would not result in the loss of a known mineral resource because none are known to be located on the project site. There would be no impact.

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

No Impact—The project would not result in the loss of availability of a locally important mineral resource because the project area is not designated in the Kern County General Plan as a mineral recovery site. There would be no impact.

3.2.13 Noise

CEQA Significance Determinations for Noise

Would the project result in:

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

No Impact—The project would not result in an increase in ambient noise levels. There would be no impact.

b) Generation of excessive groundborne vibration or groundborne noise levels?

No Impact—The project would not generate groundborne vibration or groundborne noise levels. There would be no impact.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No Impact—The project is not located within an airport land use plan or within 2 miles of an airport, and there are no private airstrips in the project

vicinity. The project would not expose people in the project area to excessive noise levels. There would be no impact.

3.2.14 Population and Housing

CEQA Significance Determinations for Population and Housing

Would the project:

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

No Impact—The project would replace an existing bridge and would not induce or facilitate growth in the project vicinity or result in substantial population growth in the area. There would be no impact.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact—The project would occur on previously disturbed land. The project area does not have any housing nearby and therefore the project would not displace people or housing. There would be no impact.

3.2.15 Public Services

CEQA Significance Determinations for Public Services

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Fire protection?

No Impact—The project would not require new or physically alter governmental facilities. There would be no impact.

Police protection?

No Impact—The project would not require new or physically alter governmental facilities. There would be no impact.

Schools?

No Impact—The project would not require new or physically alter governmental facilities. There would be no impact.

Parks?

No Impact—The project would not require new or physically alter governmental facilities. There would be no impact.

Other public facilities?

No Impact—The project would not require new or physically altered governmental facilities. There would be no impact.

3.2.16 Recreation

CEQA Significance Determinations for Recreation

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No Impact—There are no neighborhood and regional parks or other recreational facilities within a 2-mile radius of the project site. There would be no impact.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact—The project would not require the construction or expansion of recreational facilities. There would be no impact.

3.2.17 Transportation

CEQA Significance Determinations for Transportation

Would the project:

a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

No Impact—The project would not conflict with a program plan, ordinance, or policy addressing the circulation system. There would be no impact.

b) Conflict with or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?

No Impact—The project would not conflict with CEQA Guidelines Section 15064.3, subdivision (b) because the project would not add additional lane miles to the state route and therefore would not induce an increase in vehicle miles traveled. There would be no impact.

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No Impact—The project would not introduce or increase hazards due to a geometric design feature or incompatible uses. There would be no impact.

d) Result in inadequate emergency access?

Less Than Significant Impact—No permanent impacts to emergency access would result from the project. During construction, traffic may be temporarily diverted to an alternative access route (detour) that may result in a minor delay of up to 29 minutes. Nearby local roads, including Old River Road and Copus Road, would be used for emergency services. There would be a less than significant impact to emergency access.

3.2.18 Tribal Cultural Resources

CEQA Significance Determinations for Tribal Cultural Resources

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or

No Impact—Tribal consultation and discussions determined that the project would not affect any tribal cultural resources within the project area. There would be no impact.

b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency will consider the significance of the resource to a California Native American tribe.

No Impact—Tribal consultation and discussions determined that the project would not affect any tribal cultural resources within the project area. There would be no impact.

3.2.19 Utilities and Service Systems

CEQA Significance Determinations for Utilities and Service Systems

Would the project:

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Less Than Significant Impact—Utilities that may be affected or relocated by the project convey electricity, petroleum, communications, and water. Precise utility relocations would be determined in the design phase of project development. All utility relocation work would be handled by the affected utility companies and in a manner to limit service disruptions to customers. This would result in a less than significant impact.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

No Impact—The project would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years. There would be no impact.

c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

No Impact—The project would result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments. There would be no impact.

d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

No Impact—The project would not generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals. There would be no impact.

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

No Impact—The project would comply with federal, state, and local management and reduction statutes and regulations related to solid waste. There would be no impact.

3.2.20 Wildfire

CEQA Significance Determinations for Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

No Impact—The project is not located in or near state responsibility areas or lands classified as very high fire hazard severity zones. The project would maintain an existing facility and would not impair existing emergency response or evacuation plans.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

No Impact—The project is not located in or near state responsibility areas or lands classified as very high fire hazard severity zones. The project would not expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. There would be no impact.

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

No Impact—The project is not located in or near state responsibility areas or lands classified as very high fire hazard severity zones. The project would not require the installation or maintenance of associate infrastructure that may exacerbate fire risk or result in temporary or ongoing environmental impacts. There would be no impact.

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impact—The project is not located in or near state responsibility areas or lands classified as very high fire hazard severity zones. The project would not expose people or structures to significant risks as a result of runoff, post-fire slope instability, or drainage concerns. There would be no impact.

3.2.21 Mandatory Findings of Significance

CEQA Significance Determinations for Mandatory Findings of Significance

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less Than Significant Impact—The project would not substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory. However, less than significant impacts to habitat for wildlife species may occur as a result of this project. A Letter of Concurrence from the U.S. Fish and Wildlife Service regarding project impacts on these species was received on September 17, 2018. Once a preferred alternative has been selected, a revised Biological Assessment will be sent to the U.S. Fish and Wildlife Service and a second Letter of Concurrence will be included in the final environmental document. With avoidance and minimization efforts in place, less than significant impacts are expected. See Section 2.3.2 Animal Species and Section 2.3.3 Threatened and Endangered Species for more information on this topic.

b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

Less Than Significant Impact—Both build alternatives would have cumulative impacts to the California Aqueduct because it is anticipated that the current proposed design of the replacement bridge would be replicated along the California Aqueduct in the foreseeable future as additional bridges are replaced. The repair and replacement of bridges identical to the original design is not anticipated because the California Department of Water Resources will not allow the placement of piers in the California Aqueduct or allow construction to occur in the channel itself. This is to ensure the continuous operation of the aqueduct to provide water resources to several counties throughout California. Therefore, the design of this project will be included in the programmatic agreement to be completed between Caltrans, the California Department of Water Resources, the Bureau of Reclamation,

and the Office of Historic Preservation to set a standard of reference and concurrence for any future bridge replacements that may be required along the California Aqueduct.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

No Impact—The project does not have environmental effects that would cause substantial adverse effects on human beings. There would be no impact.

3.3 Climate Change

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gas emissions, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change by the United Nations and World Meteorological Organization in 1988 led to increased efforts devoted to greenhouse gas emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of greenhouse gases generated by human activity, including carbon dioxide, methane, nitrous oxide, tetrafluoromethane, hexafluoroethane, sulfur hexafluoride, and various hydrofluorocarbons. Carbon dioxide is the most abundant greenhouse gas; while it is a naturally occurring component of Earth's atmosphere, fossil-fuel combustion is the main source of additional, human-generated carbon dioxide.

Two terms are typically used when discussing how we address the impacts of climate change: "greenhouse gas mitigation" and "adaptation." Greenhouse gas mitigation covers the activities and policies aimed at reducing greenhouse gas emissions to limit or "mitigate" the impacts of climate change. Adaptation, on the other hand, is concerned with planning for and responding to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels). This analysis will include a discussion of both.

3.3.1 Regulatory Setting

This section outlines federal and state efforts to comprehensively reduce greenhouse gas emissions from transportation sources.

Federal

To date, no national standards have been established for nationwide mobile-source greenhouse gas reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and greenhouse gas emissions reduction at the project level.

The National Environmental Policy Act (42 U.S. Code Part 4332) requires federal agencies to assess the environmental effects of their proposed actions prior to making a decision on the action or project.

The Federal Highway Administration recognizes the threats that extreme weather, sea-level change, and other changes in environmental conditions pose to valuable transportation infrastructure and those who depend on it. The Federal Highway Administration therefore supports a sustainability approach that assesses vulnerability to climate risks and incorporates resilience into planning, asset management, project development and design, and operations and maintenance practices (Federal Highway Administration 2019). This approach encourages planning for sustainable highways by addressing climate risks while balancing environmental, economic, and social values—"the triple bottom line of sustainability" (Federal Highway Administration, no date). Program and project elements that foster sustainability and resilience also support economic vitality and global efficiency, increase safety and mobility, enhance the environment, promote energy conservation, and improve the quality of life.

Various efforts have been promulgated at the federal level to improve fuel economy and energy efficiency to address climate change and its associated effects. The most important of these was the Energy Policy and Conservation Act of 1975 (42 U.S. Code Section 6201) and Corporate Average Fuel Economy Standards. This act establishes fuel economy standards for on-road motor vehicles sold in the United States. Compliance with federal fuel economy standards is determined through the Corporate Average Fuel Economy program based on each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the United States.

Energy Policy Act of 2005, 109th Congress H.R.6 (2005–2006): This act sets forth an energy research and development program covering: (1) energy efficiency; (2) renewable energy; (3) oil and gas; (4) coal; (5) the establishment of the Office of Indian Energy Policy and Programs within the Department of Energy; (6) nuclear matters and security; (7) vehicles and motor fuels, including ethanol; (8) hydrogen; (9) electricity; (10) energy tax incentives; (11) hydropower and geothermal energy; and (12) climate change technology.

The U.S. Environmental Protection Agency in conjunction with the National Highway Traffic Safety Administration is responsible for setting greenhouse gas emission standards for new cars and light-duty vehicles to significantly

increase the fuel economy of all new passenger cars and light trucks sold in the United States. Fuel efficiency standards directly influence greenhouse gas emissions.

State

California has been innovative and proactive in addressing greenhouse gas emissions and climate change by passing multiple Senate and Assembly bills and executive orders including, but not limited to, the following:

Executive Order S-3-05 (June 1, 2005): The goal of this order is to reduce California's greenhouse gas emissions to: (1) year 2000 levels by 2010, (2) year 1990 levels by 2020, and (3) 80 percent below year 1990 levels by 2050. This goal was further reinforced with the passage of Assembly Bill 32 in 2006 and Senate Bill 32 in 2016.

Assembly Bill 32, Chapter 488, 2006, Núñez and Pavley, The Global Warming Solutions Act of 2006: Assembly Bill 32 codified the 2020 greenhouse gas emissions reduction goals outlined in Executive Order S-3-05, while further mandating that the California Air Resources Board create a scoping plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." The Legislature also intended that the statewide greenhouse gas emissions limit continue in existence and be used to maintain and continue reductions in emissions of greenhouse gases beyond 2020 (Health and Safety Code Section 38551(b)). The law requires the California Air Resources Board to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective greenhouse gas reductions.

Executive Order S-01-07 (January 18, 2007): This order sets forth the low carbon fuel standard for California. Under this order, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by the year 2020. The California Air Resources Board re-adopted the low carbon fuel standard regulation in September 2015, and the changes went into effect on January 1, 2016. The program establishes a strong framework to promote the low-carbon fuel adoption necessary to achieve the governor's 2030 and 2050 greenhouse gas reduction goals.

Senate Bill 375, Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires the California Air Resources Board to set regional emissions reduction targets for passenger vehicles. The Metropolitan Planning Organization for each region must then develop a "Sustainable Communities Strategy" that integrates transportation, land-use, and housing policies to plan how it will achieve the emissions target for its region.

Senate Bill 391, Chapter 585, 2009, California Transportation Plan: This bill requires the State's long-range transportation plan to identify strategies to address California's climate change goals under Assembly Bill 32.

Executive Order B-16-12 (March 2012): This order tells State entities under the direction of the Governor, including the California Air Resources Board, the California Energy Commission, and the Public Utilities Commission, to support the rapid commercialization of zero-emission vehicles. It directs these entities to achieve various benchmarks related to zero-emission vehicles.

Executive Order B-30-15 (April 2015): This order establishes an interim statewide greenhouse gas emission reduction target of 40 percent below 1990 levels by 2030 to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050. It further orders all state agencies with jurisdiction over sources of greenhouse gas emissions to implement measures, pursuant to statutory authority, to achieve reductions of greenhouse gas emissions to meet the 2030 and 2050 greenhouse gas emissions reductions targets. It also directs the California Air Resources Board to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent. Greenhouse gases differ in how much heat each traps in the atmosphere (global warming potential). Carbon dioxide is the most important greenhouse gas, so amounts of other gases are expressed relative to carbon dioxide, using a metric called “carbon dioxide equivalent.” The global warming potential of carbon dioxide is assigned a value of 1, and the global warming potential of other gases is assessed as multiples of carbon dioxide. Finally, it requires the Natural Resources Agency to update the state’s climate adaptation strategy, *Safeguarding California*, every three years, and to ensure that its provisions are fully implemented.

Senate Bill 32, Chapter 249, 2016: This bill codifies the greenhouse gas reduction targets established in Executive Order B-30-15 to achieve a mid-range goal of 40 percent below 1990 levels by 2030.

Senate Bill 1386, Chapter 545, 2016: This bill declared “it to be the policy of the state that the protection and management of natural and working lands … is an important strategy in meeting the state’s greenhouse gas reduction goals, and would require all state agencies, departments, boards, and commissions to consider this policy when revising, adopting, or establishing policies, regulations, expenditures, or grant criteria relating to the protection and management of natural and working lands.”

Assembly Bill 134, Chapter 254, 2017: This bill allocates Greenhouse Gas Reduction Funds and other sources to various clean vehicle programs, demonstration/pilot projects, clean vehicle rebates and projects, and other emissions-reduction programs statewide.

Senate Bill 743**,** Chapter 386 (September 2013): This bill changes the metric of consideration for transportation impacts pursuant to CEQA from a focus on automobile delay to alternative methods focused on vehicle miles travelled, to promote the state’s goals of reducing greenhouse gas emissions and traffic

related air pollution and promoting multimodal transportation while balancing the needs of congestion management and safety.

Senate Bill 150**,** Chapter 150, 2017, Regional Transportation Plans: This bill requires the California Air Resources Board to prepare a report that assesses progress made by each metropolitan planning organization in meeting their established regional greenhouse gas emission reduction targets.

Executive Order B-55-18 (September 2018): This order sets a new statewide goal to achieve and maintain carbon neutrality no later than 2045. This goal is in addition to existing statewide targets of reducing greenhouse gas emissions.

Executive Order N-19-19 (September 2019): This order advances California's climate goals in part by directing the California State Transportation Agency to leverage annual transportation spending to reverse the trend of increased fuel consumption and reduce greenhouse gas emissions from the transportation sector. It orders a focus on transportation investments near housing, managing congestion, and encouraging alternatives to driving. This order also directs the California Air Resources Board to encourage automakers to produce more clean vehicles, formulate ways to help Californians purchase them, and propose strategies to increase demand for zero-emission vehicles.

Executive Order N-79-20 (September 2020): This order establishes goals for 100 percent of in-state sales of new passenger cars and trucks to be zero-emissions vehicles by 2035, that the state transition to 100 percent zero-emission off-road vehicles and equipment by 2035 where feasible, and that 100 percent of medium- and heavy-duty vehicles in the state be zero-emissions by 2045 where feasible.

3.3.2 Environmental Setting

The project sits along State Route 166 in Kern County. The project crosses the California Aqueduct 2.6 miles east of Old River Road and 5 miles west of Interstate 5 and stretches from post miles 16.6 to 18.2. The area surrounding the project location is zoned for agriculture and is used to grow mostly fruit and nut crops. There are no residences in the project vicinity; the nearest community is about 7 miles east of the project area. The Kern Council of Governments (Kern COG) Regional Transportation Plan/Sustainable Communities Strategy guides transportation development in the project area.

A greenhouse gas emissions inventory estimates the amount of greenhouse gases discharged into the atmosphere by specific sources over a period of time, such as a calendar year. Tracking annual greenhouse gas emissions allows countries, states, and smaller jurisdictions to understand how emissions are changing and what actions may be needed to attain emission

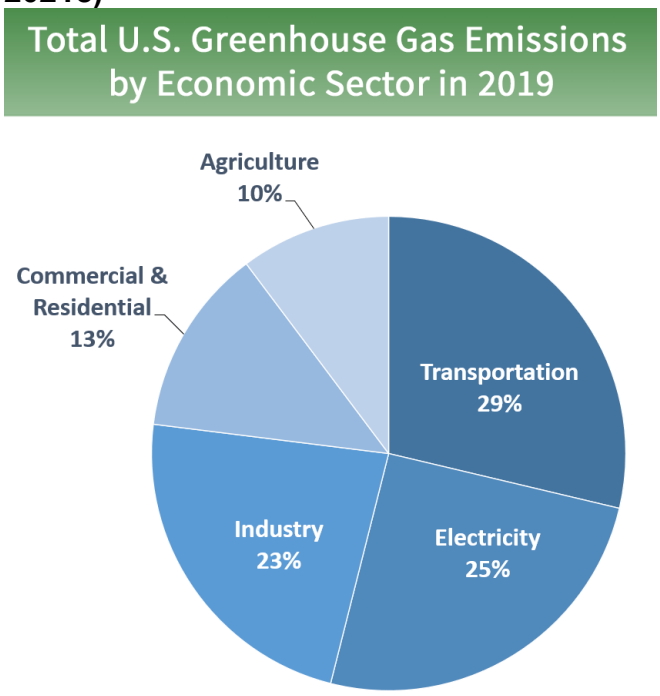
reduction goals. The U.S. Environmental Protection Agency is responsible for documenting greenhouse gas emissions nationwide, and the California Air Resources Board does so for the state, as required by Health and Safety Code Section 39607.4.

National Greenhouse Gas Inventory

The U.S. Environmental Protection Agency prepares a national greenhouse gas inventory every year and submits it to the United Nations in accordance with the Framework Convention on Climate Change. The inventory provides a comprehensive accounting of all human-produced sources of greenhouse gases in the United States, reporting emissions of carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride. It also accounts for emissions of carbon dioxide that are removed from the atmosphere by “sinks” such as forests, vegetation, and soils that uptake and store carbon dioxide (carbon sequestration).

The 1990-2019 inventory found that overall greenhouse gas emissions were 6,558 million metric tons in 2019, down 1.7 percent from 2018 but up 1.8 percent from 1990 levels. Of these, 80 percent were carbon dioxide, 10 percent were methane, and 7 percent were nitrous oxide; the balance consisted of fluorinated gases. Carbon dioxide emissions in 2019 were 2.2 percent less than in 2018, but 2.8 percent more than in 1990. The transportation sector accounted for 29 percent of U.S. greenhouse gas emissions in 2019 (U.S. EPA 2021a, 2021b). See Figure 3-1.

Figure 3-1 U.S. 2019 Greenhouse Gas Emissions (Source: U.S. EPA 2021c)



U.S. Environmental Protection Agency (2021). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019

State Greenhouse Gas Inventory

The California Air Resources Board collects greenhouse gas emissions data for transportation, electricity, commercial/residential, industrial, agricultural, and waste management sectors each year. It then summarizes and highlights major annual changes and trends to demonstrate the state's progress in meeting its greenhouse gas reduction goals. The 2020 edition of the greenhouse gas emissions trends from 2000 to 2018. It found total California emissions were 425.3 million metric tons of carbon dioxide equivalent in 2018, 0.8 million metric tons of carbon dioxide equivalent higher than 2017 but 6 million metric tons of carbon dioxide equivalent lower than the statewide 2020 limit of 431 million metric tons of carbon dioxide equivalent. The transportation sector was responsible for 41 percent of total greenhouse gases. Transportation emissions decreased in 2018 compared to the previous year, which is the first year over year decrease since 2013. Overall statewide greenhouse gas emissions declined from 2000 to 2018 despite growth in population and state economic output (ARB 2020). See Figures 3-2 and 3-3.

Figure 3-2 California 2018 Greenhouse Gas Emissions (Source: ARB 2020b)

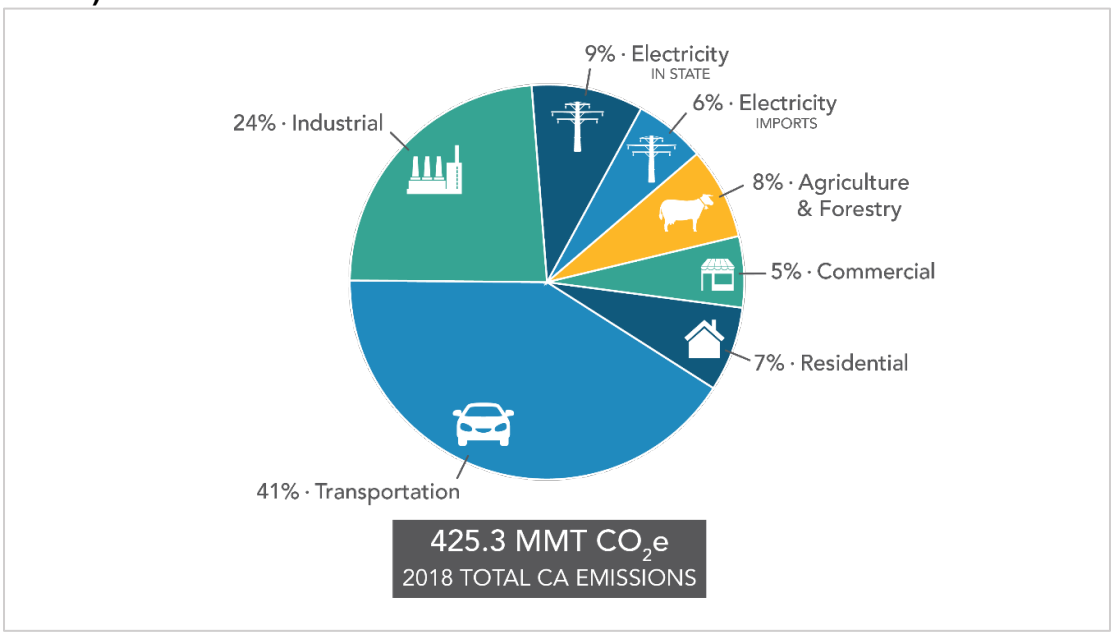
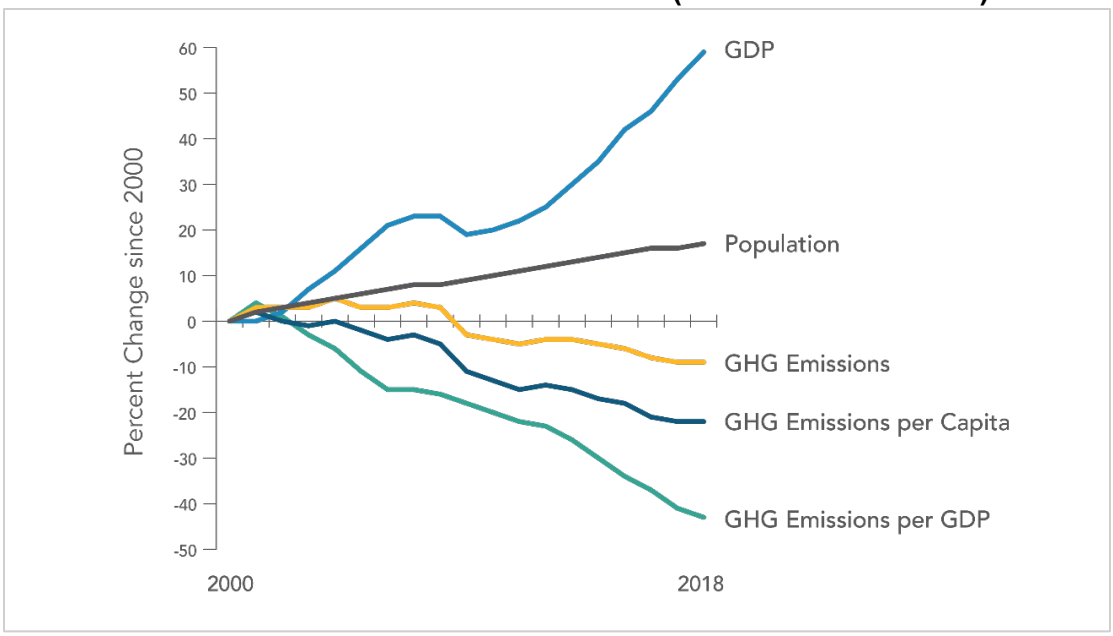


Figure 3-3 Change in California Gross Domestic Product, Population, and Greenhouse Gas Emissions since 2000 (Source: ARB 2020b)



Assembly Bill 32 required the California Air Resources Board to develop a Scoping Plan that describes the approach California will take to achieve the goal of reducing greenhouse gas emissions to 1990 levels by 2020, and to update it every five years. The California Air Resources Board adopted the first scoping plan in 2008. The second updated plan, *California's 2017*

Climate Change Scoping Plan, adopted on December 14, 2017, reflects the 2030 target established in Executive Order B-30-15 and Senate Bill 32. The Assembly Bill 32 Scoping Plan and the subsequent updates contain the main strategies California will use to reduce greenhouse gas emissions.

Regional Plans

The California Air Resources Board sets regional targets for California's 18 Metropolitan Planning Organizations to use in their Regional Transportation Plan/Sustainable Communities Strategy to plan future projects that will cumulatively achieve greenhouse gas reduction goals. Targets are set at a percent reduction of passenger vehicle and light truck greenhouse gas emissions per person from 2005 levels.

The proposed project is included in the 2018 Kern Council of Governments Regional Transportation Plan/Sustainable Communities Strategy (Kern Council of Governments 2018), which used the Air Resources Board's 2010 regional reduction targets of 5 percent by 2020 and 10 percent by 2035. As of October 1, 2018, however, the regional reduction targets changed to 9 percent by 2020 and 15 percent by 2035 (Air Resources Board 2019c). These new targets are anticipated to be addressed in the 2022 Regional Transportation Plan/Sustainable Communities Strategy.

The 2018 Regional Transportation Plan/Sustainable Communities Strategy (page D-10) identifies measures "Sustainability/Preservation" and "Reliability/Safety/Public Health," which include maintaining system pavement and bridges and improving system reliability, mobility, and safety.

3.3.3 Project Analysis

Greenhouse gas emissions from transportation projects can be divided into those produced during operation of the state highway system and those produced during construction. The main greenhouse gases produced by the transportation sector are carbon dioxide, methane, nitrous oxide, and hydrofluorocarbons. Carbon dioxide emissions are a product of the combustion of petroleum-based products, like gasoline, in internal combustion engines. Relatively small amounts of methane and nitrous oxide are emitted during fuel combustion. In addition, a small amount of hydrofluorocarbon emissions is included in the transportation sector.

The CEQA Guidelines generally address greenhouse gas emissions as a cumulative impact due to the global nature of climate change (Public Resources Code, Section 21083(b)(2)). As the California Supreme Court explained, "because of the global scale of climate change, any one project's contribution is unlikely to be significant by itself." (Cleveland National Forest Foundation versus San Diego Association of Governments (2017) 3 California 5th 497, 512.) In assessing cumulative impacts, it must be determined if a

project's incremental effect is "cumulatively considerable" (CEQA Guidelines Sections 15064(h)(1) and 15130).

To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. Although climate change is ultimately a cumulative impact, not every individual project that emits greenhouse gases must necessarily be found to contribute to a significant cumulative impact on the environment.

Operational Emissions

The proposed project would replace the California Aqueduct Bridge (Bridge No. 50-0323) with a new bridge. Once operational, the project would not add additional travel lanes or change roadway capacity or vehicle miles traveled. Therefore, no increase in operational greenhouse gas emissions is expected. While some greenhouse gas emissions during the construction period would be unavoidable, the proposed project, once completed, would not lead to an increase in operational greenhouse gas emissions.

Alternative 8 would convert about 6 acres of working farmland and affect about 6 acres of ruderal grassland. The South Alignment Alternative would convert about 26 acres of working farmland and affect less than 1 acre of ruderal grassland. The removal or conversion of farmland and grasslands does not appear to align with Senate Bill 1386 for the protection and management of working lands to remove CO_2 from the atmosphere or the recent executive order N-82-20 to combat the climate change and biodiversity crises.

Construction Emissions

Construction greenhouse gas emissions would result from material processing, onsite construction equipment, and traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the greenhouse gas emissions produced during construction can be offset to some degree by longer intervals between maintenance and rehabilitation activities.

Carbon dioxide emissions generated from construction equipment were estimated using the Caltrans Construction Emissions Tool (CAL-CET). The estimated emissions of carbon dioxide from construction equipment would be 1,1180 tons per year over a 16- to 18-month construction period. Operational carbon dioxide emissions generated from passenger vehicles were not estimated because the project is not capacity increasing. However, the proposed detour for Alternative 8 would add 22 miles of travel for vehicles

traveling in the eastbound and westbound directions between Maricopa and Mettler. The South Alignment Alternative would use the same detour as Alternative 8 for two months near the end of construction. Operational carbon dioxide emissions generated from passenger vehicles as a result of the detour would be about 20,844 tons of carbon dioxide over an 18-month construction period under Alternative 8 and 2,316 tons of carbon dioxide over a 2-month detour period under the South Alignment Alternative.

All construction contracts include Caltrans Standard Specifications Section 7-1.02A and 7-1.02C, Emissions Reduction, which require contractors to comply with all laws applicable to the project and to certify they are aware of and will comply with all the California Air Resources Board emission reduction regulations; and Section 14-9.02, Air Pollution Control, which requires contractors to comply with all air pollution control rules, regulations, ordinances, and statutes. The project will also implement Caltrans standardized measures (such as construction best management practices) that apply to most or all Caltrans projects. Certain common regulations, such as equipment idling restrictions and development and implementation of a traffic control plan that reduce construction vehicle emissions, also help reduce greenhouse gas emissions.

CEQA Conclusion

While the proposed project will result in greenhouse gas emissions during construction, it is expected that the project will not result in any increase in operational greenhouse gas emissions because it would not increase vehicle miles traveled once the project opens to traffic. With implementation of construction greenhouse gas-reduction measures, the impact would be less than significant. Caltrans is firmly committed to implementing measures to help reduce greenhouse gas emissions. These measures are outlined in the following section.

Due to the removal of farmland and ruderal grassland under both alternatives, the project conflicts with both Senate Bill 1386 for the protection and management of working lands to remove carbon dioxide from the atmosphere and the recent executive order N-82-20 to combat the climate change and biodiversity crises. The combined removal of 12 acres and 27 acres of working farmland and ruderal grassland for Alternative 8 and the South Alignment Alternative, respectively, would result in less than significant impacts to applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of greenhouse gases. Measures to minimize conflicts with Senate Bill 1386 and Executive Order N-82-20 are outlined in the following section.

Caltrans is firmly committed to implementing measures to help reduce greenhouse gas emissions. These measures are outlined in the following section.

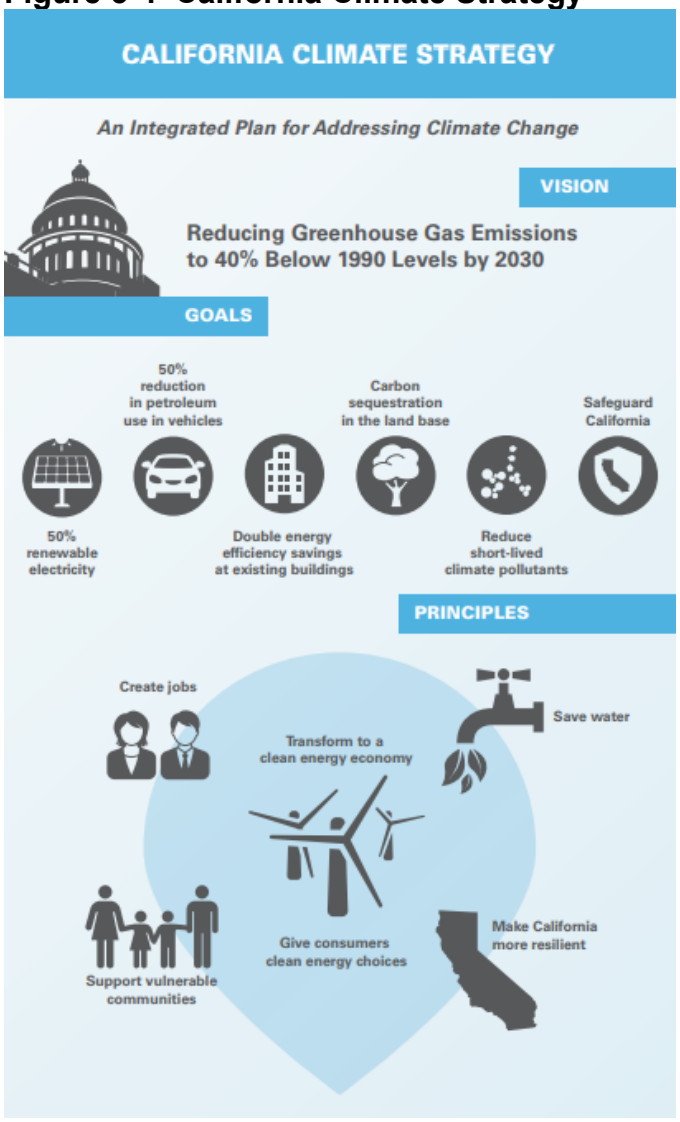
3.3.4 Greenhouse Gas Reduction Strategies

Statewide Efforts

Major sectors of the California economy, including transportation, will need to reduce emissions to meet the 2030 and 2050 greenhouse gas emissions targets.

Former Governor Edmund G. Brown Jr promoted greenhouse gas reduction goals that involved (1) reducing today's petroleum use in cars and trucks by up to 50 percent; (2) increasing from one-third to 50 percent our electricity derived from renewable sources; (3) doubling the energy efficiency savings achieved at existing buildings and making heating fuels cleaner; (4) reducing the release of methane, black carbon, and other short-lived climate pollutants; (5) managing farms and rangelands, forests, and wetlands so they can store carbon; and (6) periodically updating the state's climate adaptation strategy, *Safeguarding California*. See Figure 3-4.

Figure 3-4 California Climate Strategy



The transportation sector is integral to the people and economy of California. To achieve greenhouse gas emission reduction goals, it is vital that the state build on past successes in reducing criteria and toxic air pollutants from transportation and goods movement. Greenhouse gas emission reductions will come from cleaner vehicle technologies, lower-carbon fuels, and reduction of vehicle miles traveled. A key state goal for reducing greenhouse gas emissions is to reduce today's petroleum use in cars and trucks by up to 40 percent by 2030 (California Environmental Protection Agency 2015).

Senate Bill 1386 (Wolk 2016) established as state policy the protection and management of natural and working lands and requires state agencies to consider that policy in their own decision making. Trees and vegetation on forests, rangelands, farms, and wetlands remove carbon dioxide from the

atmosphere through biological processes and sequester the carbon in above-ground and below-ground matter.

Subsequently, Governor Gavin Newsom issued Executive Order N-82-20 to combat the crises in climate change and biodiversity. It includes instruction to state agencies to use existing authorities and resources to identify and implement near- and long-term actions to accelerate natural removal of carbon and build climate resilience in our forests, wetlands, urban greenspaces, agricultural soils, and land conservation activities in ways that serve all communities and in particular low-income, disadvantaged and vulnerable communities. Each agency is to develop a Natural and Working Lands Climate Smart Strategy that serves as a framework to advance the State's carbon neutrality goal and build climate resilience.

Caltrans Activities

Caltrans continues to be involved on the Governor's Climate Action Team as the California Air Resources Board works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in Assembly Bill 32. Executive Order B-30-15, issued in April 2015, and Senate Bill 32 (2016), set an interim target to cut greenhouse gas emissions to 40 percent below 1990 levels by 2030. The following major initiatives are underway at Caltrans to help meet these targets.

California Transportation Plan

The California Transportation Plan is a statewide, long-range transportation plan to meet our future mobility needs and reduce greenhouse gas emissions. It serves as an umbrella document for all the other statewide transportation planning documents. The California Transportation Plan 2050 presents a vision of a safe, resilient, and universally accessible transportation system that supports vibrant communities, advances racial and economic justice, and improves public and environmental health. The plan's climate goal is to achieve statewide greenhouse gas emissions reduction targets and increase resilience to climate change. It demonstrates how greenhouse gas emissions from the transportation sector can be reduced through advancements in clean fuel technologies; continued shifts toward active travel, transit, and shared mobility; more efficient land use and development practices; and continued shifts to telework (Caltrans 2021).

Senate Bill 391 (Liu 2009) requires the California Transportation Plan to meet California's climate change goals under Assembly Bill 32. Accordingly, the California Transportation Plan 2040 identifies the statewide transportation system needed to achieve maximum feasible greenhouse gas emission reductions while meeting the state's transportation needs. While Metropolitan Planning Organizations have primary responsibility for identifying land use patterns to help reduce greenhouse gas emissions, California Transportation

Plan 2040 identifies additional strategies in Pricing, Transportation Alternatives, Mode Shift, and Operational Efficiency.

Caltrans Strategic Management Plan

The Caltrans Strategic Management Plan 2020–24 includes goals of stewardship, climate action, and equity. Climate action strategies include developing and implementing a Caltrans Climate Action Plan; a robust program of climate action education, training, and outreach; partnership and collaboration; a vehicle miles traveled monitoring and reduction program; and engaging with the most vulnerable communities in developing and implementing Caltrans climate action activities.

Funding and Technical Assistance Programs

In addition to developing plans and performance targets to reduce greenhouse gas emissions, Caltrans also administers several sustainable transportation planning grants. These grants encourage local and regional multimodal transportation, housing, and land use planning that furthers the region's Regional Transportation Plan/Sustainable Communities Strategy; contribute to the State's greenhouse gas reduction targets and advance transportation-related greenhouse gas emission reduction project types/strategies; and support other climate adaptation goals (e.g., *Safeguarding California*).

Caltrans Policy Directives and Other Initiatives

Caltrans Director's Policy 30 Climate Change (June 22, 2012) is intended to establish a department policy that will ensure coordinated efforts to incorporate climate change into departmental decisions and activities.

Caltrans Activities to Address Climate Change (April 2013) provides a comprehensive overview of Caltrans' statewide activities to reduce greenhouse gas emissions resulting from agency operations.

Project-Level Greenhouse Gas Reduction Strategies

The following measures will also be implemented in the project to reduce greenhouse gas emissions and potential climate change impacts from the project.

- Caltrans staff would enhance the environmental training provided for contractor staff by adding a module on greenhouse gas reduction strategies, including limiting equipment idling time as much as possible.
- Incorporate measures to reduce the use of potable water.
- Seek to operate construction equipment with improved fuel efficiency by properly tuning and maintaining equipment, limiting equipment idling time, and using the right-sized equipment for the job.

- Comply with Caltrans Standard Specifications 14-9.02, Air Pollution Control, which would require contractors to comply with all air-pollution control rules, regulations, ordinances, and statutes. Measures that reduce construction vehicle emissions also help reduce greenhouse gas emissions.
- Develop a Traffic Management Plan to minimize delays.
- Incorporate measures to revegetate unpaved right-of-way where feasible after construction.

3.3.5 Adaptation

Reducing greenhouse gas emissions is only one part of an approach to addressing climate change. Caltrans must plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and their intensity, and in the frequency and intensity of wildfires. Flooding and erosion can damage or wash out roads; longer periods of intense heat can buckle pavement and railroad tracks; storm surges combined with a rising sea level can inundate highways. Wildfire can directly burn facilities and indirectly cause damage when rain falls on denuded slopes that landslide after a fire. Effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. Accordingly, Caltrans must consider these types of climate stressors in how highways are planned, designed, built, operated, and maintained.

Federal Efforts

Under NEPA assignment, Caltrans is obligated to comply with all applicable federal environmental laws and Federal Highway Administration NEPA regulations, policies, and guidance.

The U.S. Global Change Research Program delivers a report to Congress and the president every four years, in accordance with the Global Change Research Act of 1990 (15 U.S. Code Chapter 56A Section 2921 et seq). The *Fourth National Climate Assessment*, published in 2018, presents the foundational science and the "human welfare, societal, and environmental elements of climate change and variability for 10 regions and 18 national topics, with particular attention paid to observed and projected risks, impacts, consideration of risk reduction, and implications under different mitigation pathways." Chapter 12, "Transportation," presents a key discussion of vulnerability assessments. It notes that "asset owners and operators have increasingly conducted more focused studies of particular assets that consider multiple climate hazards and scenarios in the context of asset-specific information, such as design lifetime" (U.S. Global Change Research Program 2018).

The U.S. Department of Transportation Policy Statement on Climate Adaptation in June 2011 committed the federal Department of Transportation to "integrate consideration of climate change impacts and adaptation into the planning, operations, policies, and programs of the U.S. Department of Transportation in order to ensure that taxpayer resources are invested wisely, and that transportation infrastructure, services and operations remain effective in current and future climate conditions" (U.S. Department of Transportation 2011).

Federal Highway Administration Order 5520 (*Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events,* December 15, 2014) established Federal Highway Administration policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. The Federal Highway Administration has developed guidance and tools for transportation planning that foster resilience to climate effects and sustainability at the federal, state, and local levels (Federal Highway Administration 2019).

State Efforts

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system. *California's Fourth Climate Change Assessment* (2018) is the state's effort to "translate the state of climate science into useful information for action" in a variety of sectors at both statewide and local scales. It adopts the following key terms used widely in climate change analysis and policy documents:

- *Adaptation* to climate change refers to adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.
- *Adaptive capacity* is the "combination of the strengths, attributes, and resources available to an individual, community, society, or organization that can be used to prepare for and undertake actions to reduce adverse impacts, moderate harm, or exploit beneficial opportunities."
- *Exposure* is the presence of people, infrastructure, natural systems, and economic, cultural, and social resources in areas that are subject to harm.
- *Resilience* is the "capacity of any entity—an individual, a community, an organization, or a natural system—to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience." Adaptation actions contribute to increasing resilience, which is a desired outcome or state of being.
- *Sensitivity* is the level to which a species, natural system, or community, government, etc., would be affected by changing climate conditions.

- *Vulnerability* is the "susceptibility to harm from exposure to stresses associated with environmental and social change and from the absence of capacity to adapt." Vulnerability can increase because of physical (built and environmental), social, political, and/or economic factor(s). These factors include, but are not limited to: ethnicity, class, sexual orientation and identification, national origin, and income inequality. Vulnerability is often defined as the combination of sensitivity and adaptive capacity as affected by the level of exposure to changing climate.

Several key state policies have guided climate change adaptation efforts to date. Recent state publications produced in response to these policies draw on these definitions.

Executive Order S-13-08, issued by then-governor Arnold Schwarzenegger in November 2008, focused on sea-level rise and resulted in the *California Climate Adaptation Strategy* (2009), updated in 2014 as *Safeguarding California: Reducing Climate Risk* (*Safeguarding California Plan*). The *Safeguarding California Plan* offers policy principles and recommendations and continues to be revised and augmented with sector-specific adaptation strategies, ongoing actions, and next steps for agencies.

Executive Order S-13-08 also led to the publication of a series of sea-level rise assessment reports and associated guidance and policies. These reports formed the foundation of an interim *State of California Sea-Level Rise Interim Guidance Document* (SLR Guidance) in 2010, with instructions for how state agencies could incorporate "sea-level rise (SLR) projections into planning and decision making for projects in California" in a consistent way across agencies. The guidance was revised and augmented in 2013. *Rising Seas in California—An Update on Sea-Level Rise Science* was published in 2017 and its updated projections of sea-level rise and new understanding of processes and potential impacts in California were incorporated into the *State of California Sea-Level Rise Guidance Update* in 2018.

Executive Order B-30-15, signed in April 2015, requires state agencies to factor climate change into all planning and investment decisions. This order recognizes that effects of climate change other than sea-level rise also threaten California's infrastructure. At the direction of Executive Order B-30-15, the Office of Planning and Research published *Planning and Investing for a Resilient California: A Guidebook for State Agencies* in 2017, to encourage a uniform and systematic approach. Representatives of Caltrans participated in the multi-agency, multidisciplinary technical advisory group that developed this guidance on how to integrate climate change into planning and investment.

Assembly Bill 2800 (Quirk 2016) created the multidisciplinary Climate-Safe Infrastructure Working Group, which in 2018 released its report, *Paying it Forward: The Path Toward Climate-Safe Infrastructure in California*. The

report provides guidance to agencies on how to address the challenges of assessing risk in the face of inherent uncertainties still posed by the best available science on climate change. It also examines how state agencies can use infrastructure planning, design, and implementation processes to address the observed and anticipated climate change impacts.

Caltrans Adaptation Efforts

Caltrans Vulnerability Assessments

Caltrans is conducting climate change vulnerability assessments to identify segments of the State Highway System vulnerable to climate change effects including precipitation, temperature, wildfire, storm surge, and sea-level rise. The approach to the vulnerability assessments was tailored to the practices of a transportation agency, and involves the following concepts and actions:

- *Exposure*—Identify Caltrans assets exposed to damage or reduced service life from expected future conditions.
- *Consequence*—Determine what might occur to system assets in terms of loss of use or costs of repair.
- *Prioritization*—Develop a method for making capital programming decisions to address identified risks, including considerations of system use and/or timing of expected exposure.

The climate change data in the assessments were developed in coordination with climate change scientists and experts at federal, state, and regional organizations at the forefront of climate science. The findings of the vulnerability assessments will guide analysis of at-risk assets and development of adaptation plans to reduce the likelihood of damage to the State Highway System, allowing Caltrans to both reduce the costs of storm damage and to provide and maintain transportation that meets the needs of all Californians.

Project Adaptation Analysis

Sea Level Rise

The project is outside the coastal zone and is not in an area subject to sea-level rise. Therefore, direct impacts to transportation facilities due to a projected sea-level rise are not expected.

Floodplains Analysis

Based on the Floodplain Evaluation Report, this project does not encroach on or impact a floodplain. The California Aqueduct is a concrete-lined canal operated by the California Department of Water Resources. The new bridge would have deck drains to collect, convey, and discharge stormwater runoff from the new bridge into existing side ditches. The side ditches have capacity to contain two 10-year/24-hour storm events and can also be upgraded in a future project if it became necessary.

The District 6 Caltrans Climate Change Vulnerability Assessment (Caltrans 2018) anticipates less precipitation overall but rain falling in heavier individual events as the climate changes. Analysis found that change in the 100-year storm precipitation depth is likely to increase throughout District 6, indicating heavier rainfall during storms. If the 100-year storm precipitation increases by 5 percent through 2085, the existing ditches are deep and wide enough to handle the additional storm water runoff. The vulnerability mapping shows, however, that in the project area 100-year storm precipitation depth is likely to increase by less than 5 percent through 2085. This suggests that the existing drainage system will be adequate to convey storm flows even as the climate changes.

Wildfire

The project is not in a very high fire hazard severity zone (California Department of Forestry and Fire Protection, 2008). Standard construction specifications for fire prevention and best management practices will minimize the risk of fire starts during construction.

Climate Change References

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Chapter 4 Comments and Coordination

Early and continuing coordination with the general public and public agencies is an essential part of the environmental process. It helps planners determine the necessary scope of environmental documentation and the level of analysis required, and to identify potential impacts and avoidance, minimization, and/or mitigation measures and related environmental requirements. Agency and tribal consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including interagency coordination meetings, public meetings, public notices, and Native American coordination. This chapter summarizes the results of Caltrans' efforts to identify, address, and resolve project-related issues through early and continuing coordination.

Agency Coordination

Office of Historic Preservation

April 2018: A Finding of No Adverse Effect without Standard Conditions, which summarizes Caltrans' effects determination for the California Aqueduct and Bridge Number 50-0323, was prepared and sent to the Office of Historic Preservation.

August 28, 2018: The State Historic Preservation Officer formally responded to Caltrans, stating that the State Historic Preservation Officer was rejecting Caltrans' Finding of No Adverse Effect for Section 106 for this project. Caltrans accepted the State Historic Preservation Officer's comments.

August 30, 2018: Caltrans and Office of Historic Preservation staff met to discuss possible ways of avoiding an adverse effect determination by changing design features.

September 18, 2018: Updated visual simulations with design alterations were sent to the Office of Historic Preservation.

September 26, 2018: The Office of Historic Preservation staff verbally indicated that the bridge design would still likely have an adverse effect due to the integrity of materials, design, setting, workmanship and feeling of the proposed new bridge.

October 1, 2018: Caltrans proposed a potential alternative using three horizontal "S" curves to reduce the new bridge height.

October 9, 2018: The Office of Historic Preservation staff confirmed via email that the bridge would still have an adverse effect due to the integrity of materials, design, setting, workmanship and feeling of the proposed new bridge.

October 18, 2018: The State Historic Preservation Officer agreed with the Office of Historic Preservation staff that the bridge would have an adverse effect due to the integrity of materials, design, setting, workmanship and feeling of the proposed new bridge.

November 8, 2018: Caltrans sent a letter to the State Historic Preservation Officer formally revising the finding to be a Finding of Adverse Effect.

January 29, 2019: A Finding of Adverse Effect under Section 106 was completed for the project. The State Historic Preservation Officer formally responded to Caltrans, concurring with Caltrans' Finding of Adverse Effect for Section 106 for the project.

March 24, 2021: A Supplemental Finding of Adverse Effect under Section 106 was completed for the project and sent to the State Historic Preservation Officer.

June 9, 2021: The State Historic Preservation Officer formally responded to Caltrans, concurring with Caltrans' Supplemental Finding of Adverse Effect for Section 106 for the project.

U.S. Fish and Wildlife Service

June 18, 2018: Caltrans sent a Biological Assessment to the U.S. Fish and Wildlife Service. The Biological Assessment concluded that the project may affect, but is not likely to adversely affect, the federally endangered species listed in Section 2.3.3.

September 17, 2018: Caltrans received a Letter of Concurrence from the U.S. Fish and Wildlife Service.

Department of Water Resources

October 19, 2017: Caltrans Project Development Team staff met with Department of Water Resources staff at the California Department of Water Resources 1416 9th Street office in Sacramento. The purpose of the meeting was to discuss the project status, discuss the proposed alternatives to repair the bridge in the channel, and discuss the alternative option of constructing a new bridge on State Route 166 at the aqueduct. At the meeting, it was determined that no pier repair work would be allowed inside the aqueduct. This determination introduced design constraints to the project.

Wheeler Ridge-Maricopa Water Storage District

June 15, 2017 and July 31, 2017: Mr. Eric McDaris, Engineering Technician/Safety Representative of the Wheeler Ridge-Maricopa Water Storage District was contacted via letter with right-of-way requests for permits to enter property.

August 4, 2017: Mr. McDaris contacted the environmental planner regarding the proposed right-of-way acquisition and permits to enter.

August 4, 2017: Details of the proposed right-of-way acquisition and permits to enter were provided to Mr. McDaris by Caltrans Project Manager Mr. Paul Pineda by email.

Emergency Services

May 31, 2018: Caltrans contacted Hall Ambulance Service, which operates an ambulance service in the project area. Hall Ambulance Service requested that Caltrans mail any information and the environmental document to Hall Ambulance Service.

May 8, 2018: Caltrans contacted the Kern County Fire Department via phone to explain the project and the proposed detour. The Kern County Fire Department had no comments, but requested that the environmental document and any additional information be mailed to Kern County Fire Department, Attention: Fire Marshall Derek Tisinger, 2820 M Street, Bakersfield, California 93301.

March 7, 2018: Caltrans contacted the California Highway Patrol via phone to inform emergency services of the detour of motorists from State Route 166 to Old River Road and Copus Road, and to provide the expected construction date and duration. The California Highway Patrol informed Caltrans that the Buttonwillow station is responsible for traffic enforcement on State Route 166 and requested information be sent to that office at 29449 Stockdale Highway, Bakersfield, California 93314.

Maricopa School District

May 11, 2018: Caltrans contacted the Maricopa School District Maintenance and Transportation Director, Mr. Darwin Ellis. Mr. Ellis was informed of the proposed project, its estimated construction time, and detour information. Mr. Ellis stated that the existing bus routes would not be directly impacted because they do not go over the bridge.

Coordination with Native American Groups

May 23, 2017: Native American consultation and coordination were initiated with a letter sent to the Native American Heritage Commission requesting a search of its files to determine if any sacred sites or traditional cultural properties were known to exist within or near the project area. The letter also requested the names of Native American individuals and group representatives who may be interested in or able to supply information relevant to the project.

May 30, 2017: Ms. Sharaya Souza, Staff Services Analyst of the Native American Heritage Commission, responded to Caltrans by email stating that the commission’s sacred land files found no presence of Native American

cultural resources in the immediate project area. The Native American Heritage Commission provided a list of contacts who may be interested in the project as well as recommendations for further tribal consultation.

June 15, 2017: Caltrans Central Region cultural resources staff sent out letters to the 10 individuals on the list provided by the Native American Heritage Commission. Each letter contained the project description, project mapping, and a request for information regarding prehistoric sites, historic sites, ethnographic land use, and contemporary Native American values in the project area. Ms. Mandy Macias, District 6 Native American Coordinator, reviewed the Native American Heritage Commission list for accuracy. Based on Ms. Macias' professional experience, two Native American consulting parties were added to the list and two were taken off the list that was provided by the Native American Heritage Commission.

September 15, 2017: Mr. Colin Rambo, Cultural Resource Management Technician at Tejon Indian Tribe, contacted Caltrans via email requesting that if Caltrans would proceed with an XPI Geoarchaeological Investigation, the Tejon Indian Tribe would appreciate an opportunity to monitor the excavations. The Tejon Indian Tribe is not presently aware of any undocumented tribal cultural resources anywhere along the State Route 166 corridor. Based on the lack of both known archaeological resources and tribal cultural resources within the architectural study area, Caltrans proceeded with the XPI Geoarchaeological Investigations without tribal monitoring. A follow-up email with both the Architectural Study Report and preliminary results for the XPI Geoarchaeological Investigations was forwarded to Mr. Rambo on March 27, 2018. The Tejon Indian Tribe replied via email on March 28, 2018 that "they appreciate Caltrans' efforts to keep them apprised of the status of the project. Given the results of the testing, they do not have any additional questions or concerns."

July 15, 2020: An additional request for information was emailed to the Native American Heritage Commission on July 15, 2020. The Native American Heritage Commission responded on the same day via email and indicated that the Sacred Lands File record search remained negative for the entire project area. The Native American Heritage Commission provided the same list of contacts who may be interested in the proposed project from 2018 with two additional contacts.

July 20, 2020: A second tribal notification letter was mailed out by Caltrans Central Region cultural staff concerning the now eliminated Northern Alignment. Eighteen tribal representatives representing 13 tribes were notified. The Big Pine Paiute Tribe of the Owens Valley, the San Fernando Band of Mission Indians, and the San Manuel Band of Mission Indians were omitted from consultation for this undertaking due to the geographical distance these groups are from the project location.

January 6, 2021: A third tribal notification was mailed by Caltrans Central Region cultural staff after the Northern Alignment was dropped and replaced by the Southern Alignment and Alternative 8. Twelve tribal representatives were notified of the project changes. Email notifications were received from the Fernandeño Tataviam Band of Mission Indians and the yak tityu tityu yak tiłhini - Northern Chumash Tribes requesting that Caltrans defer their consultation to the Tejon Indian Tribe of California. A draft of the Supplemental Archaeological Survey Report was provided to Mr. Colin Rambo of the Tejon Indian Tribe for review on February 4, 2021. As of May 6, 2021, the Tejon Indian Tribe has provided no comment regarding the negative findings in the Supplemental Archaeological Survey Report.

Chapter 5 List of Preparers

This document was prepared by the following Caltrans Central Region staff:

Allam Alhabaly, Transportation Engineer. B.S., California State University, Fresno, School of Engineering; 18 years of experience in environmental technical studies, with emphasis on noise studies. Contribution: Updated the Air Quality Memorandum and Noise Compliance Study.

Dane Dettloff, Associate Environmental Planner (Natural Sciences). B.S., Environmental Science—Environmental Resource Management, Oakland University, Rochester, Michigan; 11 years of combined experience in zoological, ecological, biological, veterinary, and environmental sciences. Contribution: Wrote the Revised Natural Environment Study.

Kevin Gallo, Landscape Architect. B.L.A., Landscape Architecture, California Polytechnic State University, San Luis Obispo; 14 years of landscape architecture experience. Contribution: Wrote the Scenic Resource Evaluation and Visual Assessment.

Nathaniel Heilmann, Architectural Historian. B.A., History, California State University, Fresno; 4 years of architectural history experience. Contribution: Wrote the Supplemental Finding of Adverse Effect and Memorandum of Agreement.

David Lanner, Associate Environmental Planner (Archaeologist). B.F.A., Art, Utah State University; 26 years of cultural resources experience. Contribution: Wrote the Section 106 Compliance Memorandum for the detour.

Rogerio Leong, Engineering Geologist. B.S., Geology, University of Sao Paulo, Brazil; 18 years of environmental site assessment and investigation experience. Contribution: Revised the Water Quality Assessment Report.

Geo Leyva, Transportation Engineer. B.S., Civil Engineering, California State University, Fresno; 21 years of Transportation Engineering Design, Caltrans; 5 years of Building Structures, Butler Manufacturing Building. Contribution: Project Engineer.

Joseph Llanos, Graphic Designer III. B.A., Graphic Design, California State University, Fresno; 21 years of visual design and public participation experience. Contribution: Created the mapping for the environmental document and technical reports.

Mandy Macias, Associate Environmental Planner (Archaeology). B.A., Anthropology, California State University, Fresno; more than 20 years of California and Great Basin archaeology and cultural resources management experience. Contribution: Prehistoric Archaeology, Native American consultation.

Shawn Ogletree, Engineering Geologist. B.S., Environmental Conservation of Natural Resources, Texas Tech University; B.S., Wildlife/Fisheries Management, Texas Tech University; M.P.H., California State University, Fresno; 14 years of environmental health, environmental technical studies experience; 10 years of biology experience. Contribution: Contribution: Wrote the Revised Hazardous Waste Initial Site Assessment.

Kendra Reif, Associate Environmental Planner (Generalist and Air Quality Specialist). M.P.A., Public Administration, California State University, Fresno; B.A., Political Science, University of Nevada, Reno; 4 years of transportation and environmental planning experience; 3 years of air quality analysis experience. Contribution: Wrote the Individual Section 4(f) Evaluation.

Hussein Senan, Senior Transportation Engineer (Specialist). B.S., Civil Engineering, California State University, Long Beach. Registered Professional Engineer (Civil) in California; 13 years of project management experience, 2 years of construction experience, 7 years of design experience. Contribution: Project Manager.

Chelsea Starr, Environmental Planner. B.S., Biology, University of Washington; 2 years of environmental planning experience. Contribution: Wrote the Initial Study/Environmental Assessment and the Individual Section 4(f) Evaluation.

Richard C. Stewart, Engineering Geologist, P.G. B.S., Geology, California State University, Fresno; more than 30 years of hazardous waste and water quality experience; 18 years of paleontology/geology experience. Contribution: Wrote the Updated Paleontological Investigation Report.

Jennifer H. Taylor, Environmental Office Chief. Double Bachelor of Arts in Political Studies and Organizational Sciences, Pitzer College; more than 30 years of experience in environmental and land use planning. Contribution: Oversight review of the Initial Study/Environmental Assessment and Individual Section 4(f) Evaluation.

Vladimir Timofei, Transportation Engineer. M.S., Civil Engineering, California State University, Fullerton; 19 years of environmental technical studies experience. Contribution: Wrote the Air Quality Memorandum, Noise Compliance Study, and Water Quality Assessment Report.

Sylvère CM Valentin, Associate Environmental Planner (Arch). M.A., Anthropology, Forensic Anthropology Certificate, California State University, Los Angeles; B.A., Business Administration, Minor Asian Pacific Studies, Loyola Marymount University; 20 years of experience in California archaeology and cultural resource management. Contribution: Wrote the Historic Property Survey Report, Archaeological Survey Report, Extended Phase One Report, Supplemental Historic Property Survey Report, and Supplemental Archaeological Survey Report.

Juergen Vespermann, Senior Environmental Planner. Civil Engineering Degree, Fachhochschule Muenster, Germany; more than 20 years of experience in transportation planning and environmental planning. Contribution: Reviewed the Initial Study/Environmental Assessment and Individual Section 4(f) Evaluation.

Chapter 6 Distribution List

Kern County Planning
2700 M Street
Bakersfield, California 93301

USDA (Natural Resources Conservation Service)
Bakersfield Office
5080 California Avenue
Bakersfield, California 93309

U.S. Army Corps of Engineers, South Pacific Division
915 Wilshire Boulevard, Suite 1101
Los Angeles, California 90017

U.S. Fish and Wildlife Service, Region 8
2800 Cottage Way, Room W-2606
Sacramento, California 95825

Beale Memorial Library
701 Truxtun Avenue
Bakersfield, California 93301

California Transportation Commission
1120 North Street, Room 2221 (MS52)
Sacramento, California 95814

California Department of Fish and Wildlife, Region 4
1234 East Shaw Avenue
Fresno, California 93710

Office of Planning and Research—State Clearinghouse
1400 10th Street
Sacramento, California 95814

California State Historic Preservation Officer
1725 23rd Street, Suite 100
Sacramento, California 95816

San Joaquin Valley Air Pollution Control District
1990 East Gettysburg Avenue
Fresno, California 93726

Regional Water Quality Control Board, Region 5
1685 E Street
Fresno, California 93706

California Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691

California Highway Patrol—Buttonwillow
29449 Stockdale Highway
Bakersfield, California 93314

Kern County Sheriff's Department
315 North Lincoln Street
Taft, California 93268

Kern County Public Works Department
2700 M Street, Suite 400
Bakersfield, California 93301

Kern County Fire Department
801 Stanislaus Street
Maricopa, California 93308

Maricopa Unified School District
955 Stanislaus Street
Maricopa, California 93252

Hall Ambulance Service
1001 21st Street
Bakersfield, California 93301

Chumash Council of Bakersfield
729 Texas Street
Bakersfield, California 93307

San Fernando Band of Mission Indians
P.O. Box 221838
Newhall, California 91322

Tule River Indian Tribe
P.O. Box 589
Porterville, California 93258

Kern Valley Indian Council
P.O. Box 401
Weldon, California 93283

Santa Rosa Rancheria
P.O. Box 8
Lemoore, California 93245-0008

Tejon Indian Tribe
1731 Hasti-Acres Drive, Suite 108
Bakersfield, California 93309

Tubatulabals of Kern Valley
P.O. Box 226
Lake Isabella, California 93240

Wuksache Indian Tribe Eshom Valley Band
1179 Rock Haven Court
Salinas, California 93906

Kern County Board of Supervisors, District 2
1115 Truxtun Avenue, 5th Floor
Bakersfield, California 93301

The Honorable Karen Goh,
City of Bakersfield Mayor
1501 Truxtun Avenue
Bakersfield, California 93301

The Honorable Dianne Feinstein,
United States Senate
2500 Tulare Street, Suite 4290
Fresno, California 93721

The Honorable Alex Padilla,
United States Senate
2500 Tulare Street, Suite 4290
Fresno, California 93721

The Honorable Kevin McCarthy
US Congressman, 23rd District
4100 Empire Drive, Suite 150
Bakersfield, California 93309

The Honorable Shannon Grove,
California State Senator, 16th District
5701 Truxtun Avenue, Suite 150
Bakersfield, California 93309

The Honorable Vince Fong,
California State Assemblyman, 34th District
4900 California, Suite 100B
Bakersfield, California 93309

California Department of Water Resources
1416 9th Street
Sacramento, California 95814

Appendix A Section 4(f) Evaluation

Introduction

The California Department of Transportation (Caltrans), as the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) lead agency, proposes to replace California Aqueduct Bridge Number 50-0323 on State Route 166. The project is in Kern County, 17.5 miles east of Maricopa, 2.6 miles east of Old River Road, and 5 miles west of Interstate 5 (see Figures 1-1 and 1-2 in the Initial Study/Environmental Assessment).

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 U.S. Code 303, declares that "it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites."

Section 4(f) at 49 U.S. Code 303(c) specifies that:

[The] Secretary [of Transportation] may approve a transportation program or project […] requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site) only if --

> (1) there is no prudent and feasible avoidance alternative to using that land; and
>
> (2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

Section 4(f) further requires cooperation and consultation with the Department of the Interior and, as appropriate, the involved offices of the Department of Agriculture and the Department of Housing and Urban Development in developing transportation projects and programs that use lands protected by Section 4(f). If historic sites are involved, then coordination with the State Historic Preservation Officer is also needed. (49 U.S. Code 303(b).)

Responsibility for compliance with Section 4(f) has been assigned to Caltrans pursuant to 23 U.S. Code 326 and 327, including determinations and approval of Section 4(f) evaluations, as well as coordination with those agencies that have jurisdiction over a Section 4(f) resource that may be affected by a project action.

This Individual Section 4(f) Evaluation replaces the De Minimis Section 4(f) Evaluation that was previously circulated to the public in June 2018 for this project. On August 28, 2018, the State Historic Preservation Officer formally responded to Caltrans, stating that after her review, she was rejecting Caltrans' Finding of No Adverse Effect for Section 106 for this project. The basis of the State Historic Preservation Officer's rejection of the Finding of No Adverse Effect was that Caltrans' preferred design alternative "is visually obtrusive to the California Aqueduct due to its increased size from the existing bridge." Further information concerning the proposed project alternatives and coordination with the State Historic Preservation Officer is discussed below. In addition, please refer to Chapter 1 of the Initial Study/Environmental Assessment for more detailed project information.

Description of Proposed Project

Project Description

The project would replace California Aqueduct Bridge Number 50-0323 on State Route 166 in Kern County east of Maricopa, 2.6 miles east of Old River Road and 5 miles west of Interstate 5 (see Figures 1-1 and 1-2 in the Initial Study/Environmental Assessment). State Route 166 at the bridge location is a conventional two-lane highway with two 12-foot lanes and 8-foot shoulders. The bridge was built in 1968 and is about 400 feet long. The purpose of the project is to remove California Aqueduct Bridge Number 50-0323 and replace it with a new bridge. The existing structure would be removed, and 1 foot of pier concrete lining would be left in the aqueduct. The proposed new bridge would be designed and built to current Caltrans standards, including upgrading the approaches to the bridge, the piers, the foundation, and the bridge rails.

The bridge, which Caltrans owns, crosses the California Aqueduct, which the California Department of Water Resources owns and operates. The California Aqueduct was determined eligible for the National Register of Historic Places in 2012 under Criteria A and C of the National Historic Preservation Act. The bridge qualifies under Criterion C as a contributing element to the California Aqueduct.

Purpose of the Proposed Project

The purpose of this project is to replace the existing 50-year-old bridge with a new bridge that will meet current Caltrans standards and be structurally sound.

Need for the Proposed Project

The existing bridge is deficient for the following reasons:

- The bridge piers are settling into the ground, resulting in cracks on the bottom surface of the existing bridge structure.
- The bridge deck is sagging and rotating, indicating that the foundation is unstable, resulting in insufficient structural integrity.
- Because of the bridge's insufficient structural integrity, the bridge may continue to deteriorate and become structurally unsound.

Images of the bridge in its existing condition are shown in Appendix I.

Please see the Purpose and Need section in Chapter 1 of the Initial Study/Environmental Assessment for additional information.

Project Background and Consultative Determinations

Consultation with the Department of Water Resources

Caltrans initiated construction on a project in early 2013 to address deficiencies at several bridges in Fresno County, Madera County, and Tulare County, including Bridge Number 50-0323. Caltrans initially proposed to retrofit and rehabilitate the existing bridge by installing cast-in-drilled-hole piles (pouring concrete into deep, newly drilled holes) to stabilize the pile caps from movement. Upon further review, Caltrans determined that it would not be able to address deficiencies on the existing bridge without a complete seismic retrofit of the bridge. As a result, Caltrans decided to suspend construction on the bridge, remove it from the initial project, and instead design a long-term State Highway Operation and Protection Program project that would address all the bridge's deficiencies.

The project was reinitiated on June 9, 2016, when alternatives were designed that would address the deficiencies on the existing bridge. Caltrans then began the environmental analysis process to assess the potential environmental impacts associated with the project's proposed alternatives. Due to potential impacts to the aqueduct, Caltrans consulted with the California Department of Water Resources, which owns and operates the aqueduct.

In October 2017, a meeting was held with Caltrans and the California Department of Water Resources in Sacramento. During this meeting, Caltrans presented the proposed alternatives: Alternatives 1, 1A, 6, and 7. However, because the California Department of Water Resources determined that placing piers in the California Aqueduct would not be feasible without disrupting water flow and aqueduct operations, all alternatives that proposed placing piers in the water were eliminated from further discussion and consideration. These alternatives are further discussed below in Alternatives Considered but Eliminated from Further Discussion.

Evaluation of Remaining Alternatives

Upon the elimination of Alternatives 1, 1A, 6, and 7, the project development team evaluated Alternatives 2, 3, 4, 5, and 8 based on the criteria listed below:

1) Does this alternative involve the complete shutdown of flow, significant reduction in hydraulic capacity, or penetrating the aqueduct lining?
2) Does this alternative fail to meet the project's purpose and need?
3) Does this alternative have excessive construction costs?
4) Are there severe operational or safety problems associated with this alternative?
5) Are there unacceptable adverse social, economic, or environmental impacts?
6) Is there a combination of reasons listed previously, that, taken individually, might not be significant but would be significant if taken cumulatively?

If any alternative triggered a "yes" in response to the criteria, the alternative was rejected. See Table A.1 in Appendix A for a comparison between the rejected alternatives and the criteria that triggered the rejection.

After triggering a "yes" in response to the criteria, Alternatives 2, 3, 4, and 5 were eliminated from further consideration and are discussed further in Section 1.6, Alternatives Considered but Eliminated from Further Discussion.

Alternative 8 did not trigger a "yes" in response to the criteria and was further developed as a build alternative. Alternative 8 is described in Section 1.5.1, Build Alternatives.

Consultation with the State Historic Preservation Officer

In 2018, Caltrans completed an Initial Study with Proposed Negative Declaration under CEQA, an Environmental Assessment under NEPA, and a De Minimis Section 4(f) Evaluation for the proposed project. The draft environmental document was circulated for public and agency comment in June 2018. During the circulation period, Caltrans received a comment from the State Historic Preservation Officer disputing Caltrans' No Adverse Effect determination under Section 106 for impacts to the California Aqueduct, a historic property eligible for the National Register of Historic Properties, and Bridge Number 50-0323, an eligible contributing feature of the California Aqueduct.

The State Historic Preservation Officer determined that the proposed project was visually obtrusive to the existing environment and that the proposed design took away from the look and feel of the California Aqueduct. The State Historic Preservation Officer argued that the proposed bridge would affect the

integrity of materials, design, setting, workmanship, and feeling of the aqueduct.

Caltrans accepted the State Historic Preservation Officer's comments and the Finding of Effect on January 29, 2019. The acceptance of the Finding of Effect required the document level of the previously completed Section 4(f) Evaluation to be elevated from a De Minimis determination to an Individual Section 4(f) Evaluation.

Since the original submittal of the Finding of Effect, Alternative 8 has been modified to include additional construction work to lessen impacts to utility lines; a new alternative—the South Alignment Alternative—is also being considered. On March 24, 2021, a revised Finding of Adverse Effect under Section 106 was completed for the project and sent to the State Historic Preservation Officer. The State Historic Preservation Officer formally responded on June 9, 2021 stating no objections to the Supplemental Finding of Adverse Effect.

The Value Analysis

Due to the anticipated cost of the project, a value analysis was conducted for the project in October 2019. The value analysis considered additional alternatives that were evaluated based on impacts on performance, cost, time, and risk when compared to Alternative 8. The value analysis team was composed of Caltrans specialists unassociated and unfamiliar with the project at the time. If any new alternatives were recommended by the value analysis team, the project development team further evaluated those alternatives using the criteria listed in Section 1.4.2, Evaluation of Remaining Alternatives.

The value analysis team recommended that Value Analysis Alternatives 2.1, 2.2, 2.3, Alternative 2.4 (also referred to as the North Alignment), and 2.5 should be included in the project scope and evaluated as alternatives for this project. These alternatives were paired with companion alternatives, Value Analysis Alternatives 1.1 and 1.2, as detour options based on the need for a roadway realignment. However, after receiving feedback from the project development team, it was determined that Value Analysis Alternatives 2.1, 2.2, 2.3, and 2.5 would trigger a "yes" when compared to the alternative elimination criteria described in Section 1.4.2, Evaluation of Remaining Alternatives.

The value analysis team concluded that Value Analysis Alternative 2.4 (North Alignment) should be accepted as part of the project scope and further evaluated by the project development team. Value Analysis Alternative 1.1 and 1.2 were also recommended for further evaluation as detour options for Alternative 8 and Value Analysis Alternative 2.4 (North Alignment), respectively. It was later determined that Value Analysis Alternative 2.4 (North Alignment) would result in severe utility impacts. This alternative was then

revised, moved to the south, and renamed the South Alignment Alternative. See Section1.5.1, Build Alternatives, for additional details.

The value analysis team rejected the rest of the value analysis alternatives, as more fully described in Section 1.6, Alternatives Considered but Eliminated from Further Discussion. Section 1.6 also further describes Value Analysis Alternative 2.4 (North Alignment) before it was revised into the South Alignment Alternative.

Current Project Alternatives

Following the decision to prepare an Individual Section 4(f) evaluation, it was determined that the following two build alternatives, along with the No-Build (No-Action) Alternative, would be considered for this project:

Alternative 8

Alternative 8 proposes to build a single-span replacement bridge that would not require the placement of piers in the aqueduct. The new bridge would be built on the same alignment as the existing bridge but would additionally impact up to 6 acres of farmland. The new bridge would be a 16-foot-deep steel-beam bridge about 434 feet long, and 43 feet and 6 inches wide with 12-foot-wide lanes and 8-foot-wide shoulders. The new bridge would have a vertical height of 21 feet and require 1,500-foot approaches with fill material. A retaining wall would be located on the northern side of State Route 166, east of the California Aqueduct. The wall type would be a mechanically stabilized embankment, with a maximum height of 24 feet and length of 1,250 feet. The top of the wall would include a concrete barrier on a reinforced concrete barrier slab.

In addition, Value Analysis Alternative 1.1 was included as a detour alternative. During the value analysis process, the value analysis team presented this alternative as a companion alternative to all recommended alternatives that maintained the existing bridge and roadway alignment. Under this detour alternative, traffic on State Route 166 would be rerouted onto State Route 119 and State Route 33, flowing to Interstate 5 and State Route 99 to maintain the flow of traffic during construction. This detour is included in Figure 1-2 in Section 1.3, Project Description. The original detour route used Old River Road and Copus Road, both of which would require $5,000,000 worth of improvements before bridge construction. These improvements would also likely increase the environmental impacts of the project due to the proximity of sensitive biological resources. The initial cost savings for this alternative, compared to the original detour route, would be $4,500,000, with a 121-day reduction in the construction schedule and a 16 percent increase in performance. For these reasons, Alternative 1.1 was adopted as the preferred detour route for Alternative 8. Because this alternative is exclusive to Alternative 8, its effect on a Section 4(f) resource is discussed under Alternative 8.

South Alignment Alternative

This alternative would build a single-span replacement bridge that would not require the placement of piers in the aqueduct. This alternative would realign the bridge to the south and introduce three horizontal reversing curves. This alternative would reduce the vertical curve of the bridge and allow for conventional bridge construction methods. This alternative would impact about 26 acres of farmland and add 4,752 feet of new pavement and include a 280-foot-long steel-girder bridge. The bridge girder would be about 12.5 feet deep and 43.5 feet wide, while the bridge would have a vertical profile 20 feet above the native ground.

Value Analysis Alternative 1.2 was also included as a detour alternative. During the value analysis process, the value analysis team presented this alternative as a companion alternative to all recommended alternatives that would realign the bridge and roadway. This detour alternative would allow the continued use of the existing bridge during construction, minimizing the need for a new detour under the South Alignment Alternative. However, near the end of construction, a detour would be required while the realignment is connected to State Route 166. The same detour proposed for Alternative 8 would be used for the South Alignment Alternative. This detour would result in the least amount of traffic delays resulting from project construction but requires the adoption of a new bridge alignment for implementation. The initial cost savings for this alternative, compared to the original detour route, would be $4,500,000, with a 121-day reduction in the construction schedule and a 16 percent increase in performance. For these reasons, this alternative was adopted as the preferred detour route for the South Alignment Alternative. Because this alternative is exclusive to the South Alignment Alternative, its effect on the Section 4(f) resource is discussed under the South Alignment Alternative.

No-Build (No-Action) Alternative

The No-Build (No-Action) Alternative would not result in construction activities and would not affect the Section 4(f) resource. The No-Build (No-Action) Alternative would also not meet the purpose and need of the project. The bridge would still be out of compliance with current Caltrans standards and continue to worsen. This would lead to decreased structural integrity and could lead to the collapse of the bridge. The potential collapse of the bridge could create a cost to life and property, involve additional construction, and threaten the delivery of water supply to Santa Barbara, Los Angeles, and San Bernardino counties, which would add up to possible impacts of extraordinary magnitude.

Alternatives Considered but Eliminated from Further Discussion

The following provides a summary of the proposed project alternatives that were considered but eliminated from further discussion. Chapter 1 of the

Initial Study/Environmental Assessment provides additional detailed information.

Alternatives 1, 1A, 6, and 7

Because the California Department of Water Resources determined that placing piers in the California Aqueduct would disrupt the flow of water and would not be feasible with aqueduct operations, the following alternatives were eliminated from further consideration:

Alternative 1

Alternative 1 proposed to seismically retrofit the bridge, which would have required the existing structure at Pier 2 to be elevated until it reached the required deck elevation. Seismically retrofitting the bridge would have also allowed for the construction of the bridge columns at Pier 2. Once completed, a steel plate and threaded rods would have been placed through the cored holes on the structure to build the abutment footing for the bridge. The existing bridge rail would have been removed and replaced with Caltrans' standard concrete barrier.

Alternative 1A

Alternative 1A proposed a rehabilitation strategy of the bridge by strengthening Pier 2. The work needed to strengthen Pier 2 would have involved drilling holes through the aqueduct channel lining to place large pipe pile extensions to help support the bridge.

Alternative 6

Alternative 6 proposed a replacement that would have used the existing bridge as a work platform. Alternative 6 proposed that new single-column piers be built near existing Piers 2 and 3 on the aqueduct lining. The new bridge structure would have been built from the existing bridge. The existing bridge would have been removed after the installation of the new bridge.

Alternative 7

Alternative 7 proposed a two-span replacement that would have used the existing bridge as a work platform. A single large-diameter column would have been built along the aqueduct centerline through the existing bridge structure. The new bridge structure would have been built off the existing bridge, and the existing bridge would have been removed after the installation of the new bridge.

Alternatives 2, 3, 4, and 5

As explained in Section 1.4.2, Evaluation of Remaining Alternatives, Alternatives 2, 3, 4, and 5 were evaluated but rejected based on the criteria listed below:

1) Does this alternative involve the complete shutdown of flow, significant reduction in hydraulic capacity, or penetrating the aqueduct lining?
2) Does this alternative fail to meet the project's purpose and need?
3) Does this alternative have excessive construction costs?
4) Are there severe operational or safety problems associated with this alternative?
5) Are there unacceptable adverse social, economic, or environmental impacts?
6) Is there a combination of reasons listed previously, that, taken individually, might not be significant but would be significant if taken cumulatively?

If any alternative triggered a "yes" in response to the criteria, the alternative was rejected. See Table A.1 for a comparison between the rejected alternatives and the criteria that triggered the rejection.

Alternative 2

Alternative 2 proposed to replace the existing bridge with a new one that would have crossed the aqueduct perpendicularly and about 1 mile south of its current location. This alternative would have required adding three horizontal curves and one vertical curve to the roadway. This alternative would have cost $23,315,000 and impacted up to 75 acres of farmland.

While Alternative 2 would have had low costs, it would have impacted the most farmland out of all the alternatives. Alternative 2 would have also introduced sharp horizontal reversing curves in the roadway, which studies have shown would be a potential safety concern for motorists. The introduction of reversing curves this sharp warranted a concern from Traffic Operations staff, who requested the crash analysis to compare the new alignment with the existing condition. The September 27, 2018 version of the Crash Prediction Evaluation Report, which compares the existing alignment with the proposed new horizontal reversing curve alignment (Alternative 2), showed that Alternative 2 would have had a potential for a roughly 40 percent higher number of accidents.

Alternative 3

Alternative 3 proposed to replace the existing three-span 394-foot-long bridge with a 1,320-foot-long segmentally built bridge on a parallel alignment. The structure would have been 49 feet tall. The total length of the bridge was dictated by the amount of space the California Department of Water Resources needed to maintain the aqueduct. Alternative 3 proposed to clear-span the bridge, which would have left an open area within the structure to allow the California Department of Water Resources access to the aqueduct. This bridge design would have required large end-span lengths to balance the structure. Alternative 3 would have cost $58,745,000 and impacted about 20 acres of farmland.

Due to the high cost of Alternative 3 in combination with the impacts to farmland, this alternative was eliminated from further consideration.

Alternative 4

Alternative 4 proposed to replace the existing three-span 394-foot-long bridge with a 1,370-foot-long bridge that would have been supported and stabilized by long cables. The structure would have been 36 feet tall and built on a parallel alignment. The total length of the bridge was dictated by the amount of space the California Department of Water Resources needed to maintain the aqueduct. Alternative 4 proposed to clear-span the bridge, which would have left an open area within the structure to allow the California Department of Water Resources access to the aqueduct. This bridge design would have required large end-span lengths to balance the structure. Alternative 4 would have cost $63,135,000 and impacted about 20 acres of farmland.

Due to the high cost of Alternative 4 in combination with the impacts to farmland, this alternative was eliminated from further consideration.

Alternative 5

Alternative 5 would have replaced the existing bridge with a 1,320-foot-long segmental box-girder bridge along the existing State Route 166. The structure would have been 49 feet tall. The total length of the bridge was dictated by the amount of space the California Department of Water Resources needed to maintain the aqueduct. Alternative 5 proposed to clear-span the bridge, which would have left an open area within the structure to allow the California Department of Water Resources access to the aqueduct. This bridge design would have required large end-span lengths to balance the structure. Alternative 5 would have cost $58,745,000 and impacted about 16 acres of farmland.

Due to the high cost of Alternative 5 in combination with the impacts to farmland, this alternative was eliminated from further consideration.

Value Analysis Alternatives

The value analysis introduced new alternatives that were evaluated based on impacts on performance, cost, time, and risk when compared to Alternative 8. Key performance attributes identified for the project include mainline operations, temporary construction impacts, maintainability, and permanent environmental impacts. These attributes, along with an alternative's cost savings, time savings, and assumed risks, were then quantified by the value analysis team using a Value Metrics algorithm. An increase in performance rating indicates the new alternative improves mainline operations, reduces temporary construction impacts, increases maintainability, or reduces permanent environmental impacts when compared to Alternative 8.

If any new alternatives were recommended by the value analysis team, the project development team further evaluated those alternatives using the criteria listed in Section 1.4.2, Evaluation of Remaining Alternatives. The following alternatives from the value analysis process were also considered and rejected, as explained below:

Value Analysis Alternative 2.1

This alternative would have improved Old River Road and Copus Road to current standards to serve as the new alignment for State Route 166. The aqueduct crossing on Old River Road would have also likely needed to be upgraded. The existing bridge would have been demolished.

The initial cost savings for this alternative, when compared to Alternative 8, would have been $14,510,000, with a 205-day reduction in the construction schedule and a 1 percent decrease in performance. The performance rating is based on the impact the alternative would have had on the project's expected mainline operations, temporary construction impacts, maintainability, and permanent environmental impacts.

Accepting this proposed alternative would have failed to meet the project's purpose and need, as the purpose of this project is to replace Bridge Number 50-0323 with a new bridge, and this alternative would demolish the bridge without replacing it. For these reasons, Value Analysis Alternative 2.1 was eliminated from further consideration.

Value Analysis Alternative 2.2

This alternative would have developed a southern alignment for the new bridge. This bridge would have also used precast concrete girders.

The initial cost savings for this alternative, when compared to Alternative 8, would have been $9,520,000, with a 55-day reduction in the construction schedule and an 8 percent decrease in performance.

However, a Wheeler Ridge-Maricopa Water Storage District facility exists just south of State Route 166 and east of the California Aqueduct. This alternative would have reduced the skewed angle (the angle at which the bridge crosses the California Aqueduct) and avoided the Wheeler Ridge-Maricopa Water Storage District facility by creating a significant deviation from the existing roadway alignment. This would have resulted in a large impact on farmlands, similarly to Alternative 2. For these reasons, Value Analysis Alternative 2.2 was eliminated from further consideration.

Value Analysis Alternative 2.3

This alternative would have built box culverts similar to the crossing on Old River Road.

The initial cost savings for this alternative, when compared to Alternative 8, would have been $19,500,000, with a 55-day reduction in the construction schedule and a 7 percent increase in performance.

Based on the meeting with the California Department of Water Resources on October 19, 2017, the California Department of Water Resources would not approve any alternative involving a complete shutdown of flow, a significant reduction in hydraulic capacity, or penetration of the aqueduct lining. For this reason, Value Analysis Alternative 2.3 was eliminated from further consideration.

Value Analysis Alternative 2.4

This alternative would have realigned the bridge to the north and introduced three horizontal reversing curves. This alternative would have reduced the overall size of the bridge, reduced the vertical curve of the bridge, and reduced the span length of the bridge, allowing for more conventional bridge construction methods when compared to Alternative 8. Rather than hauling and assembling oversized steel beams to create a structure onsite, this alternative would allow for the less challenging transportation of preassembled bridge parts. This alternative would have also required up to 13 acres of farmland and added 3,578 feet of new roadway due to the route realignment involving reversing curves.

The initial cost savings for this alternative, when compared to Alternative 8, would have been $18,900,000, with a 55-day reduction in the construction schedule and a 20 percent increase in performance. The project team accepted this alternative as a result of the value analysis. After further evaluation, however, it was discovered that this alternative would result in utility impacts to an existing oil line. The oil line would need to be relocated further to the north for this alignment, which would have added $5,000,000 to the project cost and require an additional 2 years to complete the project. For this reason, Value Analysis Alternative 2.4 as described in this section was eliminated from further consideration. However, this alternative was then revised, moved to the south, and renamed the South Alignment Alternative. See Section1.5.1, Build Alternatives, for additional details.

Value Analysis Alternative 2.5

This alternative would have created a platform bridge by installing concrete girders at 90 degrees to the aqueduct centerline. This platform bridge would have been roughly 490 feet long by 160 feet wide, and the travel way would have been delineated on this platform. This platform would likely have created public attention to the unused non-delineated portions of the bridge, which would likely result in the public occupying the excess space for fishing or recreation, which is often seen in similar bridge designs. Installing the piles to support the concrete girders would have also impacted the utilities on the

north side and south side of the bridge, including an oil line, which would increase cost and lengthen the project schedule.

The initial cost savings for this alternative, when compared to Alternative 8, would have been $7,410,000, with a 25-day reduction in the construction schedule and a 5 percent increase in performance. The cost and time required for utility relocations were not initially factored into this estimate by the value analysis team due to limited familiarity with the project area.

Based on the visual and utility impacts noted by the project development team during the value analysis process, this alternative was removed from consideration.

Table A.1 Comparison of Rejected Alternatives Against Rejection Criteria

Alternative	Does this alternative involve the complete shutdown of flow, significant reduction in hydraulic capacity, or penetrating the aqueduct lining?	Does this alternative fail to meet the project's purpose and need?	Does this alternative have excessive construction costs?	Are there severe operational or safety problems associated with this alternative?	Are there unacceptable adverse social, economic, or environmental impacts?	Is there a combination of reasons listed previously, that, taken individually, might not be significant but would be significant if taken cumulatively?	Was this alternative rejected by the value analysis team?
Alternative 2	No	No	No	**Yes**	**Yes**	**Yes**	Not applicable
Alternative 3	No	No	**Yes**	No	No	**Yes**	Not applicable
Alternative 4	No	No	**Yes**	No	No	**Yes**	Not applicable
Alternative 5	No	No	**Yes**	No	No	**Yes**	Not applicable
Value Analysis Alternative 2.1	No	**Yes**	No	No	No	No	**Yes**
Value Analysis Alternative 2.2	No	No	No	No	**Yes**	No	**Yes**
Value Analysis Alternative 2.3	**Yes**	No	No	No	No	No	**Yes**
Value Analysis Alternative 2.4	No	No	No	No	**Yes**	No	No
Value Analysis Alternative 2.5	No	No	No	No	**Yes**	No	**Yes**

Section 4(f) Properties

One historic site—the California Aqueduct (CA-FRE-3645H)—crosses the project area at State Route 166 at post mile 17.45. For a historic site to be evaluated under Section 4(f), it must first be considered significant. A historic site is significant only if it is on or eligible for the National Register of Historic Places. The California Aqueduct was determined eligible under Section 106 for the National Register of Historic Places in 2012 under Criteria A and C of the National Historic Preservation Act and is therefore significant for the purposes of Section 4(f).

Under Criterion A, the aqueduct is eligible as the largest and most significant of the water conveyance systems developed as part of the State Water Project. Under Criterion C, the aqueduct is eligible due to its complex design, which was necessary to redistribute water throughout the state of California on such a massive level. The period of significance for the resource is 1960-1974, the years of construction.

As part of the 2012 evaluation, 17 bridges over the California Aqueduct were determined to be contributing elements for the aqueduct's eligibility. Caltrans, as part of its cultural resource identification efforts, and in accordance with stipulation 8.C.4 of the Section 106 Programmatic Agreement, determined the California Aqueduct Bridge Number 50-0323 was also eligible for inclusion in the National Register of Historic Places for this project as a contributing element of the California Aqueduct. As a result, California Aqueduct Bridge Number 50-0323 is considered significant for the purposes of Section 4(f).

Use of the Section 4(f) Properties

Description of Use and Impacts on the Section 4(f) Properties by Alternative

This section describes how the build alternatives for the California Aqueduct Bridge Replacement project would or would not use both the California Aqueduct and California Aqueduct Bridge Number 50-0323 as Section 4(f) resources.

The project proposes to either construct a new bridge on the existing alignment or construct a new bridge along a new alignment. As there are two alternatives with different impacts to the California Aqueduct and its character-defining feature (the California Aqueduct Bridge), the potential to affect the aqueduct will be discussed by individual alternatives.

Section 774.17 of 23 Code of Federal Regulations states that except as set forth in Sections 774.11 and 774.13, a "use" of Section 4(f) property occurs:

> (1) When land is permanently incorporated into a transportation facility;
>
> (2) When there is a temporary occupancy of land that is adverse in terms of the statute's preservation purpose as determined by the criteria in Section 774.13(d); or
>
> (3) When there is a constructive use of a Section 4(f) property as determined by the criteria in Section 774.15.

The No-Build (No-Action) Alternative is not discussed in this section because it would not result in the use of any Section 4(f) resources.

Alternative 8

Alternative 8 proposes to build a replacement bridge on the existing alignment that would not require the installation of piers in the aqueduct. The existing bridge would be used as a construction base for the construction of the new bridge. Following construction of the new bridge, the existing bridge would then be demolished by removing the bridge deck and removing the two existing piers in the aqueduct up to 1 foot from the bottom of the channel. No work would take place within the aqueduct channel itself.

The proposed alternative will have an adverse effect to the California Aqueduct historic property by physically destroying character-defining features of the historic property and introducing new visual, atmospheric, or audible elements that diminish the integrity of the property's setting that contributes to its significance. This alternative would result in the demolition of California Aqueduct Bridge Number 50-0323, a character-defining feature of the California Aqueduct. In addition, the construction of the bridge and

associated retaining walls will introduce new visual and atmospheric elements that will diminish the integrity of the property's setting. These intrusions would be the result of the differences in the current and proposed bridge height and the construction of the retaining wall.

Alternative 8 would result in the actual use of the California Aqueduct as a Section 4(f) property through the acquisition of property directly adjacent to the aqueduct lining, including service roads, which are defining features of the California Aqueduct. This would permanently incorporate the property into a transportation facility.

Alternative 8 would also result in the actual use of the California Aqueduct Bridge Number 50-0323 as a Section 4(f) property through the demolition and permanent incorporation of the property into a transportation facility.

South Alignment Alternative

This alternative proposes to construct a new alignment south of the existing alignment and demolish the existing California Aqueduct Bridge Number 50-0323 after construction of the new alignment is completed. The existing bridge will be used as a detour during most of construction of the new alignment. Following construction, the existing bridge would be demolished by removing the bridge deck and removing the two existing piers in the aqueduct to 1 foot above the bottom of the channel. No work would take place in the channel itself.

The proposed alternative will have an adverse effect to the California Aqueduct historic property, as outlined above, by physically destroying character-defining features of the historic property, removing a character-defining feature from its historic location, and introducing new visual and atmospheric elements that diminish the integrity of the property's significant historic features. This alternative would result in the demolition of the California Aqueduct Bridge Number 50-0323, a character-defining feature of the California Aqueduct historic property. In addition, the realignment of State Route 166 south of the current alignment would remove a character-defining feature (the bridge) from its historic location. Finally, construction of a new bridge would introduce new visual, atmospheric and audible elements that would diminish the integrity of the property's significant historic features.

The South Alignment Alternative would result in the use of the California Aqueduct as a Section 4(f) property through the purchase of a permanent easement of the California Aqueduct to relocate the bridge, permanently incorporating the property into a transportation facility.

The South Alignment Alternative would result in the actual use of the California Aqueduct Bridge Number 50-0323 as a Section 4(f) property through the demolition and relocation of the new bridge, permanently incorporating of the property into a transportation facility.

Avoidance Alternatives Analysis

Section 774.17 of 23 Code of Federal Regulations states that an alternative that would avoid the use of Section 4(f) resources [avoidance alternative] must be selected if that alternative is determined to be feasible and prudent. The regulations state that an avoidance alternative is feasible and prudent if it "does not cause other severe problems of a magnitude that substantially outweighs the importance of protecting the Section 4(f) property." An alternative is not feasible "if it cannot be built as a matter of sound engineering judgment."

The regulations do not provide a single clear definition of "prudent." Instead, they list a series of factors that can support a conclusion that an alternative is not prudent. The definition of "feasible and prudent avoidance alternative" in 23 Code of Federal Regulations 774.17 provides the following direction for determining whether an alternative is prudent:

An alternative is not prudent if:

i. It compromises the project to a degree that it is unreasonable to proceed with the project in light of its stated purpose and need;

ii. It results in unacceptable safety or operational problems;

iii. After reasonable mitigation, it still causes:

   a) Severe social, economic, or environmental impacts;

   b) Severe disruption to established communities;

   c) Severe disproportionate impacts to minority or low-income populations; or

   d) Severe impacts to other federally protected resources;

iv. It results in additional construction, maintenance, or operational costs of an extraordinary magnitude;

v. It causes other unique problems or unusual factors; or

vi. It involves multiple factors listed above, that while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude.

The California Aqueduct is an aquatic linear feature that is 444 miles long and stretches from just north of the city of Tracy to Los Angeles before splitting into three branches serving Santa Barbara County, Los Angeles County, and San Bernardino County. Because of its sheer size and linear nature, an additional linear feature will be required to cross the aqueduct. Caltrans has considered a wide range of alternatives which will be evaluated as possible avoidance alternatives in this section.

Alternatives 1, 1A, 6, and 7, and Value Analysis Alternative 2.3 cannot be evaluated as avoidance alternatives due to the pier restrictions established by the Department of Water Resources in 2017.

Alternatives 2, 3, and 4, along with Value Analysis Alternatives 2.1, 2.2 and 2.4, would have replaced the existing bridge with a new one along a new alignment. Like the South Alignment Alternative, these alternatives would result in the use of both the California Aqueduct and the California Aqueduct Bridge Number 50-0323 through the permanent incorporation of the properties into a transportation facility. Therefore, Alternatives 2, 3, and 4, and Value Analysis Alternatives 2.1, 2.2 and 2.4 are not avoidance alternatives.

Alternative 5 and Value Analysis Alternative 2.5 would have replaced the existing bridge with a new one along the existing alignment. Like Alternative 8, these alternatives would result in the use of both the California Aqueduct. and the California Aqueduct Bridge Number 50-0323 through the permanent incorporation of the properties into a transportation facility. Alternative 5 and Value Analysis Alternative 2.5 are not avoidance alternatives.

The No-Build Alternative is the only avoidance alternative for this project. The No-Build Alternative would compromise the project to a degree that it is unreasonable to proceed with the project in light of its stated purpose and need. The purpose of this project is to replace California Aqueduct Bridge Number 50-0323 with a new bridge that will meet current Caltrans standards, be more structurally sound, and be better able to withstand potential seismic events. The purpose directly involves the replacement and demolition of a character-defining feature of the California Aqueduct historic property and would therefore result in the diminished integrity of the design, setting, materials, and workmanship of the California Aqueduct.

Furthermore, this avoidance alternative could cause severe problems of a magnitude that substantially outweigh the importance of protecting the Section 4(f) property. The potential collapse of the bridge could create a cost to life and property, involve additional construction, and threaten the delivery of water supply to Santa Barbara, Los Angeles, and San Bernardino counties, which would add up to possible impacts of extraordinary magnitude.

Because the California Department of Water Resources will not allow the construction of piers and construction is not permitted to occur in the channel itself, there are no alternatives that could avoid visual, atmospheric and audible elements that would diminish the integrity of the property’s significant historic features, as the new bridge would need to be fundamentally different than the existing bridge to be engineered and constructed safely. Therefore, it is not feasible to develop additional avoidance alternatives without unreasonably compromising the project.

Measures to Minimize Harm to Section 4(f) Resources

The development of the build alternatives for the California Aqueduct Bridge Replacement project considered a range of engineering and environmental constraints placed on the project as a result of consultation with the California Department of Water Resources. Meeting the purpose and need of the project, safety, environmental impacts, extraordinary cost, and avoiding or minimizing use of the Section 4(f) property were also key components during the alternative development and refinement processes, as explained in Description of the Proposed Project.

Efforts to minimize harm to the Section 4(f) property include developing the current build alternatives to look and feel as much like the original bridge as possible, as shown in Figures A-1 and A-2, which show visual simulations of the build alternatives. The build alternatives were given a similar utilitarian design and color scheme as the existing bridge, which is shown in Figure A-3.

Figure A-1 Visual Simulation of Alternative 8

Figure A-2 Visual Simulation of South Alignment Alternative

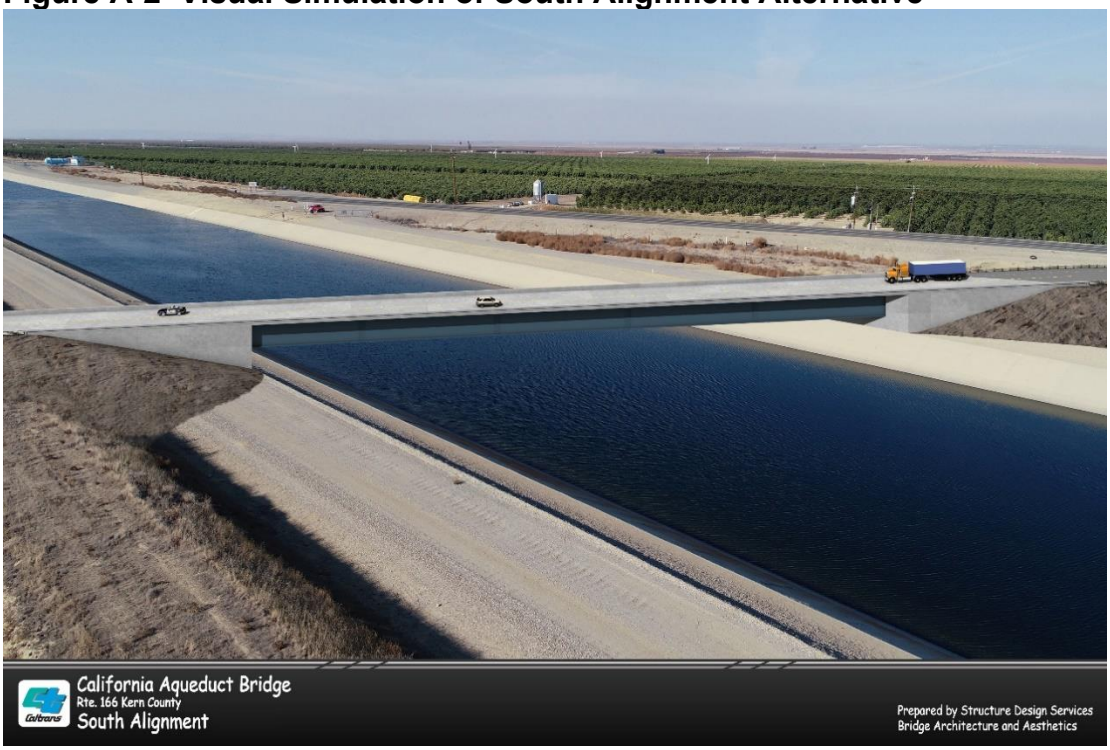

Figure A-3 Existing California Aqueduct Bridge Number 50-0323

To ensure that the history of the bridge is adequately captured before construction, Caltrans would implement mitigation measures to help ensure that the bridge maintains its historical importance through documentation. To do this, Caltrans would complete a Historic American Buildings Survey and a Historic American Engineering Record. The Historic American Buildings Survey/Historic American Engineering Record documentation combines drawings, history, and photographs to produce a comprehensive, multidisciplinary record of a building or engineering feature. Historic American Buildings Survey/Historic American Engineering Record documentation becomes a part of the collection at the Library of Congress. The Historic American Buildings Survey/Historic American Engineering Record for the bridge will describe and convey the importance of the bridge as well as the role that the bridge plays in the larger aqueduct system.

Final mitigation measures will be developed and documented in the subsequent Memorandum of Agreement. The following additional measures are proposed:

- Develop a programmatic agreement with the Department of Water Resources, Bureau of Reclamation, Office of Historic Preservation, and Caltrans.
- Develop and make available California Aqueduct interpretive displays for museums, city halls, visitor centers, and other indoor interpretive centers throughout Kern County. Displays may also extend to locations near the California Aqueduct in Kings County, Fresno County, and Merced County.
- Develop and install California Aqueduct interpretive panels or kiosks at highway rest stops or parks near the California Aqueduct.

Coordination

California Department of Water Resources

October 19, 2017: Caltrans' Project Development Team met with the California Department of Water Resources staff at their office at 1416 9th Street in Sacramento. The purpose of the meeting was to discuss the project status, the proposed alternatives to repair the bridge in the channel and the alternative option of building a new bridge on State Route 166 at the aqueduct. At the meeting, it was determined that no pier repair work would be allowed inside the aqueduct. This determination introduced design constraints to the project.

Office of Historic Preservation

April 2018: A Finding of No Adverse Effect without Standard Conditions, which summarizes Caltrans' effects determination for the California Aqueduct and Bridge Number 50-0323, was prepared and sent to the Office of Historic Preservation.

August 28, 2018: The State Historic Preservation Officer formally responded to Caltrans, stating that the State Historic Preservation Officer was rejecting Caltrans' Finding of No Adverse Effect for Section 106 for the project. Caltrans accepted the State Historic Preservation Officer's comments.

August 30, 2018: Caltrans and Office of Historic Preservation staff met to discuss possible ways of avoiding an Adverse Effect determination by changing design features.

September 18, 2018: Updated visual simulations with design changes were sent to the Office of Historic Preservation.

September 26, 2018: The Office of Historic Preservation staff verbally indicated that the bridge design would still likely have an adverse effect due to the integrity of materials, design, setting, workmanship and feeling of the proposed new bridge.

October 1, 2018: Caltrans proposed a potential alternative using three horizontal "S" curves to reduce the new bridge height.

October 9, 2018: The Office of Historic Preservation staff confirmed via email that the bridge would still have an adverse effect due to the integrity of materials, design, setting, workmanship and feeling of the proposed new bridge.

October 18, 2018: The State Historic Preservation Officer agreed with the Office of Historic Preservation staff that the bridge would have an adverse effect due to the integrity of materials, design, setting, workmanship and feeling of the proposed new bridge.

November 8, 2018: Caltrans sent a letter to the State Historic Preservation Officer formally revising the finding to be a Finding of Adverse Effect.

January 29, 2019: The State Historic Preservation Officer formally responded to Caltrans, concurring with Caltrans' Finding of Adverse Effect for Section 106 for the project.

March 24, 2021: Caltrans sent a Supplemental Finding of Adverse Effect to the State Historic Preservation Officer seeking concurrence on this finding, pursuant to Section 106.

June 9, 2021: The State Historic Preservation Officer formally responded to Caltrans, concurring with Caltrans' Supplemental Finding of Adverse Effect for Section 106 for the project.

Effects are still undetermined, so in accordance with Section 106 Programmatic Agreement Stipulation 10, the project delivery team will continue consultation with Caltrans Division of Environmental Analysis Cultural Studies Office and/or the State Historic Preservation Officer in the future on the assessment of effects.

Appendix B Title VI Policy Statement

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY Gavin Newsom, Governor

DEPARTMENT OF TRANSPORTATION
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Making Conservation a California Way of Life.

August 2020

NON-DISCRIMINATION POLICY STATEMENT

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964, ensures *"No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance."*

Caltrans will make every effort to ensure nondiscrimination in all of its services, programs and activities, whether they are federally funded or not, and that services and benefits are fairly distributed to all people, regardless of race, color, or national origin. In addition, Caltrans will facilitate meaningful participation in the transportation planning process in a nondiscriminatory manner.

Related federal statutes, remedies, and state law further those protections to include sex, disability, religion, sexual orientation, and age.

For information or guidance on how to file a complaint, or obtain more information regarding Title VI, please contact the Title VI Branch Manager at (916) 324-8379 or visit the following web page: https://dot.ca.gov/programs/civil-rights/title-vi.

To obtain this information in an alternate format such as Braille or in a language other than English, please contact the California Department of Transportation, Office of Civil Rights, at 1823 14th Street, MS-79, Sacramento, CA 95811; (916) 324-8379 (TTY 711); or at <Title.VI@dot.ca.gov>.

Original signed by
Toks Omishakin
Director

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability"

Appendix C Proposed Right-of-Way Acquisition

Figure C-1 Alternative 8 Proposed Right-of-Way Acquisition

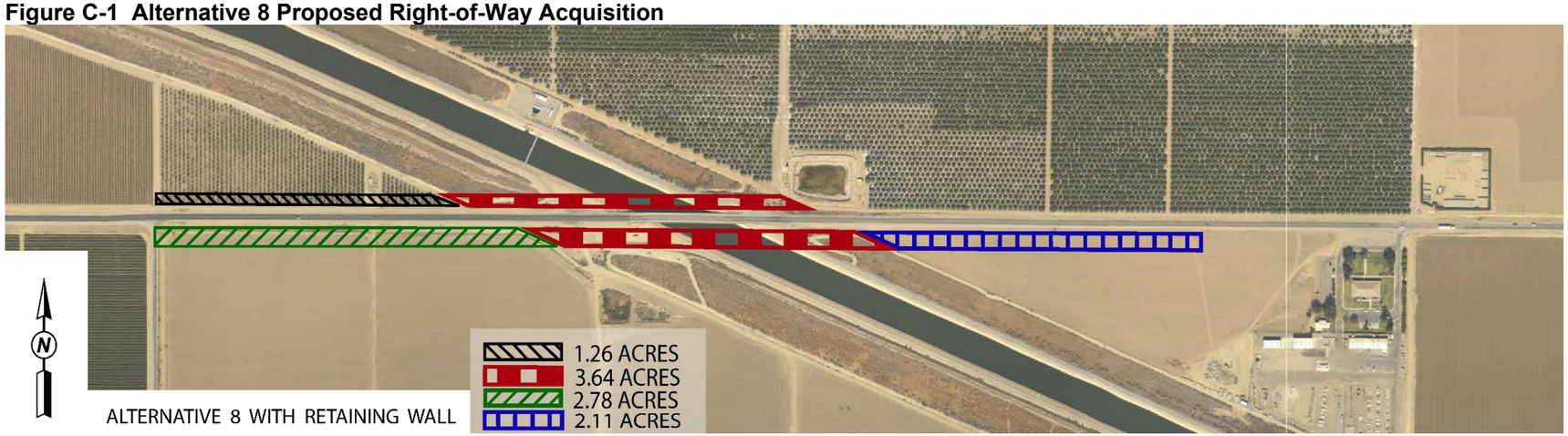
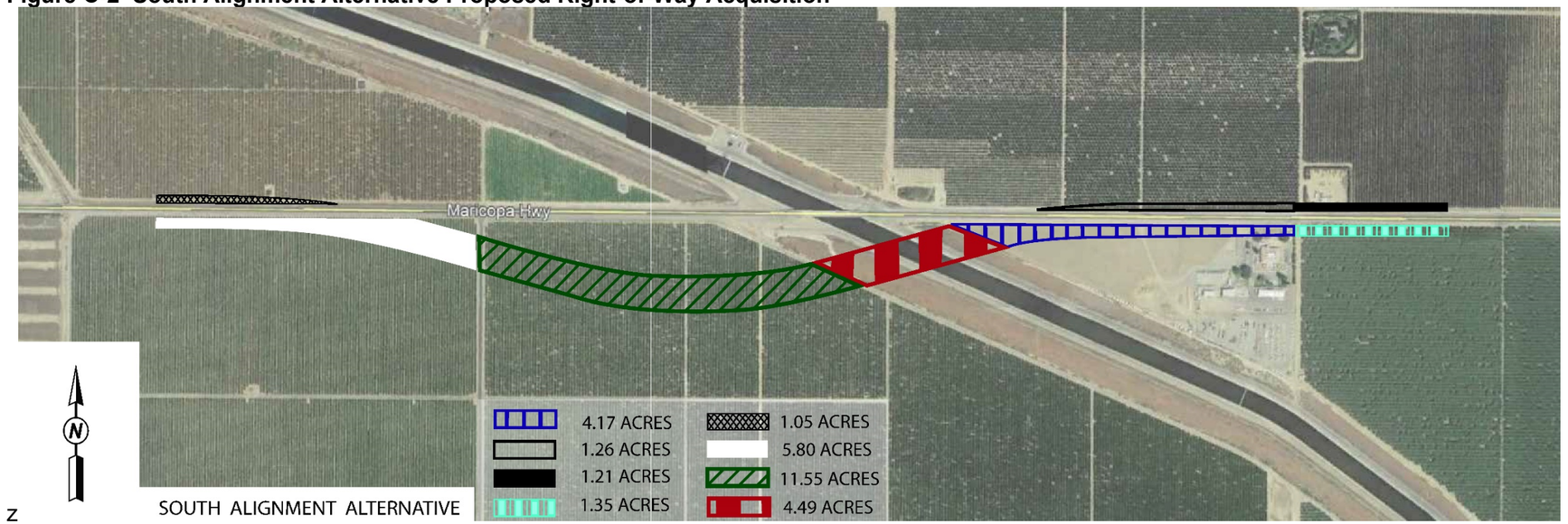


Figure C-2 South Alignment Alternative Proposed Right-of-Way Acquisition



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Appendix D Natural Resources Conservation Service Farmland Impact Rating

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING
FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request 3/2/21	4. Sheet 1 of 1
1. Name of Project **California Aqueduct Bridge Replacement**	5. Federal Agency Involved **Caltrans (Under MOU with FHWA)**	
2. Type of Project **Highway**	6. County and State **Kern, California**	
PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS **3/2/21**	2. Person Completing Form **Luis Alvarez**
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES ☑ NO ☐		4. Acres Irrigated **730,711** / Average Farm Size **1,326 acres**
5. Major Crop(s) **Grapes, Almond & Pistachios**	6. Farmable Land in Government Jurisdiction Acres: **2,202,302** % **42.1**	7. Amount of Farmland As Defined in FPPA Acres: **2,120,267** % **40.5**
8. Name Of Land Evaluation System Used **CA Revised Storie Index**	9. Name of Local Site Assessment System **None**	10. Date Land Evaluation Returned by NRCS **3/9/21**

PART III *(To be completed by Federal Agency)*	Maximum Points	Alternative Corridor For Segment State Route 166 Corridor A	Corridor B	Corridor C	Corridor D
A. Total Acres To Be Converted Directly		6.15	26.39		
B. Total Acres To Be Converted Indirectly, Or To Receive Services		0	0		
C. Total Acres In Corridor		6.15	26.39		
PART IV *(To be completed by NRCS) Land Evaluation Information*					
A. Total Acres Prime And Unique Farmland		6.15	26.39		
B. Total Acres Statewide And Local Important Farmland		0	0		
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted		0.0003	0.0012		
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value		10.48	10.48		
PART V *(To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)*		88	88		
PART VI *(To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))*					
1. Area in Nonurban Use	15	15	15		
2. Perimeter in Nonurban Use	10	7	8		
3. Percent Of Corridor Being Farmed	20	8	14		
4. Protection Provided By State And Local Government	20	20	20		
5. Size of Present Farm Unit Compared To Average	10	0	2		
6. Creation Of Nonfarmable Farmland	25	0	0		
7. Availability Of Farm Support Services	5	5	5		
8. On-Farm Investments	20	5	5		
9. Effects Of Conversion On Farm Support Services	25	0	0		
10. Compatibility With Existing Agricultural Use	10	0	0		
TOTAL CORRIDOR ASSESSMENT POINTS	160	60	69	0	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland (From Part V)	100	88	88	0	0
Total Corridor Assessment (From Part VI above or a local site assessment)	160	60	69	0	0
TOTAL POINTS *(Total of above 2 lines)*	260	148	157	0	0

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used? YES ☑ NO ☐

5. Reason For Selection:

Signature of Person Completing this Part: | DATE

NOTE: Complete a form for each segment with more than one Alternate Corridor

Clear Form

Appendix E Nonresidential Relocation Assistance Program

Caltrans Relocation Assistance Program

Declaration of Policy

"The purpose of this title is to establish a uniform policy for fair and equitable treatment of persons displaced as a result of federal and federally assisted programs in order that such persons will not suffer disproportionate injuries as a result of programs designed for the benefit of the public as a whole."

The Fifth Amendment to the U.S. Constitution states, "No Person shall…be deprived of life, liberty, or property, without due process of law, nor shall private property be taken for public use without just compensation." The Uniform Act sets forth in statute the due process that must be followed in Real Property acquisitions involving federal funds. Supplementing the Uniform Act is the government-wide single rule for all agencies to follow, set forth in 49 Code of Federal Regulations Part 24.

Displaced individuals, families, businesses, farms, and nonprofit organizations may be eligible for relocation advisory services and financial benefits, as discussed below.

Fair Housing

The Fair Housing Law (Title VIII of the Civil Rights Act of 1968) sets forth the policy of the United States to provide, within constitutional limitations, for fair housing. This act, and as amended, makes discriminatory practices in the purchase and rental of most residential units illegal. Whenever possible, minority persons will be given reasonable opportunities to relocate to any available housing regardless of neighborhood, as long as the replacement dwellings are decent, safe, and sanitary and are within their financial means. This policy, however, does not require Caltrans to provide a person a larger payment than is necessary to enable a person to relocate to a comparable replacement dwelling.

Any persons to be displaced will be assigned to a relocation advisor, who will work closely with each displacee in order to see that all payments and benefits are fully utilized and that all regulations are observed, thereby avoiding the possibility of displacees jeopardizing or forfeiting any of their benefits or payments.

At the time of the initiation of negotiations (usually the first written offer to purchase), owner-occupants are given a detailed explanation of the state's

relocation services. Tenant occupants of properties to be acquired are contacted soon after the initiation of negotiations and also are given a detailed explanation of the Caltrans Relocation Assistance Program.

To avoid loss of possible benefits, no individual, family, business, farm, or nonprofit organization should commit to purchase or rent a replacement property without first contacting a Department relocation advisor.

Relocation Assistance Advisory Services

In accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, Caltrans will provide relocation advisory assistance to any person, business, farm, or nonprofit organization displaced as a result of the acquisition of real property for public use, so long as they are legally present in the United States. Caltrans will assist eligible displacees in obtaining comparable replacement housing by providing current and continuing information on the availability and prices of both houses for sale and rental units that are “decent, safe, and sanitary.” Nonresidential displacees will receive information on comparable properties for lease or purchase (for business, farm, and nonprofit organization relocation services, see below).

Residential replacement dwellings will be in a location generally not less desirable than the displacement neighborhood at prices or rents within the financial ability of the individuals and families displaced, and reasonably accessible to their places of employment. Before any displacement occurs, comparable replacement dwellings will be offered to displacees that are open to all persons regardless of race, color, religion, sex, national origin, and consistent with the requirements of Title VIII of the Civil Rights Act of 1968. This assistance will also include the supplying of information concerning federal and state assisted housing programs and any other known services being offered by public and private agencies in the area.

Persons who are eligible for relocation payments and who are legally occupying the property required for the project will not be asked to move without first being given at least 90 days written notice. Residential occupants eligible for relocation payment(s) will not be required to move unless at least one comparable “decent, safe, and sanitary” replacement dwelling, available on the market, is offered to them by Caltrans.

Nonresidential Relocation Assistance

The Nonresidential Relocation Assistance Program provides assistance to businesses, farms and nonprofit organizations in locating suitable replacement property, and reimbursement for certain costs involved in relocation. The Relocation Advisory Assistance Program will provide current lists of properties offered for sale or rent, suitable for a particular business’s specific relocation needs.

The types of payments available to eligible businesses, farms, and nonprofit organizations are: searching and moving expenses, and possibly reestablishment expenses; or a fixed in lieu payment instead of any moving, searching and reestablishment expenses.

The payment types can be summarized as follows:

Moving Expenses

Moving expenses may include the following actual, reasonable costs:

- The moving of inventory, machinery, equipment and similar business-related property, including: dismantling, disconnecting, crating, packing, loading, insuring, transporting, unloading, unpacking, and reconnecting of personal property. Items identified as real property may not be moved under the Relocation Assistance Program. If the displacee buys an Item Pertaining to the Realty back at salvage value, the cost to move that item is borne by the displacee.

- Loss of tangible personal property provides payment for actual, direct loss of personal property that the owner is permitted not to move.

- Expenses related to searching for a new business site, up to $2,500, for reasonable expenses actually incurred.

Reestablishment Expenses

Reestablishment expenses related to the operation of the business at the new location, up to $25,000 for reasonable expenses actually incurred.

Fixed In Lieu Payment

A fixed payment in lieu of moving, searching, and reestablishment payments may be available to businesses that meet certain eligibility requirements. This payment is an amount equal to half the average annual net earnings for the last two taxable years prior to the relocation and may not be less than $1,000 nor more than $40,000.

Additional Information

Reimbursement for moving costs and replacement housing payments are not considered income for the purpose of the Internal Revenue Code of 1954, or for the purpose of determining the extent of eligibility of a displacee for assistance under the Social Security Act, or any other law, except for any federal law providing local “Section 8” Housing Programs.

Any person, business, farm or nonprofit organization that has been refused a relocation payment by Caltrans’ relocation advisor or believes that the payment(s) offered by the agency are inadequate may appeal for a special

hearing of the complaint. No legal assistance is required. Information about the appeal procedure is available from the relocation advisor.

California law allows for the payment for lost goodwill that arises from the displacement for a public project. A list of ineligible expenses can be obtained from Caltrans' Division of Right of Way and Land Surveys. California's law and the federal regulations covering relocation assistance provide that no payment will be duplicated by other payments being made by the displacing agency.

Appendix F State Office of Historic Preservation Letter of Concurrence

The California Aqueduct was determined eligible for the National Register of Historic Places in July 2012 via a consensus determination with the State Historic Preservation Officer. As part of the 2012 evaluation, 17 bridges over the California Aqueduct were determined to be contributing elements.

Caltrans, as part of its cultural resource identification efforts, and in accordance with stipulation VIII.C.4 of the Section 106 Programmatic Agreement, assumed California Aqueduct Bridge Number 50-0323 was also eligible to the National Register of Historic Places, for this project only, as a contributing feature of the California Aqueduct and applied the criteria of adverse effect.

Caltrans determined that project activities would not adversely affect the California Aqueduct. A Finding of No Adverse Effect without Standard Conditions, which summarizes Caltrans' effects determination, was prepared in April 2018. On August 28, 2018, the State Historic Preservation Officer formally responded to Caltrans stating that after review, the State Historic Preservation Officer rejected Caltrans' Finding of No Adverse Effect for Section 106 for this project. Caltrans accepted the State Historic Preservation Officer's conclusion, and a Finding of Adverse Effect under Section 106 was completed for the project on January 29, 2019.

A Supplemental Finding of Adverse Effect was completed in March 2021 to address adjustments to Alternative 8 and the addition of the South Alignment Alternative to the project. The State Historic Preservation Officer formally responded on June 9, 2021 stating no objections to the Supplemental Finding of Adverse Effect.

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
1725 23rd Street, Suite 100
SACRAMENTO, CA 95816-7100
(916) 445-7000 Fax: (916) 445-7053
calshpo@parks.ca.gov
www.ohp.parks.ca.gov

July 03, 2012 Reply To: FHWA120615A

Kelly Hobbs, Environmental Branch Chief
Central Region Environmental Division
855 M Street, Suite 200
Fresno, CA 93721

Re: Determinations of Eligibility for the 17 Proposed Seismic Retrofit Projects in Merced, Fresno and Kings Counties

Dear Mr. Hobbs:

Thank you for consulting with me about the subject undertaking in accordance with the *Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California* (PA).

Caltrans has determined that the following properties are eligible for the National Register of Historic Places (NRHP) for the following reasons:

- **California Aqueduct** – The California Aqueduct is eligible for the NRHP at the state level of significance under Criterion A as the largest and most significant of the water conveyance systems developed as part of the State Water Project (SWP). The California Aqueduct comprised of 444 miles of the 701 miles of aqueducts, canals and pipelines that make up the SWP. The California Aqueduct is also eligible under Criterion C for its complex design necessary to redistribute water throughout the state of California on such a massive level. The period of significance for the resource is 1960-1974, the years of construction.

  Since the completion of the aqueduct is less than 45 years old Caltrans also evaluated the resource under Criterion Consideration G for properties less than 50 years of age. The California Aqueduct was a planned comprehensive water redistribution system that helped shape the development of much of California following the mid-20th century. The American Society of Civil Engineers lists the California Aqueduct as one of only 10 internationally ranked "Monuments of the Millennium" for its remarkable engineering aspects, as well as for the positive impact it had on regional economic trade and development.

- **Quail Avenue Bridge (45C0125), 30th Avenue Bridge (45C0124), Plymouth Avenue Bridge (45C0123), Avenal Cutoff Bridge (45C0071), Jayne Avenue Bridge (42C0156), Gale Avenue Bridge (42C0425), El Dorado Bridge (42C0371), Mt. Whitney Avenue Bridge (42C0159), Clarkson Avenue Bridge (42C0370), Manning Avenue Bridge (42C0173), Panoche Road Bridge (42C0245), Russell Avenue Bridge (42C0141), Shields Avenue Bridge (42C0140), Nees Avenue Bridge (42C0143), Mervel Avenue Bridge (39C0314), McCabe Road Bridge (39C0250), Butts Road Bridge (39C0252)** – These 17 bridge are eligible for the NRHP as contributors to the California Aqueduct. Under Criterion A the bridges facilitate planned regional transportation and agricultural business in areas along the linear system that bisects much of the Central Valley and other

regions of California. Under Criterion C the bridges are united historically by both plan and physical development to the California Aqueduct and contribute to the common engineering objective of the aqueduct. These bridges are therefore considered to be character defining features of the aqueduct.

Based on review of the submitted documentation, I concur that the California Aqueduct is eligible under Criteria A and C and meets the criterion for exceptional significance. My only question is whether the Aqueduct should be considered eligible at only the State level of significance or if perhaps the National level of significance might be more appropriate?

With regards to the 17 bridges, I concur that they are eligible for the NRHP as contributors to the California Aqueduct.

Please note that my comments on the Finding of Effect for these projects will follow in separate correspondence.

Thank you for considering historic properties during project planning. If you have any questions, please contact Natalie Lindquist of my staff at (916) 445-7014 or email at nlindquist@parks.ca.gov.

Sincerely,

Susan K Stratton for

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

Appendix G Finding of Adverse Effect

A Finding of No Adverse Effect without Standard Conditions, which summarizes Caltrans' effects determination, was prepared in April 2018. On August 28, 2018, the State Historic Preservation Officer formally responded to Caltrans stating that after her review, she was rejecting Caltrans' Finding of No Adverse Effect for Section 106 for this project. Caltrans accepted the State Historic Preservation Officer's conclusion and a Finding of Adverse Effects under Section 106 was completed for the project on January 29, 2019.

A Supplemental Finding of Adverse Effect was completed in March 2021 to address adjustments to Alternative 8 and the addition of the South Alignment Alternative to the project. The State Historic Preservation Officer formally responded on June 9, 2021 stating no objections to the Supplemental Finding of Adverse Effect.

State of California • Natural Resources Agency
Gavin Newsom, *Governor*

DEPARTMENT OF PARKS AND RECREATION
OFFICE OF HISTORIC PRESERVATION
Lisa Ann L. Mangat, *Director*

Julianne Polanco, State Historic Preservation Officer
1725 23rd Street, Suite 100, Sacramento, CA 95816-7100
Telephone: (916) 445-7000 FAX: (916) 445-7053
calshpo.ohp@parks.ca.gov www.ohp.parks.ca.gov

January 29, 2019

VIA EMAIL

In reply refer to: FHWA_2018_0509_001

Ms. Alexandra Bevk Neeb, Section 106 Coordinator
Cultural Studies Office
Caltrans Division of Environmental Analysis
1120 N Street, PO Box 942873, MS-27
Sacramento, CA 94273-0001

Subject: Finding of Adverse Effect for the California Aqueduct Bridge Replacement Project, Kern County, CA

Dear Ms. Bevk Neeb:

Caltrans is continuing consultation about the subject undertaking in accordance with the January 1, 2014 *First Amended Programmatic Agreement Among the Federal Highway Administration (FHWA), the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California* (PA).

Caltrans proposes to replace the existing California Aqueduct Bridge No. 50-0323, at PM 17.44 on State Route 166 in Kern County. The project will address superstructure and substructure deficiencies to ensure serviceability and structure integrity. The project will address the settlement of Pier No. 2, nonstandard bridge rails, and seismic deficiencies. Caltrans will construct a new bridge over the existing bridge. The proposed new steel-girder bridge would span the California Aqueduct (Aqueduct) and would be higher than the existing bridge. The existing bridge would then be demolished by removing the bridge deck, and removing the two existing piers in the aqueduct but leaving one foot of the piers at the bottom of the canal.

The Aqueduct was determined eligible for the National Register of Historic Places (NRHP) in 2012 under Criteria A and C. Under Criterion A the Aqueduct is eligible as the largest and most significant of the water conveyance systems developed as part of the State Water Project. Under Criterion C the Aqueduct is eligible for its complex design necessary to redistribute water throughout the state of California on such a massive level. The same concurrence also found 17

associated Aqueduct bridges eligible for the NRHP as contributors to the aqueduct. Bridge No. 50-0323 was not included in this list. Pursuant to Stipulation VIII.C.4 for the PA Caltrans is assuming the eligibility of Bridge No. 50-0323 for the purposes of the project.

On August 28, 2018, the SHPO provided comments to Caltrans objecting to the proposed finding of no adverse effect for the project. As a result Caltrans has reassessed the undertaking and its anticipated effects on historic properties pursuant to Stipulation X. of the PA and 36 CFR 800.5 and has found that the proposed project will have an adverse effect on the Aqueduct. The replacement bridge would constitute a visual intrusion and diminish the historic property's setting. Caltrans will work with the SHPO and other consulting parties to explore possible measures to resolve adverse effects.

Based on my review of the submitted documentation I have no objections to Caltrans' revised finding of adverse effect.

If you have any questions, please contact Natalie Lindquist at (916) 445-7014 with e-mail at natalie.lindquist@parks.ca.gov or Alicia Perez at (916) 445-7020 with e-mail at alicia.perez@parks.ca.gov .

Sincerely,

Julianne Polanco
State Historic Preservation Officer

Supplemental Finding of Adverse Effect, June 9, 2021

State of California • Natural Resources Agency — Gavin Newsom, *Governor*

DEPARTMENT OF PARKS AND RECREATION — Armando Quintero, *Director*
OFFICE OF HISTORIC PRESERVATION
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calshpo.ohp@parks.ca.gov www.ohp.parks.ca.gov

June 9, 2021

VIA EMAIL — In reply refer to: FHWA_2018_0509_001

Mr. David Price
Cultural Studies Office
Division of Environmental Analysis
1120 N Street, PO Box 942873, MS-27
Sacramento, CA 94273-0001

Subject: Finding of Effect for the Proposed California Aqueduct Bridge Replacement Project, Kern County, California

Dear Mr. Price:

Caltrans is continuing consultation regarding the above project in accordance with the January 1, 2014 First Amended Programmatic Agreement Among the Federal Highway Administration (FHWA), the Advisory Council on Historic Preservation, the California State Historic Preservation Officer (SHPO), and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California (PA). Caltrans is concurrently complying with Public Resources Code (PRC) 5024 pursuant to Stipulation III of the *Memorandum of Understanding between the California Department of Transportation and the California State Historic Preservation Officer regarding Compliance with Public Resources Code Section 5023 and Governor's Executive Order W-26-92* (PRC 5024 MOU). As part of your documentation, Caltrans submitted a Supplemental Finding of Adverse Effect (FOAE) report for the proposed project.

Caltrans proposes to replace the existing California Aqueduct Bridge Number 50 0323, at Postmile 17.44 on State Route 166 in Kern County. As a result of a Value Analysis study produced for Caltrans in 2020 additional alternatives were provided for consideration. Construction work was also added to a previously documented alternative (alternative 8) as a result of the discovery of utility lines adjacent to SR 166 requiring the modification of the current alternative. As such these changes to the project activities necessitated a supplemental document the potential impacts that the new activities could have on historic properties

Pursuant to Stipulation X.A. of the Section 106 PA and 36 CFR §800.5(a), Caltrans has applied the Criteria of Adverse Effect set forth in 36 CFR §800.5(a)(1) and determined

that the additional project alternatives will also have an Adverse Effect to the California Aqueduct.

Based on review of the submitted documentation, I have no objections to this finding. Please note that when Caltrans submits a Memorandum of Agreement for this undertaking, it should identify a single alternative for the project so that all stakeholders are clear on what the undertaking and its effects are.

If you have any questions, please contact Natalie Lindquist at (916) 445-7014 with e-mail at natalie.lindquist@parks.ca.gov .

Sincerely,

Julianne Polanco
State Historic Preservation Officer

Appendix H Avoidance, Minimization and/or Mitigation Summary

To ensure that all of the environmental measures identified in this document are executed at the appropriate times, the following mitigation program (as articulated on the proposed Environmental Commitments Record that follows) would be implemented.

During project design, avoidance, minimization, and/or mitigation measures will be incorporated into the project's final plans, specifications, and cost estimates, as appropriate. All permits will be obtained prior to implementation of the project. During construction, environmental and construction and engineering staff will ensure that the commitments contained in the Environmental Commitments Record are fulfilled. Following construction and appropriate phases of project delivery, long-term mitigation maintenance and monitoring will take place, as applicable. Because the following Environmental Commitments Record is a draft, some fields have not been completed; they will be filled out as each of the measures is implemented.

Note: Some measures may apply to more than one resource area. Duplicated or redundant measures have not been included in this Environmental Commitments Record.

Utilities and Emergency Services

The following avoidance and minimization measures would minimize temporary impacts to utilities and emergency services:

- All utility relocation work would be handled by the affected utility companies and in a manner to limit service disruptions to customers.
- A traffic management plan would be developed to inform emergency services and the local population about detour routes and road closures. The traffic management plan may include an advance commuter alert sent out to the media, California Highway Patrol, and other local partners, as well as the placement of notices for the closure on social media.
- Surrounding county roads would remain available for emergency services.

Cultural Resources

To ensure that the history of the bridge is adequately captured before construction, Caltrans would implement mitigation measures to help ensure that the bridge maintains its historical importance through documentation. To do this, Caltrans would complete a Historic American Buildings Survey and a Historic American Engineering Record. The Historic American Buildings Survey/Historic American Engineering Record documentation combines

drawings, history, and photographs to produce a comprehensive, multidisciplinary record of a building or engineering feature. Historic American Buildings Survey/Historic American Engineering Record documentation becomes a part of the collection at the Library of Congress. The Historic American Buildings Survey/Historic American Engineering Record for the bridge will describe and convey the importance of the bridge as well as the role that the bridge plays in the larger aqueduct system.

Final mitigation measures will be developed and documented in the subsequent Memorandum of Agreement, which will be finalized before the approval of the final environmental document. The following additional measures are also proposed:

- Develop a programmatic agreement with the California Department of Water Resources, Bureau of Reclamation, Office of Historic Preservation, and Caltrans.
- Develop and make available California Aqueduct interpretive displays for museums, city halls, visitor centers, and other indoor interpretive centers throughout Kern County. Displays may also extend to locations near the California Aqueduct in Kings County, Fresno County, and Merced County.
- Develop and install California Aqueduct interpretive panels or kiosks at highway rest stops or parks near the California Aqueduct.

Water Quality and Storm Water Runoff

Temporary construction site best management practices will be followed to avoid and minimize impacts to water quality and storm water runoff.

Before any ground-disturbing activities, the contractor would prepare a Storm Water Pollution Prevention Plan (per the Construction General Permit Order 2009-0009-DWQ) that includes erosion-control measures and construction waste containment measures so that waters of the State are protected during and after project construction.

The Storm Water Pollution Prevention Plan would identify the sources of pollutants that may affect the quality of stormwater, as well as include construction site best management practices to control erosion and sedimentation, and spills of chemical pollutants; provide for construction materials management; and include a schedule of routine inspections and monitoring. All construction site best management practices would follow the latest edition of the Storm Water Quality Handbooks: Construction Site Best Management Practices Manual (Caltrans 2003a) to control and minimize the impacts of construction-related activities, materials, and pollutants on the watershed.

The project would incorporate pollution prevention and design measures consistent with the 2003 Caltrans Storm Water Management Plan (Caltrans

2003b) to meet water quality objectives. This plan has been revised to comply with the requirements of the Caltrans Statewide National Pollutant Discharge Elimination System Permit (Order 2012-0011-DWQ).

Hazardous Waste and Materials

The following avoidance and minimization measures would minimize impacts from hazardous waste and materials:

Asbestos

- If disturbed (cutting, abrading, sanding, grinding, etc.), the sheet packing material would have to be handled in compliance with the California Occupational Safety and Health Act asbestos standard and sent to a landfill.
- National Emissions Standards for Hazardous Air Pollutants notification would occur before bridge demolition.

Lead Paint

- Intact beige/gray graffiti abatement paint represented by samples collected would be classified as California hazardous waste based on lead content if stripped, blasted, or otherwise separated from the substrate.
- Deteriorated white paint applied to metal conduit would be classified as California hazardous waste based on lead content; the deteriorated lead-based paint must be removed and disposed of prior to activities that would disturb the barriers.
- If white and yellow painted striping is removed separately from the pavement, or if the paint on the bridge deck is ground separately from the pavement, then the project would require the use of the Caltrans Standard Special Provision for removal of yellow traffic stripe and pavement marking with hazardous waste residue.
- A lead compliance plan is required for this project.

Aerially Deposited Lead

- If encountered, soil with elevated concentrations of lead will be managed under the July 1, 2016 Aerially Deposited Lead Agreement between Caltrans and the California Department of Toxic Substances Control.

Treated Wood Waste

- Wood removed from guardrails will be disposed of at a facility equipped to recycle the debris.

Animal Species

The following avoidance and minimization measures will be incorporated to minimize impacts to migratory birds, the American badger, and the western pond turtle:

Migratory Birds

- Caltrans Standard Special Provision 14-6.03 “Bird Protection” will be included in the construction contract. This provision includes the appropriate exclusionary measures and monitoring that will be required for cliff swallows.

American Badger

- If occupied suitable habitat is observed during pre-construction surveys, avoidance measures, such as environmentally sensitive area fencing, would be implemented where feasible.
- A qualified biological monitor would be present at the construction site during initial ground-disturbing activities. If American badgers are found within the project footprint, Caltrans will coordinate with the California Department of Fish and Wildlife on what additional measures can be implemented.
- Pre-construction surveys would be conducted to avoid potential impacts to this species.

Western Pond Turtle

- Pre-construction surveys would be conducted to avoid potential impacts to this species.

Threatened and Endangered Species

The following avoidance and minimization measures will be incorporated to minimize impacts to the San Joaquin kit fox, the Tipton kangaroo rat, the giant kangaroo rat, the blunt-nosed leopard lizard, and the tricolored blackbird:

San Joaquin Kit Fox

- A Worker Environmental Education Program will be conducted before ground-disturbing activities begin. Persons knowledgeable in San Joaquin kit fox biology and regulatory requirements will present the program to all construction personnel involved in constructing the proposed action. The program will include a description of the San Joaquin kit fox and its habitat needs; a report on the occurrence of the kit fox in the project vicinity; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce effects on the San Joaquin kit fox during project construction and implementation, including information about the ban on rodenticides and

pest rodent traps and contact information for a designated biological representative. A fact sheet conveying this information will be prepared for distribution to all those who enter the project site, and it will be posted in the office trailer or other worker meeting place on the project site.

- Project-related vehicles should observe a daytime speed limit of 20 miles per hour and a nighttime speed limit of 10 miles per hour throughout project areas, except on county roads and state and federal highways; this is particularly important at night when kit foxes are most active.
- To minimize the adverse effects of lighting, it will be confined to areas within the construction footprint.
- A litter control program will be instituted on the project site. All food-related trash items, such as wrappers, cans, bottles, and food scraps, will be disposed of in a closed and secured container and removed from the project site at the end of each workday. No deliberate feeding of wildlife will be allowed.
- No firearms will be allowed on the project site (with the exception of federal, state or local law enforcement personnel or security personnel).
- No pets will be allowed on the project site.
- Chemicals, fuels, lubricants, and biocides will be used only in compliance with all local, state, and federal regulations. Users of such compounds will observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and state and federal legislation.
- Use of rodenticides and herbicides on the project site during construction will be prohibited.
- Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, etc. will be recontoured if necessary, and revegetated using California endemic plant material from a local source (for example, local ecotype). Loss of soil from runoff or erosion will be prevented with straw bales, straw wattles or other similar means provided they do not entangle or block movement of the San Joaquin kit fox. An area subject to “temporary” disturbance means any area that is disturbed during the project, but after project completion will not be subject to further disturbance and has the potential to be revegetated.
- Pre-construction surveys for the San Joaquin kit fox and dens within the project area will be conducted no more than 30 days before the beginning of ground disturbance or construction activities. Surveys will be conducted by qualified biologists with demonstrated experience in identifying the San Joaquin kit fox and its dens.
- Staging will occur in previously disturbed and/or paved areas and, where possible, burrows will be avoided.

Tipton Kangaroo Rat and Giant Kangaroo Rat

- Additional trapping surveys will be conducted prior to construction following the *Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats,* U.S. Fish and Wildlife Service Sacramento Field Office March 2013, to ensure that listed species are not present in the project area.
- Worker Environmental Awareness Training will be required for construction staff who will be working in the action area.
- A qualified monitor will be present during initial ground-disturbing activities.

Blunt-Nosed Leopard Lizard

- A biological monitor would be onsite during initial ground-disturbing activities.
- Requiring low speed limits within the construction site will lessen the probability that blunt-nosed leopard lizards could be run over by vehicles and equipment.

Tricolored Blackbird

- Nesting surveys would be conducted during the season prior to the start of construction to determine if any tricolored blackbirds are nesting in proximity to the project area.
- A qualified biologist would monitor active nests during construction activities.
- A special provision for migratory birds would be included to ensure that no potential nesting migratory birds are affected during construction.
- If tricolored blackbirds are found onsite, a 2081 compensatory mitigation may be required. Because there are no approved mitigation banks in Kern County for tricolored blackbirds, Caltrans may need to secure permittee-responsible mitigation such as the purchase of land.

Appendix I Images of Bridge 50-0323

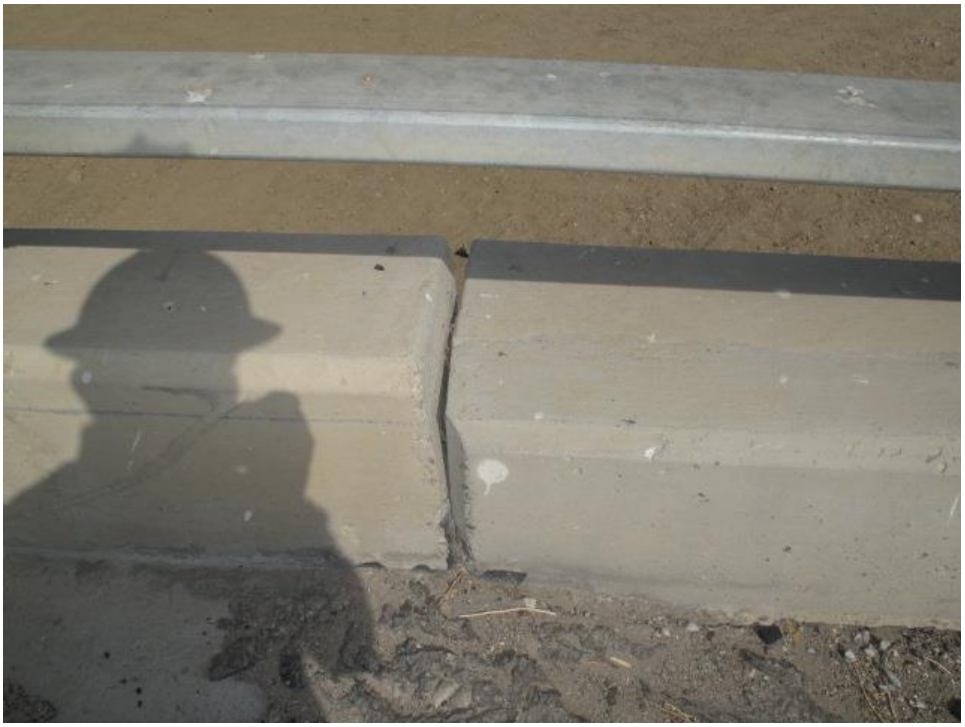
This is a wide shot of the existing bridge.

The bridge deck is sagging and is no longer visibly level in this image.

Asphalt concrete cracking at an abutment can be seen in this image.

Horizontal displacement of the rail at an abutment can be seen in this image.

Asphalt concrete cracking at an abutment can be seen in this image.



Displacement of the rail at an abutment can be seen in this image.

Vertical displacement of the rail at an abutment can be seen in this image.

List of Technical Studies

- Water Quality Assessment Report, January 2021
- Preliminary Location Hydraulic/Floodplain Study, April 2018
- Revised Natural Environment Study, March 2021
- Historical Property Survey Report, March 2018
    - Historic Resource Evaluation Report
    - Historic Architectural Survey Report
    - Archaeological Survey Report
- Supplemental Historical Property Survey Report, March 2021
    - Supplemental Archaeological Survey Report
- Section 106 Compliance Memorandum, April 2020
- Supplemental Finding of Adverse Effect Report, February 2021
- Revised Hazardous Waste Initial Site Assessment, February 2021
- Asbestos and Lead-Containing Paint Survey Report, January 2018
- Aerially Deposited Lead Site Investigation Report, February 2018
- Scenic Resource Evaluation/Visual Assessment, May 2018
- Updated Paleontological Investigation Report, March 2021
- Updated Air Quality Memorandum, February 2021
- Noise Compliance Study, February 2021